

An Arms Control Association and Partnership for Global Security Report



The Nuclear Security Summit: Progress Report

July 2013

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About the Authors

Michelle Cann is the Senior Budget and Policy Analyst at the Partnership for Global Security. Her primary research projects involve analyzing the budgets of U.S. and international nuclear security programs and examining the evolution of nuclear security governance policies. She is active in the Fissile Materials Working Group and supports the Nuclear Security Governance Experts Group. Ms. Cann earned her master's degree in international science and technology policy at the Elliott School of International Affairs at the George Washington University and bachelor's degree in history and political science from the College of Arts and Sciences at Drexel University.

Kelsey Davenport is the nonproliferation analyst at the Arms Control Association (ACA) where she is responsible for researching and analyzing developments related to weapons of mass destruction in the Middle East, Northeast Asia, and South Asia and other aspects of the international nonproliferation regime, including fissile material security. She began at ACA as a Herbert Scoville Jr. Peace Fellow in 2011. She holds a master's degree in peace studies from the Kroc Institute for International Peace Studies at the University of Notre Dame and a bachelor of arts degree in international studies and political science from Butler University.

Sarah Williams is a Nuclear Policy Analyst at the Partnership for Global Security. Her work includes research and analysis on nuclear security governance, the growth of nuclear power in key regions around the world, and radiological security. Formerly, Ms. Williams was the Program Coordinator and Research Associate for the U.S. Nuclear Energy Project at CSIS and a Herbert Scoville Jr. Peace Fellow in the Center for Science, Technology and Security Policy at the American Association for the Advancement of Science. She earned her master's degree from the LBJ School of Public Affairs at the University of Texas at Austin in 2010 and a bachelor of arts in Government from the University of Maryland—College Park in 2007.

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“I am confident that we can make The Hague NSS 2014 summit a success, in the sense that we will be able to agree on an outcome document that goes beyond the agreements in Washington and Seoul. What I hope is that such an outcome document not only describes our common assessment of what has been achieved in the last four years...but that it also describes specific steps in which the nuclear security regime has been strengthened.”

—Piet de Klerk, the Netherlands’ Ambassador to Jordan, April 4, 2013

LIST OF ACRONYMS

- CBRN:** Chemical, biological, radiological, nuclear
- CoE:** Center of Excellence
- CPPNM:** Convention on the Physical Protection of Nuclear Material
- DBT:** Design Basis Threat
- ENSRA:** European Nuclear Security Regulators Association
- EXBS:** Export Control and Related Border Security Program
- GICNT:** Global Initiative to Combat Nuclear Terrorism
- Global Partnership:** Global Partnership against the Spread of Weapons and Materials of Mass Destruction
- GTRI:** Global Threat Reduction Initiative
- GTRP:** Global Threat Reduction Programme
- HEU:** Highly-enriched uranium
- IAEA:** International Atomic Energy Agency
- ICSANT:** International Convention for the Suppression of Acts of Nuclear Terrorism
- INSEN:** International Nuclear Security Education Network
- IPPAS:** International Physical Protection Advisory Service
- LEU:** Low-enriched uranium
- Mo-99:** Molybdenum-99
- NNSA:** National Nuclear Security Administration
- NSOI:** Nuclear Smuggling Outreach Initiative
- NSS:** Nuclear Security Summit
- NSSC:** Nuclear Security Support Center
- NSTC:** Nuclear Security Training Center
- NUSEC:** Nuclear Security Information Portal
- UNSC:** United Nations Security Council
- WINS:** World Institute for Nuclear Security
- WMD:** Weapon of mass destruction

Executive Summary

The Nuclear Security Summit (NSS) process, which began in Washington, D.C., in 2010, has brought high-level attention to the issue of nuclear security and solidified the idea that the global community must work together to address the threat of nuclear terrorism. A second summit was held in Seoul in March 2012 and a third summit will take place in The Hague in March 2014. Since the Seoul summit, all 53 NSS participants have taken steps to improve nuclear security on a national, regional, or international level, but significant work remains.

This report seeks to provide a comprehensive overview of the progress states have made to improve nuclear security over the course of the NSS process, drawing specific attention to actions taken since the Seoul summit. It uses the progress reports submitted by participating states at the 2012 summit, statements made to the International Atomic Energy Agency (IAEA) General Conference, IAEA Nuclear Security Reports, government press releases, and media reports to identify actions countries have taken in support of the summits' goals. This approach aims to provide a complete record of achievements, but inconsistencies in how and what states report complicate efforts to evaluate progress using open sources.

The consensus communiqué from the 2012 summit called for states to announce plans to minimize their use of highly-enriched uranium (HEU) by 2013 and for the entry into force of the 2005 amendment to the Convention on the Physical Protection of Nuclear Materials (CPPNM) by 2014.

- 18 of 22 NSS participants that possess at least a kilogram of HEU announced plans in Seoul or have taken actions since to minimize usage, repatriate fuel, and convert reactors.
 - Pledges were made by Australia, Hungary, Japan, and Vietnam to return HEU before the 2014 summit.
 - In April 2013, the Czech Republic became

the 10th country to eliminate its entire HEU stockpile since the four year effort to secure vulnerable nuclear materials worldwide was articulated in April 2009. The 2010 NSS endorsed this objective.

- Since the summit process began in 2010, 18 NSS participants have ratified the 2005 amendment to the CPPNM, while 17 NSS participants still need to act. Since the Seoul summit, a total of 16 countries have ratified the amendment, including eight NSS participants: Armenia, Belgium, France, Georgia, Israel, Mexico, Sweden, and Vietnam.

In addition to the HEU minimization efforts, Belgium and Italy are planning to repatriate plutonium ahead of the 2014 summit. Further efforts must be made at the next summit to encourage more countries to take similar steps to reduce plutonium stockpiles.

The summit process has highlighted the importance of strengthening the human dimension of nuclear security and the role of the IAEA in building national capacity. Since the Seoul summit:

- 44 countries hosted nuclear security workshops, conferences, exercises, and centers. Several of these states are building long-term nuclear security training infrastructures by establishing centers of excellence, often in cooperation with the European Union, IAEA, or the United States.



NSA

A worker checks for radiation as HEU is prepared for transport in the Czech Republic. In March 2013, the Czech Republic became the 10th country to eliminate its stockpiles of HEU since the four-year effort to secure nuclear materials worldwide was announced in April 2009.

- 9 countries hosted, requested, or are preparing for IAEA International Physical Protection Advisory Service (IPPAS) missions. Australia, the Republic of Korea, and the United States will receive IPPAS missions in 2013.

Combating nuclear smuggling is one important means for mitigating the risk of nuclear terrorism that countries have focused on throughout the summit process. Since the 2012 summit:

- 22 countries took steps to prevent the smuggling of illicit radioactive materials by enhancing national and international transport security, expanding border controls, and developing new detection and monitoring technologies.
 - The U.S.-led Megaports Initiative expanded to include 45 ports in 32 countries.
 - The Republic of Korea and Vietnam launched a pilot program on real-time tracking of radiological materials.

Nuclear security is a serious global challenge that requires a global response to manage emerging threats. The progress made throughout the summit process is notable, but there is considerable work left to be done. The current global nuclear security system is a patchwork of laws, voluntary initiatives, and recommendations. The 2014 summit in The Hague will be an important milestone for both the summit process and the evolution of the nuclear security regime.

Summit participants should begin to define the future of nuclear security at the 2014 NSS, and not allow the summit process to end without outlining a strategy to address the structural deficiencies of the current nuclear security regime. It is critical that states do not shy away from bolder action to make progress sustainable and continuous as the four year effort to secure vulnerable nuclear materials comes to an end. The foundation of the regime needs to be strengthened, not just patched. NSS participants should push for a more cohesive, transparent, and effective nuclear security regime that includes more standardized reporting mechanisms and review measures to earn the confidence of the global community.

Introduction

Since the first Nuclear Security Summit (NSS) was held in Washington, D.C., in 2010, states have made significant progress strengthening the global nuclear security architecture and securing vulnerable nuclear materials. The 2010 and 2012 summits brought high-level attention to the threat posed by fissile materials and spurred countries to take action to prevent nuclear terrorism and further enhance global nuclear security. The 2012 Seoul summit expanded the scope of the NSS process to include radioactive source security and the interface of nuclear safety and security at facilities. The Seoul communiqué also called for states to announce plans to minimize their use of highly-enriched uranium by 2013 and for the entry into force of the 2005 amendment to the Convention on the Physical Protection of Nuclear Materials by 2014.

With less than a year before the third summit in the Netherlands, it is important to assess the progress that participating states have made in strengthening nuclear security since Seoul and over the past three years of the summit process. This will aid policymakers in determining what work remains to be done at the 2014 NSS and beyond.

This report seeks to provide a comprehensive overview of the progress made on nuclear security since the 2010 NSS. While the past two versions of this report focused solely on assessing progress made on the voluntary national commitments released in a highlights document during the 2010 Washington summit, the scope of this report is more expansive. It draws heavily from the national progress reports submitted by 50 of the 53 participating countries at the 2012 NSS. It also integrates information from country statements to the International Atomic Energy Agency (IAEA) General Conference, IAEA Nuclear Security Reports, government press releases, and media reports. Communications with nongovernmental experts and representatives from the Washington, D.C., embassies of the participating NSS countries supplemented this research. We believe this approach provides as complete a picture as possible of state activities that contribute to

strengthening the global nuclear security architecture.

The first section of this report focuses on actions that states have taken since the March 2012 NSS in Seoul. The second section contains individual country profiles that detail the steps countries have taken throughout the NSS process. For the purpose of organization, country actions are divided into four categories: materials, governance, smuggling, and culture. The NSS process did not establish these categories, but they are used here to provide structure and context.

- The **MATERIALS** category encompasses activities that states have undertaken to secure, minimize, and remove nuclear materials and radioactive sources. This includes repatriating materials, converting research reactors and medical isotope production facilities to use low-enriched uranium, strengthening physical security, and other steps related to nuclear forensics and accounting.
- The **GOVERNANCE** category details efforts to draft, amend, and implement new legislation and regulations to strengthen domestic legal requirements and bring them into compliance with international conventions, recommendations, and



Leaders from 53 countries gathered in Seoul on March 26-27, 2012, for the second Nuclear Security Summit. Since the first summit was held in Washington, D.C. in April 2010, countries have made significant progress strengthening global nuclear security. A third summit will be held in the Netherlands in 2014.

norms. Also included in this section are efforts to update countries' Design Basis Threat models and improve law enforcement and emergency response strategies.

- The **SMUGGLING** category describes actions states have taken to strengthen national capacity to prevent the illicit trafficking of radioactive materials, such as deploying radiation monitors, expanding border controls, and enhancing national and international transport security.
- The **CULTURE** category includes activities that states have taken to develop the human dimension of nuclear security, including trainings and workshops, academic programs, and efforts to institute best practices as defined by the international community. It also includes regional outreach, centers of excellence, and IAEA International Physical Protection Advisory Services.

This report, like the two before it, does not attempt to assess the extent to which states have undertaken all of the recommended actions from the 2012 Seoul communiqué. Similar to the 2010 NSS documents, these commitments are non-binding and contain numerous caveats. While this report is meant to be comprehensive, the listed activities are not exhaustive. Some states may have undertaken steps to strengthen nuclear

security that are not reflected here. Due to the sensitive nature of fissile materials and associated facilities, not all nuclear security actions are publicized. Some countries also may be delaying the announcement of their accomplishments until the July 2013 *IAEA International Conference on Nuclear Security: Enhancing Global Efforts* or the 2014 NSS. Additionally, because there is no standard reporting mechanism for nuclear security, the activities that states do report vary in scope and timeframe. The difficulties encountered in creating a comprehensive evaluation applicable to each state, particularly one that can be consistently updated over time, argues strongly for developing a standardized reporting structure for nuclear security at the 2014 summit.

Finally, while the findings of this report show that states have taken significant actions to lock down vulnerable nuclear material, strengthen international norms, and enhance security culture, more work remains to be done. The four-year effort has been a useful catalyst for progress, but it cannot be the end of the line. The current regime remains a nationally-focused patchwork of laws, voluntary initiatives, and recommendations. The 2014 NSS is an opportunity for leaders to take stock and move forward by defining a vision for the future of the nuclear security regime that includes greater transparency, regime cohesion, and continuous improvement to build confidence in effective nuclear security.

Since Seoul...

Since the 2012 Nuclear Security Summit (NSS) in Seoul, all 53 participating countries have taken steps to improve nuclear security at the national, regional, or international level. These actions embody a culture of continuous improvement, which is critical to securing radioactive materials and facilities and mitigating the risk of nuclear terrorism.

The Seoul summit produced a consensus communiqué that focused on 11 action areas: the global nuclear security architecture, the role of the International Atomic Energy Agency (IAEA), nuclear materials, radioactive sources, nuclear security and safety, transportation security, combatting illicit trafficking, nuclear forensics, nuclear security culture, and international cooperation. It differed from the 2010 Washington NSS communiqué in that it had a broader scope and called on states to take two specific actions within a particular timeframe. First, the communiqué called for the 2005 amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) to be brought into force by 2014, and second, it urged states to announce steps that they will take to minimize the use of highly-enriched uranium (HEU) by the end of 2013.

In addition to continuing the Washington summit's tradition of states offering national pledges (or "house gifts") to improve their nuclear security, many states expanded upon that idea and developed joint statements (or "gift baskets") on cooperative nuclear security projects. In the 13 multinational joint statements issued in Seoul, countries committed to work together on a range of nuclear security topics or projects, including radioactive security, national legislation implementation, transport security, information security, HEU minimization, and nuclear training centers. Summaries of these joint statements are contained in this report's appendix, and country profiles note which states are participating in the gift baskets. Prior to the 2014 NSS, an update of this report will be released which will analyze the success of joint

statement implementation.

This report tracks actions that countries have taken in line with Seoul summit principles and commitments to improve national, regional, and global nuclear security. It contextualizes state efforts within four categories: materials, governance, smuggling, and culture. Since the March 2012 NSS, approximately 24 countries have enhanced the security of nuclear material and facilities; 42 countries have taken steps to improve their national nuclear governance structures; 22 have focused on countering nuclear smuggling; and 49 countries have taken specific steps to advance nuclear security culture. As these figures indicate, many countries have made progress in more than one category.

The data reported here is based on the information provided on future plans in states' national progress reports and statements at the 2012 summit, press releases, media reports, IAEA conference statements and Nuclear Security Reports, and discussions with knowledgeable experts and government representatives. Highlights about states' nuclear security activities were excised from these sources, but the resulting list of actions reported here is not exhaustive. There is no standardized reporting format for nuclear security activities; therefore, the scope of action and degree of detail that states share vary. Further, some countries may not publicize information on their nuclear security work due to sensitivities about the material and facilities involved. Other countries may be delaying announcement of their achievements until the July 2013 *IAEA International Conference on Nuclear Security: Enhancing Global Efforts* or the 2014 summit in The Hague. This report attempts to provide

as comprehensive of a picture as possible of states' achievements while working within the limitations of the data sets available.

MATERIALS

The Seoul summit expanded the summit process' definition of "nuclear security" from fissile materials (HEU and separated plutonium) to include radiological materials and facility security. This broader understanding of nuclear security is in agreement with the IAEA's approach to the issue and better reflects the scope of the threat. This section discusses the steps that summit participants have taken since Seoul to secure or repatriate radioactive materials, convert research reactors and medical isotope production facilities to use low-enriched uranium (LEU) fuel sources and targets, enhance physical security at facilities, and adopt other improvements related to nuclear forensics and accounting systems.

HEU and Plutonium. The security and protection of fissile materials is at the core of the NSS process, and many countries have accelerated their plans to lockdown, downblend, and repatriate nuclear materials. According to the latest estimates, the global stockpile of HEU is approximately 1,390 tons, and stockpiles of civilian and non-civilian separated plutonium are approximately 260 tons and 230 tons, respectively. Since the Seoul summit, three successful HEU removal

and repatriation missions have been completed: Uzbekistan in November 2012, Austria in December 2012, and the **Czech Republic** in April 2013. (Uzbekistan and Austria do not participate in the NSS process.) The Czech Republic was the 10th country to eliminate all of its HEU since President Barack Obama's April 2009 Prague speech in which he called for an international effort to secure all vulnerable nuclear materials within four years. Participants at the April 2010 Washington summit endorsed this four year objective and reaffirmed the goal at the 2012 Seoul summit. Implementation efforts have been primarily focused on HEU removals, though Sweden eliminated plutonium stocks ahead of the Seoul summit and President Obama noted the need to stop accumulating separated plutonium in a speech at Hankuk University while he was in the Republic of Korea for the 2012 summit.

Australia, Hungary, and Vietnam are working to remove their surplus stocks of HEU by the end of 2013, and the removal of U.S.-origin HEU fuel from **Japan's** Material Testing Reactor is scheduled for later this year. **Belgium** and **Italy** intend to return excess U.S.-origin HEU and separated plutonium in 2014. **Canada's** repatriation of U.S.-origin nuclear materials is scheduled to occur between 2012 and 2018. In February 2013, Canada was awaiting final authorizations and preparations to begin transporting spent fuel rods from the Chalk River plant back to the United States.



NNSA

At the 2012 Nuclear Security Summit, Sweden announced that it shipped its remaining plutonium stockpile back to the United States. Belgium and Italy said they intend to return excess plutonium to the United States in 2014.



NNSA

Poland's MARIA research reactor was converted to use LEU fuel in September 2012. Poland also committed to ship all of its spent HEU fuel out of the country by the end of 2016.

HEU fuel from **Kazakhstan's** Institute of Nuclear Physics has been sent back to Russia or downblended in Kazakhstan. By the end of 2016, HEU spent fuel from all converted research reactors in **Poland** will be returned to Russia. **Hungary** pledged to return its remaining HEU to Russia in 2013.

Russia continues to cooperate with the IAEA and other states on Russian-origin material repatriations and is downblending excess HEU for power production. In July 2012, the U.S. National Nuclear Security Administration (NNSA) announced that more than 450 metric tons of Russian HEU have been downblended under the 1993 U.S.-Russian HEU Purchase Agreement, and by the end of 2013, this total is expected to reach 500 metric tons. The United States and Russia also are working to begin implementation of the Plutonium Management and Disposition Agreement, which will require both countries to dispose of 34 metric tons of weapons-grade plutonium beginning in 2018.

Support from the **United States** has been critical in many of the material removal efforts listed above. By the end of 2013, NNSA aims to eliminate HEU from three more countries. Since President Obama's Prague speech, NNSA has removed approximately 1,400 kilograms of HEU and plutonium from around the world. At home, the United States has improved material security by consolidating the number of locations where special nuclear materials are held. In September 2012, NNSA announced that all Category I and II materials had been removed from Lawrence Livermore National Laboratory. The United States also is committed to downblending 183 metric tons of HEU, and as of March 2013, 146 metric tons of that material

had been downblended or delivered for near-term projects.

