

# An Arms Control Association and Partnership for Global Security Report



## The Nuclear Security Summit: Progress Report on Joint Statements

March 2015

Michelle Cann, Kelsey Davenport and Jenna Parker

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## About the Authors

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## Cover Photo

Yves Herman/AFP/Getty Images

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*“We have to set very clearly what are the actionable items... Let’s go ahead and get them done so that in 2016 we can report out that we have made extraordinary progress and achieved many of the benchmarks and targets that we had set at the very first Nuclear Security Summit. In other words, I think it is important for us not to relax, but rather accelerate our efforts over the next two years, sustain momentum so that we finish strong in 2016.”*

*—President Barack Obama, The Hague, March 25, 2014*

## LIST OF ACRONYMS

- ASEAN:** Association of Southeast Asian Nations
- CBRN:** Chemical, biological, radiological, nuclear
- CoE:** Center of Excellence
- CPPNM/A:** Convention on the Physical Protection of Nuclear Material / Amendment
- EC:** European Commission
- EU:** European Union
- GICNT:** Global Initiative to Combat Nuclear Terrorism
- Global Partnership:** Global Partnership Against the Spread of Weapons and Materials of Mass Destruction
- HEU:** Highly-Enriched Uranium
- IAEA:** International Atomic Energy Agency
- ICSANT:** International Convention for the Suppression of Acts of Nuclear Terrorism
- INFCIRC:** IAEA Information Circular
- INSA:** International Nuclear Nonproliferation and Security Academy
- INTERPOL:** International Criminal Police Organisation
- IPPAS:** International Physical Protection Advisory Service
- IRE:** National Institute for Radioelements
- ISCN:** Integrated Support Center for Nonproliferation and Nuclear Security
- ITRAP+10:** Illicit Trafficking Radiological Assistance Program
- LEU:** Low-Enriched Uranium
- Mo-99:** Molybdenum-99
- NFI:** Netherlands Forensics Institute
- NDWG:** Nuclear Detection Working Group
- NFWG:** Nuclear Forensics Working Group
- NNSA:** National Nuclear Security Administration
- NSF:** Nuclear Security Fund
- NSOI:** Nuclear Smuggling Outreach Initiative
- NSS:** Nuclear Security Summit
- NSSC:** Nuclear Security Support Center
- NUSEC:** Nuclear Security Information Portal
- SCK-CEN:** Belgium Nuclear Research Center
- RMWG:** Response and Mitigation Working Group
- TTX:** Table Top Exercise
- U-Mo:** Uranium Molybdenum
- UN:** United Nations
- VERTIC:** Verification Research, Training and Information Centre
- WINS:** World Institute for Nuclear Security
- WMD:** Weapon of Mass Destruction

# Executive Summary

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**A**t the 2014 Nuclear Security Summit in The Hague, countries built on a model established at the 2012 Seoul summit, which advances critical nuclear security goals through voluntary collaboration on multilateral actions. In Seoul, groups of countries pledged to collaborate on priority issues, and to strengthen and improve these areas in voluntary joint statements, also referred to as “gift baskets.”

“Gift basket diplomacy” has been one of the most important and unique innovations of the summit process. These multilateral political commitments cover a wide range of technical, educational, and legislative issues that are necessary for improving global nuclear security. They emphasize the importance of regional and international cooperation and allow states to effectively cooperate on issues of mutual concern. The joint statements have no predefined format, structure, or reporting mechanisms. Instead, they encourage creativity, dynamism, and new leadership to address the transnational challenge of nuclear security. The success of these multilateral efforts led to a continuation and expansion of the practice at the 2014 summit.

This report outlines the progress made on 15 joint statements. Fourteen of the statements were issued

at the 2014 Nuclear Security Summit (NSS). Of these 2014 joint statements, six targeted new priorities—nuclear forensics, maritime security, highly-enriched uranium (HEU) removals, United Nations Security Council (UNSC) Resolution 1540, and strengthening nuclear security implementation—and eight were updates to statements issued at the 2012 summit—nuclear information security, national legislation implementation kit, training and support centers, counter nuclear smuggling, transport security, high-density low-enriched uranium production, and radiological security. In addition, this report provides an update on the medical isotopes joint statement issued at the 2012 summit. A new version of this statement was not issued at the 2014 summit, but it remains relevant due its goal for completion in 2015.

The next NSS will be held in the United States in 2016. This will be the last NSS in its current format and biennial timetable. To date, impending summits have acted as a forcing mechanism to hold states accountable for the political commitments they had made at previous summits. With no successor to the NSS process on the horizon, it is not clear whether the nuclear security joint statement model will continue after 2016.

It would be a significant loss to allow nuclear security gift basket diplomacy to end after the 2016 summit. The unique blend of high-level commitment making, time-bound follow-up, and targeted collaborative initiatives ignited action on long-held objectives, encouraged new countries to demonstrate leadership, and honed the focus of multilateral institutions with diverse constituencies and mandates. The joint statements, and the NSS process



**Dutch Prime Minister Mark Rutte addresses the media at the 2014 Nuclear Security Summit. The Netherlands hosted the third summit in The Hague on March 24-25.**

Freek van den Bergh - Pool/Getty Images



## Notable Achievements of the 2014 Joint Statements

- The **STRENGTHENING NUCLEAR SECURITY IMPLEMENTATION** initiative has been issued as an IAEA INFCIRC/869 to garner broader acceptance. At time of writing, no new countries have joined the initiative.
- The **TRANSPORT SECURITY** working group is preparing to hold at least one table-top exercise in 2015 and will share the results at the 2016 summit.
- All of the countries who committed to secure all Category 1 **RADIOLOGICAL SOURCES** in their territories by 2016 have registered their support for the IAEA Code of Conduct and most have done the same for the Supplementary Guidance, but not necessarily since the 2014 summit.
- The United States is hosting a **MARITIME SECURITY** workshop in late 2015 focused on permanently removing radioactive materials that are outside of regulatory control from the global maritime supply chain.
- Technical challenges have been encountered in creating **HIGH-DENSITY LOW-ENRICHED URANIUM FUEL**, but Germany has joined the initiative and efforts continue.
- An array of national, bilateral, and multilateral actions have been taken to **COUNTER NUCLEAR SMUGGLING**, including a workshop for all statement signatories hosted by Jordan in early 2014.
- Efforts to convert European **MEDICAL ISOTOPE** production to non-HEU-based processes will continue past the 2015 goal, until at least 2017. This statement was issued in 2012.
- Twelve countries have become **HEU-FREE** since the summit process began, and several others have secured or removed some HEU from their territories.
- The International NSSC Network met in August 2014 to share information and further cooperation, as did its subgroup, the Asian Regional Network of **NUCLEAR SECURITY SUPPORT CENTERS AND CENTERS OF EXCELLENCE**.
- Experts specializing in **FORENSICS IN NUCLEAR SECURITY** are cooperating through the four instruments set up by the Netherlands Forensics Institute and in other forums.
- The **GLOBAL INITIATIVE TO COMBAT NUCLEAR TERRORISM** held five exercises and three workshops in 2014. It also reviewed the progress of its three working groups at a July 2014 meeting of its implementation and assessment group.
- Countries continue to review and update their **NUCLEAR INFORMATION SECURITY** national standards, regulations, and guidance.
- Countries called for a **COMPREHENSIVE APPROACH TO NUCLEAR SECURITY** that includes both military and civilian stockpiles during the 2014 IAEA General Conference.
- More than a dozen countries have requested reviews of their national laws on nuclear security to identify any gaps as compared with the **NATIONAL LEGISLATION IMPLEMENTATION KIT**.
- Several countries have submitted updates to their **UN SECURITY COUNCIL RESOLUTION 1540** reports since the 2014 summit and hosted capacity building events in support of the resolution's objectives.

overall, compelled states and relevant institutional contributors to reflect on and communicate how their efforts complement the broader international system. In this way, joint statements have helped define the outlines of the patchwork regime and draw attention to its gaps and shortcomings – while simultaneously providing a tool to help mend them.

With the summit process concluding, gift basket diplomacy may provide an innovative mechanism for sustaining political momentum in improving the global nuclear security regime. Among the many gift

baskets that are expected to be issued in 2016, at least one should be formulated to look beyond narrow incremental improvements and envisage a global nuclear security system, which is relevant and effective in a world with wide-spread use of nuclear materials and decentralized threats. As the joint statements issued in 2012 and 2014 have demonstrated, the most successful statements are those that clearly identify deliverables and outcomes and include plans for achieving them. These lessons should be applied to all gift baskets issued in 2016.

# Introduction

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In Prague in 2009, newly elected U.S. President Barack Obama delivered a cornerstone policy speech, in which he outlined his vision for securing all vulnerable nuclear material within four years and improving the global nuclear security regime.

Subsequently, the Nuclear Security Summit (NSS) process was initiated with the objective of securing radioactive materials and increasing collaboration between states to prevent nuclear terrorism. Since then, a series of head-of-state summits have been held in Washington (2010), Seoul (2012), and The Hague (2014). The summit process will return to the United States in 2016.

In March 2014, leaders from 53 countries and four international organizations attended the third summit in The Hague. As at the Washington and Seoul summits, participating states presented a consensus communiqué. Each state also presented reports that documented domestic nuclear security progress and made pledges to take future actions. Additionally, many states issued joint statements—also known as gift baskets—which outlined their contributions to voluntary, multilateral efforts.

This report is the fifth in a series that has been assessing the outcomes of the summit process. The 2014 edition of this report evaluated the progress that countries had made on the commitments outlined in 13 joint statements issued at the 2012 summit. Following a similar model, this report looks at the 14 joint statements issued at the 2014 summit, as well as the medical isotopes joint statement issued in 2012.

