



# POLICY PAPER

No. 9 (92), May 2014 © PISM

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## A Little-Known Success Story: Implementation of the NSS Goals in Central Europe

Katarzyna Kubiak<sup>1</sup>

*The Nuclear Security Summit (NSS) process aims for the international coordination of efforts to improve nuclear security. However, in the absence of globally binding norms, mechanisms, accountability and transparency, nuclear security principally remains a national matter. The Central European states, in particular Czech Republic, Hungary, Lithuania, Poland, Romania and Ukraine, are part of the NSS success story. The key drivers have been the Central European states' longing for recognition as part of the West, the personal engagement of individuals in the governmental apparatus, and the fact that cooperation on nuclear security enables intensified relation-building with the United States. Taking into account their past achievements, the states of Central Europe can also play an important role in advancing the continuity of the NSS process and leading by example with contributions to nuclear security at the regional level.*

### The Nuclear Security Regime Today

In 2009, U.S. President Barack Obama announced his commitment to secure all weaponisable nuclear material around the world to reduce the threat of nuclear terrorism and to do so within the framework of an international effort—the Nuclear Security Summit (NSS). With 2,477 incidents worldwide involving nuclear material or radioactive sources between 1993 and 2013, and 146 incidents confirmed in 2013 alone, the threat is not merely hypothetical.<sup>2</sup>

To tackle this problem, heads of state and government, together with representatives of the European Union, the International Atomic Energy Agency (IAEA), Interpol and the United Nations, have been meeting on a biennial basis—in 2010 in Washington, 2012 in Seoul, and 2014 in The Hague. The main goals of the NSS process are to (1) reduce the amount of nuclear material, (2) improve the security of nuclear and radioactive sources and (3) enhance international cooperation. The Washington Summit set goals related to nuclear materials, the global legal architecture, the role of the IAEA, international cooperation, and the role of states in ensuring nuclear security. In the aftermath of the Fukushima Daiichi nuclear power plant

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<sup>1</sup> Katarzyna Kubiak is a Ph.D. candidate at the Institute for Peace Research and Security Policy at the University of Hamburg. Her research interests include nuclear arms control, disarmament, and non-proliferation.

<sup>2</sup> *Incident and Trafficking Database (ITDB) 2014 Supplementary Information Sheet*, [www-ns.iaea.org/security/itdb.asp](http://www-ns.iaea.org/security/itdb.asp).

disaster, the Seoul Summit expanded the scope of the agenda to include the security of radioactive sources that could be used in “dirty bombs,” transportation security, combating illicit trafficking, information security, nuclear forensics, nuclear security culture, and the nexus between nuclear security and safety. The summit in The Hague reiterated these aims and pointed to voluntary measures states can undertake to strengthen nuclear security. It also underlined the responsibility of the nuclear industry in securing nuclear materials and pointed to the need for NSS process continuity.

All of the summits so far have concluded with a consensus communiqué encompassing high-level political commitments aimed at improving nuclear security. States assess individual achievements, announce voluntary national commitments supporting the goal (so-called house gifts) and sign multilateral joint statements on collective activities to advance synergies in responding to specific problems of nuclear security (so-called gift baskets). The strength of the NSS process lies in its high-level political nature. At the same time, however, the process is based upon voluntary and non-binding commitments, which prevent it from achieving transformative results regarding the global nuclear security system.

The Czech Republic, Poland and Ukraine have taken part in the NSS process since 2010, while Hungary, Lithuania and Romania were invited to join in 2012. The Central European states, however, had commenced improving their nuclear security standards on the national and bilateral level far before the NSS process started. The challenges they faced stemmed mainly from the state of their nuclear infrastructure and location along smuggling routes for nuclear and radiological materials. Altogether, the six Central European states operate 24 nuclear reactors and six research reactors. Moreover, 12 new nuclear reactors are planned, scheduled for completion, or in replacement. At the same time, since the collapse of the Soviet Union, two major trafficking routes for nuclear materials emerged through Central Europe: a northern route encompassing the Baltic States, and a central route through Poland, Hungary, the Czech Republic, Germany, Austria and Switzerland.<sup>3</sup> Even though since 1996 smuggling incidents in Central Europe have decreased, a recent study by the Institute for Science and International Security identified the Czech Republic, Hungary and Ukraine as “potential future illicit nuclear trade suppliers” due to few export controls and a “culture of indifference” in the prevention of the proliferation of nuclear weapons technology.<sup>4</sup>