Medical Isotope Production and Research Reactor Conversions. HEU minimization is an important focus of the summit process, particularly efforts that transition its use out of the civil sector. At the Seoul summit, **Belgium, France, the Republic of Korea,** and the **United States** issued a joint statement about their plans to work together to qualify high-density LEU fuel to replace HEU fuel in research reactors. Separately, **Belgium, France, the Netherlands,** and the **United States** issued a joint statement committing to work together to replace HEU targets in the production of medical isotopes and convert European production industries to non-HEU based processes by 2015.

Belgium is working to convert a research reactor and processing facility for medical isotopes to use LEU fuel. **Canada** has invested in alternative isotope development research to facilitate its transition. **China** is working to convert a domestic miniature research reactor and exploring opportunities to convert reactors abroad to LEU fuel. **India** continues to make progress converting its Apsara reactor. **Japan** is completing a feasibility study for converting the Kyoto University Critical Assembly to LEU fuel, and in November 2012, the Japan Atomic Energy Agency announced a new advancement in generating a medical isotope without using HEU.

Conversion efforts for the WWR-K research reactor at **Kazakhstan's** Institute of Nuclear Physics are ongoing, though the fuel has been removed. **Nigeria**

continues work on converting a miniature research reactor to LEU with IAEA assistance. In September 2012, the successful conversion of **Poland's** MARIA reactor was announced ahead of schedule.

Russia and the **United States** concluded their joint feasibility study on the conversion of six Russian HEU reactors in June 2012. The countries expect that at least one of the identified research reactors, the Argus reactor at the Kurchatov Institute, will be converted ahead of the 2014 NSS. The conversion of four others will likely follow. Additionally, Russia has pledged during at least three international gatherings since the Seoul summit that it will limit its use of HEU and phase-out HEU for medical isotope production.

In June 2012, the **United States** announced steps to minimize the use of HEU for civilian purposes while ensuring the reliable supply of medical isotopes, particularly molybdenum-99 (Mo-99). These steps included urging the Mo-99 industry to voluntarily establish unique product codes for goods produced without HEU, preferential procurement of non-HEU produced products, reduction of HEU exports for medical isotopes, and support for conversion of production from HEU to LEU. Additionally, the American Medical Isotope Production Act was signed into law in January 2013. It calls on the United States to phase out the production of medical isotopes over a seven year period and establishes a technology-neutral program to support the production of Mo-99 in the United States.

Radiological Material. At the 2012 NSS, 24 countries issued a joint statement, led by **Germany**, committing themselves to the security of radioactive sources. In addition, **Canada** is working with the United States to secure all Canadian-origin radiological materials in Latin America and Africa. **France** is working to retrieve French-origin radioactive sources worldwide, including disused domestic sources. **Indonesia's** efforts to improve the security of its radioactive sources include upgrades at hospitals as well as waste management facilities and implementation of the IAEA's Code of Conduct on the Safety and Security of Radioactive Sources (Code of Conduct). **Nigeria** is continuing to operate a domestic program to discover and secure orphan radioactive sources. In the **United States**, work is underway to recover thousands of unneeded radiological materials from domestic licensees and repatriate U.S.-origin sources.

Physical Security Upgrades. Site security and the interface of nuclear safety and security at facilities have received additional attention since the 2011 Fukushima accident and 2012 Seoul summit. **Georgia** is working with the United States to enhance its physical protection and security infrastructure for high-activity radioactive sources. **Hungary** is upgrading security

at dozens of sites with Category I and II radioactive materials. **Japan** is working to address vulnerabilities at nuclear facilities, including by increasing the number of armed personnel and introducing new equipment. **Morocco** is strengthening physical protection measures at research reactors and facilities using high-activity radioactive sources. **Romania** is upgrading the physical protection of radioactive sources at hospitals and other medical centers in the country.

The **United States** conducted security assessments at all NNSA facilities and is upgrading security measures at the Y-12 National Security Complex and Los Alamos National Laboratory as well as at approximately 175 other domestic facilities with radioactive sources. Security-by-design features are being incorporated in several domestic facilities including the MOX Fuel Fabrication Facility, HEU Materials Facility, and the Uranium Processing Facility. The United States also is working to enhance force-on-force and performance testing at nuclear facilities to increase preparedness and resilience. **Vietnam** is upgrading physical protection at sites with Category I radioactive sources.

In October 2012, **Kazakhstan, Russia,** and the **United States** announced the completion of work to safeguard sensitive materials at the Semipalatinsk Test Site in Kazakhstan. These efforts, which began in 2004, were highlighted in a joint statement offered by the three countries at the 2012 NSS.

In addition, at the 2012 NSS, 25 countries, led by the **United Kingdom**, issued a multinational statement reaffirming their commitment to the security of nuclear information and pledged to take actions to secure this information.

GOVERNANCE

Summit documents emphasize that it is the fundamental responsibility of each state to maintain effective nuclear security over all radioactive materials and facilities in its territory. To achieve this control, states implement a range of national laws, regulations, and rules which are strengthened and supplemented by their participation in international treaty regimes and adoption of international best practices. This section details steps that countries have taken to enhance their national governance structures, including by bringing them into agreement with international recommendations, guidance, and voluntary standards.

Strengthening National Laws and Regulations. Since Seoul, many summit participants have been working to strengthen nuclear security regulations, bring national laws into compliance with international norms, implement new rules, and ratify the 2005 amendment to the CPPNM and the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT). The CPPNM is the only legally binding international agreement with physical protection requirements for

nuclear materials, but it is limited to international transport. The 2005 amendment to the CPPNM extends protection requirements to the domestic use, storage, and transport of nuclear materials and sets new legal consequences for misuse and sabotage, but it is not yet in force because too few countries have ratified it. ICSANT, the United Nations treaty against nuclear terrorism, provides a definition of nuclear terrorism and details how offenders and illicit materials should be handled by states when seized. Since March 2012, **Armenia, Belgium, France, Georgia, Israel, Mexico, Sweden, and Vietnam** have ratified the 2005 CPPNM amendment, and **Australia, Nigeria, and Turkey** have ratified ICSANT. In addition to those summit participants, eight more countries ratified the CPPNM amendment and six more ratified ICSANT.

Algeria is implementing new and updated laws and regulations to combat the illicit trafficking of chemical, biological, radiological, and nuclear (CBRN) materials. In May 2013, **Canada** passed the Nuclear Terrorism Act to amend its criminal code and allow ratification of the international conventions, though it has not yet come into force. The **Czech Republic** is enacting a new version of the Atomic Act to harmonize its domestic regulations with international norms. All of **Egypt's** radioactive sources came under the regulatory control of the country's recently established Nuclear and Radiological Regulatory Authority in June 2012. **Gabon** is implementing its new Regulatory Framework of Nuclear and Radiation Safety, Security,

and Safeguards. **India** updated its export control lists for dual-use goods in March 2013 to comply with the Nuclear Suppliers Group guidelines. **Japan** established an independent Nuclear Regulatory Agency and amended its national regulations to reflect the latest version of IAEA Information Circular 225, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev5). **Morocco** is implementing a new law on nuclear and radiological security, which includes the creation of an independent nuclear safety and security regulatory body and export control system. **Nigeria** enacted a new law on nuclear safety, security, and safeguards and is amending its national regulatory law to comply with international norms. The **Republic of Korea** has created a Domestic Nuclear Safety and Security Commission and is continuing work on revisions to national laws to enhance nuclear security regulations. The latest updates to **Singapore's** export control lists took effect in February 2013. **Spain** is implementing its newly amended laws on export controls and smuggling.

Azerbaijan is strengthening its export controls to combat illicit trafficking. **Brazil** is revising its domestic laws and developing new rules on the physical protection of radioactive materials. **Chile** has drafted updated national regulatory instruments, including a proposal for establishing an independent regulatory authority, and it is concluding an administrative agreement to import and export radioactive material under the IAEA Code of Conduct. **Indonesia** is



Australia's Prime Minister Julia Gillard speaks during a press conference at the end of the 2012 Seoul Nuclear Security Summit on March 27, 2012. Australia ratified ICSANT in March 2012.

Kim Jae-Hwan/AFP/Getty Images

drafting comprehensive nuclear security legislation and preparing a Presidential Decree on the safety and security of nuclear institutions and facilities. The country also initiated updates to nuclear security culture guidelines in 2013 and is leading the development of a national legislation implementation kit, which was offered as a joint statement by 18 countries at the 2012 summit.

Finland is updating its regulations to reflect new IAEA recommendations and information security for nuclear power plants; it expects these changes to go into force in 2013. **France** is revising its laws on the security of radioactive materials and updating its legislative and regulatory frameworks. **Kazakhstan** is collaborating with partner states to introduce an internal compliance system for its export controls. **Lithuania** is modifying its Law on Nuclear Energy to strengthen site protection and personnel reliability requirements. Additionally, by decree of the Prime Minister in February 2013, Lithuania established a working group to address nuclear security issues, such as amending laws, improving interagency cooperation, and collaborating with foreign partners. In April 2013, Lithuania and the United States signed an agreement to strengthen their cooperation to combat nuclear smuggling. **Malaysia** is in the final stages of revising its Atomic Energy Licensing Act. **New Zealand** is finalizing new radiation safety and security legislation. The **Netherlands** is studying the development of an international regulatory system for nuclear and radiological security and corresponding domestic legal frameworks. **Norway** is in the process of ratifying ICSANT.

The **Philippines** is drafting regulations on the security of radioactive materials during transport. **Poland** plans to amend its national regulations in accordance with an IAEA Integrated Regulatory Review Service scheduled for 2013. **Singapore** is amending its domestic legislation to accede to the CPPNM and its 2005 amendment and ratify ICSANT. **Switzerland** is drafting a strategy against cyber-attacks relevant to nuclear facilities. **Thailand** established a network of nuclear regulatory bodies in Southeast Asia, and **Ukraine** is working to develop a new nuclear security plan with IAEA assistance. The **United Arab Emirates** is establishing its nuclear regulatory infrastructure and strengthening its nuclear import and export laws, including provisions aimed at preventing the financing of nuclear trafficking. The **United Kingdom** is combining oversight of nuclear safety, security, safeguards, and radioactive material transport under the independent Office for Nuclear Regulation. In May 2013, the **United States'** House of Representatives passed implementing legislation that would move the country closer to completing ratification of the CPPNM 2005 amendment and ICSANT, but the Senate has yet to act. Also in May

2013, new legislation, the Next Generation Cooperative Threat Reduction bill, was introduced in the Senate to expand support for U.S. threat reduction work in the Middle East and North Africa.

Updating Design Basis Threat. States must formally evaluate the threat environments in which their nuclear facilities are operating to create Design Basis Threat (DBT) models that are used to inform unique protection requirements. **Belgium** is updating its DBT to better address emerging threats, such as cyber security vulnerabilities. **Finland** is updating its DBT in response to recommendations received from IAEA International Physical Protection Advisory Service (IPPAS) mission and expects these updates to go into force in 2013. **Indonesia** updates its DBT every two years, and the most recent occurred in 2012. In January 2013, the **Netherlands** began requiring the use of a new DBT with a stronger focus on the threat of cyber terrorism at nuclear facilities.

Law Enforcement and Emergency Response. Summit participants took steps to enhance their nuclear safety and security law enforcement and emergency response plans. **Canada** is finalizing a strategy to enhance domestic nuclear forensic capabilities. **Morocco** has been working to update its list of establishments using radioactive sources and ensure that law enforcement officials are aware of where sources are kept. The **Netherlands** signed an agreement with the IAEA for the Netherlands Forensic Institute to assist in developing best practices in radiological crime scene management, nuclear forensics, and cyber forensics related to nuclear security. **Pakistan's** emergency response team for radiological incidents is fully operational. The **United Kingdom** began implementing its new National Strategic Framework to prepare for nuclear emergencies and joined the IAEA's Response Assistance Network.

SMUGGLING

Preventing nuclear smuggling requires layered defenses and cooperation among domestic, foreign, and international agencies. Summit documents underscore the need for states to develop national capabilities to prevent, detect, and respond to illicit trafficking and also acknowledge the need for international cooperation to counter smuggling networks. This section reviews the actions that countries are pursuing to prevent trafficking of nuclear and radiological materials by enhancing national and international transport security, expanding border controls, and developing new detection and monitoring technologies and systems.

Megaports Developments. The Megaports Initiative is operated by the NNSA in cooperation with 32 partner



NNSA

U.S. and Chinese officials cut a ribbon on December 7, 2011, to mark the commissioning of the Yangshan Megaports Initiative. In 2012, new Megaports became operational in Argentina and Vietnam.

states at 45 ports around the world. Since the Seoul summit, new Megaports have become operational in **Argentina** and **Vietnam**. In addition, Megaports in the following NSS countries have transitioned to local control (or will by the end of 2013): **Israel, Malaysia, Mexico, Singapore, and Vietnam**.

Transport Security and Border Controls. A number of states have worked together on initiatives to increase transport security and bolster border controls. At the 2012 NSS, 19 countries issued a statement on activity and cooperation on counter nuclear smuggling that was led by **Jordan, Japan**, along with **France, the Republic of Korea, the United Kingdom and the United States**, issued a joint statement pledging to develop a proposal on strengthening transport security that will be presented in 2014.

Australia continues to improve its nuclear detection technologies and forensic capabilities. **Chile** is working to strengthen border controls and develop a centralized remote monitoring system for radioactive sources. **Germany** installed a CBRN reporting scheme for police and customs agents. With IAEA assistance, **Indonesia** installed a new radiation portal monitor at its Belawan Seaport in July 2012. **Morocco** is improving its border control and ability to detect illicit trafficking by working with INTERPOL, the European Union, IAEA, and other partners. **Pakistan** deployed radiation detection monitors to key entry and exit points around the country. **Poland** is working to modernize its radiation detection equipment at ports of entry. This includes receiving equipment from NNSA in July 2012 in support of its radiation detection efforts around the Euro 2012 games and its plans to install vehicle monitors at vehicle crossings on its border

with Belarus. The **Republic of Korea and Vietnam** launched a pilot program on real-time tracking of radiological materials.

In September 2012, **China** and the **United States** announced the opening of the Qinhuangdao Radiation Detection Center (RDTC) and commencement of its first class for China's customs officers. The RDTC will serve as a dedicated training facility for custom officials and improve China's counter-nuclear smuggling and terrorism capabilities. In November 2012, **Kazakhstan** and the United States announced the installation of specialized radiation detection equipment at Astana International Airport. This effort is part of an ongoing cooperation between the countries, which has received financial contributions from New Zealand, Norway, and the Republic of Korea in the past. In January 2013, the **Republic of Korea and United States** announced their plans cooperate with **Azerbaijan** to install radiation detection equipment at its Baku Airport. The **United States** has been working to expand both domestic and international capabilities to arrest nuclear smugglers, seize materials, and prosecute perpetrators.

CULTURE

The summit process emphasizes the human dimension of nuclear security, particularly the need for robust education and training programs and the continuous development and sharing of best practices among nuclear stakeholders. These activities are vital to ensuring that resources are optimized and improvements are sustainable. This section details the efforts countries have undertaken to improve national and global nuclear security culture, including hosting conferences and workshops, developing academic and training programs, establishing centers of excellence,

engaging in regional outreach, and inviting IAEA IPPAS missions.

Centers of Excellence. The summit process has inspired several countries to develop nuclear security centers of excellence as a national endeavor, regional initiative, or in cooperation with the IAEA. At the 2012 NSS, 24 countries issued a joint statement committing to collaborate through the International Network for Nuclear Security Training and Support Centers (NSTC and NSSC) to enhance nuclear security culture by supporting human resource development. **Brazil** signed an agreement with the IAEA to establish a NSSC. **Chile, Nigeria, and Pakistan** also are working with the IAEA to establish NSSCs and NSTCs.

Expansion and implementation work continues on the European Union CBRN Centers of Excellence (CoE) project that was launched in 2010. Regional Secretariats have opened in Amman, **Jordan**; Algiers, **Algeria**; Rabat, **Morocco**; Manila, the **Philippines**; and Tbilisi, **Georgia**. Three new regions are being targeted for additional secretariats: Central Asia, Gulf Cooperation Council (GCC) countries, and Eastern and Central Africa. In January 2013, the GCC countries were invited to join the CoE project during an event co-hosted by the **United Arab Emirates**.

China is continuing to develop its national center of excellence in consultation with its partners. Off-campus courses commenced under the banner of **India's** new Global Centre for Nuclear Energy Partnership (GCNEP) before the 2012 NSS. Construction on the physical infrastructure of GCNEP continues and new partnership agreements are being signed. **Japan** held regional workshops on nuclear security culture, training courses on the physical protection and a range of other activities at its Center of Excellence. Activities are underway at **Kazakhstan's** new Regional Training Center for accounting, control, and physical protection of nuclear materials and facilities. In June 2012, **Lithuania** opened its Nuclear Security Center of Excellence in Medininkai. The **Netherlands** is advancing plans to establish a nuclear security center of excellence at Delft University approximately two years after its first group of students completes the University's new master's program in nuclear security. The **Republic of Korea** is opening its International Nuclear Training Center in 2013 and working to coordinate the center's functions with similar CoEs in the region. **Pakistan** is home to a Training Academy that offers specialized courses in physical protection and personnel reliability, a School for Nuclear and Radiation Safety, and forthcoming IAEA NSTC; all of which it would like to see become regional and international training hubs. In 2012, **Saudi Arabia** established its center of excellence in King Abdullah City for Atomic and Renewable Energy (K.A.CARE).

In addition, some countries have chosen to develop

forensic centers, laboratories, and other regional centers to support nuclear security culture. In April 2013, a new European nuclear security training center was established in **Germany** to provide instruction to law enforcement officials and trainings about responding to nuclear trafficking. **Russia** continues nuclear security training at its Interdepartmental Special Training Centre, and in October 2012, Russia and the NNSA commissioned the Krasnoyarsk Regional Training Center, which will be used to train security personnel working at Russian government nuclear sites. **Singapore** and **South Africa** are establishing nuclear forensics laboratories, and **Thailand** is planning to open a nuclear forensics center in 2013.

Workshops and Conferences. Many summit participants have hosted workshops and conferences as well as sponsored other outreach initiatives to train personnel and raise awareness about nuclear security. **Belgium's** nuclear control agency has held nuclear security workshops. **Denmark** conducted a regional workshop on nuclear power plant security in April 2012, and under the country's chairmanship, the EU Ad Hoc Working Group to enhance the nuclear security of power plants issued its final report. **Finland** hosted a technical meeting on computer security at nuclear facilities with the IAEA and is planning for an international workshop on nuclear security culture. **India** hosted a two-day nuclear security workshop in November 2012 in cooperation with the United Nations Office of Disarmament Affairs. **Indonesia** hosted IAEA workshops and regional training courses on nuclear security, including one focused on the security of research reactors for IAEA member states in Asia and the Pacific region in October 2012. **Israel** has conducted national preparedness exercises in 2012 and 2013, including one shortly before the Seoul summit simulating a response to a radiological dispersal device. **Morocco** is collaborating with **Spain** to enhance its nuclear and radiological security.