While the summit process does not contain a standardized reporting mechanism for tracking adherence to national or multinational commitments, several states used the 2014 joint statements as an opportunity to present the results of the 2012 joint statement implementation efforts. Additionally, many states used their 2014 national progress reports to discuss how they had individually acted on their commitments from the 2012 summit.

Information for this report primarily is drawn from the 2014 summit documents, including the

joint statements, national progress reports, and national statements. The report also includes pertinent information from statements made by summit participants at the International Atomic Energy Agency (IAEA) General Conference in September 2014. A catalogue of summit documents can be found on the Partnership for Global Security website, and the IAEA statements are available on the agency's website. Information referenced from these documents is not individually cited.

This report also utilized additional open source material and direct communication with relevant government officials. When possible, the information was confirmed or clarified through outreach to Washington officials and the D.C. embassies of participating summit countries. On occasion, officials facilitated contact to other relevant government representatives who provided further details on particular joint statement actions. These open sources and communications are reflected in the notes of this report. There is no significance attached to the order in which the joint statements are presented.

The flexible nature of the joint statements model empowered states to craft goals and work plans specifically tailored to particular challenges in nuclear security. However, the lack of structure also allowed some joint statements to draw attention to a priority issue without defining how signatories would act to advance or address it.



Leaders from 53 countries gathered in The Hague on March 24-25, 2014, for the third Nuclear Security Summit. Leaders signed on to multilateral initiatives to advance nuclear security in key areas at the summit.

Similar to the last edition of this report, the findings presented here support the conclusion that the more successful joint statements identified clear deliverables or outcomes. Such statements facilitated follow-up among participants and included reporting to the international community. They also targeted key gaps in national nuclear security regimes and the international governance system. Inclusion of such elements encourages accountability and provides the political impetus to complete the determined tasks. Joint statements with vague commitments and unclear timetables for implementation were less successful.

With the biennial summit process coming to

an end in 2016, the future of nuclear security joint statements are uncertain. The high-level political attention generated by the summits certainly will wane without head-of-state involvement. While the self-selecting method of the joint statements allows motivated countries to continue strengthening nuclear security and push beyond weak consensus, it also allows less-motivated countries to fall through the cracks. Given the global nature of the threat posed by nuclear terrorism, more consideration must be given to sustainability and regime cohesion. Joint statements, if properly harnessed, can continue to play a role strengthening global nuclear security and addressing key gaps in the existing architecture.

# Assessment of Joint Statements

## TRANSPORT SECURITY

The joint statement on transport security encourages implementing International Atomic Energy Agency's (IAEA) recommendations, strengthening security culture, promoting research and development, and providing assistance to other states to improve the security of nuclear and radiological materials during domestic and international transit.

### SIGNATORIES

France, Japan, Republic of Korea, United Kingdom, United States (5)

This joint statement, led by Japan, focuses on enhancing the security of radioactive materials in transit through information sharing and cooperation among international stakeholders. The concept was first introduced as a joint statement at the 2012 Seoul summit, which created a working group and meeting plan for its signatories. The 2014 version of the joint statement includes the same five signatories and extends the working group's activities until the 2016 summit. The statement also shares the results of the working group's 2013 table-top exercise and outlines four areas in which the working group will focus its attention.

First, the five signatory states are considering how to share information concerning their domestic efforts to implement the IAEA's latest recommendations on the physical protection of nuclear materials and facilities and the forthcoming IAEA *Implementing Guide on Nuclear Material Transport*. In 2015, the working group is preparing to hold a table-top exercise on air and rail transport, and it also may conduct a second exercise focused on land and maritime transport. At these exercises, participating states will share information on transport security legislation and

regulations in order to produce new recommendations and best practices.<sup>1</sup> A summary report highlighting insights and results from the table top exercises may be shared with participants at the 2016 summit.

Second, the working group will build closer relationships among government ministries, agencies, Centers of Excellence (CoE), and Nuclear Security Support Centers (NSSC). Such collaboration aims to incorporate transport security into CoE and NSSC training curricula, provide experts to serve as instructors, and capture best practices and lessons learned. Following a meeting in October 2014, Japan will circulate a format for sharing information on how the activities of CoEs, NSSCs, and other organizations are supporting strengthened transport security.<sup>2</sup>

Third, the working group will continue promoting strong research and development programs that aim to advance new technologies and procedures for safe and effective transport. Such work is relevant for government ministries, agencies, CoEs, NSSCs, and commercial industries. This commitment likely will involve cooperative efforts to develop, test, and deploy new technologies.

Fourth, the signatories pledge to assist other nations in implementing international conventions and guidance, particularly the amended Convention on the Physical Protection of Nuclear Material (CPPNM/A) and Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/22/Rev.5) to objectively improve security for nuclear and radioactive materials



NNSA

**The United States assists in removing highly-enriched uranium from the Czech Republic in 2013. The United States committed to working with four other countries to provide assistance to improve the security of nuclear and radiological materials in transit.**

in domestic and international transport. This includes exchanging information on the physical protection of materials in all modes of transport to identify best practices and lessons learned.

Beyond the working group activities, the signatories have taken additional bilateral and unilateral actions to demonstrate their commitment to the joint statement's objectives. For instance, Japan has increased its research and consultation efforts in the area of transport security with a specific focus on the implementation of INFCIRC/225/Rev.5. France has provided financial contributions to the IAEA that

include support for IAEA transport security activities and the translation of Nuclear Security Series 9, *Security in the Transportation of Radioactive Materials*, into French. Through their bilateral Nuclear Security Working Group, the United States and Japan held a transport security exercise in Honolulu, Hawaii in March 2012 and a follow up workshop in Tokyo, Japan in August 2013 to discuss how joint security exercises can help augment the security of nuclear material in transit.<sup>3</sup> This work also contributed to the preparation of the transport security working group's exercise in Tokyo in November 2013.

## ENHANCING THE SECURITY OF THE MARITIME SUPPLY CHAIN

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The joint statement on enhancing the security of the maritime supply chain aims to strengthen measures which deter, detect, and respond to nuclear and radiological material trafficking in maritime shipping and permanently remove radioactive materials outside of regulatory control from the global supply chain.

### SIGNATORIES

Australia, Belgium, Canada, Georgia, Germany, Israel, Lithuania, Kazakhstan, Netherlands, Spain, United Arab Emirates, United Kingdom, United States (13)

The 13 signatory states of this U.S.-led joint statement recognize the importance of robust maritime security measures in the prevention of and response to illicit trafficking of nuclear and radiological materials in the global supply chain. Signatory states committed to maintaining existing radiation detection systems at their large container seaports and to assisting others that are pursuing similar capabilities. Assistance may be in the form of sharing best practices, or in the provision of financial support, technical guidance, and training.

In late 2015, the United States will host a maritime security workshop for signatories focused on permanently removing radioactive materials outside of regulatory control from the global maritime supply chain. Participants will share experiences and explore best practices on detecting and removing unregulated radioactive materials. A follow-on joint statement that reports on progress made since 2014 is expected at the 2016 NSS.<sup>4</sup>

In addition to this major 2015 workshop, state signatories are exchanging updates on how to maintain effective detection systems in other forums. In November 2014, the United States held a workshop in Greece (not a NSS state) on maritime security

in which best practices were shared with six new potential partners.<sup>5</sup>

In August 2014, the IAEA Seminar on *Measures to Detect and Respond to Cross-Border Movement of Nuclear and Other Radioactive Materials Outside of Regulatory Control* took place in Shanghai, China and included a tour of the Yangshan Megaports installation. The IAEA is planning to host a follow-up seminar in Greece to further discuss information sharing, and the IAEA's Border Monitoring Working Group is updating their training manual to include more in-depth maintenance training.<sup>6</sup> The European Joint Research Center is planning for a maintenance-focused workshop in 2015.<sup>7</sup>

Since the summit, the U.S. National Nuclear Security Administration (NNSA) announced the transition of full responsibility for radiation detection systems from its Second Line of Defense (SLD) program to partner countries Djibouti (which is not an NSS participant) in March 2014 and Argentina (which is not a signatory to this statement) in May 2014.<sup>8</sup> These two countries are part of a larger web of more than 50 countries operating radiation detection systems at land border crossings, airports, and seaports in cooperation with SLD and other partners.<sup>9</sup>

In March 2014, the NNSA released a fact sheet regarding this joint statement, which noted that the United States and its partners have augmented radiation detection and response capabilities at more than 500 sites and ports around the world.<sup>10</sup> This release further noted that in addition to these efforts, the IAEA, European Union, and multiple countries are equipping their seaports and border crossings with radiation detection systems.

# MULTINATIONAL COOPERATION ON HIGH-DENSITY LOW-ENRICHED URANIUM FUEL DEVELOPMENT

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The joint statement on multinational cooperation on high-density low-enriched uranium (LEU) fuel outlines plans for developing and testing high-density LEU fuel as part of the ongoing process to minimize HEU in civilian use.

## SIGNATORIES

Belgium, France, Germany, Republic of Korea (ROK), United States (5)

The joint statement on Multilateral Cooperation on High-Density Low-Enriched Uranium Fuel Development is an update and expansion of the 2012 joint statement on Quadrilateral Cooperation on High-Density, Low-Enriched Uranium Fuel Production. In the 2014 statement, Germany joined Belgium, France, the ROK, and the United States in their combined efforts to develop, qualify, and fabricate new high-density LEU fuels that will aid in the conversion of additional research reactors still utilizing HEU. The five signatories are collaborating on the development of LEU fuels based on uranium molybdenum (U-Mo) as a monolithic fuel foil and as powder dispersed in an aluminum matrix.<sup>11</sup>

Belgium, France, and Germany have been focused on manufacturing and testing in-pile full-scale fuel plates, which are based on coated U-Mo powder

technology. The United States has manufactured and tested in-pile full-scale fuel plates, which are based on coated monolithic U-Mo technology.