## Central European States’ Fulfilment of Summit Goals

About 95% of commitments from the Washington Summit have been achieved as of 2013.<sup>5</sup> So, where do the Central European states place themselves in fulfilling the summits’ goals? The first indispensable variable determining the success of efforts within the NSS framework is the recognition of the threat of nuclear terrorism and the way in which nuclear security is framed. On the declaratory level, all Central European states acknowledge the importance of nuclear security in their national security strategies and identify measures to handle nuclear terrorism, both on the international and domestic levels.<sup>6</sup> On implementation, they all support a broad range of high-level NSS commitments.

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<sup>3</sup> The International Institute for Strategic Studies, *Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation Networks*, 2007, p. 127.

<sup>4</sup> D. Albright, A. Stricker, H. Wood, *Future World of Illicit Nuclear Trade: Mitigating the Threat*, 2013, p. v-vi, [http://isis-online.org/uploads/isis-reports/documents/Full\\_Report\\_DTRA-PASCC\\_29July2013-FINAL.pdf](http://isis-online.org/uploads/isis-reports/documents/Full_Report_DTRA-PASCC_29July2013-FINAL.pdf).

<sup>5</sup> U.S. Department of State, *Diplomacy in Action: Nuclear Security Summits*, [www.state.gov/t/isn/nuclearsecuritysummit](http://www.state.gov/t/isn/nuclearsecuritysummit).

<sup>6</sup> *Security Strategy of the Czech Republic*, p. 14, [www.army.cz/images/id\\_8001\\_9000/8503/Czech\\_Security\\_Strategy\\_2011.pdf](http://www.army.cz/images/id_8001_9000/8503/Czech_Security_Strategy_2011.pdf); Romania’s National Security Strategy, [www.isn.ethz.ch/Digital-Library/Publications/Detail/?ots591=0c54e3b3-1e9c-be1e-2c24-a6a8c7060233&lng=en&id=15286](http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?ots591=0c54e3b3-1e9c-be1e-2c24-a6a8c7060233&lng=en&id=15286); *The Law on National Security*, [www.sbu.gov.ua/sbu/control/en/publish/article?art\\_id=89497&cat\\_id=42924](http://www.sbu.gov.ua/sbu/control/en/publish/article?art_id=89497&cat_id=42924); *Hungary’s National Security Strategy*, p. 15, [www.kormany.hu/download/4/32/b0000/National%20Security%20Strategy.pdf](http://www.kormany.hu/download/4/32/b0000/National%20Security%20Strategy.pdf); *National Security Strategy of the Republic of Poland*, [www.merln.ndu.edu](http://www.merln.ndu.edu); *National Security Strategy of the Republic of Lithuania*, [www.isn.ethz.ch/Digital-Library/Publications/Detail/?id=156893](http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?id=156893).

## *Adherence to Global Nuclear Security Architecture*

The nuclear security regime consists of three, not always coordinated, elements: (1) national laws and regulations, (2) international agreements and instruments under the wide aegis of the UN, IAEA and other international organisations, and (3) ad hoc and voluntary measures. As an attempt to coordinate efforts on a global scale, the 2010 communiqué encouraged states to “support the objectives of international nuclear security instruments.” Here, two legal documents are of essential importance.

The Convention on Physical Protection of Nuclear Materials (CPPNM) is the only international legally binding standard concerning the physical protection of nuclear material used for peaceful purposes in international transport. All of the Central European states ratified the treaty. The 2005 Amendment to the Convention makes it legally binding for states to also protect nuclear facilities and material in peaceful domestic usage, storage and transport. It still has not entered into force, as the required number of states have yet to ratify it.<sup>7</sup> Hungary, Lithuania, Poland, Romania and Ukraine have ratified, while the Czech Republic has formally accepted it, which is sufficient for its enforcement.

Even before the NSS process started, the Czech Republic, Hungary, Lithuania, Poland, Romania and Ukraine ratified the second key document—the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT)—which serves as the only legal instrument criminalising nuclear terrorism and obliging states to prevent, investigate and punish such attempts.