Armenia conducted anti-trafficking workshops, and in July 2012, it launched an anti-corruption campaign with support from the U.S. Department of State's Bureau of International Security and Nonproliferation. **Brazil** hosted IAEA workshops and regional trainings on nuclear security and illicit trafficking. **Chile** is moving ahead with trainings activities associated with its specialized working group on Illicit Trafficking of Nuclear and/or Radioactive Materials. **Egypt** is preparing to host the first International Conference on Nuclear and Radiological Regulatory Authority in February 2014. **Mexico** hosted regional events on the physical protection of nuclear materials, including one on transport security in August 2012. **Morocco** updated its nuclear security training workshops and seminars, and in April 2013, it hosted INTERPOL's first Regional Capacity Building and Training Seminar on

the trafficking of illicit goods in the Middle East and North Africa. **Pakistan** hosted an IAEA workshop on nuclear security culture in June 2012. The **Philippines** hosted an IAEA international forum on effective border controls in 2013.

In May 2013, **Russia** also held its “Atom-Izotop-2013” exercise in which law enforcement agencies responded to a simulated attempt by terrorists to attack a nuclear facility. Russia and **Saudi Arabia** are holding nuclear security training sessions at national centers and universities. **Sweden** hosted INTERPOL’s second Radiological and Nuclear Trafficking and Terrorism Analysis Conference. **Switzerland** offered training courses for radiological and nuclear security personnel at its national Center of Competence in April 2012. **Thailand** is conducting workshops on nuclear safety and security in cooperation with the IAEA and ASEANTOM, the network of regional nuclear regulators it established. **Ukraine** is conducting physical protection training courses for nuclear industry operators. The **United Arab Emirates** held nuclear security workshops with the IAEA, including a regional one on nuclear security infrastructure for law enforcement. **Vietnam** supported trainings on the physical protection of nuclear assets and radioactive materials.

UNSC Resolution 1540 mandates that all states establish domestic controls to prevent non-state actors from acquiring nuclear, chemical, and biological weapons and related materials. **Australia** is conducting outreach activities in the Asian region on the implementation of Resolution 1540 and radiological source security. **Finland** is funding an initiative on 1540 implementation in coordination with a U.S.-based nongovernmental organization as well as national requests for implementation assistance. **France** is planning an international conference on 1540 implementation in conjunction with its role on the 1540 Committee’s Working Group on Assistance. **Lithuania** hosted a regional workshop on 1540 implementation in June 2012, and **Mexico** began a two-year pilot program in 2012 with the Inter-American Committee against Terrorism to build national capacities for implementing Resolution 1540. **Saudi Arabia** has pledged financial support to the 1540 Committee.

At the 2012 NSS, **United States** and other leaders of the Global Initiative to Combat Nuclear Terrorism (GICNT), released a joint statement outlining the contributions the GICNT has made in strengthening global capacity to prevent, detect, and respond to nuclear terrorism. Following the Seoul summit, **Australia** held a GICNT table-top exercise on nuclear forensics, and **Mexico** hosted the May 2013 Plenary Meeting. **Spain** continues to serve as the GICNT Implementation and Assessment Group Coordinator. **Australia, Canada, Italy, Russia, Spain, Ukraine,**

and the **United Kingdom**, organized GICNT related events in 2012 and 2013.

At the Seoul summit, 24 countries active in the Global Partnership against the Spread of Weapons and Materials of Mass Destruction (Global Partnership) issued a joint statement supporting the summit’s goal of securing nuclear material and radioactive sources worldwide. They note that since 2010, Global Partnership countries have contributed more than \$55 million to the IAEA’s Nuclear Security Fund. As chair of the Global Partnership in 2012, the **United States** increased the level of engagement by non-G-8 partners, including by inviting all Global Partnership members to all meetings. **Mexico** was welcomed as the group’s 25th member in December 2012. Of the five new Global Partnership sub-working groups established in 2012, three are nuclear security-related. **Canada** and the **Netherlands** are working together as co-chairs of the new Membership Expansion Sub-Working Group to coordinate integration of new members into Global Partnership activities. Nineteen potential new members have been identified and efforts to engage them have begun. The **United Kingdom**, as chair of the new Center of Excellence Sub-Working Group, is organizing dialogues and provided a concept paper on how centers of excellence around the world can be better used to address nuclear security needs. The third sub-working group, Nuclear and Radiological Security, was approved in October 2012 and will begin meeting in 2013.

In March 2014, the **Netherlands** will host the third NSS in The Hague. The Dutch NSS team is organizing planning meetings for NSS participants in Austria, **Canada, Turkey, the Netherlands, and Thailand** ahead of the summit. They also are engaging with the representatives from the nuclear industry and nongovernmental groups who are hosting side summits for their sectors, similar to those convened in 2010 and 2012. Additionally, since Seoul, the Netherlands has organized an international table-top exercise on nuclear forensics and regional training courses on nuclear security.

The **United States** has supported a range of international workshops and training, unilaterally and with partner nations and international organizations. In December 2012, the United States hosted the first International Regulators Conference on Nuclear Security, and in February 2013, the country worked with **Russia** and the **United Kingdom** on the Seventh Annual Nuclear Security Best Practices Exchange in Austria. The United States also has focused on domestic trainings and exercise. In 2012, six *Silent Thunder* table-top exercises were conducted in different states. In 2013, four additional *Silent Thunder* exercises are planned for new locations. Additionally, the United States conducted force-on-force exercises and performance testing at domestic nuclear facilities and the Y-12 National Security complex since the Seoul

Nuclear Security Summit Seoul 2012



Lee Myung-bak, right, president of the Republic of Korea, welcomes IAEA Director General Yukiya Amano to Seoul for the 2012 Nuclear Security Summit on March 26. The IAEA plays a critical role in nuclear security.

summit.

A joint statement on NSS outreach efforts was issued by the **United States, Chile, Poland, Nigeria, Morocco, Thailand,** and the **Republic of Korea** at the 2012 summit. It notes these countries efforts to hold regional dialogues on nuclear security issues and their commitment to continue this work ahead of the 2014 summit.

The **United States, United Kingdom,** and **France** also offered a joint statement at the 2012 summit on nuclear terrorism in which they commit to engage in international workshops to address graded approaches for characterization of nuclear material to ensure adequate physical protection measures are applied. The states also pledged to work with the international community to increase preparedness for mitigating the threat of nuclear terrorism.

Academic programs. A stronger focus on creating formal, academic curricula on nuclear security is a welcome outcome of increased attention to the discipline in recent years. In the first quarter of 2013, a group of universities in Austria, **Germany,** the **Netherlands, Norway,** and the **United Kingdom** launched a master's degree program in nuclear security with the support of the IAEA. **Argentina** has been working with the IAEA to incorporate post-graduate courses on nuclear security and radiation safety at its regional training center. **France** updated courses at the Institute for Radioprotection and Nuclear Security and published new recommendations on radioactive transport security. Having established the International School on Nuclear Security in Trieste ahead of the 2012 summit, **Italy** has taken steps to make it a permanent institution in advance of the 2014 NSS. In 2012, Italy

also launched a master's program on nuclear safety and security at the University of Pisa with IAEA support.

IPPAS Missions. The summit process has spurred many countries to request International Physical Protection Advisory Service missions from the IAEA Office of Nuclear Security. These missions entail a team of IAEA experts examining a facility where nuclear radioactive materials are held and making necessary recommendations to strengthen its protections in accordance with international guidelines and best practices. Countries must invite the IAEA to conduct such missions, and follow-up visits sometimes occur after security has been strengthened. **China** and **Romania** have requested IPPAS missions, and **Norway** will invite the IAEA to perform one in 2015. **Australia, the Republic of Korea,** and the **United States** are preparing for an IAEA IPPAS mission in 2013, while **Hungary's** mission was completed in June. In 2012, **Finland** and **Kazakhstan** hosted follow-up IPPAS missions. In November 2012, **Australia** hosted a regional workshop for the IAEA on IPPAS missions. **France** is co-hosting an international seminar on IAEA IPPAS reviews in 2013.

World Institute for Nuclear Security (WINS). The nongovernmental organization WINS has played an important role in spreading nuclear security best practices among global nuclear stakeholder communities. All but six NSS participant states have at least one domestic entity associated with WINS. The governments of **Canada, Japan, New Zealand, Norway, the United Kingdom** and the **United States** have all provided financial support for WINS.

Country Profiles

Of the 53 states that attended the 2012 Nuclear Security Summit (NSS) in Seoul, 50 submitted reports indicating their progress in various areas related to nuclear security. Azerbaijan, Egypt, and Jordan did not submit progress reports. Azerbaijan was a new summit participant in 2012. The other five new NSS participants to attend the 2012 summit—Denmark, Gabon, Hungary, Lithuania, and Romania—did submit progress reports.

The purpose of this section is to provide a brief nuclear security profile of each country that participated in the 2012 summit and an overview of its self-reported actions to strengthen the nuclear security regime. The profiles are based on countries' national progress reports and supplemented with information from International Atomic Energy Agency (IAEA) Nuclear Security Reports, national statements to the IAEA General Conference, and other open source information. Also included is the states' membership in relevant international conventions and multilateral initiatives that play an important role in defining emerging global standards for nuclear security.*

The summit process does not have a standard reporting requirement, meaning that the actions included and timeframe covered in the national progress reports vary by state. Some states included activities that pre-dated the NSS process, while others focused more narrowly on the actions completed between the 2010 Washington summit and the 2012 Seoul summit.

For the purposes of organizing and presenting the material in this report, the actions listed in the progress reports were divided into four categories:



Indonesia's President Susilo Bambang Yudhoyono, left, South Africa's President Jacob Zuma, and Lithuania's President Dalia Grybauskaitė attend the first plenary session of the 2012 Nuclear Security Summit in Seoul on March 27.

materials, governance, smuggling, and culture. The progress reports themselves did not use these categories. The rationale and description of these categories can be found in the introduction. Where possible, open source materials on any ongoing activities were used to corroborate progress on actions listed in the national progress reports and provide further detail.

*Notes on sources can be found in Appendix II. An * is used in the country profile boxes to indicate if a country ratified a treaty, joined an initiative, eliminated its fissile materials holdings, or donated to the IAEA Nuclear Security Fund throughout the summit process.

Although these actions demonstrate significant progress in the field of nuclear security, further work remains, and a lack of consistency in reporting makes it difficult to determine how much progress has been made and where gaps persist. With planning underway for the 2014 NSS in the Netherlands, summit participants should consider adopting a standardized report form on actions outlined in the consensus communiqué documents from 2010 and 2012. While these actions are voluntary, standardized reporting on the actions endorsed by the summit participants would be a positive step toward tracking implementation of the summit goals.

The Seoul communiqué did set two specific goals; entry into force of the 2005 amendment to the Convention on the Physical Protection of Nuclear Materials (CPPNM) by 2014 and the announcement of highly enriched uranium (HEU) minimization plans by the end of 2013. Of the 53 countries that attended the 2012 NSS, all but 17 have ratified the CPPNM 2005 amendment. As of May 2013, 68 countries have ratified the amendment; 32 more must do so before it will enter into force. Seventeen of the 25 NSS countries with weapons-usable materials detailed actions that have been completed or are underway to minimize their use of HEU. While these activities do not always include a complete cleanout of HEU, these commitments are significant and will reduce the overall global stockpiles of HEU.

Algeria

HIGHLIGHTS

Algeria is updating its laws and regulations to strengthen nuclear security.

OVERVIEW

Governance

Algeria is in the process of updating its laws and regulations to strengthen nuclear security, which will include measures on combatting terrorism, reducing corruption, and preventing illicit trafficking of chemical, biological, radiological, and nuclear (CBRN) materials.

Smuggling

Algeria developed a GPS monitoring system to track sensitive materials during transport in real-time.

Culture

Algeria hosts the North-Africa-and-Sahel Regional Secretariat of the European Union (EU)-CBRN Center of Excellence, which holds ongoing activities related to nuclear security. Algeria also established the Nuclear Security Training and Support Center (NSTC) in 2011 and has enhanced its training programs for customs and border security in order to prevent illicit trafficking

of nuclear materials.

Algeria hosted IAEA nuclear safety and security meetings in 2010 and 2011. For the 2012 NSS, Algeria produced a video highlighting its contributions to nuclear security that played in Seoul on the sidelines of the summit.

Gift Baskets: Nuclear Information Security, Training and Support Centers.

ALGERIA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes*
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	No
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Argentina

HIGHLIGHTS

Argentina plays a leading global role in developing and exporting research reactors that produce medical isotopes using low-enriched uranium (LEU).

OVERVIEW

Materials

Argentina converted its research reactors that produce medical isotopes, and as of 2010, they use only LEU. Argentina also manufactures and exports research reactors that use LEU fuel.

Governance

Argentina reviewed and updated its export controls, focusing on revising procedures for licensing to prevent sensitive materials and technologies from being transferred to non-state actors. Argentina also maintains and updates an independent regulatory system for controlling the use of radioactive materials.

Culture

Working with the IAEA, Argentina incorporated nuclear security in its courses on nuclear and radiation safety at its regional training center. Argentina also hosted a World Institute for Nuclear Security

(WINS) workshop in June 2011 titled, "Assessing and Responding to Nuclear Security Incidents at Nuclear Facilities."

ARGENTINA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	< 8 kilograms
Plutonium:	None

Armenia

HIGHLIGHTS

Armenia passed legislation that allowed it to complete ratification of the CPPNM 2005 amendment in May 2013.

OVERVIEW

Materials

In one of the largest IAEA assistance projects to date, Armenia completed updates in 2010 to the physical protection of the Armenian Nuclear Power Plant and radioactive waste storage facilities. Armenia also accounted for all of the nuclear and radioactive sources in the country using an electronic registry to accurately inventory these materials.

Governance

Armenia passed the Draft Law on Regulation of State Register and Control of Nuclear Materials, which will regulate physical protection of radioactive materials, and allowed it to complete ratification of the CPPNM 2005 amendment.

Culture

Armenia has conducted workshops to prevent illicit trafficking of nuclear and radioactive materials in conjunction with the United States, one of which took place in July 2012.¹

ARMENIA

Treaty Status

CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes*

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	None
Plutonium:	None

Australia

HIGHLIGHTS

Australia pledged to repatriate its remaining stockpile of HEU in 2013 and made significant national and international contributions to prevent the smuggling of nuclear materials.

OVERVIEW

Materials

Australia has already shut down its HEU-based research reactor, sent back the spent fuel and converted its radioisotope production to use LEU fuel. Australia also compiled a database of Category I and II radioactive sources and implements IAEA guidelines for the physical protection of these sources. Australia plans to repatriate further stocks of HEU in 2013.

Smuggling

Australia developed new technologies that will enable customs officials to identify radioactive material in transit and has provided the IAEA with technical assistance for detecting and responding to illicit trafficking incidents.²

Culture

Australia invited the IAEA to conduct an Integrated Physical Protection Advisory Service (IPPAS) review, which will take place in 2013, and hosted a regional workshop on IPPAS missions in November 2012. At the regional level, Australia also conducts ongoing outreach activities on implementation of United Nations Security Council (UNSC) Resolution 1540 and securing radiological sources.

Australia also is very involved in the Global Initiative to Combat Nuclear Terrorism (GICNT). It chairs the working group on nuclear forensics and held a table-

top exercise on information sharing during nuclear smuggling events for member states in May 2012.³The previous year, Australia hosted a GICNT workshop on public messaging around nuclear incidents.

Gift Baskets: Nuclear Information Security, Global Partnership, Training and Support Centers, Radioactive Sources, National Legislation Kit, Global Initiative.

AUSTRALIA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes*
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	~2 kilograms
Plutonium:	None

Azerbaijan

HIGHLIGHTS

Azerbaijan joined the NSS process as a participant in 2012. It established a national registry for radioactive sources and is installing radiation detection equipment at critical border posts.

OVERVIEW

Materials

Azerbaijan established a national registry for radioactive sources in 2012.⁴

Governance

Azerbaijan is strengthening its export control system to prevent illicit trafficking of sensitive materials and technologies. The United States assisted it in drafting new export control legislation in 2010.

Smuggling

In January 2013, Azerbaijan announced plans to install radiation detection equipment at critical border posts, including Baku Airport, to prevent illicit trafficking of nuclear and radiological materials. The Republic of Korea is funding the project and the United States is providing assistance.⁵

AZERBAIJAN

Treaty Status

CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	Yes

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	None
Plutonium:	None

Belgium

HIGHLIGHTS

Belgium is making significant contributions to fissile material minimization efforts, committing to repatriate excess HEU and separated plutonium, and working on LEU alternatives for medical isotope production and power reactor fuel.

OVERVIEW

Materials

Belgium also is in the process of returning excess U.S.-origin HEU and separated plutonium, and pledged to report on its progress in these areas in 2014. To minimize further use of HEU, Belgium committed to convert its processing facility to produce LEU and signed cooperation agreements with Argentina and South Africa on converting its facilities to produce LEU fuel. A feasibility study on the conversion was completed in 2011. With assistance from the United States, Belgium committed to convert its research reactor that produces medical isotopes to run on LEU.

In collaboration with the United States, France, and Republic of Korea, Belgium also is participating in a project to develop a high-density LEU powder that can be used in reconfigured reactors that previously used HEU fuel sources. Belgium also is working with the United States, France, and the Netherlands on converting medical isotope production facilities to use LEU fuel sources.

Governance

Belgium updated its legal regulatory framework to allow it to ratify the CPPNM 2005 amendment in January 2013.⁶ An update to Belgium's Design Basis Threat (DBT) process is in progress. The updated DBT will assist the country in strengthening the physical

security of its nuclear facilities and will be reviewed every three years.⁷

Culture

Since the 2012 NSS, Belgium’s Federal Agency for Nuclear Control has held workshops on nuclear security issues.

Gift Baskets: Medical Isotopes, LEU Fuel Project, Global Partnership

BELGIUM	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	Yes
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	.7-.75 tons
Plutonium:	~550 kilograms

Brazil

HIGHLIGHTS

Brazil is strengthening its nuclear security culture, establishing a Nuclear Security Support Centre (NSSC) and holding regional trainings on nuclear security in collaboration with the IAEA.

OVERVIEW

Materials

Brazil converted its research reactor to use LEU and completed repatriation of its HEU prior to the NSS process.

Governance

Brazil is in the process of revising its domestic regulations on nuclear security to comply with the CPPNM 2005 amendment and IAEA regulations on the security of radiological sources.

Smuggling

Brazil is in the process of improving security standards for the transport of nuclear material.

Culture

In conjunction with the IAEA, Brazil has held four workshops on nuclear security since 2009, with an additional workshop planned for 2013. Brazil also has held regional trainings on preventing the illicit trafficking of nuclear materials. In 2012, Brazil signed an agreement with the IAEA to establish a NSSC, which may serve as a regional center for nuclear safety and security cooperation and assistance.⁸

BRAZIL	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	No
GICNT:	No
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	<1 kilogram
Plutonium:	None

Canada

HIGHLIGHTS

Canada committed to repatriate U.S.-origin HEU by 2018 and explore alternative methods that do not require HEU fuels to produce medical isotopes.