The original joint statement from 2012 outlined a four-step framework for collaboration between the four signatories. Initially, the United States provided the ROK with 110 kg of LEU. The ROK then manufactured 100 kg of atomized U-Mo. Subsequently, this material was provided to AREVA-CERCA to manufacture high-density U-Mo fuel. However, due to an unsuccessful fuel test, the high-density U-Mo fuel will need to undergo further testing using mini-plates, before ramping up to mid-size and full-size test plates.<sup>12</sup> To facilitate this, the ROK will continue providing any additional U-Mo powder required. The fourth and final step of the joint statement is for France and Belgium to test the fuel in their high-performance research reactors, and experts will determine its efficiency production viability.

Once the fuel has been developed, the five signatories have agreed to share the benefits of these technological developments with the international community, while protecting sensitive information. An update on progress is expected at the 2016 summit.

## MINIMIZATION OF HEU AND THE RELIABLE SUPPLY OF MEDICAL RADIOISOTOPES

The joint statement on minimization of HEU and the reliable supply of medical isotopes aims to convert European medical isotope production to non-HEU-based processes while ensuring the uninterrupted supply of medical radioisotopes for patients worldwide.

### SIGNATORIES

Belgium, France, Netherlands, United States (4)

In the 2012 joint statement, the four signatories “reaffirmed their determination to support the conversion of European production industries to non-HEU-based processes by 2015, subject to regulatory approvals, to reach a sustainable medical isotope production for the benefit of patients in Europe, the United States, and elsewhere.” An updated joint statement on this project was not issued at the 2014 summit.

Belgium’s processing facility at the National Institute for Radioelements (IRE) in Fleurus is expected to be completed in early 2015, but the Netherland’s Covidien facility is unlikely to be converted until at least 2017.<sup>13</sup> Covidien and IRE produce approximately half of the global supply of Molybdenum-99 (Mo-99) each year, which is used in millions of diagnostic procedures.<sup>14</sup> France’s firms fabricate the enriched uranium targets that are irradiated by Covidien, IRE, and others to produce isotopes. The United States supplies the enriched uranium to Europe and has been encouraging conversions by companies through the work of the NNSA and by restricting HEU exports.

IRE’s conversion efforts are running on schedule, according to Belgian officials.<sup>15</sup> IRE has worked closely with the United States to undertake the necessary research and development activities and technical investment studies, and the company communicates with U.S. colleagues through quarterly reports. IRE primarily irradiates targets at its BR-2 reactor, which is housed in the Nuclear Research Centre (SCK-CEN)



A Russian expert extracts radioisotopes from a container at a laboratory in Kaliningrad. Radioisotopes are widely used for medical treatments. Currently, the majority of medical isotopes are produced using highly-enriched uranium fuel.

and processes them at facilities in Fleurus.<sup>16</sup> SCK-CEN currently is participating in irradiation experiments with partner countries to qualify a high-density fuel that will enable conversion of HEU reactors in Belgium, France, and the United States. Belgium plans



to report on these efforts at the 2016 summit.<sup>17</sup>

Prior to the 2014 summit, a press release from the University of Texas-Austin's Nuclear Proliferation Prevention Project (NPPP) drew attention to the conversion delay in the Netherlands.<sup>18</sup> An official at Mallinckrodt Pharmaceuticals (the recent spin off of Covidien's pharmaceutical line)<sup>19</sup> told participants at a White House meeting that was attended by the NPPP Coordinator that the company set 2017 as a new target date for LEU conversion.<sup>20</sup> This was later confirmed by a Mallinckrodt spokesperson.<sup>21</sup>

In a January 2014 letter to the Dutch Foreign Minister, the NPPP Coordinator and colleagues attributed the conversion delay largely to Mallinckrodt's refusal to accept U.S. financial and technical assistance.<sup>22</sup> Dutch and U.S. officials involved with the summit process deny that this is the case and cite technical challenges as the cause of the delay. In June 2014, the Dutch sherpa to the 2016 NSS stated, "we have been closely involved in what they [Covidien/Mallinckrodt] are doing, and we have been kept informed about all stages of the conversions, and we are absolutely convinced that they are doing whatever they need to do."<sup>23</sup> In December 2014, U.S. officials said while significant progress has been made, technical challenges had slowed the conversion schedule of the Dutch facility by up to two years, and they did not expect a full

conversion to LEU targets at European facilities by the 2016 NSS.<sup>24</sup>

The United States plans to condition and phase-out HEU exports for the production of medical isotopes by 2020 in accordance with the 2013 American Medical Isotopes Production Act.<sup>25</sup> This law supports the establishment of a domestic industry for non-HEU based Mo-99.<sup>26</sup> At the 2014 summit, the United States pledged to demonstrate commercial capabilities to domestically produce Mo-99 without HEU by 2016. In July 2014, the NNSA officially recognized United Pharmacy Partners LLC and Lantheus Medical Imaging Inc. for their efforts to eliminate the use of HEU in the production of Mo-99.<sup>27</sup> In November 2014, the NNSA announced that it had awarded Northstar Medical Isotopes LLC and SHINE Medical Technologies more than \$8 million in additional support to accelerate the creation of non-HEU Mo-99 in the United States.<sup>28</sup>

In its 2014 national progress report, France reaffirmed its support to minimize the use of HEU in medical isotope production, when technically and economically feasible. The statement notes that the French company CIS-bio International has succeeded in adjusting its market authorization to distribute LEU-based Mo-99 in Europe and already has distributed its first productions, which came from South African LEU-based Mo-99.



Lionel Bonaventure/AFP/Getty Images

**An employee of French Atomic Energy Commission works at a reactor. France committed to working with three countries to convert medical isotope production in Europe to use low-enriched uranium fuels.**

## ENHANCING RADIOLOGICAL SECURITY

The joint statement on enhancing radiological security declares its signatories' intent to secure all IAEA Category 1 radiological sources in their territories consistent with IAEA recommendations by 2016.

### SIGNATORIES

Algeria, Armenia, Australia, Canada, Czech Republic, Denmark, Georgia, Germany, Hungary, Italy, Japan, Kazakhstan, Lithuania, Morocco, Netherlands, New Zealand, Norway, Republic of Korea, Sweden, Turkey, United Arab Emirates, United Kingdom, United States (23)

By 2016, the joint statement's 23 signatory states plan to fully secure all IAEA Category 1 radioactive sources within their territories consistent with IAEA recommendations. To do this, they will implement the IAEA's *Code of Conduct on the Safety and Security of Radioactive Sources* and its recommendations on securing radioactive material and associated facilities as outlined in Nuclear Security Series, No. 14 and 15. Together, these IAEA documents address the security of radioactive materials and facilities, including those outside of regulatory control. The *Code of Conduct* and supplementary guidance documents include a self-assessment questionnaire, and its signatories submit national statements to the IAEA every three years, outlining how they are fulfilling these requirements.<sup>29</sup>

All of the signatory states registered their support for the *Code of Conduct* with the IAEA and most have done the same for the *Supplementary on the Import and Export of Radioactive Sources*. As of September 2014, Germany, Hungary, Italy, Morocco, and the Netherlands have not issued their notification to the IAEA regarding the Supplementary Guidance.<sup>30</sup> Notably, the IAEA does not publish the dates when notification is received.<sup>31</sup> Therefore, it is unclear whether any of these notifications were issued since March 2014.

This U.S.-led statement further notes specific activities that signatories plan to consider, including

supporting an independent regulatory body, establishing a lifecycle management plan, developing plans for notifying neighboring countries and the IAEA in an event of a breach, and implementing site-level security measures and national response plans. Additionally, the statement encourages signatories to institute best practices for Category 1 materials. These best practices include controlling access with multifactor authentication, enhanced delay measures, active involvement by off-site response forces in planning and training activities, and the creation of a holistic regulatory framework. Signatories are expected to provide updates on implementation at the 2016 summit.

Several signatories have already taken action that supports the statement's objectives. For example, Hungary is updating a government decree on found or seized radioactive sources, and Armenia is in the process of reviewing a draft government decree, *Approval for Rules of the Physical Protection of Radioactive Materials*. Norway signed a bilateral nuclear nonproliferation agreement with the United States in 2014 under which their first project will be assisting Ukraine to better secure its radioactive materials and borders. Under the consideration of IAEA Nuclear Security Series No. 11, Germany is drafting security guidelines for radiological materials. Kazakhstan is developing new rules for transporting radioactive material. Canada is conducting outreach to licensees and industry stakeholders to raise awareness about the security needs of different radioactive sources, and it funded a new World Institute for Nuclear Security (WINS) *Best Practice Guide on the Security of Radioactive Sources Used in Medical Applications* which was released in March 2014. Canada also is working with the United States and other partners to secure Canadian-origin sources in Latin America and Africa.

The United States has budgeted \$68 million in

fiscal year 2015 to help meet the goal of domestically securing all Category 1 source material by the end of 2016. In 2014, the U.S. NNSA reached the milestone of recovering its millionth curie of radioactive material under the Off-Site Source Recovery project.<sup>32</sup> It also is working bilaterally and multilaterally to assist in radiological protection and removal efforts, including through the Global Partnership against the Spread of Weapons and Materials of Mass Destruction (Global Partnership) and the IAEA. The United States is assisting lower-income countries with implementing all aspects of this joint statement, including evaluating Category 1 facilities to identify recommended upgrades and conducting final assurance assessments after upgrades are in place.<sup>33</sup>

At the IAEA 58th General Conference in September 2014, the Netherlands, the United States, Germany, and France pledged to work in close consultation with the IAEA to establish a “roadmap of actions” to strengthen the security of high-activity radioactive sealed sources during the next two years. This cooperation aims to strengthen and expand support for the relevant international framework and conventions and the development and use of alternatives to high-activity radioactive sources.