Apart from conventions, the regime incorporates UNSC resolutions (1540, 1373, 1549, 1887), codes of conduct (e.g., Code of Conduct on the Safety and Security of Radioactive Sources), guidelines and recommendations (e.g., Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities) and several ad hoc multilateral initiatives (e.g., the Proliferation Security Initiative or the IAEA Illicit Trafficking Data Base), to which all Central European states are members or submit reports on implementation measures.

### *Supporting and Making Full Use of the IAEA Toolbox*

The NSS communiqués recognise the central role of the IAEA in supporting national efforts to enhance nuclear security. In particular, states are encouraged to increase contributions to the voluntary IAEA’s Nuclear Security Fund (NSF) and utilise IAEA assistance mechanisms.

The NSF funds 80% of IAEA activities supporting Member States in preventing, detecting and responding to nuclear terrorism. However, the high reliance on extrabudgetary financing impacts the predictability of planning and management of IAEA’s efforts in this field. Two Central European countries have been particularly active in this area. Between 2003 and 2008, the Czech Republic contributed about €360,000, and in 2013 Romania donated €30,000 to the NSF. While established economies invest much bigger amounts,<sup>8</sup> other Central European states do not invest financially at all. Apart from NSF-related support, since 2011 the Czech Republic has contributed about €216,000 in the Armenian Medzamor nuclear power plant and about €123,000 to the Armenian National Regulatory Authority, while in 2011 Romania invested €500,000 in projects to secure the Chernobyl facility. With this bilateral assistance, the Czech Republic and Romania have shown awareness of and high responsibility for nuclear security on a regional level.

The Central European states have also utilised the comprehensive IAEA support toolkit available to states. The chief instrument to evaluate regulatory arrangements for physical protection of nuclear activities and compliance with CPPNM is the International Physical Protection Advisory Service (IPPAS). This two-week peer-reviewed comparison of national practices with the IAEA guidance conducted by a team of international experts evaluates if effective security is in place. Inviting IPPAS missions is an established routine in the Czech Republic (1998 and a 2002 follow-up), Hungary (1997, 2013), Lithuania (1999, 2002 follow-up), Poland (1997), Romania (1997, 2002 follow-up, 2012 as a Seoul “house gift”) and Ukraine (2001,

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<sup>7</sup> The entry into force of the Amendment to CPPNM requires ratification by two-thirds of the up-to-date 144 State Parties to the Convention. As of 27 March 2014, 74 states had ratified the Amendment, but 99 signatories are required.

<sup>8</sup> Between 2010 and 2014, Germany invested €10 million into NSF, France €2.8 million and UK €14.5 million.

2003 follow-up, 2007 follow-up). Lithuania plans to host an IPPAS mission in 2016. Generally, mission reports are confidential, but some states publish their excerpts. In doing so, they enhance transparency and improve confidence in their nuclear security arrangements. For example, a 2013 IPPAS mission concluded that Hungary possesses a “well-established” nuclear security regime covering all nuclear and other radioactive material and that adequate physical protection measures exist or are being implemented at the facilities visited.<sup>9</sup>

Another tool is the Integrated Regulatory Review Service (IRRS), which helps IAEA members to improve the effectiveness of national safety regulations. In 2013, Poland invited an IRRS mission, which concluded that Poland “is implementing a framework that provides for effective protection of public health and safety.”<sup>10</sup> A 2006 follow-up IRRS mission to Romania concluded that “many recommendations and suggestions from the previous missions have been successfully addressed.”<sup>11</sup> Lithuania is planning to invite an IRRS mission in 2016.

Integrated Nuclear Infrastructure Review (INIR) missions provide external peer reviews of nuclear infrastructure development. In March 2013, Poland hosted an INIR mission to assess the development of the Polish nuclear power programme. The mission report concluded that “Poland has made significant progress in the necessary infrastructure for the development of its National Nuclear Power Programme”<sup>12</sup> and identified further suggestions for improving its infrastructure.

Such reviews demonstrate states’ willingness to receive “constructive criticism” in order to improve performance and serve as a confidence-building measure. Follow-up missions ensure that recommendations have been implemented and assure other states of the seriousness in approaching nuclear security.