OVERVIEW

Materials

Canada contributed C\$8 million to fund the HEU cleanouts in Vietnam and Mexico. Mexico’s HEU was sent back to the United States in 2012, and Vietnam’s is scheduled to be returned in 2013. Canada also committed to minimize its own HEU use, and pledged to repatriate U.S.-origin HEU between 2012 and 2018. As of February 2013, Canada was awaiting final authorizations and preparations to begin transporting spent fuel rods from the Chalk River plant back to the United States.⁹ Canada also pledged to invest C\$35 million in developing methods for producing medical isotopes that do not require HEU.¹⁰

Canada is working with the United States on securing radiological sources of Canadian-origin in Latin America and Africa.

Governance

Canada passed the Nuclear Terrorism Act in May 2013, which will allow it to ratify the CPPNM 2005

amendment and the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT).¹¹ As of May 31, the ratifications had not yet been deposited. Canada also is developing a strategy to enhance domestic nuclear forensic capabilities.

Culture

Canada chairs GICNT's New Partners working group and provides financial support for WINS. Canada also plans to hold workshops to help other countries ratify the CPPNM 2005 amendment.

Gift Baskets: Nuclear Information Security, Global Partnership, Radioactive Sources, National Legislation Kit, Counter-Smuggling.

CANADA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	<500 kilograms
Plutonium:	None

Chile

HIGHLIGHTS:

Chile is making significant progress in nuclear security culture, working on establishing a NSSC with the IAEA, and developing a working group to specialize in combatting illicit trafficking.

OVERVIEW

Governance

Chile concluded an administrative agreement on the import and export of radioactive material with the IAEA based on the agency's Code of Conduct on the Safety and Security of Radioactive Sources (Code of Conduct). Domestically, Chile completed a draft plan of action on nuclear security activities, submitted a nuclear security bill to the Ministry of Energy in 2011, and is working to pursue its passage and implementation. Chile also is drafting updated nuclear regulatory requirements, which include a proposal for

establishing an independent regulatory authority.

Smuggling

Chile is developing a centralized remote monitoring system for detecting and tracking radioactive sources.

Culture

Chile established a working group to specialize in illicit trafficking of nuclear and radiological materials, which included trainings for the South American MERCOSUR countries in 2011. In cooperation with the IAEA, Chile has hosted nuclear security trainings and is establishing a NSSC.¹²

Gift Baskets: Nuclear Information Security, Training and Support Centers, NSS Outreach.

CHILE	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes*
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	<1 kilogram
Plutonium:	None

China

HIGHLIGHTS

China is increasing the physical security of its nuclear facilities, including through comprehensive inspection of its nuclear facilities and an IPPAS mission in 2012.

OVERVIEW

Materials

China conducted a comprehensive inspection of its nuclear facilities that was completed in the summer of 2012.¹³ Beijing also announced in March 2012 that it upgraded the security at the storage centers for its radioactive sources.

China pledged to convert a domestic miniature research reactor to LEU fuel, along with several others that it sold to foreign governments to use LEU fuel. Beijing entered into an agreement with the United States in 2010 to set up the Zero Power Testing Facility in China, which is key to converting the reactors. The

conversion of China's reactor is a cooperative project with the United States, and has now entered the implementation phase.¹⁴

Governance

China began implementing regulations developed by the IAEA on the Safe Management of Radioactive Waste in 2012.¹⁵ In 2010, China signed the Practical Agreement on Nuclear Security Cooperation with the IAEA and began implementing the agency's regulations on the Safe Management of Radioactive Waste and the Supervision and Management of Nuclear Security.¹⁶

Smuggling

China has developed a new range of equipment to detect radioactive substances, some of which were used for securing major international events. The U.S. National Nuclear Security Administration (NNSA) reported in February 2012 that it had certified some of the Chinese radiation detection equipment for Megaports use.¹⁷ China also worked with the United States to publish the Technical Guidance on Export Control Lists and expand the Megaports Initiative into the Yangshan Port in 2011, although NNSA has said that China has not "fully embraced" the Megaports Initiative, citing concerns about cost sharing, data sharing, and that Beijing is only scanning exports.¹⁸

In September 2012, China established a Radiation Detection Training Center for customs officials.¹⁹

Culture

China commissioned the construction of the Center of Excellence on Nuclear Security in 2012, after signing a memorandum of understanding with the United States for collaboration on the Center. China is currently consulting with other countries on participation in the center. The Center will include the National Nuclear Security Technology Center.

China has held approximately 20 training courses on nuclear security in cooperation with the IAEA since 2010 and translated 12 volumes of the IAEA nuclear security series into Chinese. China requested an IPPAS mission that took place in 2012.

CHINA

Treaty Status

CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes*

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	No
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes*
Nuclear Security Fund Contributor:	Yes*

Fissile Material Holdings

HEU:	16 +/- 4 tons
Plutonium:	1.5 +/- 0.5 tons

Czech Republic

HIGHLIGHTS

The Czech Republic completed the repatriation of its remaining stockpile of HEU in April 2013 and is updating its nuclear security laws.

OVERVIEW

Materials

In April 2013, the Czech Republic completed the return of its remaining HEU to Russia for disposition.²⁰

The Czech Republic also invested \$162,000 in a project to upgrade security at Armenia's Nuclear Power Plant Medzamor facility, which was one of the largest IAEA projects to date. The Czech Republic's Central Analysis Laboratory also is used to conduct analysis of nuclear material as part of the IAEA Safeguards Analytical Laboratories.

Governance

The Czech Republic is in the process of enacting a new version of its Atomic Act to harmonize its domestic regulations with international norms.

Culture

The Czech Republic has provided expertise on HEU disposition to a number of countries, including Poland, Bulgaria, and Serbia. It has held training courses and regional workshops on nuclear security, including a 2010 "Performance Testing Workshop." The Czech Republic signed an agreement with the United States in 2010 to collaborate on nuclear energy research and development. Prague also has established a center of excellence for nuclear security at the Nuclear Research Institute Rez. The Czech Republic currently participates in the IAEA Outreach on Nuclear Activities and Trade Relevant to Safeguards to prevent the illicit trafficking of sensitive nuclear technology.

Gift Baskets: Nuclear Information Security, Global Partnership, Training and Support Centers, Radioactive Sources, Counter-Smuggling.

CZECH REPUBLIC	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	<1 kilogram*
Plutonium:	None

Denmark

HIGHLIGHTS

Denmark joined the NSS process as a participant in 2012. The country has developed a comprehensive database of radiological sources and has implemented IAEA regulations on storage, import, and export of these materials.

OVERVIEW

Materials

Denmark has a comprehensive database of its radiological sources and has implemented regulations on storage, import, and export of these materials in compliance with IAEA standards. Additionally, Denmark performed an internal review to strengthen cooperation on physical protection of its nuclear materials and surveillance during transport.

Culture

Denmark conducted a regional workshop on the security of nuclear power plants in April 2012. While chairing the EU Ad Hoc Working Group on enhancing nuclear security of power plants, the group produced its final report in June 2012.

Gift Baskets: Global Partnership, Radioactive Sources, Counter-Smuggling.

DENMARK

Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Egypt

HIGHLIGHTS

Egypt's radioactive sources came under the control of its regulatory authority in June 2012.

OVERVIEW

Materials

In June 2012, Egypt's radioactive sources came under the control of the country's Nuclear and Radiological Regulatory Authority (NRRRA). The NRRRA also established a committee for the licensing of sealed radioactive sources.

Governance

Egypt established an independent authority for controlling nuclear materials in 2009.²¹

Culture

In April 2013, Egypt hosted an IAEA workshop, a train-the-trainers course, on basic electronics and nuclear instrumentation maintenance. In July 2013, Egypt will host an IAEA regional workshop on workplace monitoring for African member states. Egypt will hold the first International Conference on Nuclear and Radiological Regulatory Authority in February 2014.

EGYPT	
Treaty Status	
CPPNM:	No
CPPNM 2005:	No
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	No
PSI:	No
GICNT:	No
Global Partnership:	No
Megaports:	Yes*
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Finland

HIGHLIGHTS

Finland is updating its regulations on nuclear security and its national DBT process in response to IAEA recommendations.

OVERVIEW

Governance

Finland created a nuclear security commission for supporting threat assessments and coordinating cooperation of its national actors in nuclear security areas. Finland is currently in the process of updating its national DBT process after a 2009 workshop, and its information security regulations for nuclear power plants, based on IAEA recommendations.

Smuggling

In 2011 Finland contributed to the U.S. Nuclear Smuggling Outreach Initiative's (NSOI) projects on border security in Eastern Europe and Central Asia. Finland also is updating its own radiation monitoring system and working with its own personnel and those of neighboring countries on operational procedures at borders.

Culture

Finland participated in a pilot course on radiation monitoring with the EU NSTC and has conducted international workshops on nuclear security culture in 2011 and 2012. Finland also funds an initiative on implementation of UNSC Resolution 1540 in conjunction with the nongovernmental Stimson Center. Finland requested a follow-up IPPAS review that took place in 2012 and committed to holding a Technical Meeting on Computer Security with the IAEA in 2013.

Gift Baskets: Nuclear Information Security, Global Partnership, Radioactive Sources, National Legislation Kit, Counter-Smuggling.

FINLAND	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	None
Plutonium:	None

France

HIGHLIGHTS

France updated its domestic legislative framework, allowing it to complete ratification of the CPPNM 2005 amendment. Further legislative updates on the security of radioactive materials are in progress.

OVERVIEW

Materials

France signed an agreement with the IAEA in 2011 on securing vulnerable radiation sources of French origin worldwide, with a project underway in Madagascar. The first of these projects began in 2011 and they are continuing.²² France also committed to locate and secure radioactive sources in France.

France is working in cooperation with the United States, Belgium, and Republic of Korea on a project announced at the 2012 NSS on developing a high-density LEU fuel for reactors operating on HEU. Along with the United States, Belgium and the Netherlands, France also is participating in a project to produce medical isotopes using LEU fuel. Through Areva, a nuclear power company, France participates in converting reactors to use LEU fuel outside of France.

Governance

France revised its domestic legislation, allowing it to complete ratification of the CPPNM 2005 amendment in 2013. In 2011, France passed a new law to strengthen the legal framework for fighting nuclear proliferation.²³ Between 2009 and 2011, Paris revised its regulatory framework for security and control of

nuclear materials at facilities and in transport.

France coordinates the UNSC Resolution 1540 Committee's Working Group on Assistance, which helps countries implement the resolution's commitments. Legislation allowing Paris to complete ratification of ICSANT is underway, as is a revision on the laws securing radioactive materials.

Smuggling

France will convene meetings to develop a proposal on strengthening transport security in 2014.

Culture

France has hosted several international conferences on nuclear security, including one in 2012 with the UN Office of Disarmament Affairs on UNSC Resolution 1540 and another in conjunction with the IAEA in 2013 on IPPAS reviews.²⁴ The IAEA conducted an IPPAS review in France in 2011.

France also is taking steps to strengthen its nuclear security culture and assist other countries in this area. It established the International Institute of Nuclear Energy, which began operations in 2010, and provides courses on nuclear security. In 2013, France also updated courses at the Institute for Radioprotection and Nuclear Security and published new recommendations for the security of radioactive sources in transit.²⁵ France has signed an assistance agreement with New Delhi to collaborate on India's nuclear security center of excellence.

Gift Baskets: Nuclear Information Security, Global Partnership, Counter-Smuggling, Transport Security, Medical Isotopes, LEU Fuel Project, Nuclear Terrorism.

FRANCE	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	30.6 +/- 6 tons
Plutonium:	62 +/-1 ton

Gabon

HIGHLIGHTS

Gabon was one of six new participants to join the NSS process in Seoul. The government is in the process of enacting new legislation, which establishes an agency with regulatory oversight for nuclear security and safety.

OVERVIEW

Materials

In cooperation with the IAEA, Gabon strengthened radiation detection and monitoring for the 2012 Football Cup of Nations. In 2011, Gabon strengthened the domestic security of its radioactive sources in collaboration with a U.S. technical mission.

Governance

Gabon signed a protocol agreement with the IAEA to implement the Code of Conduct on radiological source security in 2010. Gabon is now enacting new legislation, the Regulatory Framework of Nuclear and Radiation Safety, Security, and Safeguards, which establishes the Gabonese Agency on Nuclear Safety and Security as the authority with regulatory oversight of the country's radioactive materials.

Culture

Gabon participated in a workshop in 2010 on the research and collection of radioactive sources and organized a national training program for customs officers on import and export control of radioactive sources in 2011, with French assistance.

GABON	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	No
PSI:	No
GICNT:	No
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Georgia

HIGHLIGHTS

Georgia is enhancing the physical protection and security infrastructure for its high-activity radiation sources and is updating its laws on nuclear safety and security.

OVERVIEW

Materials

Georgia established a national register of radioactive sources with assistance from the U.S. Nuclear Regulatory Commission. Georgia is now enhancing the physical protection and security infrastructure for its high-activity radiation sources with cooperation from NNSA.

Governance

Georgia is in the process of enacting the March 2010 Law on Nuclear and Radiation Safety, which reflects norms in nuclear safety and security outlined by the IAEA and international treaties, including recommendations from a National Integrated Nuclear Security Support Plan. Georgia also is enacting a law on strengthening the regulations for the import and export of radioactive sources.

Smuggling

Georgia operates a Second Line of Defense system and collaborates with U.S. initiatives, like the NSOI, to prevent illicit trafficking of nuclear materials across its borders.

Culture

In 2012, Georgia reached an agreement with the EU to establish a regional secretariat on CoE-CBRN in Tbilisi in connection with the EU. The IAEA conducted an IPPAS review in Georgia in 2011, as well as a radiation security appraisal. Georgia contributes to the IAEA Nuclear Security Information Portal (NUSEC). Georgia continues support for nuclear forensics, including participating in the International Nuclear Forensics Laboratory workshops in 2012 and 2013.²⁶ Georgia also has conducted workshops on nuclear security, physical protection, and DBT.

Gift Baskets: Nuclear Information Security, Counter-Smuggling.

GEORGIA

Treaty Status

CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes*

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	<1 kilogram
Plutonium:	None

Germany

HIGHLIGHTS

Germany has strengthened its security for intermediate storage of nuclear materials and has established a central registry to trace all radioactive sources in the country.

OVERVIEW

Materials

Taking into account new technical findings, Germany strengthened its framework for the intermediate storage of nuclear materials. Germany also implemented a system for tracking all sources through the establishment of a central registry.

At the 2012 NSS, Germany led a joint statement of 24 countries that committed to securing radioactive sources.

Governance

Germany updated nuclear safety regulations for training personnel at power plants.

Smuggling

In 2012 Germany began the process of installing a CBRN reporting scheme for policy and customs agents.

Culture

Germany is adapting its training programs for nuclear security personnel at power plants to take into account technical advancements. German universities also collaborated with academic institutions in Austria, the Netherlands, Norway, and the United Kingdom to launch a master's degree program in nuclear security with the support of the IAEA in 2013. In addition, in April 2013, a European nuclear security training center

was established in Germany to provide trainings on responding to nuclear trafficking incidents.

Gift Baskets: Nuclear Information Security, Global Partnership, Training and Support Centers.

GERMANY	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	950 kilograms
Plutonium:	7.6 tons

Hungary

HIGHLIGHTS

Hungary was a new participant in the NSS process in 2012. It pledged to repatriate its remaining HEU to Russia in 2013 and completed conversion of the Budapest research reactor to run on LEU.

OVERVIEW

Materials

Hungary completed the conversion of its research reactor in Budapest to use LEU fuel and has compiled a national registry of radioactive materials and waste.²⁷ Hungary pledged to return its remaining HEU to Russia in 2013. It also is in the process of upgrading the physical security systems of 30 sites that house category I and II radioactive materials.

Governance

In 2011, Hungary revised its regulatory framework for nuclear facilities based on recommendations from IAEA nuclear security documents. Hungary also joined the European Nuclear Security Regulators Association (ENSRA) in 2009.

Culture

Hungary requested an IPPAS mission in 2012, which the IAEA completed in 2013. Hungary delivered the advance information to the IAEA for the mission in April 2013.²⁸

Gift Baskets: Nuclear Information Security, Training and Support, Radioactive Sources, National Legislation Kit, Counter-Smuggling.

HUNGARY	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	~5 kilograms
Plutonium:	None

India

HIGHLIGHTS

India is in the process of establishing its Global Center for Nuclear Energy Partnership, which includes training courses in nuclear security, and it updated its export control laws for dual use materials in 2013.

OVERVIEW

Materials

India is in the process of converting the Apsara reactor to run on LEU fuel and put the HEU fuel at the site under safeguards in December 2010.²⁹

India also is developing an advanced heavy water reactor based on LEU technologies.