The roadmap also will seek to better coordinate the efforts of major supplier states of radioactive sources to improve safety and security processes. Updates on this work will be reported at the 2016 Nuclear Security Summit and 2016 IAEA Nuclear Security Conference.

Attention to radiological security has been growing throughout the NSS process. At the 2012 summit, radiological security was better integrated into the summit’s core objectives and elevated in the communiqué. Germany also led a joint statement on the *Security of Radioactive Sources* in 2012 that highlighted the unique dangers associated with radioactive sources. The 2014 statement on *Enhancing Radiological Security* builds on the 2012 statement with its time-bound commitment to secure IAEA Category 1 sources by 2016.

The signatories of the 2012 and 2014 statements are different. Algeria, Armenia, Georgia, Germany, Lithuania, the Netherlands, Turkey, the United Kingdom, and the United States were new signatories in 2014. Finland, Indonesia, Malaysia, Philippines, Poland, Singapore, Spain, Switzerland, and Thailand were signatories in 2012 that chose not to endorse the statement in 2014.



Peter Parks/AFP/Getty Images

**Workers take part in a drill to practice responding to the detection of radioactive materials at port monitoring station. Signatories of the radiological security joint statement committed to consider implementing best practices for notifying neighboring countries and the IAEA in the event of an incident.**

## STRENGTHENING NUCLEAR SECURITY IMPLEMENTATION

The joint statement on strengthening nuclear security implementation aims to enhance the global nuclear security system with a commitment to integrate the IAEA Nuclear Security Fundamentals and relevant recommendations into national rules and regulations, to periodically host peer reviews to ensure effective implementation, and ensure demonstrable competence of personnel.

### SIGNATORIES

Algeria, Armenia, Australia, Belgium, Canada, Chile, Czech Republic, Denmark, Finland, France, Georgia, Germany, Hungary, Israel, Italy, Japan, Kazakhstan, Lithuania, Mexico, Morocco, Netherlands, New Zealand, Norway, Philippines, Poland, Republic of Korea (ROK), Romania, Spain, Sweden, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Vietnam (35)

The joint statement was initiated by the three NSS host states—the United States, the ROK, and the Netherlands—and is described as a “concrete initiative” through which states can demonstrate their commitment to the effective, sustainable implementation of essential elements of a nuclear security regime. While 35 NSS participants signed the *Strengthening Nuclear Security Implementation* initiative—making it one of the most popular joint statements to date—the nature of its commitments lend themselves to expansion beyond the NSS process.

The NSS hosts are working through the IAEA to increase the number of subscribers and ensure that the initiative remains salient after the NSS process ends. On October 9, 2014, the Netherlands (on behalf of all subscribing states) submitted the initiative to the IAEA and requested that it be brought to the attention of all member states as an Information Circular (INFCIRC). On October 22, 2014, the joint statement on *Strengthening Nuclear Security Implementation* officially became IAEA INFCIRC/869.<sup>34</sup>

To join the 35 states that have already subscribed to the document, any IAEA member state can write to the IAEA Director General committing to fully implement INFCIRC/869’s objectives. Once subscribed, countries can demonstrate implementation of the initiative by sharing the steps they have taken in a letter to the IAEA Director General, which may be made available to other states. Additional ways to expand participation and demonstrate implementation are being considered and a progress report on these efforts is expected in 2016.

At the time of writing, no additional signatories to the gift basket have come forward through the INFCIRC process.<sup>35</sup> However, several IAEA member states have expressed interest in INFCIRC/869. Consequently, a small group of current signatories may hold an open information session to address any questions or concerns that potential INFCIRC signatories have.

In addition, none of the 35 signatories have yet submitted a report to the IAEA Director General on their implementation efforts. However, at the September 2014 IAEA Board of Governors meeting, six states, including the United States and the Netherlands, highlighted their commitment to the initiative.<sup>36</sup>

The initiative (now INFCIRC/869) has four key elements. First, states pledge to subscribe to the IAEA Nuclear Security Fundamentals as outlined in IAEA Nuclear Security Series No. 20, the *Objective and Essential Elements of a State’s Nuclear Security Regime*.

Second, states pledge to meet the intent of the IAEA *Code of Conduct on the Safety and Security of Radioactive Sources* and the Nuclear Security Series No.

13, 14, and 15 within their national nuclear security systems. While the recommendations in these IAEA documents are non-binding, their integration into national laws, regulations, and multilateral agreements can make them so.

Third, states commit to continuously improve the effectiveness of their policy regimes and operator systems by conducting self-assessments, hosting periodic peer reviews such as International Physical Protection Advisory Service (IPPAS) missions, and enacting the recommendations made during these assessments and reviews. According to the IAEA's 2014 Nuclear Security Report, between July 2013 and June 2014 three IPPAS missions were conducted (Australia, ROK, and the United States), two follow-up missions were requested (Norway and United Kingdom), and two new missions were requested (Canada and Japan).<sup>37</sup> Armenia, Belgium, and Indonesia were

scheduled to receive IPPAS missions during the second half of 2014.

Fourth, signatory states commit to ensure that personnel responsible for nuclear security in their territories are “demonstrably competent.” At the time of writing, nuclear industry representatives had not yet been engaged specifically on this issue under the joint statement.<sup>38</sup> However, many of the signatory states are supportive of the efforts of WINS, including the new WINS Academy that offers online professional certification for nuclear security personnel and management.<sup>39</sup>

Finally, included in the initiative is a non-exhaustive list of more than a dozen additional actions that contribute to the continuous improvement of the nuclear security regime. Signatories agreed to take at least one of these additional actions ahead of the 2016 summit.



Toussaint Kluiters-Pool/Getty Images

**Dutch Prime Minister Mark Rutte and U.S. President Barack Obama address the media at the 2014 Nuclear Security Summit. The three summit hosts, the United States, the Netherlands, and the Republic of Korea co-led a joint statement on strengthening nuclear security implementation.**

## ACTIVITY AND COOPERATION TO COUNTER NUCLEAR SMUGGLING

The joint statement on countering nuclear smuggling aims to prevent and respond to nuclear trafficking attempts by building national capacities, increasing information sharing, and strengthening domestic legislation.

### SIGNATORIES

Canada, Czech Republic, Finland, France, Georgia, Hungary, Israel, Italy, Japan, Jordan Republic of Korea (ROK), Lithuania, Malaysia, Netherlands, Philippines, Sweden, Turkey, United Arab Emirates (UAE), United Kingdom, United States (20)

This Jordanian-led initiative was first introduced at the 2012 summit with 19 signatories. It was built upon at The Hague summit in 2014, and the Netherlands became its 20<sup>th</sup> signatory. Similar to the 2012 statement, the new joint statement outlines which states among its 20 signatories have built national capacities, held workshops, passed new laws, shared information, and invested in International Criminal Police Organization (INTERPOL) since the previous summits. It also outlines which states plan to take additional actions before the 2016 summit.

By the 2016 summit, 15 signatories—Canada, Czech Republic, Finland, Hungary, Israel, Italy, Jordan, ROK, Malaysia, Netherlands, Philippines, Sweden, UAE, United Kingdom, and the United States—commit to review existing counter nuclear smuggling laws, regulations, guidance, and/or policies. In addition, 14 signatories—Canada, Finland, France, Georgia, Hungary, Israel, Japan, ROK, Lithuania, Malaysia, Sweden, UAE, United Kingdom, and United States—pledge to make resources and lessons learned available based on their counter nuclear smuggling capacity building experiences.

Since the summits began, all 20 signatories have built their national capacities, including investigations into nuclear smuggling networks, enhancements to

nuclear forensic capabilities, and trainings on the use of radiation detection systems and measures to detect material outside of regulatory control. For example, Jordan's new Counter Nuclear Smuggling Team was established in September 2013. It is led by the Armed Forces and includes the General Intelligence Directorate, Jordanian Nuclear Regulatory Commission, Ministry of the Interior, Directorate of Public Security, and Customs Department. Jordanian officials have held bilateral consultations and site visits related to counter smuggling in the United States, Lithuania, and France. In February 2014, Jordan hosted a counter nuclear smuggling workshop at the Dead Sea for all joint statement signatories.

Since the summits began, 17 signatories—Czech Republic, Finland, France, Georgia, Hungary, Israel, Italy, Jordan, ROK, Lithuania, Malaysia, Philippines, Sweden, Turkey, UAE, United Kingdom, and the United States—have introduced or passed new laws, regulations, guidance or policies involving counter nuclear smuggling. For instance, Lithuania established an interim working group to review its preparedness to counter nuclear smuggling and its findings led to the establishment of a permanent Interagency Working Group in 2013 to coordinate the activities of 13 relevant nuclear security institutions.

