



# Building a Nuclear Security Framework From the Ground Up: Encouraging Coordination Among Centers of Excellence in Northeast Asia

March 2013

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Leaders of more than 45 countries have now met twice at nuclear security summits—the first in Washington, DC, in April 2010, and the second in Seoul in March 2012—to strengthen nuclear security. They began with a finite goal of securing all vulnerable nuclear material in four years. By the 2014 summit in the Netherlands, there is likely to be an enormous push to declare victory and assert that this narrow goal has been met.

The summit process has helped focus attention and political will on reducing the risks that vulnerable nuclear and radiological material pose. However, a declaration of victory in 2014 without a plan for institutionalizing further progress could be a missed opportunity. Real, sustainable nuclear security will require definable benchmarks for progress and mechanisms for measuring that progress.

Of course, the summits themselves have yielded concrete improvements. Countries have secured specific amounts of material, ratified relevant conventions, enacted national legislation, or pledged contributions to the International Atomic Energy Agency's (IAEA) Nuclear Security Fund. In particular, one development has the potential to help lay a foundation for sustainable, continual progress in nuclear security: the proliferation of so-called centers of excellence.

At the 2010 and 2012 summits, 15 countries announced they would establish centers of excellence (COEs), or training programs related to nuclear security. In Washington in 2010, Japan, China, South Korea, Italy, India,

and Kazakhstan declared they would establish centers.<sup>1</sup> Other states that have since established COEs include Algeria (2011), Ukraine (also chair of a COE coordinating group within the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction), Lithuania (2012), the Netherlands (2012), Saudi Arabia (2012), and Singapore (establishing a nuclear forensics lab by 2013). Pakistan announced it would open a nuclear security training center as a regional hub, South Africa announced it would consider opening a joint COE with the IAEA, and Brazil announced its intention to establish a COE.

These COEs have a variety of origins, objectives, and purposes.<sup>2</sup> Some are meant to support nuclear energy programs in general, with a nuclear security component (e.g., India, United Kingdom). Others are focused on a particular aspect of nuclear security, like forensics. Many are intended for purely national purposes, for example, to train cadres of experts to support implementation of nuclear security in that country. A few intend to serve as a regional hub for training, for example, Pakistan's and Japan's centers. In some cases, these centers may also combine research and development focuses with training.

The proliferation of centers raises important questions about their effectiveness and their coordination. On effectiveness, the jury is still out. Commitments to establish centers were relatively easy deliverables for the two summits, but the maturing of these centers will take some time. Assistance from individual countries, regional

organizations, and international organizations can all be channeled into improving effectiveness. This is where coordination becomes important. Improving coordination of assistance to COEs has become a goal of donors in an era of scarce resources, but improving coordination among COEs has received relatively less attention. Nonetheless, overall coordination among the centers can also help improve effectiveness and efficiency. Although COEs that operate independently of each other can help improve levels of nuclear security, by working together they can bring collateral benefit to the nuclear security regime, such as greater information exchange and development of relationships that can deepen collaboration. Adding a policy element to these essentially technical centers could help build a sustainable institutional framework for nuclear security.

This Policy Analysis Brief focuses on the potential for collaboration among the COEs in China, Japan, and South Korea. Why Asia? Demand for nuclear energy is likely to grow more rapidly in Asia than in any other region in the world. Although Japan's nuclear energy future is uncertain, China and South Korea have plans to expand domestic nuclear energy and to export nuclear reactors. Japanese officials have reiterated their intentions to promote Japanese nuclear exports since the major accident at the Fukushima Daiichi nuclear power plant in 2011. All three have a stake in promoting improved nuclear governance domestically and in their region. Japan leads South Korea and China in terms of nuclear energy capacity and sophistication, and it has turned its existing training center into an integrated center for nuclear nonproliferation and security. Because of their large and growing nuclear energy programs, these countries have incentives to build substantial training capacity, and because they all seek to export, coordination could be helpful—once natural competitiveness is overcome or managed.

At the same time, Asia may understand better than other regions the need to collaborate on reducing the risks of radiation exposure to society and the environment. The Fukushima accident revealed gaps in the nuclear safety regime that did not meet public expectations of sufficient nuclear governance. Clearly, people across the globe were surprised by the lack of international collaboration in certain areas (like emergency response)

and more authoritative peer review. An agreement among China, South Korea, and Japan to coordinate emergency response measures was one outcome of the accident.

There is a growing expectation for collaboration on nuclear security even though, like nuclear safety, it has been the exclusive purview of national governments. The challenges in collaboration on nuclear security may be even greater because of additional resistance to information sharing. While the flare-up in 2012 of long-standing political and territorial disputes in Northeast Asia may dampen some kinds of cooperation, a quiet collaboration in technical areas may be possible and might help narrow some political gaps.