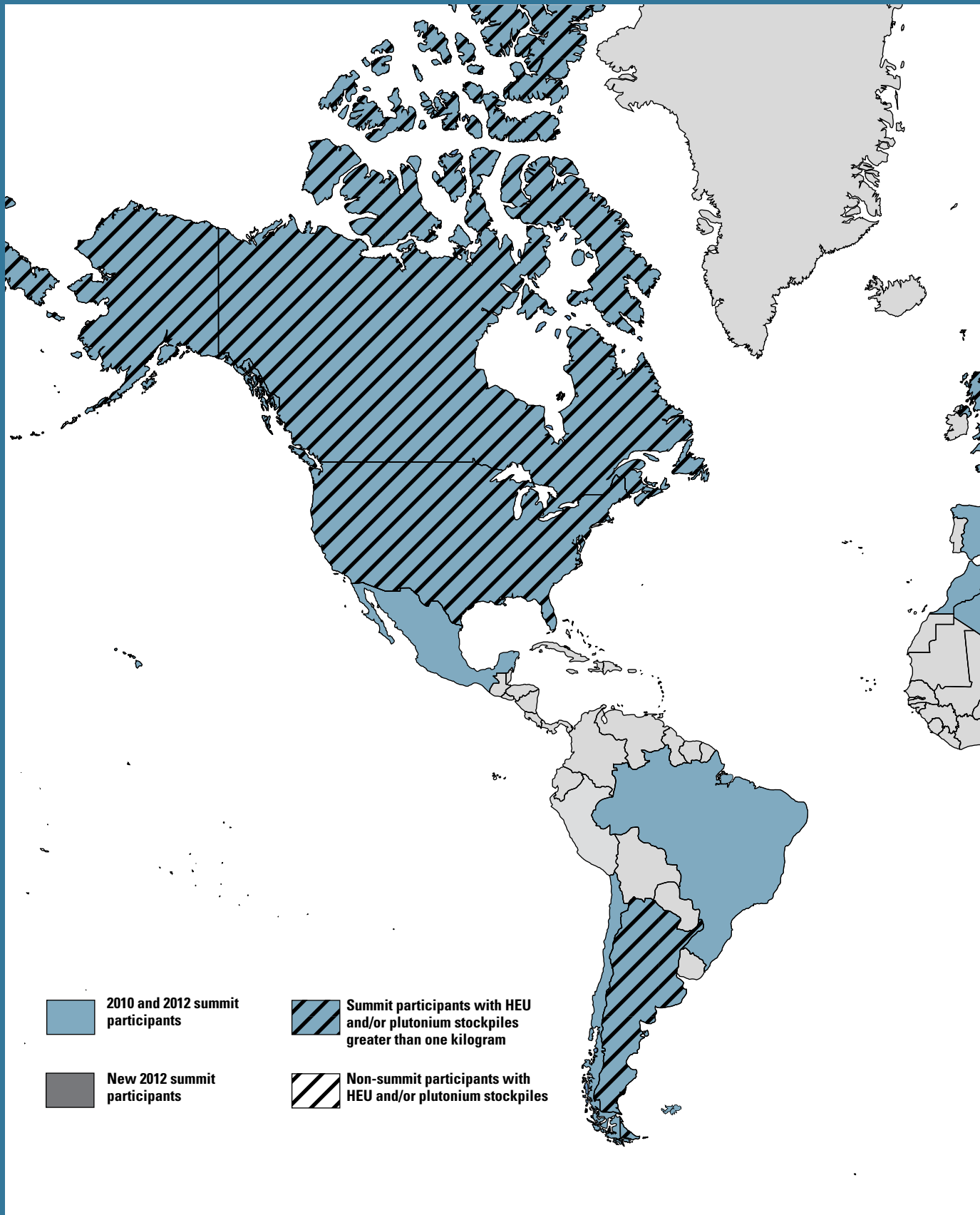
Governance

In March 2013, India announced that it updated its export control lists in adherence with Nuclear Suppliers Group guidelines to prevent the transfer of dual-use technology.³⁰

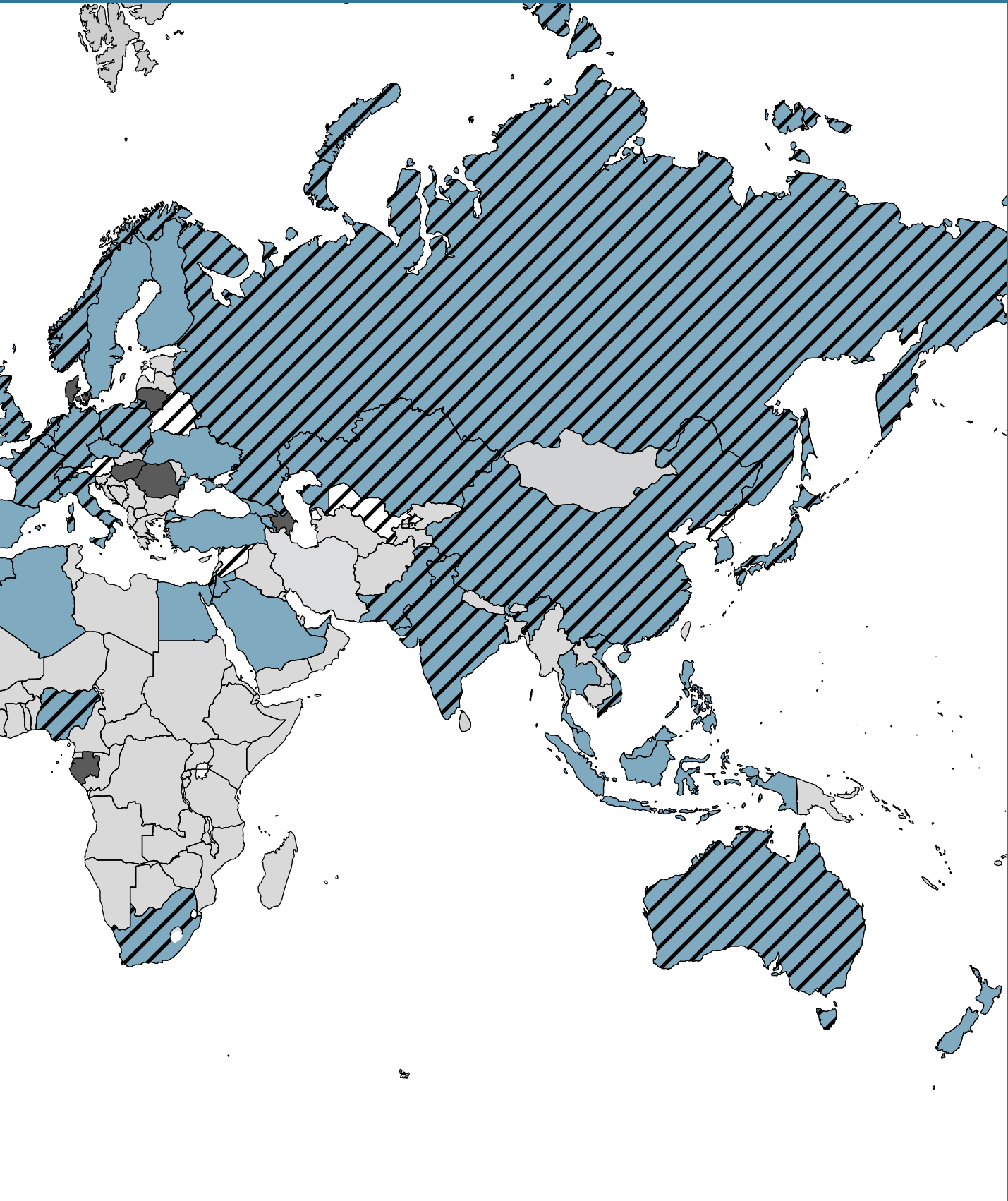
Culture

India has organized training courses on nuclear security as part of the Regional Radiological Security Partnership. India is in the process of establishing a Global Centre for Nuclear Energy Partnership, which includes nuclear security, and has signed cooperative agreements with the United States, Russia, France, and the IAEA. To launch the center, India held a course in November 2011 on physical protection of nuclear facilities.

Nuclear Security Summit Summit Participants and Fissile Material



al Holdings



INDIA**Treaty Status**

CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	No
GICNT:	No
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	Yes

Fissile Material Holdings

HEU:	2.0 +/- 0.8 tons
Plutonium:	4.6 +/- 0.65 tons

Indonesia**HIGHLIGHTS**

Indonesia is in the process of improving the security of its radiological sources, drafting comprehensive legislation on nuclear security, and installing radiation detectors at all major ports.

OVERVIEW**Materials**

Indonesia is in the process of improving security of its radiological sources and plans to monitor radioactive sources using GPS tracking.³¹ Indonesia converted its medical isotope production facilities to use LEU fuel in 2006.

Governance

Indonesia is in the process of drafting comprehensive nuclear security legislation and preparing a Presidential Decree on the safety and security of nuclear institutions and facilities.³² Indonesia also is developing guidelines for nuclear security culture. Indonesian regulations require the country to update its DBT assessment every two years, the most recent of which took place in 2012.³³

Indonesia also headed up a gift basket on implementing international treaties through the development of national legislation, which included collaborating with the IAEA on the "High-Level Regional Workshop on the International Legal Framework for Nuclear Security" in July 2011.

Smuggling

Indonesia implemented a system to monitor all exports through a single window mechanism and is in the process of installing radioactive monitors at its major seaports.³⁴

Culture:

Indonesia has hosted IAEA workshops and regional training courses in 2011 and 2012 on nuclear security.

Gift Baskets: Nuclear Information Security, Training and Support Centers, Radioactive Sources.

INDONESIA**Treaty Status**

CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	No

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	No
GICNT:	No
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	<1 kilogram
Plutonium:	None

Israel**HIGHLIGHTS**

Israel conducted national preparedness training exercises on responding to the dispersal from a radioactive device in 2012 and 2013.

OVERVIEW**Materials**

In 2010, Israel returned spent HEU fuel from the Soreq research reactor to the United States.

Culture

In January 2012, Israel conducted a national level exercise simulating a response to a radiation dispersal device scenario. Additional radiation response exercises were held in 2013.³⁵ Israel also held a GICNT workshop on nuclear forensics in June 2010.

Gift Baskets: Counter-Smuggling.

ISRAEL	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	0.3 tons
Plutonium:	0.82 +/- 0.15 tons

Italy

HIGHLIGHTS

Italy committed to repatriating its excess U.S.-origin HEU and plutonium by 2014 and has worked with the IAEA on nuclear security courses at several universities in Italy.

OVERVIEW

Materials

Italy committed to repatriating its excess U.S.-origin HEU and plutonium by 2014.

Governance

Italy is developing a national nuclear security plan to integrate contingency plans and coordinate national actors in combating illicit trafficking.

Culture

Italy established the International School on Nuclear Security in Trieste and the first session of courses was held in 2011. The school will become permanent. Italy also has worked with the IAEA on nuclear security training materials for courses at the University of Florence and launched a master's program with IAEA support on nuclear safety and security at the University of Pisa in 2012.³⁶ In addition, Italy hosted IAEA workshops on border monitoring in 2011 and 2012.

Gift Baskets: Nuclear Information Security, Global Partnership, Training and Support Centers, Radioactive Sources, Counter-Smuggling.

ITALY	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	.1-.2 tons
Plutonium:	~ 3 tons

Japan

HIGHLIGHTS:

Japan is minimizing its use of HEU by repatriating U.S.-origin HEU fuel and coordinating international efforts on securing nuclear materials in transport.

OVERVIEW

Materials

Japan is scheduled to return HEU fuel of U.S. origin in December 2013.³⁷

There is a feasibility study underway for the conversion of the Kyoto University Critical Assembly to run on LEU fuel. Japan also is assessing safety and security vulnerabilities at nuclear facilities and planning to increase the armed personnel and security equipment at several locations.³⁸

Governance

Japan established the bilateral U.S.-Japan Nuclear Security Group in 2010. Japan also established an independent Nuclear Regulatory Agency.³⁹ In 2012 Japan announced that it is updating its national regulations to reflect IAEA guidelines from INFCIRC/225/Rev. 5.⁴⁰

Japan also is assisting other countries with nuclear security projects. Japan has donated over \$6 million to the IAEA for strengthening the physical protection of nuclear material in Kazakhstan and other nuclear security support programs.

Smuggling

Japan coordinated a gift basket at the 2012 Seoul summit on the international efforts to coordinate transportation security for radioactive materials.

Culture

Japan has held two WINS conferences in 2010 and 2012 and provides financial contributions to the organization. Japan also has hosted several IAEA meetings and regional courses on nuclear forensics. In addition, Tokyo established the Integrated Comprehensive Support Center for Nuclear Non-Proliferation and Nuclear Security.

Gift Baskets: Nuclear Information Security, Global Partnership, Training and Support Centers, Radioactive Sources, National Legislation Kit, Counter-Smuggling, Transport Security.

JAPAN	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	Yes*
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	1.2-1.4 tons
Plutonium:	44.9 tons

Jordan

HIGHLIGHTS

Jordan is coordinating international activities to counter nuclear smuggling and prioritizing the issue domestically.

OVERVIEW

Governance

Jordan coordinated the gift basket for the 2012 Seoul summit on international activities to counter nuclear smuggling.

Smuggling

Jordan is in the process of creating a counter-nuclear smuggling team.

Culture

A regional secretariat of the EU CRBN-CoE opened in Jordan in November 2012.

Gift Baskets: Training and Support Centers, Counter-Smuggling.

JORDAN

Treaty Status

CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	No

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes*
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	None
Plutonium:	None

Kazakhstan

HIGHLIGHTS

Kazakhstan is in the process of converting its research reactor to use LEU, repatriating the excess HEU to Russia by 2014, and establishing a center for accounting, control, and physical protection of nuclear materials and facilities.

OVERVIEW

Materials

Kazakhstan shut down its BN-350 reactor and secured the spent fuel (more than 10 tons of HEU) in November 2010. It is in the process of converting a research reactor and down-blending and repatriating the HEU fuel. The fuel from the Institute of Nuclear Physics was returned to Russia and the conversion project is scheduled to be completed in 2014.⁴¹ Kazakhstan also launched a pilot program for a uranium ore accounting system in 2012.⁴²

Kazakhstan is strengthening security at its nuclear sites. It signed contracts with Japan for improving physical protection at nuclear sites within the country in February 2012. The project should be completed by 2015. In cooperation with the United States and Russia, Semipalatinsk, the former Soviet nuclear test site, received significant security upgrades. This project was completed in September 2012.⁴³

Governance

Kazakhstan is developing legislation that will introduce an internal compliance system for export controls.

Smuggling

With U.S. assistance, Kazakhstan installed specialized

radiation detection equipment at Astana International Airport in November 2012.

Culture

In conjunction with the United States, Kazakhstan conducted an exercise on responding to incidents during the transport of nuclear materials in January 2012. Kazakhstan also launched its Regional Training Center for accounting, control, and physical protection of nuclear materials and facilities in February 2012. The IAEA also conducted a follow-up IPPAS mission in Kazakhstan in 2012.

Gift Baskets: Global Partnership, Training and Support Centers, Radioactive Sources, National Legislation Kit, Semipalatinsk.

KAZAKHSTAN	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	10.5-10.9 tons
Plutonium:	> 3 tons

Lithuania

HIGHLIGHTS

Lithuania joined the NSS process as a participant in 2012. Lithuania updated its legal regulations for physical protection of its nuclear facilities and materials and established a nuclear security center of excellence in June 2012.

OVERVIEW

Governance

Lithuania reviewed and updated its Requirements for Physical Protection of Nuclear Facilities and Nuclear Materials. It is now in the process of enhancing controls over radioactive materials based on IAEA standards and updating its criminal code to include illicit trafficking offenses. Lithuania also is implementing the best practices identified by the EU's Ad Hoc Group report on safety and security of nuclear facilities.

By decree of the Prime Minister in February 2013, Lithuania established a working group to address nuclear security issues such as amending laws, improving interagency cooperation, and collaborating with foreign partners.

In April 2013, Lithuania and the United States signed an agreement to strengthen their cooperation to combat nuclear smuggling.⁴⁴ The agreement includes plans to enhance Lithuania's control of radioactive material, improve its legal framework, and expand the country's role as a regional mentor for nuclear security issues.

Culture

Lithuania established a Nuclear Security Centre of Excellence in 2012. The Centre will host trainings, specialized seminars, and simulation exercises on nuclear security, including countering nuclear smuggling activities.⁴⁵ Lithuania also hosted a regional workshop on implementation of UNSC Resolution 1540 in June 2012.⁴⁶ Lithuania's nuclear power plant also joined WINS in 2012.

Gift Baskets: Counter-Smuggling, Training and Support Centers.

LITHUANIA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Malaysia

HIGHLIGHTS

Malaysia is revising its domestic laws to create a comprehensive nuclear law that will allow it to ratify the CPPNM 2005 amendment and ICSANT.

OVERVIEW

Governance

Malaysia is currently revising its Atomic Energy Licensing Act to become a comprehensive nuclear

law that will allow it to ratify international treaties, including the CPPNM, its 2005 amendment and ICSANT.⁴⁷ Previously, Malaysia passed the Strategic Trade Act 2010, which includes controls on exports, transshipments, and transit of sensitive materials and technology. The law entered into force in January 2011.

Smuggling

Malaysia participates in the Container Security Initiative and its Megaports in Port Klang and Tanjung Pelepas will transition to local control in September 2013.

Culture

Malaysia established a NSSC and has hosted several bilateral, regional, and international nuclear security capacity building activities, some in conjunction with the IAEA. These workshops cover a wide-array of nuclear security topics, including physical protection of materials and facilities.

Gift Baskets: Nuclear Information Security, Training and Support Centers, Radioactive Sources, National Legislation Kit, Counter-Smuggling.

MALAYSIA

Treaty Status

CPPNM:	No
CPPNM 2005:	No
ICSANT:	No

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	No
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	None
Plutonium:	None

Mexico

HIGHLIGHTS

Mexico sent its remaining HEU to the United States for disposition and implemented a new export control system to prevent illicit trafficking.

OVERVIEW

Materials

Mexico sent its remaining HEU stocks back to the United States for disposition in February 2012. Its research reactor at Veracruz also has been converted

to run on LEU fuel.

Governance

Mexico created an intergovernmental committee to harmonize domestic laws with international obligations on nuclear safety and security. The panel is taking into account recommendations from a 2011 IAEA International Regulatory Review Service mission.

Smuggling

Mexico implemented a new export control system in August 2012.⁴⁸ Mexico also enhanced its abilities to detect illicit trafficking of nuclear materials through personnel trainings and deploying more radiation detection monitors at key borders and ports, such as Altamira, Lazaro Cardenas, Manzanillo, and Veracruz in 2012.⁴⁹

Culture

Mexico hosted several regional events on the physical protection of nuclear materials and a workshop with the IAEA on illicit trafficking. Mexico is currently involved with a two year pilot program (2012-2014) with the Inter-American Committee Against Terrorism to build national capacities for implementation of UNSC Resolution 1540. In December 2012, Mexico became the 25th member of the Global Partnership against the Spread of Weapons and Materials of Mass Destruction (Global Partnership).

Gift Baskets: Nuclear Information Security, Training and Support Centers.

MEXICO

Treaty Status

CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	No
GICNT:	Yes
Global Partnership:	Yes
Megaports:	Yes
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	< 1 kilogram*
Plutonium:	None

Morocco

HIGHLIGHTS

Morocco has made efforts to increase the effectiveness of its accounting system for nuclear

material and radioactive sources. Morocco also is a regional leader in efforts to improve cooperation on nuclear security culture. It has been active in the expansion of centers of excellence in the region, and has hosted workshops and conducted regional outreach on nuclear smuggling prevention.

OVERVIEW

Materials

Since the start of the summit process in 2010, Morocco has established an accounting system for nuclear material and a national register for radioactive sources. The list of establishments that use radioactive sources was updated, and this information was provided to district police. Morocco also is working to strengthen physical protection measures at research reactors and facilities using high-activity radioactive sources.

Governance

Morocco is currently implementing a new law on nuclear and radiological safety and security that was adopted in 2011. Morocco worked with the EU and United States to develop an action plan for new import and export control laws. It also is one of the recipient states of joint EU-IAEA assistance to implement domestic nuclear and radiological security improvements.⁵⁰

Culture

Morocco currently serves as the chair of the GICNT's Response and Mitigation Working Group, and hosted the GICNT's mid-year Implementation and Assessment Group meeting in Marrakech in February 2012. Prior to that, the country hosted a GICNT exercise on response to malicious acts involving radioactive materials in Rabat in March 2011. In May 2013, Morocco co-organized the GICNT Radiological Emergency Management Exercise with Spain.

Morocco was operating an IAEA NSSC prior to the first NSS in 2010. That center has now become part of the growing number of "centers of excellence" that the NSS process is highlighting as a tool for regional cooperation and best practice development in nuclear security. Morocco also is participating in the network of EU CBRN centers; the Regional Secretariat for the African Atlantic Façade officially opened in March 2013.