Since the 2012 summit, 11 signatories—Canada, Hungary, Israel, Italy, Jordan, Lithuania, Netherlands, Sweden, Turkey, United Kingdom, and the United States—have held detailed workshops on counter nuclear smuggling issues and all of these states pledge to continue these discussions and invite others to join ahead the 2016 summit. Dialogues to date have included how best to configure national counter-nuclear smuggling capabilities, the nature of threats confronting states, and forms of coordination among states. States who participated in a *Countering Nuclear*



Bart Maat/AFP/Getty Images

**Jordanian envoy to the UN Prince Zeid Raad al-Husseini (L) attends a March 25 session at The Hauge Nuclear Security Summit with several world leaders. Jordan led a joint statement on countering nuclear smuggling.**

and Radiological Smuggling workshop hosted by the United States and the European Commission received a technical report with the workshop outcomes and lesson learned.<sup>40</sup>

Recognizing the international connections of smuggling networks and the importance of cooperation, 18 signatories—Canada, Czech Republic, Finland, France, Georgia, Hungary, Israel, Italy, Japan, ROK, Lithuania, Malaysia, Philippines, Sweden, Turkey, UAE, United Kingdom, and the United States—have shared information on nuclear smuggling cases with partner countries. Jordan and most signatories further noted in the joint statement the value of sharing data through INTERPOL as an effective mechanism for identifying nuclear smuggling networks and enhancing cooperation. The United States contributed \$2.4 million to INTERPOL’s new Radiological and Nuclear Terrorism Prevention Unit, while the United Kingdom gave £500,000 to INTERPOL’s Operation Fail Safe; a program which tracks the transnational movements of individuals involved in the illicit trafficking of radiological or nuclear material.

Additionally at the 2014 summit, the United States and European Union (EU), in conjunction with the IAEA, released a joint statement on combating illicit trafficking. They pledged to share the results of an EU-initiated effort called Illicit Trafficking Radiological Assessment Program + 10 (ITRAP+10) to inform “future revisions of the IAEA Nuclear Security Series and other relevant international standards.” The ITRAP+10 partnership tested 70 different models of commercially available detection equipment to evaluate their performance against international guidance and standards. The European Commission Joint Research Center, U.S. Department for Homeland Security, IAEA, and various other agencies are working through the Border Monitoring Working Group to utilize ITRAP+10 test results to ensure that standards for detection devices are clearly defined and help achieve greater consistency among international detection standards.<sup>41</sup> The United States and EU are making the scientific and technical data from the testing available to the international community to promote new research and development.

## COUNTRIES FREE OF HIGHLY ENRICHED URANIUM

The joint statement highlights countries that have eliminated HEU from within their borders and encourages others to do so in advance of the 2016 summit.

### SIGNATORIES

Chile, Czech Republic, Denmark, Georgia, Hungary, Mexico, Republic of Korea (ROK), Romania, Sweden, Turkey, Ukraine, Vietnam (12)

Since 2009, 12 countries have eliminated all HEU from their territory, including eight of the 12 signatories of this joint statement (see chart). Four signatories—Denmark, Georgia, ROK, and Sweden—were free of HEU before the summit process was initiated. The statement’s 12 signatories were joined by Kazakhstan and Singapore in welcoming all countries’ efforts to minimize and eliminate HEU. Reducing the amount of HEU and the number of locations where it is stored have been a core focus and key achievement of the summit process.

The joint statement highlights “a growing global trend” away from the civil use of HEU. It recognizes the security and financial benefits of eliminating HEU, given to the significant costs associated with maintaining secure stockpiles, and the technological advancements that have made LEU fuelled reactors a viable alternative. It further notes that the HEU material removed from countries has been appropriately secured, and ultimately, will be disposed of or down blended to LEU. The statement expresses appreciation towards the United States, Russia, and the IAEA for assistance in the removal and repatriation processes.

In September 2014 and January 2015, two shipments of HEU were repatriated to Russia from Kazakhstan, with the assistance of the United States and the IAEA.<sup>42</sup> Both shipments originated from the Institute for Nuclear Physics in Almaty, Kazakhstan.

The September 2014 shipment contained 10 kg of fresh HEU fuel, which will be blended down to LEU. The January 2015 shipment contained 36 kg of spent HEU fuel, which will be permanently disposed of in Russia. Kazakhstan committed to continue working with the United States, Russia, and the IAEA to eliminate all remaining HEU research reactor fuel (approximately 50 kg) from its soil.

Though not a signatory to this statement, Poland committed to eliminate all HEU from its territory in 2016. In September 2014, 53 kg of HEU was repatriated to Russia with assistance from the United States. This shipment, which is the 10<sup>th</sup> to Russia from Poland since 2006, keeps the country on track to meet its clean out commitment in 2016.<sup>43</sup>

HEU Free-Countries	Removal Announcement	NSS Participant State
Romania	Jun 2009	Y
Taiwan	Sep 2009	N
Libya	Dec 2009	N
Turkey	Jan 2010	Y
Chile	Mar 2010	Y
Serbia	Dec 2010	N
Mexico	Mar 2012	Y
Ukraine	Mar 2012	Y
Austria	Dec 2012	N
Czech Republic	Apr 2013	Y
Vietnam	July 2013	Y
Hungary	Nov 2013	Y

Source: National Nuclear Security Administration, US Department of Energy.



## NUCLEAR INFORMATION SECURITY

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The joint statement on nuclear information security recognizes the need to protect sensitive nuclear information and the development and implementation of international guidance and best practices.

### SIGNATORIES

Algeria, Australia, Belgium, Canada, Chile, Czech Republic, Finland, France Georgia, Germany, Hungary, Indonesia, Israel, Italy, Japan, Kazakhstan, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Philippines, Poland, Republic of Korea (ROK), Romania, Spain, Sweden, Switzerland, Turkey, Ukraine, United Arab Emirates (UAE), United Kingdom, United States, Vietnam (35)

This joint statement, led by the United Kingdom, recognizes the need to protect the sensitive information, technology, and expertise necessary to use or acquire nuclear materials for malicious purposes, or to disrupt activities at nuclear facilities. Its 35 signatories commit to strengthening national measures to manage and secure sensitive information, enhancing relevant nuclear security culture, developing and disseminating best practices and professional standards, and collaborating with the IAEA and partner states. Only 31 states signed the 2012 version of this statement.

New signatory states in 2014 include Belgium, Israel, Morocco, Romania, and Ukraine. Thailand was a signatory in 2012 but did not sign the 2014

statement. The states that signed the 2012 statement were asked to submit progress reports to the United Kingdom on the voluntary measures they had undertaken to support nuclear security information at the state level.

The 2014 joint statement includes an annex highlighting completed and ongoing actions from the progress reports submitted by 21 countries and the European Union. For example, Canada and the Czech Republic reported that they are establishing national standards for the protection of electronic data and systems based on IAEA guidance. Australia completed a framework security policy that elucidates measures to protect sensitive information. Additionally, Australia and the Netherlands incorporated cyber-security updates into their Design Basis Threat for the nuclear sector. France, Italy, New Zealand, and the ROK updated guidance on the protection of sensitive information. Hungary's national guidelines on protection of its information systems for nuclear facilities were identified by the IAEA as a best practice. Norway is undertaking a comprehensive review of its nuclear information security practices based on feedback from an IAEA review. The UAE established a manual for managing sensitive information. The United Kingdom developed the National Action Implementation Plan to highlight measures to protect information effectively. The United States created cyber security regulations for nuclear industry actors.

# NUCLEAR SECURITY TRAINING AND SUPPORT CENTERS/CENTERS OF EXCELLENCE

The joint statement on nuclear security training and support centers describes plans to collaborate through a network of national centers to promote nuclear security education and training at national, regional, and international levels.

## SIGNATORIES

Algeria, Argentina, Armenia, Australia, Belgium, Canada, Chile, France, Georgia, Germany, Hungary, Indonesia, Israel, Italy, Japan, Kazakhstan, Lithuania, Mexico, Morocco, Netherlands, Pakistan, Philippines, Republic of Korea (ROK), Romania, Spain, Sweden, Turkey, United Arab Emirates (UAE), United Kingdom, United States, Vietnam (31)

This joint statement, led by Italy, reaffirms the value of the International Nuclear Security Training and Support Centers (NSSC) Network by supporting efforts to strengthen cooperation and collaboration

on nuclear security education and training. Its annual meeting was last held in February 2015.

The 31 signatory states, an increase from the 24 signatories in 2012, encourage the IAEA to support further development of the NSSCs and explore opportunities for collaboration, information and best practices exchanges, and harmonization of education and training practices.

New signatory states in 2014 include Argentina, Armenia, Belgium, France, Georgia, Israel, Romania, Spain, Sweden, Turkey, and Vietnam. The Czech Republic, Jordan, Malaysia, and Ukraine signed on to the 2012 version of this statement, but were not signatories in 2014.

The statement notes that the International NSSC Network now has over 100 members from 39 states, and that 12 states have established such centers,

## International Network for Nuclear Security Training and Support Centers

### Working Group A, Coordination and Collaboration

The Coordination and Collaboration Working Group reported that a mapping interface has been created to improve cooperation amongst NSSCs. The Working Group plans to utilize the mapping project to determine its needs and highlight areas of expertise. Group A also reported that it completed a sample training curriculum and is working to evaluate existing training programs to identify support activities for the network.