### *Enhancing the First Line of Defence*

Actions within the first line of defence aim at securing nuclear and radiological materials and focus in particular on the physical protection of sources, both at secured sites as well as in transport. The IAEA has identified that quantities above one kilogram of weaponisable nuclear material warrants additional levels of protection and as such states are called on to reduce the amount of highly enriched uranium (HEU) as the safest way to improve nuclear security. Central European states can boast considerable success in this regard. The Czech Republic (2002–2010), Hungary (2008–2012), Romania (2003–2009) and Ukraine (2010–2012) completely removed HEU from their territories. Most of this was accomplished before the NSS process started. Minor work, however, is yet to be done. Poland still holds 22.5 kg HEU from spent nuclear fuel, but the remainder is planned to be shipped in 2014 and 2016, which will completely eliminate all HEU fuel from Poland.

The conversion of reactors from HEU fuel to low enriched uranium (LEU) fuel is another measure to strengthen nuclear security. The Czech Republic and Hungary finished the conversion of all remaining HEU fuel nuclear reactors to LEU fuel. In 2005, the research reactor of the Czech Technical University in Prague was the first Russian-supplied reactor converted to LEU. In 2006, Romania finished the conversion of the Triga research reactor in Pitesti. Moreover, a Russian unit was decommissioned in Bucharest—Magurele. At the same time, however, Romania operates two heavy-water reactors at the Cernavoda facility, which produces plutonium and tritium as by-products. Additionally, under the European Sustainable Nuclear Industrial Initiative, Bucharest plans the construction of the Advanced Lead Fast Reactor European Demonstrator (ALFRED)—a lead-cooled reactor using mixed-oxide (MOX) fuel with about 17% plutonium. Ukraine operates 15 nuclear power reactors, all of which are LEU-fuelled Water-Water Power Reactors. Its research reactor at the Institute for Nuclear Research in Kiev was converted to LEU fuel and is

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<sup>9</sup> *International Physical Protection Advisory Service (IPPAS) Mission Report Prepared for the Hungarian Atomic Energy Authority*, [www.oah.hu/web/v3/HAEAPortal.nsf/F946815DD34C72E4C1257C7F0038F3BE/\\$FILE/IPPAS%20jelentés%20nyilvános%20rész.pdf](http://www.oah.hu/web/v3/HAEAPortal.nsf/F946815DD34C72E4C1257C7F0038F3BE/$FILE/IPPAS%20jelentés%20nyilvános%20rész.pdf).

<sup>10</sup> *Integrated Regulatory Review Service (IRRS) Mission to Poland*, p. 2, [www.paa.gov.pl/sites/default/files/FINAL%20Poland%20IRRS%20Report17-07-2013.pdf](http://www.paa.gov.pl/sites/default/files/FINAL%20Poland%20IRRS%20Report17-07-2013.pdf).

<sup>11</sup> *Internal Regulatory Review Service Follow-up Mission of IRRS and RaSIA to Romania*, p. 1, [www-ns.iaea.org/downloads/actionplan/irrs-follow-up-romania-jan-2006.pdf](http://www-ns.iaea.org/downloads/actionplan/irrs-follow-up-romania-jan-2006.pdf).

<sup>12</sup> *Mission Report on the Integrated Nuclear Infrastructure Review*, p. 9, [www.iaea.org/NuclearPower/Downloadable/Infrastructure/Approved\\_INIR\\_Report\\_Poland.pdf](http://www.iaea.org/NuclearPower/Downloadable/Infrastructure/Approved_INIR_Report_Poland.pdf).

scheduled to close in 2015. Moreover, Ukraine operates a small LEU-fuel IR-100 research reactor at the Sevastopol National University of Nuclear Energy and Industry. The conversion process of the Polish MARIA research reactor is scheduled to be finished by the third quarter of 2014.

The Seoul communiqué encouraged states to secure and establish inventory management of high-activity radioactive sources, “where required.” Since the 1990s, the Czech National Regulatory Authority keeps the national source register containing comprehensive information on high-risk radioactive sources and their holders. Hungary maintains a State System of Accounting for and Control of Nuclear Materials and a national central register of all radioactive sources and waste considered to be “above exemption level.”<sup>13</sup> Poland runs a State System of Accounting for and Control of Nuclear Materials (SSAC) as well as a register of radioactive sources, including information on their movement. With respect to Poland’s nuclear energy programme, the Polish Ministry of Economy aims at preparing a National Plan for radioactive waste and spent fuel management in 2014. Romania established regulations on radiological “surveillance of recyclable metal waste during the whole cycle of collection, trade and processing” by developing a database, which is operated by the National Commission for Nuclear Activities Control, aimed at collecting relevant information prior to any activity related to recyclable metal waste. With the support of the U.S. Department of Energy, Romania implemented a bilateral agreement to upgrade the safety of radioactive sources and nuclear material with a special focus on the physical protection of the Horia Hulubei National Institute of Physics and Nuclear Engineering in Magurele. For many years already, Ukraine has held a State Register of Radioactive Waste and State Cadastre of Storages and Points of Temporary Radioactive Waste Storage.