Morocco's commitment to nuclear security also is evident in the number of workshops and seminars it has hosted throughout the summit process. A national training seminar on physical protection of nuclear facilities and a regional training course were held in 2012.⁵¹ Morocco hosted the first-ever INTERPOL seminar on trafficking in illicit goods in the Middle East and North Africa region in April 2013.

Gift Baskets: Radioactive Sources, NSS Outreach Efforts, Training and Support Centers, Global Initiative.

MOROCCO	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	Yes*
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

The Netherlands

HIGHLIGHTS

The Netherlands will host the third NSS in 2014, and has made broad efforts to improve nuclear security culture through trainings and exercises. The Dutch also made changes to domestic regulatory structures to better address the threat of nuclear terrorism.

OVERVIEW

Governance

The Netherlands has demonstrated leadership in highlighting the connection between nuclear security and cyber security, and the risks both pose to regional and global security. The Dutch government began requiring that the nuclear sector use a DBT for cyber terrorism in January 2013. It also signed an agreement with the IAEA in September 2012 for the Netherlands Forensics Institute to develop best practices in radiological crime scene management, nuclear forensics, and cyber forensics as it applies to nuclear security.⁵²

The IAEA conducted an IPPAS follow-up mission in February 2012, and the Centre for Conflict and Security Law based at Utrecht and Sheffield is studying the development of corresponding domestic and international regulatory systems for nuclear and radiological security.

Culture

In 2009, the Netherlands hosted a GICNT plenary meeting and is now chairing its Nuclear Detection Working Group, which is developing a series of guidance documents on improving detection

capability.⁵³ The Reactor Institute, in Delft, is part of a group of universities from five European countries that together established a master's program in nuclear security in October 2012.⁵⁴ The program officially launched in April 2013, and two years after the first students graduate, a nuclear security center of excellence will be established to coordinate ongoing education and training. The Dutch also coordinated international meetings and exercises on nuclear security including an international table-top exercise on nuclear forensics in May 2013. Additionally, the Netherlands is serving as co-chair of the newly-formed New Partners Working Group under the Global Partnership.

The Netherlands also provides significant financial support to nuclear security efforts domestically—through grants to the private sector to strengthen the role of the nuclear industry and nongovernmental organizations in nuclear security—and internationally through various contributions, including one in support of Kazakhstan's nuclear security programs. The country also is serving as the host and coordinator of the next NSS, scheduled for March 2014 in The Hague.

Gift Baskets: National Legislation Kit, Global Partnership, Medical Radioisotopes, Nuclear Information Security, Training and Support Centers, Global Initiative.

THE NETHERLANDS	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes*
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	Yes
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	.73-.81 tons
Plutonium:	None

New Zealand

HIGHLIGHTS

New Zealand is engaged in regional and international efforts to improve global nuclear security and is close to ratifying key international nuclear terrorism treaties.

OVERVIEW

Materials

New Zealand participated in a cooperative effort to secure radioactive sources in Cambodia along with Australia and the Southeast Asia Radiological Security Partnership.

Governance

New Zealand is taking the final legislative steps necessary to ratify the ICSANT and CPPNM 2005 amendment. The relevant legislation also includes guidance for the country to comply with the IAEA's Code of Conduct.

Culture

New Zealand has made in-kind contributions to several international efforts to improve nuclear security and has provided financial support to WINS. These include a 2010 donation of radiological monitoring equipment to Ukraine's Boryspol International Airport in Kiev, in support of the U.S. NSOI.

Gift Baskets: National Legislation Kit, Radioactive Sources, Global Partnership, Nuclear Information Security.

NEW ZEALAND

Treaty Status

CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	No

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*

Fissile Material Holdings

HEU:	None
Plutonium:	None

Nigeria

HIGHLIGHTS

Nigeria is a leader in regional efforts to improve access to nuclear security training and to improve the physical protection of facilities that contain nuclear and radiological material.

OVERVIEW

Materials

Nigeria upgraded physical protection of nuclear

and radiological materials and installed radiation portal monitors at major seaports and the Murtala Mohammed International Airport to improve the country's detection capability.⁵⁵ A program to discover and secure orphan radioactive sources was expanded in 2011, and the process to convert the country's only research reactor from HEU to LEU is underway.⁵⁶

Governance

Nigeria is in the process of updating its existing national nuclear regulatory law. The new National Nuclear Legislation will be more robust and better regulate the emerging domestic nuclear energy industry.⁵⁷

Culture

Nigeria hosted a meeting and workshop of the Economic Community of West African States ambassadors on nuclear security in 2011, and the country is supporting regional efforts to improve nuclear security training. The Nigeria Atomic Energy Commission is cooperating with five university-based Nuclear Research Centres and the central training facility in Sheda, Abuja, to better coordinate degree and professional programs in nuclear technology and nuclear security.⁵⁸

Gift Baskets: NSS Outreach.

NIGERIA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes*
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	1 kilogram
Plutonium:	None

Norway

HIGHLIGHTS

Norway provided significant financial assistance for nuclear security efforts in the developing world and participated in cooperative efforts to secure borders.

OVERVIEW

Governance

Norway is in the process of ratifying ICSANT, having

signed the treaty and passed the legislation necessary for ratification. In addition, Norway reported on its efforts to implement UNSC Resolution 1540 and provided information to assist other countries with their own implementation processes. It has also adopted the IAEA's Code of Conduct.

Culture

A Norwegian university is part of a consortium of institutions in Austria, Germany, the Netherlands, and the United Kingdom, that use course material produced by the International Nuclear Security Education Network in the first ever comprehensive master's degree program in nuclear security in 2013.⁵⁹ Norway also is inviting the IAEA to perform an IPPAS mission in 2015.

Norway supported a number of efforts abroad to improve nuclear security, including a U.S. and Kazakh initiative to secure borders and prevent smuggling in central Asia. These efforts included the installation of radiation detection sensors at the Astana International Airport. Norway hosted the 2nd Symposium on HEU Minimization in Vienna in January 2012 in cooperation with Austria and the Nuclear Threat Initiative.

Norway has a long history of providing nuclear safety and security assistance in north-western Russia. The latest contribution was a \$4.7 million to the Northern Dimension Environmental Partnership in 2012. Norway pledged \$3.6 million in 2010 and \$1 million in 2012 to IAEA programs to increase security at nuclear facilities in developing countries. Norway also contributed \$5 million toward the establishment of the IAEA's fuel bank and made financial contributions to WINS.

Gift Baskets: National Legislation Kit, Radioactive Sources, Global Partnership, Nuclear Information Security.

NORWAY	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	1-9 kilograms
Plutonium:	None

Pakistan

HIGHLIGHTS

Pakistan has made strides to improve its nuclear security culture, both through regional and international training courses and through domestic legislation.

OVERVIEW

Governance

Pakistan renewed its 2006 Nuclear Security Action Plan in 2011 and revised its export controls list to include nuclear related technologies. In 2012, Pakistan announced an inter-agency effort to better coordinate the emergency response to potential nuclear or radiological disasters, which has since been implemented. The Nuclear Emergency Management System is being managed by the Nuclear and Radiological Emergency Support Centre and involves several of Pakistan's national agencies and other first responders.

Smuggling

Pakistan is in the process of installing a more robust system to prevent illicit trafficking of nuclear and radiological material. As of September 2012, eight entry and exit points were equipped with radiation portal monitors. These installations eventually will be completed at all key border crossings.⁶⁰

Culture

In 2012, Pakistan hosted an IAEA workshop on nuclear security culture.⁶¹ Pakistan's Strategic Plans Division established a training academy to provide special courses in physical protection and personnel reliability near Islamabad. Additionally, the Nuclear Regulatory Authority is working to set up a NSTC, which will act as a regional and international hub for education and training in nuclear security. The curriculum provided by both of these institutions is meant to build capacity to improve nuclear security both in Pakistan and internationally.

Gift Baskets: Training and Support Centers.

PAKISTAN

Treaty Status

CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	No

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	No
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	2.75 +/- 1 tons
Plutonium:	.14 +/- .05 tons

Philippines

HIGHLIGHTS

Since the 2010 NSS, the government of the Philippines has been focused on securing radioactive sources within the country and contributing to regional security through cooperative and anti-smuggling efforts.

OVERVIEW

Materials

The Philippines is cooperating with the U.S. and Australian governments to secure radioactive sources in their country and in the surrounding region. Under this program, the Philippines Nuclear Research Institute established a team to search for and secure radioactive sources, acquired a suite of monitoring equipment for detection and response, and conducts trainings.

Governance

In March 2010, the IAEA accepted an Integrated Nuclear Security Support Plan from the IAEA. Later that year, the legislature passed a bill to improve safety and security of hazardous and radioactive waste, and is currently drafting regulations on the security of radioactive materials in transit.⁶²

Smuggling

The Port of Manila in the Philippines has been part of the Megaports Initiative since 2006. In 2012, radiation detection equipment was installed at the Port of Cebu as part of the Megaports Initiative.

Culture

In 2010, the Philippines entered into an agreement with NNSA to provide radiological security incident

response training to the national police force. Prior to the March 2012 NSS, two trainings were held. The country also hosted the third review meeting of the Radiological Security Partnerships in January 2012. In February 2013, the Philippines hosted the IAEA International Forum on Effective Border Controls workshop, and in March 2013, a regional secretariat of the CBRN centers of excellence opened in the country.⁶³

Gift Baskets: National Legislation Kit, Radioactive Sources, Nuclear Information Security, Training and Support Centers, Counter-Smuggling.

PHILIPPINES	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Poland

HIGHLIGHTS

Poland's main accomplishments since the start of the NSS process include engaging in regional efforts to prevent radiological terrorism at major public events. Additionally, its spent HEU fuel shipment to Russia is the largest single repatriation mission ever undertaken.

OVERVIEW

Materials

In 2010, Poland returned all of its spent HEU fuel to Russia in the largest single shipment of its kind.⁶⁴ Since then, projects to convert Poland's research reactors have been underway. The conversion of MARIA was completed ahead of schedule in September 2012, and the EVA's conversion is scheduled for completion by the end of 2016.⁶⁵

Governance

Poland amended its national law to better enable government agencies to act to improve nuclear

security after it received an IAEA IPPAS mission in December 2011.

Smuggling

Poland modernized its radiation detection equipment at ports of entry and is cooperating with NNSA. With U.S. support, Poland has upgraded the radiometric control systems along its borders, installed radiation portal monitors at the Medyka and Korczowa border crossings, and received mobile radiation detection equipment for police use at airports and other key locations.⁶⁶

Culture

In 2010, Poland hosted a regional seminar for Central and Eastern European countries to promote nuclear security improvements. In advance of several major public events, including the UEFA European Football Championship, Poland worked with the IAEA to ensure adequate security by holding trainings and receiving radiation detection equipment.

Two additional IAEA missions are planned for 2013; Poland will accept an Integrated Nuclear Infrastructure Review, after which it will amend its national regulations accordingly.

Gift Baskets: National Legislation Kit, Radioactive Sources, Global Partnership, NSS Outreach.

POLAND	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes*
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	1-10 kilograms
Plutonium:	None

Republic of Korea

HIGHLIGHTS

The Republic of Korea (ROK) hosted the second NSS in Seoul in 2012. It also has made significant progress updating its domestic legal structures and is leading regional efforts to improve nuclear security in East Asia.

OVERVIEW

Materials

In cooperation with the United States, France, and Belgium, the ROK developed a joint statement on creating a high-density LEU fuel and is assisting several countries with reactor conversions.

Governance

Since 2010, the ROK has improved its domestic nuclear security capacity. It established a nuclear security unit within the Korea Institute of Nuclear Nonproliferation and Control in April 2011 and also created the Domestic Nuclear Safety and Security Commission to better coordinate safety and security management efforts. The government also is in the process of updating and revising relevant national laws to further enhance security capacity.

Smuggling

The port of Busan has been part of the Megaports Initiative since 2009 and is scheduled to be transferred to local authority in 2014.⁶⁷ Additionally, the ROK made a \$300,000 contribution to NNSA-led anti-smuggling efforts in Azerbaijan in January 2013.⁶⁸ The ROK also launched a pilot program to track radiological materials in real-time. The program monitors 4,000 sources domestically, and will soon be installed in Vietnam.

Culture

The ROK's efforts to improve nuclear security culture have been significant since the start of the summit process. The ROK invited the IAEA to conduct an IPPAS mission in 2013.⁶⁹ In 2011, the ROK hosted the GICNT's plenary meeting in June, an IAEA regional exercise on nuclear forensics in August, and a WINS workshop on nuclear material tracking and detection in November.⁷⁰ The ROK hosted the 2012 NSS in Seoul, which was attended by 53 countries. Side summits by the nuclear industry and nongovernmental community were also held. The International Nuclear Security Training Center, which will conduct trainings and coordinate with existing centers in Japan and China, opened in 2013.

Gift Baskets: National Legislation Kit, Radioactive Sources, Transport Security, LEU Fuel Project, Nuclear Information Security, Training and Support Centers, NSS Outreach, Counter-Smuggling.

REPUBLIC OF KOREA

Treaty Status

CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	No

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	Yes
Nuclear Security Fund Contributor:	Yes*

Fissile Material Holdings

HEU:	None
Plutonium:	None

Romania

HIGHLIGHTS

Romania joined the NSS process in 2012 as one of six new summit participants in Seoul. The country engaged in international efforts to improve domestic physical protection of nuclear and radiological material.

OVERVIEW

Materials

The National Commission for Nuclear Activities Control in Romania is cooperating with the U.S. Department of Energy to implement an agreement to upgrade the security of radioactive sources and nuclear material in Romania. Physical protection upgrades at the research institute for Physics and Nuclear Engineering, Horia Hulubei, are underway, as are ongoing upgrades at two Romanian hospitals.⁷¹

Culture

Romania is contributing to regional efforts to improve nuclear security culture and taking advantage of available IAEA services to improve domestic capacity. The country contributed 500,000 euro to the ongoing efforts to secure the Chernobyl facility in Ukraine, and also participated in a joint exercise with Norway in 2011 to improve radiological emergency protection and intervention. The Romanian government invited the IAEA to conduct an IPPAS mission in 2012.⁷² There are reports that the number of countries requesting missions outpaces the number of available teams, so it has not been scheduled as of this report's writing.

ROMANIA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Russia

HIGHLIGHTS

Russia has played a major role in many of the material removals and repatriations throughout the summit process, most recently receiving a shipment of HEU fuel from Ukraine. Russia also is contributing to HEU minimization efforts domestically.

OVERVIEW

Materials

Since the summit process began, Russia has repatriated over 1,500 kilograms (kg) of HEU fuel from 12 countries. In 2012, Russia took back nearly all of Ukraine's fresh HEU fuel. In 2011, Russia received nearly 100 kg of fresh HEU fuel from Belarus and Ukraine, and 90 kg of spent fuel from Poland and Serbia. Prior to the summit process, Russia received a total of 250 kg of spent HEU fuel in four separate shipments, and one shipment of 30 kg of fresh HEU fuel.⁷³ Russia received Romania's remaining spent HEU fuel by air in 2009 in the first mission of its kind.⁷⁴

Russia is engaged in several projects to minimize reliance on HEU. In cooperation with the United States, Russia has continued its work to convert HEU-fueled research reactors to LEU fuel. The countries concluded their joint feasibility study on the conversion of six Russian HEU reactors in June 2012. They expect that at least one of the identified research reactors, the Argus reactor at the Kurchatov Institute, to be converted ahead of the 2014 NSS and the rest to follow. Roughly 30 tons of excess military HEU is downblended each year to LEU for use in power generation, and a total of 500 tons will be downblended by the end of 2013. Russia also has expressed its intention to restrict exports of medical isotopes to those produced with LEU.

Additionally, Russia has pledged at three or more

international gatherings since the Seoul summit that it will limit its use of HEU and phase-out HEU for medical isotope production.

Governance

In an effort to modernize the management mechanisms for nuclear safety and security, Russia passed the Federal Law on Radioactive Waste Management in July 2011.

Smuggling

Russia currently maintains a national register of radioactive sources to account for and track this material. In September 2011, Russia announced that it had successfully installed portal monitoring equipment at every border crossing in the country.⁷⁵

Culture

Russia serves as a co-chair of the GICNT, and in September 2012 hosted a GICNT exercise that demonstrated new nuclear forensics technology and emergency response efforts. Russia also holds nuclear security training sessions that are open to international participants at the Interdepartmental Special Training Centre in Obninsk. This center is one of several that are leading the way toward making nuclear security trainings accessible to participants from around the world, and is part of the summit initiative to coordinate between centers of excellence in various countries to provide essential training. There also is ongoing cooperation between the Russian government, IAEA, and Tomsk Polytechnic University, which launched a program in Nuclear Control and Regulation in Nuclear Security in 2009. The program's curriculum is based on IAEA guidance and accredited by the Russian regulator.⁷⁶

Gift Baskets: Global Partnership, Global Initiative.

RUSSIA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	737 +/- 120 tons
Plutonium:	128 +/- 8 tons

Saudi Arabia

HIGHLIGHTS

Saudi Arabia is planning to build a large nuclear energy program over the next 20 years. Given these plans, the country is focused on building up its domestic infrastructure to regulate, operate, and maintain the future fleet of electricity-generating reactors.

OVERVIEW

Governance

In 2011, the Saudi government announced that it intended to build 16 nuclear reactors over the next 20 years, and that this activity would be managed by K.A. CARE, the King Abdullah City for Atomic and Renewable Energy, a city established in 2010 and dedicated to the management, construction, and regulation of the country's new nuclear energy program.

Culture

Saudi Arabia contributed to regional efforts to ensure the safe and secure deployment of nuclear technology. A center of excellence was established in 2012, and regional training courses are being held at the Naïf Arab University for Security Sciences in cooperation with the IAEA.

Saudi Arabia held several workshops on UNSC Resolution 1540 implementation efforts, with two additional workshops planned for 2013. The Saudi mission to the UN also announced a \$500,000 contribution to the UNSC Resolution 1540 Committee in 2012, a contribution that will be used to help that organization execute its mandate to collect and oversee country reporting on weapons of mass destruction (WMD) prevention efforts.

SAUDI ARABIA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Singapore

HIGHLIGHTS

Singapore's efforts to improve nuclear security have centered on improving nuclear forensics and detection capabilities through domestic action and regional cooperation.

OVERVIEW

Governance

Singapore is in the process of amending its domestic legislation in order to ratify the CPPNM and its 2005 amendment, as well as ICSANT. In February 2013, Singapore completed its most recent update of its export control list and submitted its latest report to the UNSC Resolution 1540 Committee in May 2013.

Smuggling

In 2013, Singapore plans to establish a nuclear forensics laboratory, which will allow the country to improve detection capability. In 2011, Singapore hosted a workshop on nuclear detection and forensics in cooperation with the EU and the United States. Singapore also has cooperated with the U.S. Megaports Initiative since 2006, and officially took control of implementation of the initiative in June 2012. The successful transfer to local authority is a key goal of the Megaports program.