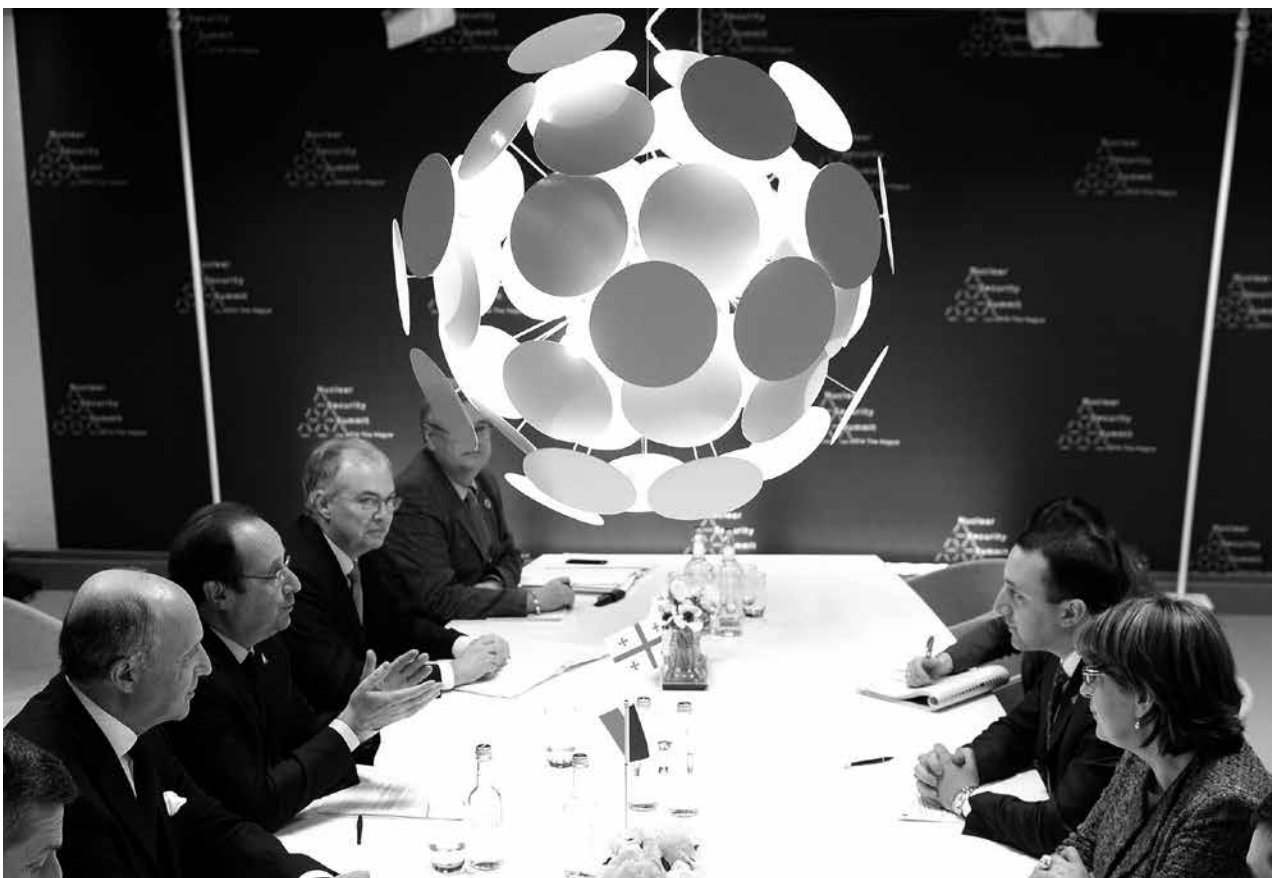
### Working Group B, Best Practices

The Best Practices Working Group set a goal of

developing “lessons learned” case studies, which will document best practices in core topics and geographical areas by August 2015. The group also is assisting with the mapping project and plans to draft a case study for establishing new NSSCs by August 2015. Group B also will look at lessons from nuclear safety centers and provide research on best practices from these centers, applicable to NSSCs, by February 2015.

### Working Group C, Information Management and Other Emerging Issues

The Working Group on Information Management and Other Emerging Issues reported that it would prepare a user guide for the Nuclear Security Information Portal (NUSEC) and translate it into multiple languages by January 2015. It also committed to developing a template for NSSCs to share information on their activities through the portal.



**French President Francois Hollande attends a bilateral meeting with the Prime Minister of Georgia, Irakli Garibashvili, at the 2014 Nuclear Security Summit. France and Jordan were new signatories to a joint statement supporting the collaboration of nuclear training and support centers.**

sometimes referred to as Centers of Excellence (CoE), since the 2010 NSS. The network's goals include building up highly-trained nuclear security personnel, providing technical support for the use and maintenance of nuclear security instruments and systems, and providing scientific support for the detection of and response to nuclear security incidents. Based on these objectives, the IAEA has developed a conceptual framework for establishing a NSSC in IAEA member states. This framework has already been successfully implemented in several states, including Malaysia, Morocco, and Pakistan.

The International NSSC network held a meeting in August 2014 in Vienna, during which participants reported on the progress of existing activities and outlined new goals for the coming year.<sup>44</sup> The IAEA shared its efforts to promote human resource development, and the president of the secretariat shared its view on which NSSC activities should be prioritized, including enhancing collaboration and resource sharing at the regional level, introducing benchmark visits to centers by states considering developing their own, and improving information sharing through the IAEA's online portal. The NSSC's three working groups also reviewed their progress and future plans.

Indonesia presented on its process for establishing a center at the August meeting. The Indonesian center subsequently opened in September 2014 and ultimately will include a pilot program for self-assessment of nuclear security culture developed by the IAEA. Participating states also met in regional groups to discuss ongoing activities and plans for collaboration during the August 2014 meeting.

The Asian Regional Network of Nuclear Security Support Centers and Centers of Excellence held a separate day-long meeting after the August NSSC meeting. Its participants discussed the results of a July 2014 workshop aimed at furthering cooperation between the South Korean, Japanese, and Chinese centers. Discussions among the three Asian centers were initiated by the IAEA in October 2012.

In September 2014, several signatory states gave updates regarding their NSSCs/CoEs at the IAEA General Conference. For example, Pakistan announced that, following close coordination with the IAEA, Pakistan's Center of Excellence on Nuclear Security would offer a regional training course on the security of radioactive sources in late 2014. That five-day course was held in mid-December and included 13 participants from eight countries.<sup>45</sup>

# CONTRIBUTIONS OF THE GLOBAL INITIATIVE TO COMBAT NUCLEAR TERRORISM TO ENHANCING NUCLEAR SECURITY

The joint statement outlines the efforts and projects of the Global Initiative to Combat Nuclear Terrorism (GICNT) to support the goals of the NSS process.

## SIGNATORIES

Australia, Morocco, Netherlands, Republic of Korea (ROK), Russia, Spain, United States (7)

This joint statement, led by the United States and Russia, highlights the contributions of the GICNT to enhance nuclear security and combat nuclear terrorism. Signatory states also express their intent to remain committed to pursuing efforts through GICNT activities that complement the goals of the NSS process. The GICNT is a multilateral initiative, whose membership is available to any country that endorses the group's statement of principles and actively participates in the mission of the GICNT. Currently, there are 85 member states and four observing international organizations.

In the statement, Russia and the United States assert that GICNT working groups are advancing critical elements of the NSS' goals. In 2014, the ROK joined the original six signatories of the 2012 joint statement. The ROK became chair of the GICNT Implementation and Assessment Group in May 2013, a position that was previously held by Spain. All of the signatories hold leadership positions in the GICNT. A majority of the NSS participants are GICNT members.

In 2014, the GICNT held five exercises and three workshops.<sup>46</sup> The exercises and workshops focused on supporting the specific objectives of the three GICNT working groups led by Morocco, Australia, and the Netherlands. In July 2014, the Implementation and Assessment Group also met in the ROK to review the progress made by the three working groups.

### *Nuclear Detection Working Group*

The Nuclear Detection Working Group (NDWG), chaired by the Netherlands, develops guidance for states regarding nuclear detection methods and technologies for incidents involving radioactive material.

Mexico hosted a field training exercise for the working group in February 2014. This exercise focused on detection and adjudication of incidents at ports involving radioactive materials and the subsequent interagency communication protocols. As part of the exercise, Mexico tested and demonstrated its radiation detection alarm adjudication process, communication procedures, and its radiological source recovery and emergency response capabilities at the port of Manzanillo. This exercise aimed to highlight national best practices in detection systems and the coordination of a domestic, interagency response to a nuclear terrorism event.

The United States hosted a NDWG workshop in Germany in April 2014. The workshop participants refined a guidance text, *Nuclear Detection Within a State's Interior*. This document was the last in the Developing a Nuclear Detection Architecture series, designed to help states develop a nuclear detection structures. The working group also continued to develop the *Tabletop Exercise Playbook*, which is a compendium of nuclear-detection exercise scenarios available to states for guidance and training.

### *Nuclear Forensics Working Group*

Australia chairs the Nuclear Forensics Working Group (NFWG), which develops mechanisms to help states build core national nuclear forensics capabilities. The group also fosters collaboration between states on forensics activities, which includes information and technology sharing, the promotion of best practices,

and joint exercises.

The first NFWG workshop and exercise in 2014 was hosted by the United Kingdom in January. During the workshop, participants presented best practices for using nuclear forensic techniques at crime scene investigations contaminated with radioactive material. Participants also discussed chain of custody issues, national nuclear forensics libraries, national and regional forensic capabilities, and international guidance in developing forensic capabilities. The workshop incorporated an exercise, known as *Blue Beagle*, in which the United Kingdom shared nuclear forensic practices for managing a crime scene contaminated by radioactive material through exercise scenarios and how to present gathered evidence in legal proceedings.

Lithuania hosted a workshop for the NFWG in April 2014. It included drafting sessions for a document on sharing nuclear forensics information. Participants identified potential topics for future working group activities.

A second exercise, *Mystic Deer*, took place in Hungary in October 2014. The exercise promoted the application of forensics capabilities and the development and use of national level nuclear security tools – key concepts developed by the working group.

#### *Response and Mitigation Working Group*

Formed in February 2012 and chaired by Morocco, the group focuses on building national capacity to respond to a nuclear or radiological incident, as well as fostering collaboration on best practices.

The Response and Mitigation Working Group (RMWG) held a joint exercise with the Nuclear Forensics Working Group. The exercise, *Tiger Reef*, was hosted by Malaysia in February 2014, to demonstrate the importance of integrating forensics experts and response teams to ensure that evidence collection is optimized and does not impede response efforts to any incidents with radioactive material. The RMWG met again in France in May 2014 to work on a draft framework document on the mitigation of a nuclear or radiological incident and to discuss the fundamentals of response activities. Participants also discussed potential topics of future response and mitigation exercises.