### *Enhancing the Second Line of Defence*

The second line of defence aims at combating illicit trafficking. It comprises the detection and prevention of smuggling of nuclear and radiological material and appropriate measures to respond and prosecute illicit trafficking.

Hungary, Lithuania and Poland border non-Schengen states, which underscores the importance of an effective anti-smuggling system. EU Member State Romania and non-EU state Ukraine are not part of the Schengen area, which requires more robust border control and, at the same time, provides additional opportunity to track illicit trafficking. There is no border control within the Schengen Area, which poses challenges for states like the Czech Republic to trace potential smuggling of nuclear material. States seldom openly disclose their detection capabilities. With only fragmented information on existing capacities, however, one is unable to make a comprehensive assessment of these states’ preparedness to combat illicit trafficking. One measure of success is the fact that since 1996 the trafficking of nuclear and radioactive materials via the Central European routes has decreased significantly. The Czech Republic, Lithuania and Hungary signed the Seoul joint statement on *Activity and Cooperation to Counter Nuclear Smuggling*, aimed at improving national capacities to identify potential smugglers, recover radioactive material under regulatory control, and prosecute those involved. This indicates an interest in and probable necessity to improve existing capabilities.

Licensing and law enforcement bodies in the Czech Republic possess equipment adequate to detect illicit trafficking.<sup>14</sup> Its experts take part on a regular basis in courses organised by the European Commission’s Joint Research Centre in Karlsruhe on countering nuclear and radiological smuggling and in nuclear forensics capabilities.

In 2011, Lithuania and the U.S. National Nuclear Security Administration (NNSA) signed an Implementation Agreement on Cooperation in Preventing Illicit Trafficking of Nuclear and Other Radioactive Material as part of NNSA’s Second Line of Defence programme. In 2013, the U.S. and Lithuania signed an Agreement for Cooperation on Countering Nuclear Smuggling, within the scope of which NNSA provides radiation

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<sup>13</sup> *Highlights of Achievements and Commitments by Participating States as stated in National Progress Reports and National Statements*, p. 3, [www.nss2014.com/sites/default/files/documents/highlights\\_of\\_the\\_seoul\\_nuclear\\_security\\_summit120403.pdf](http://www.nss2014.com/sites/default/files/documents/highlights_of_the_seoul_nuclear_security_summit120403.pdf).

<sup>14</sup> *Nuclear Security Summit 2014 National Progress Report: The Czech Republic*, [www.nss2014.com/sites/default/files/documents/czech\\_republic.pdf](http://www.nss2014.com/sites/default/files/documents/czech_republic.pdf).

portal monitors, handheld radiation detectors and front-line detection training. Moreover, relevant Lithuanian institutions improved their capabilities in the field of emergency preparedness and warning on potential hostile use of nuclear and radioactive materials.<sup>15</sup> In 2013, Lithuania established a permanent Interagency Working Group consisting of 13 institutions to manage the activities of Lithuanian institutions on nuclear security.<sup>16</sup> Vilnius also set up a State Nuclear Inspectorate to review the existing legal framework for countering nuclear smuggling, coordinating interagency cooperation, exchanging information and cooperating with foreign partners.<sup>17</sup>

Poland recently modernised its radiometric control system following a 2009 Memorandum of Understanding with the U.S. Department of Energy. It provided the Bureau of Counter Terrorist Operations with a training program dedicated to detecting radiological and nuclear threats in theory and with equipment. Assistance also included equipment delivery, installation and service. According to Jacek Kapica, former chief of the Polish Customs Service, all Polish border crossings with non-EU countries have received stationary radiometric portal monitors aimed at detecting radiological materials.<sup>18</sup> Their usefulness is depicted by the fact that in 2013 alone the Polish Border Guard conducted 15,926 checks. The Polish second-line-of-defence capabilities also improved with the hosting of the 2012 UEFA European Football Championship. In this context, Poland developed CBRN detection capabilities at a macro level. Additionally, all procedures regulating the detection and handling of situations regarding nuclear and radiological materials have been controlled.