Gift Baskets: Radioactive Sources.

SINGAPORE	
Treaty Status	
CPPNM:	No
CPPNM 2005:	No
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	No
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

South Africa

HIGHLIGHTS

South Africa has contributed to efforts to minimize the use of HEU around the world, with technical advancements that allow production of crucial medical

isotopes using LEU.

OVERVIEW

Materials

South Africa completed its conversion of molybdenum-99 (Mo-99) medical isotope production to LEU in 2011.

Governance

South Africa revised its domestic regulations to build capacity for nuclear security efforts and implementation is ongoing. Other domestic efforts include the use of the IAEA's Self-Assessment Tool and the inclusion of recommendations from an Integrated Nuclear and Infrastructure Review.

Culture

South Africa is in the process of establishing a national nuclear forensics laboratory, which will include a nuclear security training component. The laboratory and training program are the result of collaborations between South Africa's Nuclear Energy Corporation and the IAEA.

SOUTH AFRICA	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	No
GICNT:	No
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	600 kilograms
Plutonium:	None

Spain

HIGHLIGHTS

Spain is contributing to domestic and regional efforts to improve nuclear security culture through trainings and collaborative initiatives.

OVERVIEW

Governance

Spain launched a nuclear forensics task force in 2011, and amended its anti-smuggling act and export control regulations. Spain also has served

as the GICNT Implementation Assessment Group Coordinator since 2010 and hosted the group's meeting in 2011.

Culture

Spain is interested in improving regional nuclear security, and is working with Morocco to enhance Morocco's domestic nuclear and radiological security. The government also hosted a seminar on WMD prevention in 2011 in cooperation with a Spanish think tank. In 2011, Spain worked with the IAEA to develop a new National Assessment of the DBT. Spain hosted a seminar on how to define, integrate, and maintain a DBT. In May 2013, Spain co-organized the GICNT Radiological Emergency Management Exercise with Morocco.

Gift Baskets: National Legislation Kit, Radioactive Sources, Nuclear Information Security, Global Initiative.

SPAIN	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Sweden

HIGHLIGHTS

Sweden is a major contributor to anti-smuggling efforts.

OVERVIEW

Materials

Sweden repatriated several kilograms of U.S.-origin separated plutonium in 2012.

Culture

In February of 2012, Sweden welcomed an IAEA IPPAS mission, and has since requested a follow-up mission. It supports the EU CBRN CoEs and hosted the second INTERPOL Radiological and Nuclear Trafficking and

Terrorism Conference in April of 2012.

Gift Baskets: Radioactive Sources, Global Partnership, Nuclear Information Security, Counter-Smuggling.

SWEDEN	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	None
Plutonium:	None*

Switzerland

HIGHLIGHTS

Switzerland's efforts in support of the NSS agenda have centered on the connection between cyber and nuclear security, and the need for centralized training facilities.

OVERVIEW

Governance

The government drafted a cyber-security strategy that focuses on the need to protect critical infrastructure in January 2012.

Culture

Switzerland conducts trainings for personnel in radiological and nuclear security at its national Center of Competence. This center, which existed prior to the summit process, is part of the growing network of centers whose expertise is being leveraged to improve nuclear security education and training around the world. Additionally, Switzerland is part of the IAEA's working group on Nuclear Detection Architecture, which plans to publish guidance for states on this issue as part of the Nuclear Security Series.

Gift Baskets: Radioactive Sources, Global Partnership, Nuclear Information Security.

SWITZERLAND

Treaty Status

CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	No

Fissile Material Holdings

HEU:	5-10 kilograms
Plutonium:	None

Thailand

HIGHLIGHTS

Thailand has emerged as a proponent for greater regional cooperation on nuclear security issues. It hosted several regional workshops and established a network of regional nuclear regulators with the goal of greater information sharing and best practices development.

OVERVIEW

Materials

Thailand enhanced its detection capabilities and now has a total of 14 monitoring stations that are used as local operation centers for first responders. It also plans to establish a nuclear forensics center in its Office of Atoms for Peace in 2013.

Governance

In June 2010, Thailand adopted a new nuclear and radiological emergency plan as part of its efforts to harmonize efforts to improve nuclear safety and security.

Smuggling

Thailand operates a Megaports Initiative and is cooperating with the United States on the Container Security Initiative.

Culture

In 2012, Thailand established ASEANTOM, a regional network of nuclear regulators, which will serve as a forum for information sharing, best practices development, and trainings for Southeast Asia. Thailand hosted an ASEAN (Association of Southeast Asian Nations) Regional Forum workshop on nuclear forensics in December 2011, and is planning several

additional regional workshops on nuclear safety and security for 2013. It will also host an NSS Sherpa meeting in January 2014.

Gift Baskets: Radioactive Sources, Nuclear Information Security, NSS Outreach.

THAILAND	
Treaty Status	
CPPNM:	No
CPPNM 2005:	No
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	Yes
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Turkey

HIGHLIGHTS

Turkey's accomplishments include improvements in domestic regulation and expanded detection systems to prevent nuclear smuggling.

OVERVIEW

Governance

Turkey has updated its domestic legislation with respect to nuclear security.

Smuggling

Turkey deployed portal monitors and outfitted organized crime units in 81 provinces and 36 districts with radiation dose rate meters. Nearly all customs offices in Turkey have been automated, and most customs transactions are done electronically. Turkey also participates in the European Radiological Data Exchange Platforms, which help countries track radiological material movement in the region. Additionally, Turkey signed a cooperative agreement with Iran to that included initiatives to prevent nuclear trafficking in 2011.

Culture

Turkey also is engaged in nuclear security culture development in the region. It hosted workshops in cooperation with the Global Initiative Study Network and Skdeniz University in 2009 and 2010, and a

commodity identification training program under the U.S. Export Control and Related Border Security Program in Ankara in February 2011.

Gift Baskets: National Legislation Kit, Nuclear Information Security, Counter-Smuggling.

TURKEY	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	Yes*
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

Ukraine

HIGHLIGHTS

Ukraine became the 8th country to eliminate its HEU since President Obama's speech in Prague April 2009, which first articulated the four year effort to secure all vulnerable nuclear materials worldwide. The country also has taken significant steps to improve domestic legislation associated with nuclear controls and physical protection of nuclear and radiological material.

OVERVIEW

Materials

In March 2012, Ukraine repatriated the last of its Russian-origin HEU.⁷⁷ In a process that began prior to the summit and was completed in 2010, Ukraine's 15 HEU-powered research reactors were converted to LEU.

Governance

After updating local laws to comply with international terrorism conventions, Ukraine established a new State Nuclear Inspectorate to monitor compliance with new nuclear security regulations. The government also cooperates with the IAEA under its Integrated Nuclear Security Support Plan, and is developing a new plan for nuclear security assistance with the help of the IAEA's Office of Nuclear Security. Since the 2010 Washington summit, Ukraine approved a national DBT and guidance for an improved physical protection system for nuclear materials.⁷⁸ Ukraine also

is conducting training courses in physical protection for nuclear industry operators.

Smuggling

In addition to its work to improve domestic nuclear security, Ukraine strengthened its anti-smuggling measures. A radioactive detection system was established to secure border crossings in the north, along interstate highways, and in all major airports. There also are ongoing efforts at Ukraine's national laboratories to upgrade equipment to better identify bulk-form nuclear materials.

Culture

Ukraine is focusing attention on nuclear security trainings; courses on physical security and accounting of nuclear materials are conducted at the Kyiv Nuclear Research Institute's center of excellence and at the Sevastopol National University of Nuclear Energy and Industry. The training programs were developed by Ukraine's nuclear energy company, ENERGOATOM.

Gift Baskets: Global Partnership, Training and Support Centers.

UKRAINE	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None*
Plutonium:	None

United Arab Emirates

HIGHLIGHTS

The United Arab Emirates (UAE) has engaged in a series of trainings and workshops to improve domestic nuclear security culture. Because the country is developing a domestic nuclear energy program, UAE's focus has been on improving domestic infrastructure and regulation.

OVERVIEW

Governance

As of 2012, the UAE had passed a series of new

regulations designed to improve domestic nuclear security. The new measures include improvements in the physical protection of radioactive materials, emergency preparedness, transportation, and accounting and control.

Import and export laws were also strengthened, with specific language to prevent the financing of nuclear trafficking.

Smuggling

To further efforts to curb smuggling in the region, the UAE is collaborating with the United States to implement the Megaports Initiative program at the port of Jebel Ali in Dubai.

Culture

In June 2010, the UAE hosted a plenary meeting for the GICNT in Abu Dhabi and organized a regional seminar on the implementation of nuclear safety, security, and safeguards legislation. In February 2011, the United States and the UAE announced the establishment of the Gulf Nuclear Energy Infrastructure Institute, which will train regional personnel in how to effectively implement nuclear safety, security, and safeguards requirements. In November 2011, the UAE hosted a national workshop on radioactive source security, and is organizing additional meetings, including a regional workshop on nuclear security infrastructure for law enforcement personnel in 2013. In January 2013, the Gulf Cooperation Countries were invited to join the EU CBRN CoE project during an event co-hosted by the United Arab Emirates.

Gift Baskets: Radioactive Sources, Training and Support Centers, Counter-Smuggling.

UNITED ARAB EMIRATES	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes
ICSANT:	Yes
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	None
Plutonium:	None

United Kingdom

HIGHLIGHTS

The United Kingdom (UK) is a leader in the effort to strengthen global nuclear security. It has contributed to multilateral efforts to convert reactors and minimize the use of HEU, and encouraged trainings to improve security culture. The UK implemented domestic regulatory reform to better integrate nuclear safety, security, safeguards implementation, and radioactive materials transport.

OVERVIEW

Materials

The UK hosted an IPPAS mission to its Sellafield site in 2011, and continues to implement the recommendations from that review. A follow-up mission was requested in 2011, but its date has not been set. Since 2010, the UK has contributed to several material removal and reactor conversion projects through its Global Threat Reduction Programme including the shutdown of the BN-350 reactor in Kazakhstan and the construction of a centralized storage facility for spent radioactive sources in Ukraine.

Governance

Domestic efforts to improve nuclear security governance included the establishment of the Office for Nuclear Regulation, which is designed to align the various regulatory structures that govern nuclear material and facilities.⁷⁹ The country also began implementing its new National Strategic Framework to prepare for nuclear emergencies and joined the IAEA's Response and Assistance Network which is designed to facilitate IAEA assistance to member states in the aftermath of a nuclear accident or incident.

Culture

As chair of the Global Partnership in 2013, the UK is leading efforts to coordinate and expand the role of the burgeoning group of centers of excellence. The UK also provided financial support for WINS. The UK National Nuclear Center of Excellence is working to develop new, proliferation resistant technology for nuclear energy and will share its findings with the EU CBRN CoEs. The National Skills Academy added a nuclear curriculum, which provides nuclear safety and security training to industry employees, and supports overall implementation of the UK Nuclear Programme. The UK is participating in a multilateral master's program in nuclear security that was officially launched in April 2013 and involves universities from four other European countries.⁸⁰ The UK also led development of the nuclear information security gift basket offered at the 2012 NSS.

Gift Baskets: National Legislation Kit, Transport Security, Global Partnership, Nuclear Terrorism, Nuclear Information Security, Training and Support Centers, Global Initiative, Counter-Smuggling.

UNITED KINGDOM

Treaty Status

CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	Yes

Multilateral Initiatives

ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	Yes
Nuclear Security Fund Contributor:	Yes*

Fissile Material Holdings

HEU:	21.9 tons
Plutonium:	90 tons

United States of America

HIGHLIGHTS

The United States hosted the first NSS in 2010, the first International Regulators Conference on Nuclear Security in 2012, and has made significant progress in efforts to secure nuclear and radiological material both domestically and around the world.

OVERVIEW

Materials

The United States assisted in the removal of more than 400 kg of HEU from 10 countries, and downblended more than 450 metric tons of Russian HEU fuel, as of July 2012. The United States also finalized the Plutonium Management Disposition Agreement with Russia in July 2011 which will eliminate 34 metric tons of plutonium in both countries—enough for 17,000 nuclear weapons. Additionally, the necessary administrative action to allow 100 kg of separated plutonium to enter the United States for storage and disposal was completed. To encourage HEU minimization domestically and globally, the United States invested \$72 million in development of new research reactor fuels. The United States also revised its national classification guide, developed a nuclear forensics lexicon, and created a framework for nuclear forensics libraries.

To enhance domestic security of nuclear and radiological material, the United States recovered more than 4,000 domestic radioactive sources, and completed security upgrades at more than 500 facilities. All Category I and II special nuclear material

has been removed from Lawrence Livermore National Laboratory and more than 10 metric tons of HEU has been converted to LEU since the start of the NSS process. In total, the United States assisted or led efforts to secure nuclear and radiological material in more than 1,300 buildings worldwide.

The United States also has conducted facility security assessments at all NNSA facilities and is completing security upgrades at Y-12 and the Los Alamos National Laboratory. Security-by-design features are being incorporated in several domestic facilities including the Mixed Oxide Fuel Fabrication Facility, HEU Materials Facility, and the Uranium Processing Facility. Other security upgrades include remotely operated weaponry, enhanced communication technologies, new vehicle detection cables, advanced thermal and targeting lasers, improved explosive detection capabilities, and new entry control search technologies.

In June 2012, the United States announced steps to minimize the use of HEU for civilian purposes while ensuring the reliable supply of medical isotopes, particularly Mo-99. These steps included urging the Mo-99 industry to voluntarily establish unique product codes for goods produced without HEU, preferential procurement of non-HEU produced products, reduction of HEU exports for medical isotopes, and support for conversion of production from HEU to LEU. Additionally, the United States the American Medical Isotope Production Act became law in January 2013. This law calls on the United States to phase out the production of medical isotopes over a seven year period and establishes a technology-neutral program to support the production of Mo-99 in the United States.

Governance

The United States serves as co-chair of the GICNT and led efforts to develop and publish INFCIRC225/Rev 5. The United States also implemented new material controls and accounting, physical protection, and information security policies based on new vulnerabilities assessments and the recommendations of INFCIRC225/Rev5. The Nuclear Regulatory Commission developed regulations regarding the physical protection of radiological byproduct materials, which were assessed by the Government Accountability Office. In May 2013, the United States House of Representatives passed implementing legislation, which brought the country closer to completing ratification of the CPPNM amendment and ICSANT, but the Senate has yet to act. Also in May 2013, new legislation, the Next Generation Cooperative Threat Reduction bill, was introduced in the Senate to expand support for U.S. threat reduction work in the Middle East and North Africa.

Smuggling

The United States is developing and testing new static and mobile radiation detection technologies as part of its efforts to improve anti-smuggling capability and detect the illicit transfer of nuclear and radiological material. A database of U.S. nuclear material holdings also has been refined to aid law enforcement officials, and the United States has reported materials outside of legitimate control to the IAEA. The United States also continues to improve its counter smuggling capacity through increased law enforcement, intelligence, and international cooperation.

Culture

The United States hosted the first International Regulators Conference on Nuclear Security, which was held outside Washington, D.C., in December 2012. In February 2013, the United States hosted a workshop on nuclear security in its role as chair of the Global Partnership. Following the accident at Fukushima, a U.S.-Japan Working Group was formed to enhance cooperation ahead of the 2012 Seoul summit, conduct a peer review of security-by-design implementation at processing facilities, and a range of other activities. The United States has made financial contributions to WINS and also is supporting a WINS-led force-on-force workshop at the Y-12 National Security complex, which will take place over the next three years. Additionally, the IAEA will conduct an IPPAS mission in 2013.

Since the start of the NSS process, the United States trained more than 1,400 primary responders in radiological alarm response. As part of its efforts to implement a new strategic plan and domestic search plan for the Global Nuclear Detection Architecture, the United States also trained more than 7,500 federal, state, and local law enforcement officers in nuclear detection techniques. The U.S. *Silent Thunder* table-top exercise program, an interagency effort, is designed to provide hands-on crisis management experience, facilitate inter-agency coordination, and improve emergency response methods using fictional WMD terrorism scenarios. Exercises are completed in facilities that house nuclear or high-activity radioactive materials all across the country. Twelve exercises have been completed since October 2011 and two more are scheduled for 2013.⁸¹

The United States also is working to address and mitigate the insider threat through increased human reliability evaluations, security reviews, and new training for adjudicators. Further, the United States monitors anomalous behavior on computer networks, and updated the access requirements to sensitive nuclear information. The United States led four multilateral joint statements on contributions by the GICNT, NSS outreach efforts, nuclear security training and support centers, and the Global Partnership,

which were presented at the 2012 summit.

Gift Baskets: Nuclear Information Security, Global Partnership, Training and Support Centers, National Legislation Kit, Counter-Smuggling, NSS Outreach, Global Initiative, Transport Security, Medical Isotopes, LEU Fuel Project, Semipalatinsk, Nuclear Terrorism.

UNITED STATES	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	No
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	Yes
GICNT:	Yes
Global Partnership:	Yes
Megaports:	No
Nuclear Security Fund Contributor:	Yes*
Fissile Material Holdings	
HEU:	610 tons
Plutonium:	34 tons

Vietnam

HIGHLIGHTS

Vietnam has made significant progress reducing its use and stores of nuclear materials. Successful conversion of the Dalat research was completed in 2011 and in early 2012, Vietnam and Russia signed an agreement to return HEU spent fuel from the reactor to Russia. This removal is scheduled for 2013.

OVERVIEW

Materials

In addition to the conversion of the Dalat research reactor, and the related spent fuel removal that is planned for 2013, the government established a registry of radioactive sources, installed eight new radiation detection monitors, and upgraded physical

protection for 21 radiation facilities with Category 1 sources.⁸²

Smuggling

In September 2012, Vietnam's first Megaports Initiative site became operational at Cai Mep International Terminal. Vietnam also partnered with the ROK to launch a pilot program designed to track radiological materials in transit in real-time.⁸³ This initiative is an effort led by the ROK to better control radiological sources in East Asia.

Culture

Vietnam is cooperating with the IAEA on an Integrated Nuclear Security Support Plan and has organized workshops on the physical protection of nuclear assets and radioactive materials. The first, in October 2012, focused on training emergency responders in the case of a radiological disaster. The second, held in December 2012, was a seminar on the necessary infrastructure to safely and securely develop nuclear power attended by representatives of more than a dozen countries in the region.

Gift Baskets: National Legislation Kit, Nuclear Information Security.