In August 2014, the RMWG conducted an exercise, known as *Paihuén*. Hosted by the governments of Argentina and Chile, the exercise focused on developing best practices for interagency communication and coordination needed to effectively respond to a nuclear or radiological terrorist attack. International observers were invited to participate in a portion of the exercise.

At the IAEA General Conference in September 2014, Finland announced that it would host the next plenary of the GICNT.



Yves Herman/AFP/Getty Images

**Chile's Foreign Minister Heraldo Muñoz (L) and Belgium's Prime Minister Elio Di Rupo attend the opening session of the 2014 Nuclear Security Summit. Chile and Argentina held a joint exercise on responding to a nuclear or radiological terrorist attack in August 2014.**

## PROMOTING THE FULL AND UNIVERSAL IMPLEMENTATION OF UNITED NATIONS SECURITY COUNCIL RESOLUTION 1540

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The joint statement outlines the contributions of UN Security Council Resolution 1540 to enhance global nuclear security and commits signatories to fully implement the Resolution's provisions and consider additional actions to strengthen implementation of the Resolution.

### SIGNATORIES

Argentina, Armenia, Australia, Canada, Chile, Czech Republic, France, Georgia, Germany, Hungary, Italy, Japan, Jordan, Kazakhstan, Lithuania, Mexico, Morocco, Netherlands, New Zealand, Norway, Philippines, Poland, Republic of Korea (ROK), Romania, Singapore, Spain, Sweden, Turkey, Ukraine, United Arab Emirates (UAE), United Kingdom, United States (32)

The 32 signatories of this joint statement reaffirm their commitment to fully implement UN Security Council Resolution 1540 and to consider additional measures to strengthen global implementation of the Resolution's provisions. The Resolution, which passed in 2004, commits all UN member states to adopt legislation to prevent the proliferation of nuclear, chemical, and biological weapons and their means of delivery. States also must establish appropriate domestic controls over related materials to assist in the prevention of illicit trafficking.

In addition to fulfilling 1540 provisions, signatories commit to consider submitting reports on national implementation plans as well as providing assistance to states that request help with the implementation of the Resolution. Additionally, signatories will consider financially assisting the 1540 Committee and/or associated bodies that assist with 1540 implementation.

Several of the signatories have submitted updates to their national reports since the 2014 summit, including Armenia, Australia, Czech Republic, Germany, Jordan, Poland, and Spain. Armenia's submission included a National Action Plan for 1540 implementation and indicated that they held a government consultation with the UN Office of Disarmament Affairs and the Organization for Security and Cooperation in Europe in July 2014. The United Kingdom also hosted 1540 Committee members and experts in November 2014 to discuss implementation of the Resolution.

Signatories also committed to consider hosting regional level capacity-building events. The Philippines and Canada co-hosted a regional workshop in Manila on 1540 implementation in July 2014. The ROK hosted a regional workshop titled *Promoting Full Implementation of UN Security Council Resolution 1540* in October 2014.

Several signatories contributed best practices guides for states to utilize when developing effective legislation and export controls. Germany and Australia submitted a document, *Export Controls: The Importance of Engaging Industry*, which focused on effective practices to help states improve their 1540 implementation. Poland and Croatia (Croatia is not an NSS participant) introduced a peer review concept for 1540 implementation in June 2014. The countries performed an audit of each other's implementation progress and subsequently reported their findings. In September 2014, the United States submitted a report on effective U.S implementation practices, as did the UAE in March 2014.

# NATIONAL LEGISLATION IMPLEMENTATION KIT ON NUCLEAR SECURITY

The joint statement on the national legislation implementation kit promotes the objective of strengthening nuclear security through national legislative action and presents a guidance kit to assist states in this endeavor.

## SIGNATORIES

Australia, Brazil, Canada, Chile, Czech Republic, Finland, Georgia, Hungary, Indonesia, Japan, Kazakhstan, Malaysia, Morocco, Netherlands, New Zealand, Norway, Philippines, Poland, Republic of Korea (ROK), Romania, Singapore, Spain, Sweden, Switzerland, Turkey, United Arab Emirates (UAE), United Kingdom, United States, Vietnam (29)

This joint statement, led by Indonesia, affirms the importance of strengthening legislation at the national level to improve nuclear security. In 2014, 29 states signed on in support of the statement, which is a substantial increase from the statement's 19 signatories in 2012. The new signatory states in 2014 were Brazil, Chile, the Czech Republic, Georgia, Morocco, Romania, Singapore, Sweden, Switzerland, and the UAE.

The kit, developed in concert with Indonesia by the Verification Research, Training and Information Centre (VERTIC), was completed ahead of the 2014 summit. Over a dozen states, including signatories, have requested VERTIC's assistance in reviewing their existing national legislation to identify gaps based on VERTIC's model law.<sup>47</sup> Some of the most common gaps in the legislation reviewed thus far

include definitional inconsistencies and a lack of comprehensiveness across all nuclear security instruments.

The kit provides states with guidance documents to assist their development of comprehensive national legislation for nuclear security. It also provides references based on consolidated elements and provisions from relevant international legal instruments, including international conventions identified by the summit communiqués, such as the CPPNM/A, ICSANT, and the *Code of Conduct on the Safety and Security of Radioactive Sources*. Guidance from IAEA Nuclear Security Series documents also is included.

A model law is included in the kit for states to modify and adapt for developing national nuclear security laws or compare against existing legislation for comprehensiveness.<sup>48</sup> It provides definitions and guidance on national regulation of nuclear security, including the establishment of a competent authority; physical protection and security of nuclear and other radioactive material and nuclear facilities; security of radioactive sources; notification of incidents; transport, import, export and transit of nuclear material and radioactive sources; offences and penalties; jurisdiction; and criminal proceedings and international co-operation.

States that do not participate in the NSS are welcome to use the kit, which is available in Arabic, English, French, Portuguese, Russian, and Spanish. It will be translated into additional languages.

## FORENSICS IN NUCLEAR SECURITY

The joint statement on forensics in nuclear security aims to strengthen nuclear forensic procedures through sharing best practices and developing a set of common definitions and standards.

### SIGNATORIES

Algeria, Australia, Canada, Chile, Czech Republic, Finland, France, Georgia, Hungary, Indonesia, Italy, Japan, Kazakhstan, Malaysia, Morocco, Netherlands, Republic of Korea (ROK), Romania, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States (24)

The joint statement on nuclear forensics presented at the 2014 summit contains four elements designed to enhance investigative tools for nuclear security incidents and promote cooperation and information sharing between states. Signatories of the statement recognize the importance of nuclear forensics in determining the origin of nuclear material in the event of a terrorism or illicit trafficking incident.

The Netherlands Forensics Institute (NFI) began



Dean Calma/IAEA

Nuclear scientists, law enforcements officials, and forensic specialists attend an international workshop on nuclear forensics at the Pacific Northwest National Laboratory in Richland, Washington. The United States contributed to the Dutch-led joint statement on strengthening nuclear forensics procedures.



developing this joint statement ahead of the 2012 summit, in response to the 2010 summit's call for states to enhance the effectiveness of nuclear forensics. The statement aims to progress capabilities for determining the origin of nuclear material in the event of an incident and to combat illicit trafficking.

Subsequently, NFI produced a white paper, outlining a set of deliverables for the 2014 NSS. These four deliverables were released as part of the joint statement at the 2014 summit. Signatory states contributed to the development of the instruments and committed to support the ongoing improvement of new forensic examination mechanisms. The four instruments are:

#### *Online Knowledge Platform*

NFI launched the online knowledge platform during the 2012 Seoul summit. The early launch of the knowledge platform was designed to facilitate cooperation and coordination on the development of the lexicon. It is also used as an ongoing platform for experts to share ideas, pose questions, and collaborate. As a next step, the NFI recommends expanding the exchange of ideas on this digital platform, such as by using it for interactive case studies, webinars, or sharing technologies such as dispersal calculators.

#### *Lexicon*

To assist with international cooperation, NFI developed a lexicon with over 300 terms related to nuclear security and forensics. Over two dozen countries and three international organizations, including the IAEA, contributed to its development to ensure continuity of terminology. The lexicon is available to experts and the general public, including as an app for mobile devices. NFI committed to continue updating the lexicon as necessary and will confer with a panel of experts to review the inclusion of new terms.

#### *Compendium*

The compendium is a survey of methods utilized by existing nuclear forensics institutes and governments. The United States, Japan, Canada, and the European Commission contributed practices to the compendium. Practices and methods are not evaluated, simply shared. Based on these collected practices, NFI is identifying existing gaps and subsequent methods that may be useful to address these shortcomings. It is intended to be a resource in the event of cross-border incidents, so that countries can understand each other's response methodologies and approaches.

#### *Training Curriculum*

NFI produced a nuclear-forensics training curriculum that is being taught at Delft University in the Netherlands. It is adaptable for policymakers, experts, and forensic responders. The curriculum is available for use by any country or institute. NFI is looking to other curricula on similar topics developed by the United States, Canada, INTERPOL, and the European Commission to see where improved coordination could increase efficiency and allow greater access to the curriculum.

Ahead of The Hague summit, experts from 30 countries—most of which participate in the NSS process and are signatories of the joint statement—met in January 2014. Based on NFI's work and the information shared through the education platform and compendium, participants identified areas of nuclear forensics where more work is needed. These areas include: national response plans, further education and training exercises, maintaining the lexicon and knowledge platform, further development of forensics methodologies, and collaboration mechanisms for cross-border incidents.