According to its 2014 National Progress Report, Romania has thus far not encountered any high-risk events regarding illicit trafficking in dual-use nuclear materials, and only 1-2 events are being recorded annually. Romania claims to have the capacity to avert and counter illicit trafficking of nuclear materials, pointing mainly towards international cooperation.<sup>19</sup> With EU assistance, it received radiation monitoring equipment. As a result, more than 300 nuclear control units are in operation at the borders within a single computerised system operated by personnel trained by the National Commission for Nuclear Activities Control.

Ukraine runs the Radioactive Detection System, which secures border crossings in the north of the country as well as at all main airports and interstate motorways.<sup>20</sup> Under a 2005 agreement between the U.S. and Ukraine, NNSA's Second Line of Defence Programme provided the Administration of the State Border Guard Service of Ukraine with radiation detection equipment at more than 80 international crossing points of all types and regional training centres throughout Ukraine. As co-host of Euro 2012, Ukraine also upgraded its technical capabilities to track the illicit trafficking of nuclear and radiological materials.

All Central European states have put some effort into testing and improving their nuclear security response capabilities by organising training courses and exercises. As an example, in 2009, the Czech National Regulatory Authority held the workshop "Regional System for Combating Illicit Trafficking of Nuclear and Radioactive Materials in the Murmansk region." In 2013, Romania hosted an exercise based upon a scenario that included a shooting incident at a medical centre storing radiological installations and radioactive materials.<sup>21</sup> In May 2013, Hungary hosted a demonstration exercise on radiological consequences

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<sup>15</sup> "Enhancing Global Efforts," statement by the Minister of Energy of the Republic of Lithuania H.E. Jaroslav Neverovic at the IAEA International Conference on Nuclear Security, [www-pub.iaea.org/iaeaameetings/cn203p/Lithuania.pdf](http://www-pub.iaea.org/iaeaameetings/cn203p/Lithuania.pdf).

<sup>16</sup> Ministry of Foreign Affairs of the Republic of Lithuania, *Nuclear and Cyber Security, Fight against Terrorism*, [www.urm.lt/default/en/foreign-policy/lithuania-in-the-region-and-the-world/lithuanias-security-policy/nuclear-and-cyber-security-fight-against-terrorism](http://www.urm.lt/default/en/foreign-policy/lithuania-in-the-region-and-the-world/lithuanias-security-policy/nuclear-and-cyber-security-fight-against-terrorism).

<sup>17</sup> "Enhancing Global Efforts," *op. cit.*

<sup>18</sup> P. Henzel, "Bezwzględna walka Polski z przemytem. Kapica: jesteśmy liderem w UE," *Onet*, <http://wiadomosci.onet.pl/tylko-w-onych/bezwzględna-walka-polski-z-przemytem-kapica-jestesmy-liderem-w-ue/brnzd>.

<sup>19</sup> *Nuclear Security Summit 2014 National Progress Report: Romania*, <https://www.nss2014.com/sites/default/files/documents/romania.pdf>.

<sup>20</sup> *National Progress Report of Ukraine on the Implementation of the Washington Summit Commitments*, <http://pgstest.files.wordpress.com/2013/06/ukraine-national-progress-report.pdf>.

<sup>21</sup> *Nuclear Security Summit 2014 National Progress Report: Romania*, [www.nss2014.com/sites/default/files/documents/romania.pdf](http://www.nss2014.com/sites/default/files/documents/romania.pdf).

management response. A joint Polish-Ukrainian response exercise with a scenario of the illicit transfer of radioactive materials is scheduled for this year (2014).

A crucial, but still relatively underdeveloped field of nuclear security response is nuclear forensics. Ukraine aims to become a regional technical leader in nuclear forensics and has been working to set up a nuclear material library. The Czech Republic invests in nuclear forensics expertise at the Rez Central Analysis Laboratory. In 2012, Hungary established a Nuclear Security Support Centre, which will start operation in 2014 to support the IAEA in developing guidelines and organising training focused on nuclear forensics. Lithuania, Poland and Romania neither engage in that field nor systematically participate in theme-related meetings, for example, those conducted by the informal Nuclear Forensics International Technical Working Group.