VIETNAM	
Treaty Status	
CPPNM:	Yes
CPPNM 2005:	Yes*
ICSANT:	No
Multilateral Initiatives	
ITBD Participation:	Yes
PSI:	No
GICNT:	Yes
Global Partnership:	No
Megaports:	No
Nuclear Security Fund Contributor:	No
Fissile Material Holdings	
HEU:	1-10 kilograms
Plutonium:	None

Conclusion

Every country that participated in the March 2012 Seoul Nuclear Security Summit has taken steps to improve nuclear security at the national, regional, or international level. These activities reflect the principles laid out in the Washington and Seoul communiqués and commitments made in the joint statements offered in 2012. Notably, since the Seoul summit in March 2012:

- 44 countries hosted nuclear security related workshops, conferences, and exercises⁸⁴
- 22 countries enhanced their counter-smuggling, transport security and border control capacities⁸⁵
- 32 countries strengthened their nuclear security laws and regulations⁸⁶
- 16 countries ratified the 2005 CPPNM amendment⁸⁷
- 9 countries hosted, requested, or are preparing for IPPAS missions⁸⁸
- 9 countries ratified ICSANT⁸⁹
- 6 countries are planning to repatriate nuclear materials ahead of the 2014 NSS⁹⁰
- 2 countries eliminated all of their HEU⁹¹

The NSS process has elevated this issue to the highest political level among 53 countries from every region of the world. Prior to 2010, nuclear security was largely viewed as a technical problem for nuclear weapons states. However, that outlook oversimplified the threat posed by nuclear materials and underestimated the potential consequences of nuclear terrorism. The summit process has helped globalize this issue and narrow the threat perception gap between countries in the developed and developing world.

Broadening the 2012 summit's agenda beyond fissile materials to include radioactive sources has played an important role in gaining broader recognition that all countries have a stake in improving global nuclear security. Though every country does not possess fissile materials, radioactive sources are used nearly everywhere for medical and industrial purposes and

could be fashioned into a dirty bomb. Population growth and increasing electricity demands also are spurring the expansion of nuclear power in new regions, and global trade has made the national interests of states more closely intertwined than ever before. It is therefore crucial that all states recognize and actively participate in the international effort to secure vulnerable radioactive materials, prevent smuggling, and build human capacity.

Measuring improvements in nuclear security at a global level is not a simple task. The sensitive nature of the materials and installations involved cause governments and private companies to err on the side of secrecy. Analysts must often rely on news articles, press releases, personal experiences, and anecdotes to assess the strengths and weaknesses of security systems. The nationally-focused nature of the nuclear security regime further stymies efforts to take a comprehensive look at a "system" that lacks universal standards, information sharing requirements, or regular peer review mechanisms.

The lack of cohesiveness in the system extends to how states report on their efforts to improve nuclear security. The progress reports submitted by participants at the 2012 Seoul summit contain valuable information, but too often it was difficult, and sometimes impossible, to corroborate their data with independent sources. The free-form reporting style used for the Seoul summit also resulted in inconsistent reporting by participating states, further complicating efforts to evaluate progress. This report aggregated and contextualized the efforts that states reported at the 2012 summit and supplemented it with additional sources. However, it is necessary to



Saul Loeb/AFP/Getty Images

Lee Myung-Bak, right, president of the Republic of Korea, greets the Netherlands Foreign Minister Uri Rosenthal at the 2012 Seoul Nuclear Security Summit on March 26. The Netherlands will host the next Nuclear Security Summit in March 2014.

note that these efforts are limited by a distinct and pervasive lack of transparency and consistency in the current nuclear security regime. This needs to change, as numerous examples in other fields have demonstrated that overzealous confidentiality is itself a significant liability. The summit process has made progress in demonstrating that more information can be safely shared and that cautious openness can help lead to greater cooperation among states, but there is still much work to be done in this area.

From Washington to Seoul, a shift occurred from countries offering specific national commitments (“house gifts”) to multinational joint statements (“gift baskets”). This evolution is a useful and positive development in tackling issues that no single country can adequately address alone, but it also made tracking the status of commitment implementation with open sources much more difficult. Few news articles have been published or press releases issued about the status of joint statement collaborations since Seoul. Further, there was not a common structure to these 13 joint statements, and exact timelines for action and intended outcomes were not always clear. Ahead of the 2014 NSS, a new version of this report will be released that focuses on gift basket results.

The 2014 summit in The Hague will be an important milestone for both the summit process and the evolution of the nuclear security regime. It marks the end of the four-year effort to secure all vulnerable

nuclear materials around the world and calls for an assessment of what the summit process has achieved. Summit participants should acknowledge the progress that has been made and the additional work that is required over the long-term. Speaking with one voice and committing to further collaboration and innovation to improve the nuclear security regime would be far more useful than simply declaring the four year effort a success. Incremental improvements have been a key feature of the NSS process to date. These actions have been important steps in advancing global security, but they have proceeded without defining a vision for the ultimate end-state that participants hope to achieve. The foundations of the nuclear security regime need to be strengthened, not just patched.

Nuclear security is a global challenge that requires a global response and continuous improvement to stay ahead of emerging threats in a complex, globalized environment. Summit participants must use the 2014 NSS to begin defining the future of nuclear security. Having drawn the personal attention of world leaders to nuclear security issues three times in four years, they must not allow the summit process to end without outlining a strategy to address the structural deficiencies of the current nuclear security regime. Eliminating weak links from the international system will require time, cooperation, and compromise, but these are facts, not justifications for inaction.

Gift Baskets from the 2012 Seoul Nuclear Security Summit

Joint statements are presented in descending order of the number of signatories. There are 13 statements in all, and the full text for each can be found at: <http://partnershipforglobalsecurity.org/nss/>. Countries with the * led the joint statements.

Nuclear Information Security

SIGNATORIES				
Algeria	Georgia	Kazakhstan	Philippines	Thailand
Australia	Germany	Malaysia	Poland	Turkey
Canada	Hungary	Mexico	Republic of Korea	United Arab Emirates
Chile	Indonesia	Netherlands	Spain	United Kingdom*
Czech Republic	Italy	New Zealand	Sweden	United States
Finland	Japan	Norway	Switzerland	Vietnam
France				

This statement is designed to encourage improvements in information security through assessment, review, best practice development, and implementation of new regulations. Signing states commit to develop and strengthen national measures, arrangements, and capacities for effective information security and management. Specifically, states will hold national assurance exercises to identify strengths and weaknesses, implement IAEA recommendations on information security, and develop mechanisms to continually improve personnel reliability.

Global Partnership against the Spread of Weapons and Materials of Mass Destruction

SIGNATORIES			
Australia	Finland	Kazakhstan	Russian Federation
Belgium	France	Netherlands	Sweden
Canada	Germany	New Zealand	Switzerland
Czech Republic	Ireland	Norway	Ukraine
Denmark	Italy	Poland	United Kingdom
European Union	Japan	Republic of Korea	United States*

Signing states recognize the contribution of more than \$55 million to the IAEA Nuclear Security Fund since 2010 and welcome the continuation of this crucial support.

Nuclear Security Training and Support Centers

SIGNATORIES			
Algeria	Hungary	Republic of Korea	Pakistan
Australia	Indonesia	Lithuania	Philippines
Canada	Italy	Malaysia	Ukraine
Chile	Japan	Mexico	United Arab Emirates
Czech Republic	Jordan	Morocco	United Kingdom
Germany	Kazakhstan	Netherlands	United States*

Signing states note their intent to collaborate with emerging centers of excellence and existing International Network for Nuclear Security Training and Support Centers, to support efforts to improve training for nuclear security personnel, and provide scientific support for the detection and response to nuclear security events.

Security of Radioactive Sources

SIGNATORIES			
Australia	Hungary	Morocco	Singapore
Canada	Indonesia	New Zealand	Spain
Czech Republic	Italy	Norway	Sweden
Denmark	Japan	Philippines	Switzerland
Finland	Kazakhstan	Poland	Thailand
Germany*	Malaysia	Republic of Korea	United Arab Emirates

Signing states agree that gaps exist and must be filled to meet targets set in Seoul. The statement encourages accession to ICSANT, implementing the Code of Conduct and IAEA Nuclear Security Series, establishment of national registers for radioactive sources, and international cooperation to recover lost, missing, or stolen sources and maintain control over disused sources.

National Legislation Implementation Kit on Nuclear Security

SIGNATORIES			
Australia	Canada	Finland	Hungary
Indonesia*	Japan	Kazakhstan	Malaysia
Netherlands	New Zealand	Norway	Philippines
Poland	Republic of Korea	Spain	Turkey
United Kingdom	United States	Vietnam	

Signing states support Indonesia's initiative to develop a kit that will help states develop more comprehensive national legislation to improve nuclear security in accordance with their internal legal processes. The kit is intended to address the increase in requests for assistance since the 2010 NSS and the lack of a single template for national legislation that can be applied across all countries' circumstances and systems.

Activity and Cooperation on Counter Nuclear Smuggling

SIGNATORIES			
Jordan*	Canada	Czech Republic	Finland
France	Georgia	Hungary	Israel
Italy	Japan	The Republic of Korea	Lithuania
Malaysia	Philippines	Sweden	Turkey
United Arab Emirates	United Kingdom	United States	United Kingdom

Signing states acknowledge the importance of countering nuclear smuggling, including by recovering materials outside of regulatory control and prosecuting parties that provide assistance to would-be terrorists and smugglers. The statement recognizes that actions that states have already taken to these ends and notes additional measures that will be taken.

Nuclear Security Summit Outreach Efforts

SIGNATORIES			
Chile	Morocco	Nigeria	Poland
Republic of Korea	Thailand	United States*	

Signing states hosted regional outreach meetings to strengthen global nuclear security through dialogue and cooperation and promote the continuation of such outreach efforts to implement the 2010 Communiqué and Work Plan, the 2012 Communiqué, and in preparation for the 2014 NSS.

Contributions of the Global Initiative to Combat Nuclear Terrorism (GICNT) to Enhancing Nuclear Security

SIGNATORIES			
Australia	Netherlands	Morocco	Russian Federation
Spain	United States*		

Signing states acknowledge the contributions of the GICNT by recognizing its Nuclear Detection Working Group, led by the Netherlands, the Nuclear Forensics Working Group, led by Australia, and its Response and Mitigation Working Group, led by Morocco. The three groups developed guidance documents on enhancing nuclear and radiological detection, created Nuclear Forensics Fundamentals for Policy Makers and Decision Makers, and plan to focus on best practice development and capacity building to strengthen national emergency response.

Transport Security

SIGNATORIES			
France	Japan*	Republic of Korea	United Kingdom
United States			

Signing states agree to hold working group meetings with relevant international organizations to address transport security issues and support the implementation of INFCIRC225/Rev.5, relationship building among centers of excellence, and development of improved technology. A proposal for strengthening transport security will be presented at the 2014 NSS.

Minimization of HEU and the Reliable Supply of Medical Radioisotopes

SIGNATORIES

Belgium	France	Netherlands	United States
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The signing states reaffirm their determination to support conversion of European production industries to non-HEU-based processes by 2015. Goals include eliminating the use of HEU for medical isotope production and cooperation to ensure uninterrupted production of isotopes.

Quadrilateral Cooperation on High-density Low-enriched Uranium Fuel Production

SIGNATORIES

Belgium	France	Republic of Korea	United States
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Signing states agree to cooperate on the use of high-density LEU fuel power production technology to further minimize the use of HEU in industrial, medical, and research facilities.

Nuclear Terrorism

SIGNATORIES

United States	United Kingdom	France	
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The signing states agree to actively engage in international workshops to enhance effectiveness and sustainability of physical protection measures included in INFCIRC225/Rev.5. The three states will also engage with the international community and share their specialized expertise to strengthen worldwide preparedness to respond to the threat of a nuclear device.

Trilateral Cooperation at the Former Semipalatinsk Test Site

SIGNATORIES

Kazakhstan	Russian Federation	United States	
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The signers offered the nearly-complete work to eliminate the remnants of past nuclear testing at the Semipalatinsk Test Site as a model for successful cooperation on nuclear security and nonproliferation.

Notes on Sources

Information on the actions taken, or in progress, can be found in the national progress reports, which were submitted by participating countries at the 2012 Seoul Summit. They can be found online at partnershipforglobalsecurity.org.

Information on fissile material holdings comes from national declarations or the following source, unless otherwise noted:

- International Panel on Fissile Materials (IPFM), “Global Fissile Materials Report 2011: Nuclear Weapon and Fissile Material Stockpiles and Production,” January 10, 2012, <http://www.ipfmlibrary.org/gfmr11.pdf>

Not all countries declare their fissile material holdings. For some countries, a best estimate of HEU and plutonium stockpiles is provided. The symbol “±” denotes that there is some uncertainty to the estimates provided and that the actual fissile material holdings may fall within a larger range.

Some countries are listed as having less than 1 kilogram of HEU. Despite the remaining amounts, these countries are considered cleared of HEU. The remaining HEU in these countries is scrap material found primarily in old fuel plates and filters, making further disposition difficult and unnecessary.

Throughout this section, when fissile material is measured in tons, this refers to metric tons.

Membership in relevant international conventions was determined based on whether a country has deposited its instrument of ratification. The depository for the Convention on the Physical Protection of Nuclear Materials (CPPNM) and the CPPNM 2005 amendment is the International Atomic Energy Agency (IAEA). All information on ratifications of CPPNM and the CPPNM 2005 amendment can be found at

- IAEA, “Convention on the Physical Protection of Nuclear Material,” http://www.iaea.org/Publications/Documents/Conventions/cppnm_

[status.pdf](#); and

- IAEA, “Amendment to the Convention on the Physical Protection of Nuclear Material,” http://www.iaea.org/Publications/Documents/Conventions/cppnm_amend_status.pdf.

The United Nations acts the depository for the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT). All information on the ratification status of ICSANT is found at

- “15. International Convention for the Suppression of Acts of Nuclear Terrorism,” United Countries Treaty Collection, http://treaties.un.org/Pages/ViewDetailsIII.aspx?&src=UNTSOnline&mtdsg_no=XVIII~15&capter=18&Temp=mtdsg3&lang=en#Participants.

Unless otherwise mentioned, all information on membership in the Global Initiative to Combat Nuclear Terrorism (GICNT) and on GICNT trainings and workshops is from either the

- “Global Initiative to Combat Nuclear Terrorism,” Center for Nonproliferation Studies, July 18, 2011, or
- Global Initiative to Combat Nuclear Terrorism Key Multilateral Workshops and Exercises http://www.gicnt.org/download/iag/Complete_List_of_Past_GICNT_Activities.pdf;

Information on states participating in the Proliferation Security Initiative came from the Department of State’s Bureau of International Security and Nonproliferation.

- “Proliferation Security Initiative Participants,” Department of State, <http://www.state.gov/t/isn/c27732.htm>

Information on the states participating in the IAEA's Illicit Trafficking Database came from:

- "IAEA Incident and Trafficking Database: Incidents of nuclear and other radioactive material out of regulatory control 2013 Fact Sheet," <http://www-ns.iaea.org/downloads/security/itdb-fact-sheet.pdf>
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84. This includes all countries listed in the Since Seoul section under the Culture category’s “Centers of Excellence” and “Workshops and Conferences” subcategories: Brazil, Chile, Nigeria, Pakistan, Jordan, Algeria, Morocco, Philippines, Georgia, United Arab Emirates, China, India, Japan, Kazakhstan, Lithuania, Netherlands, Republic of Korea, Saudi Arabia, Germany, Russia, Singapore, South Africa, Thailand, Belgium, Denmark, Finland, Indonesia, Israel, Spain, Armenia, Egypt, Mexico, Sweden, Switzerland, Ukraine, Vietnam, Australia, France, United States, Canada, Italy, United Kingdom, Turkey, Poland.

85. This includes all countries listed in the Since Seoul

section under the Smuggling category: Argentina, Vietnam, Malaysia, Mexico, Singapore, Israel, Japan, France, United Kingdom, Jordan, Australia, Chile, Germany, Indonesia, Morocco, Pakistan, Poland, Republic of Korea, China, United States, Kazakhstan, and Azerbaijan.

86. This includes all countries listed in the Since Seoul section under the Governance category’s “Strengthening National Laws and Regulations” subcategory: Armenia, Belgium, France, Georgia, Israel, Mexico, Sweden, Vietnam, Australia, Nigeria, Turkey, Algeria, Canada, Czech Republic, Egypt, Gabon, India, Japan, Morocco, Republic of Korea, Singapore, Spain, Azerbaijan, Brazil, Chile, Indonesia, Finland, Kazakhstan, Lithuania, Malaysia, New Zealand, Netherlands, Norway, Philippines, Poland, Switzerland, Thailand, Ukraine, United Arab Emirates, United Kingdom, and United States.

87. This includes countries inside and outside of the NSS process that have ratified the 2005 amendment since March 2012 as listed in the Since Seoul section under the Governance category’s “Strengthening National Laws and Regulations” subcategory. The NSS participants are Armenia, Belgium, France, Georgia, Israel, Mexico, Sweden, and Vietnam. The non-NSS participants are Albania, Cyprus, Ghana, Lesotho, Luxembourg, Saint Lucia, Slovakia, and Uzbekistan.

88. This includes countries listed in the Since Seoul section under the Culture category’s “IPPAS Missions” subcategory: China, Romania, Norway, Australia, Hungary, Republic of Korea, United States, Finland, and Kazakhstan.

89. This includes countries inside and outside of the NSS process that have ratified ICSANT since March 2012 as listed in the Since Seoul section under the Governance category’s “Strengthening National Laws and Regulations” subcategory. The NSS participants are Australia, Nigeria, and Turkey. The non-NSS participants are Afghanistan, Costa Rica, Cote d’Ivoire, Iraq, Malta, and Saint Lucia.

90. This includes countries listed in the Since Seoul section under the Materials category’s “HEU and Plutonium” subcategory: Australia, Hungary, Vietnam, Japan, Belgium, and Italy.

91. This includes countries listed in the Since Seoul section under the Materials category’s “HEU and Plutonium” subcategory. The Czech Republic is an NSS participant and Austria is not.

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This Arms Control Association and Partnership for Global Security report seeks to provide a comprehensive overview of the progress made on nuclear security by 53 countries participating in the Nuclear Security Summit (NSS) process since the first summit in 2010. It draws specific attention to actions taken since the 2012 summit in Seoul.

The 2010 and 2012 summits brought high-level attention to the threat posed by radioactive materials and spurred countries to take action to prevent nuclear terrorism and further enhance global nuclear security. With less than a year before the third summit in the Netherlands, it is important to assess the progress that participating states have made in strengthening nuclear security over the past three years of the summit process. This will aid policymakers in determining what work remains to be done at the 2014 NSS and beyond.

The findings of this report show that while states have taken significant steps to lock down vulnerable nuclear material, strengthen international norms, and enhance security culture, more work remains to be done. The current regime remains a nationally-focused patchwork of laws, voluntary initiatives, and recommendations. At the 2014 summit in The Hague, NSS participants should push for a more cohesive, transparent, and effective nuclear security regime that includes more standardized reporting mechanisms and review measures to earn the confidence of the global community.

Arms Control Association

1313 L Street, NW, Suite 130
Washington, D.C. 20005
www.armscontrol.org

Partnership for Global Security

1400 Eye Street NW, Suite 440
Washington, D.C. 20005
www.partnershipforglobalsecurity.org