Dean Calmar/IAEA

The IAEA hosts an international conference on the advances in nuclear forensics in Vienna in July 2014.

## IN LARGER SECURITY: A COMPREHENSIVE APPROACH TO NUCLEAR SECURITY

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The joint statement supports greater transparency regarding the security of nuclear material for military purposes and calls for nuclear security to be articulated within broader efforts to promote nuclear disarmament, non-proliferation, and the peaceful uses of nuclear energy.

### SIGNATORIES

Algeria, Argentina, Brazil, Chile, Egypt, Indonesia, Kazakhstan, Malaysia, Mexico, New Zealand, Philippines, Singapore, South Africa, Ukraine, Vietnam (15)

The signatories of this joint statement call for comprehensive protection of all nuclear material and installations, including stockpiles set aside for military uses. Additionally, it encourages information sharing on security measures for facilities which hold military material.

The joint statement also calls for enhanced transparency of nuclear weapons arsenals. This includes regular accounts from nuclear weapons states

on the security of their arsenals and the establishment of an information sharing mechanism to facilitate additional transparency measures.

During the 2014 IAEA General Conference, several signatories of the joint statement called attention to it and reiterated the need for the global nuclear security endeavor to encompass both military and civilian stockpiles and for the establishment of an information sharing mechanism.

Ahead of the 2014 summit, several countries including the Netherlands, called for greater attention to military materials in the summit process, but specific language on the security of military materials was not reflected in the communiqué. Ahead of the 2016 summit, participating countries and non-governmental organizations are again encouraging dialogue and discussion on options for including the security of military materials on the summit agenda.

# Conclusion

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The 2014 joint statements, also known as gift baskets, were a combination of progress updates and new multilateral commitments. With one year until the 2016 Nuclear Security Summit (NSS), joint statement signatories are in the midst of implementing the political commitments made at prior summits and determining how to further their goals in 2016. More than half of the collaborative projects underway build on work that was initiated in joint statements issued at the 2012 summit, and updates on all statements, as well as some new ones, are expected next year.

Notable examples of progress made under the statements issued in 2014 include:

- The **TRANSPORT SECURITY** working group is preparing for to hold at least one table-top exercise in 2015 and will share the results at the 2016 summit.
- The United States is hosting a **MARITIME SECURITY** workshop in late 2015 focused on permanently removing radioactive materials that are outside of regulatory control from the global maritime supply chain.
- The **STRENGTHENING NUCLEAR SECURITY IMPLEMENTATION** initiative has been issued as IAEA INFCIRC/869 to garner broader acceptance, but no new countries have joined the initiative.
- The International NSSC Network met in August 2014 to share information and further cooperation, as did its subgroup, the Asian Regional Network of **NUCLEAR SECURITY SUPPORT CENTERS AND CENTERS OF EXCELLENCE**.
- More than a dozen countries have requested reviews of their national laws on nuclear security to identify any gaps as compared with the **NATIONAL LEGISLATION IMPLEMENTATION KIT**.

Of the 53 country participants in 2014, 46 signed

at least one joint statement, and most participants signed multiple joint statements. The signatories of the eight updated statements were not static. Seven statements garnered additional supporters, but three of these also saw countries fail to re-sign in 2014. The rationales for these additions and subtractions are not clear, but may simply be symptomatic of the ad hoc nature of the process.

“Gift basket diplomacy” has been one of the most important and unique innovations of the summit process. The flexible nature of the multilateral joint statements has allowed self-selected groups of countries to maximize the summit’s impact on targeted issues and achieve results that extend beyond the consensus positions in the communiqués. These statements have no predefined format, structure, or reporting mechanisms to which objectives must be tailored. Instead, they encourage creativity, dynamism, and new leadership to address the transnational challenge of nuclear security.

However, the incredibly flexible nature of the NSS joint statements also can be a detriment. Judging the impact of joint statements that do not include clear goals and processes for achieving them is difficult. To date, future summits have acted as a forcing mechanism to hold states accountable for the political commitments they made at previous summits – with results often reported in national progress reports and updated joint statements. With the 2016 summit set to be the final NSS convened in its current form and timetable, it is not clear if and how the joint



Sean Gallup/AFP/Getty Images

**Tensions between the United States and Russia over Ukraine contribute to the challenges of moving forward on multilateral nuclear security efforts.**

statement model will continue.

There is no successor to the NSS process. International experts have called for the creation of an integrated mechanism that ensures continued high-level attention and drives new commitment making after the summit process concludes.<sup>49</sup> However, some officials within the NSS process favor a devolution of the summit agenda to the international institutions and ad hoc initiatives that existed before the summit process began, including the IAEA, GICNT, UN, and Global Partnership. A loss of momentum, a splintering of the NSS peer network, and a return to the inadequate status quo, are among the arguments against divesting political attention and relying again only on these institutions to advance the issue. These challenges are further exacerbated by the adversarial international stance of Russia, its declining nuclear security cooperation with the United States, and its decision to step back from the NSS process.

It is possible that other nuclear security fora may adopt the model of gift basket diplomacy. The IAEA International Nuclear Security Conference is one venue which may attempt to pick up the commitment making tradition post 2016. The conference typically is held every three years, and benefits from being open to the participation of all IAEA member states. When last convened in July 2013, it drew some ministerial level participation, and the next conference is scheduled for December 2016. However, this conference traditionally has focused more on the technical elements confronting the nuclear security regime and not often drawn higher-level participants. Further, with the conference being

convened less than a year after the 2016 NSS, it may be difficult to drive new commitment making. It is more likely that states will use it to share updates on their nuclear security collaborations since the 2016 summit, rather than to launch new projects. Such an outcome would decrease the probability that the conference could reignite meaningful, high-level commitment making when convened again.

Ad hoc multilateral initiatives, such as the GICNT and Global Partnership, are other places in which gift basket diplomacy may emerge after 2016. Progressive rounds of commitment making through NSS joint statements have helped focus the nuclear security efforts of multilateral institutions and initiatives with diverse constituencies and mandates, like the GICNT and Global Partnership. The model has helped these groups hone their efforts and structure working groups to address issues of mutual concern. It also has prompted increased communication on how their activities complement other international efforts.

However, adopting this model would require overcoming an array of challenges, including the lack of a secretariat or institutional grounding, varying state memberships, and Russian co-leadership in both forums. At the 2012 NSS, Russia abstained from signing on to any joint statements beyond the ones issued by members of the GICNT and Global Partnership, in which it held leadership positions. In 2014, a new Global Partnership gift basket could not be issued because of Russia's intervention in Ukraine, and consequent ejection from the G-8. The GICNT gift basket only survived because it had been completed well in advance of the summit.

Joint statements have helped define the outlines of the patchwork regime and draw attention to its gaps and shortcomings – while also providing a potential tool to help mend them. Gift basket diplomacy provides one option for sustaining the summit momentum in improving the global nuclear security regime. Among the many gift baskets that may be issued in 2016, at least one should be formulated to look beyond narrow incremental improvements. This gift basket should envisage a global nuclear security system, which is relevant and effective in a world of wide-spread use of nuclear materials and decentralized threats. As the joint statements issued in 2012 and 2014 have demonstrated, the most successful statements are those that clearly identify deliverables and outcomes and include processes for achieving them. These lessons should be carried forward to all gift baskets issued in 2016.

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**The Arms Control Association (ACA)**, founded in 1971, is a national nonpartisan membership organization dedicated to promoting public understanding of and support for effective arms control policies. Through its public education and media programs and its magazine, *Arms Control Today (ACT)*, ACA provides policy-makers, the press and the interested public with authoritative information, analysis and commentary on arms control proposals, negotiations and agreements, and related national security issues. In addition to the regular press briefings ACA holds on major arms control developments, the Association's staff provides commentary and analysis on a broad spectrum of issues for journalists and scholars both in the United States and abroad.

**The Partnership for Global Security (PGS)** has nearly two decades of experience evaluating nuclear security policy needs, developing responses, and driving demonstrable results. Its focus on strategic thinking and deep understanding of how to shape, write, and package timely, authoritative, and actionable policy proposals for busy policymakers has led to new international security programs and millions in funding for nuclear security. PGS has a unique perspective on the nuclear security challenge and a track record of creating broad and integrated networks and public-private partnerships to address transnational issues. PGS is constantly evaluating how the convergence of security, technology, and economic issues is shaping the 21st century's global nuclear challenges.



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**The Fissile Materials Working Group (FMWG)** is a coalition of more than 70 nongovernmental organizations representing 32 countries. The FMWG supports improved fissile material security through the development of actionable policy proposals and advocacy for government adoption and implementation of improved policies.

**This Arms Control Association and Partnership for Global Security report assesses the progress made on more than a dozen joint statements issued at the 2014 Nuclear Security Summit. Joint statements – also referred to as “gift baskets” – are voluntary political commitments made by states which agree to work together on nuclear security issues of mutual concern.**

**Summits in 2010, 2012, and 2014 brought high-level political attention to the threat posed by vulnerable nuclear and radiological materials around the world. The Nuclear Security Summits aim to secure radioactive materials, strengthen international institutions, and increase collaboration among states to prevent nuclear terrorism. As the 2016 summit will be the final summit in its current format, it is important to understand how the joint statement model has contributed to improvements in nuclear security.**

**The findings of this report show that while “gift basket diplomacy” is yielding progress, the model has the potential to have a larger impact if goals – and the means by which to achieve them – are more specifically determined. The most successful joint statements have been those that clearly identify deliverables and outcomes and include the processes necessary for achieving them. These lessons should be carried forward to all joint statements issued in 2016. Ideally, one 2016 gift basket should be formulated to look beyond a narrow issue and envision a sustainable path forward for the global nuclear security system.**

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