### *Strengthening Nuclear Security Culture*

Enhancing nuclear security culture aims at human capacity-building. Possible steps include the establishment of Centres of Excellence, maintaining robust communication, and coordination of activities, education and training as well as networking. Countries in Central Europe have manifest their commitment to bolstering nuclear security culture by signing the *Nuclear Security Training and Support Centre* joint statement in 2012 to develop high-level training programmes and provide scientific support for the detection of and response to nuclear security events in a participating country (Czech Republic, Hungary, Lithuania and Ukraine), taking part in the Nuclear Security Summit Outreach Efforts aimed at discussing regional nuclear security challenges (Czech Republic, Hungary, Lithuania, Poland and Romania), and participating in the Global Partnership against the Spread of Weapons and Material of Mass Destruction, which is aimed at reducing the risk of WMD terrorism through multilateral cooperation (Czech Republic, Hungary, Poland and Ukraine). While Czech Republic, Hungary and Lithuania have established permanent scientific facilities, Poland and Romania have undertaken temporary steps by organising exercises, workshops and conferences.

In 2006, the Czech Republic set up a NATO Joint CBRN Defence Centre of Excellence in Vyskov, specialising in CBRN defence, crisis and consequences management. Additionally, it established a Centre of Excellence in the Rez Nuclear Research Institute that specialises in nuclear safety and nuclear fuel research. The Hungarian Nuclear Security Support Centre scheduled regional workshops on nuclear security culture, protective and preventive measures against sabotage, nuclear forensics, and on nuclear security information management systems. Lithuania established the Nuclear Security Centre of Excellence in Medininkai, which aims to become the main regional training institution for the Baltic–Nordic region and specialises in training police and intelligence officers on countering nuclear smuggling.

In August 2010, within the framework of the *Nuclear Security Summit Outreach Efforts* joint statement, Poland hosted a seminar for Central and Eastern European countries on the outcomes of the NSS to facilitate an exchange of information on nuclear security from a regional perspective. In February 2012, Poland and Interpol organised the first-ever Nuclear Security Summit Law Enforcement Counter Nuclear Smuggling Conference, aimed at discussing best practices in enhancing international cooperation to prevent and respond to nuclear and radiological threats. In 2013, together with Croatia, Poland conducted a peer-review of the implementation of UNSC Resolution 1540. Moreover, a joint Polish–Ukraine exercise is scheduled for this year to improve cooperation in countering attempts to illicitly transfer radioactive sources.

Romania organised workshops and training courses with a particular emphasis on the prevention of illicit trafficking of nuclear materials and conducted international cooperation exercises OLTENIA 2008, AXIOPOLIX 2009 and NAUTILIUS 2011 and a joint exercise with Bulgaria on radiological emergency protection and intervention. Romanian staff working in the field of health and detection equipment received training within the IAEA technical cooperation project. During the Seoul NSS, Romania expressed interest in providing assistance and shared “lessons learnt” related to its conversion of research reactors from HEU to LEU, repatriation of HEU to its country of origin and safety of radioactive sources.

## Conclusion and Recommendations

The Central European states have performed remarkably well in fulfilling the NSS goals. The NTI Nuclear Material Security Index—an analysis of nuclear material security conditions—reflects this, ranking the Czech Republic, Hungary, Lithuania and Poland in the top 10, Romania 16<sup>th</sup> and Ukraine 23<sup>rd</sup> out of 176 countries.<sup>22</sup> They have contributed to success of NSS due to tangible improvements in nuclear security. Only minor tasks remain, such as the complete removal of HEU. Interestingly, many activities on nuclear security undertaken by the Central European states were contemplated or accomplished before the NSS began, demonstrating the high level of awareness and political will in these states to tackle the problem.

There are several reasons for this involvement that go beyond a basic preoccupation with the threat of nuclear terrorism. First, the Central European states aimed at achieving tangible progress in order to prove that they understood and shared the “West’s” threat perception. Second, the success was possible due to individuals within governmental administrations who were aware of and interested in the issue. Finally, tackling the problem served a perfect opportunity to tighten relations with the United States.

The NSS process helped to intensify activities related to the establishment of a strong nuclear security culture, tremendously improved detection capabilities, pointed to the need for better cross-border coordination, and lead to country-specific specialisation, in particular, on nuclear security themes. Many achievements, however, would not have been possible to reach so fast or even at all if not for the financial support provided by, amongst others, the Global Threat Reduction Initiative and the International Material Protection and Cooperation programme.

Regardless of the successes, Central European states can and should further improve nuclear security on the national and international levels. As the NSS process is very exclusive, its coverage is not sufficient to ensure comprehensive nuclear security globally. Nuclear security will only be as strong as the weakest link in the chain and as such requires the involvement of each and every state, also in the Central European neighbourhood.

### *Improvements on the Domestic Level*

Recent incidents, such as the one in November 2013 when two containers with cobalt isotopes were noticed to be missing from the Bełchatów Power Station in Poland (probably stolen for sale as scrap metal),<sup>23</sup> clearly exemplify that Central European states have a ways to go towards a bulletproof nuclear security system, even if the most urgent tasks have been accomplished. The Central European states recognised this by subscribing in The Hague to the joint statement *Strengthening Nuclear Security Implementation*. It contains such commitments as hosting periodical peer reviews and self-assessments, embedding recommendations into national regulations and acting upon them as well as ensuring appropriate training and competency of responsible personnel.

### *Leading by Example*

The states of Central Europe should consider leading by example and taking responsibility to improve the security of nuclear and radioactive materials at the regional level. Lithuania seems to promote this approach via its Centre of Excellence. Others could follow by establishing expertise in other subfields to make the regional system as comprehensive as possible. Moreover, Central European states could contemplate providing bilateral or multilateral financial assistance to neighbouring states (e.g., Belarus, Bulgaria, Moldova) for concrete projects or contributing to the IAEA Nuclear Security Fund. This need will become imminent as the Obama administrations’ budget cuts on its nonproliferation programs starting in 2015 may slow down nuclear security-related efforts. Central European countries could also consider investing in human capacity-building by supporting non-governmental organisations such as the World Institute for Nuclear Security.

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<sup>22</sup> NTI Nuclear Materials Security Index, <http://ntiindex.org/wp-content/uploads/2014/01/2014-NTI-Index-Report1.pdf>.

<sup>23</sup> “Z elektrowni zginęły radioaktywne izotopy; zamknięte w pojemnikach nie są groźne,” TVN24, [www.tvn24.pl/lodz,69/z-elektrowni-zginely-radioaktywne-izotopy-zamkniete-w-pojemnikach-nie-sa-grozne,375535.html](http://www.tvn24.pl/lodz,69/z-elektrowni-zginely-radioaktywne-izotopy-zamkniete-w-pojemnikach-nie-sa-grozne,375535.html).



## *Transparency and Confidence-Building Measures*

Nuclear security touches upon state sovereignty and classified information, which make transparency and confidence-building more difficult to achieve. Yet, it is important to conceptualise confidence measures that demonstrate to the international community that a state has an effective nuclear security system in place. Some countries voluntarily request IAEA missions to assess and improve their nuclear security system. However, there are limits to the effectiveness of this approach, as most nuclear security information is restricted and states are neither obligated to follow nor account for implementation of the missions' recommendations. At the same time, greater cross-border communication for the purpose of building international confidence seems to be inevitable. More transparency on the missions' report outcomes, an obligation to conduct missions and implement their recommendations as well as a verification process would tremendously improve confidence among states and encourage further cooperation. Central European states seem to have paved the way already by publishing excerpts from the reports. They could also use their leverage to propose a joint statement on popularising peer reviews and strengthening the principle of sharing information from IPPAS missions.

## *Grand Vision*

The durability and effectiveness of current achievements relies on maintaining awareness of the potential threat even in the absence of major nuclear security incidents or major high-level international political gatherings. The challenges to be addressed by all NSS participants are in securing political momentum and attention for further actions and sustaining political will by determining the successor to the NSS process beyond 2016. One idea for how to guarantee continuity is to include nuclear security as a fourth pillar of the nuclear Nonproliferation Treaty, a goal for which Central European states could work within the Nuclear Non-Proliferation Treaty Review Process.