## Recognizing the Need for Something Beyond Summits

No one expects summits to achieve very much: they function, after all, as stages upon which leaders can express their concerns, announce progress, and make future commitments. The real work is done between summits by government officials who attempt to implement the promises made by their leaders. That work is usually supported by established mechanisms for communication, interaction, and exchange of ideas, often in the form of working groups, committees, or conferences.

The 2010 and 2012 summits did have mechanisms for making progress in between in the form of sherpa and sous-sherpa meetings organized by the follow-on summit's host, patterned after the G-8 process. But these are hardly a substitute for a real framework within which we can ensure continual progress toward reducing the risk that nuclear material could be acquired and used by terrorists. Further, there is every expectation that the 2014 summit in the Netherlands may be the last of its kind.

Without a summit process, it is likely that the job of promoting nuclear security will fall to the IAEA, which has a range of programs to assist countries on physical protection. However, the IAEA's *raison d'être* from its inception in 1957 has been to promote peaceful nuclear energy. Nuclear security is, arguably, a part of that mandate in the same way that safeguards and safety are: it enables the sustained uses of nuclear energy because public confidence is vital to the enterprise. However, agency resources and efforts

devoted to nuclear security have been much more limited than for safeguards or safety. In fact, 80 percent of the funds the IAEA expends on nuclear security come from voluntary contributions outside of the regular budget.

There are many reasons for this, all a result of the fact that the nuclear security regime is a patchwork quilt of voluntary commitments, national laws, and international conventions. The lack of coherence and accountability multiplies the challenges of making progress in nuclear security.

Officials have acknowledged some of this on the margins of governmental meetings, but finding appropriate fixes will not be easy. Although it is fashionable in some circles to refer to “nuclear governance,” there are no clear outlines yet for what this might entail. However, whatever nuclear governance emerges is likely to be a mixture of ideas and programs that spring from the bottom up as well as from the top down. The COEs present an emerging opportunity to shape the contours of that nuclear governance.

### **Current Collaborative Efforts of Centers of Excellence**

The value of networking national efforts related to COEs has been recognized by the IAEA and the European Union. Some COEs or Nuclear Security Support Centers (NSSCs) predate the first nuclear security summit. By 2010, the IAEA was already providing support to six NSSCs in states as diverse as Colombia, Ghana, Malaysia, Morocco, Pakistan, and Tanzania. A seventh center opened in Obninsk, Russia, in 2011. Seven more such centers are planned for Chile, Cuba, Turkey, Kazakhstan, South Africa, the Philippines, and Jordan.<sup>3</sup> In 2010, the IAEA also established the International Nuclear Security Education Network, which provides a forum for practical collaboration among the IAEA, educational institutions, and research organizations.

The IAEA began to facilitate collaboration among COEs and NSSCs through the International Network for Nuclear Security Training and Support Centres (INNSTSC), which was established in early 2012. At this writing, more than 40 representatives from 30 member states of the IAEA have joined the network. Supported by three working groups on coordination and collaboration, best practices, and information management, this network was referenced in the Joint Statement on Nuclear Security

Training and Support Centers at the 2012 Seoul Nuclear Security Summit.<sup>4</sup> Fundamentally, the IAEA sees its role as facilitating coordination among COEs and NSSCs at the behest of member states, rather than directing such coordination.

The European Union (EU) has also begun a coordinating effort but has taken a different approach from the IAEA. First, its COEs are devoted not just to nuclear security but also to chemical, biological, and radiological security—an “all hazards” approach. Second, the primary objective is to leverage EU resources in a focused, targeted way, in which high-risk areas and regions for chemical, biological, radiological, and nuclear (CBRN) proliferation are identified and resources directed toward them.<sup>5</sup> Third, a significant focus of the EU COEs program is establishing networks in regions, in addition to building physical facilities where training is conducted.<sup>6</sup>

As a part of its CBRN Action Plan, the EU initiated the COEs project in 2009 but began establishing centers in earnest in 2010. Although the end goal is to establish regional secretariats in eight geographic regions, increased risks beyond nuclear have focused attention on five regions where other weapons-of-mass-destruction threats may loom larger: the Mediterranean basin, Central Asia, the Southern Caucasus, Southeast Asia, and Eastern and Central Africa. The first two regional centers were established in the Caucasus and Southeast Asia, followed by centers in North Africa, the Atlantique Façade, and the Middle East. Additional regional centers are planned for Central Asia, Southern Africa, and in the Gulf Cooperation Council countries.<sup>7</sup>

A third influential actor in supporting the development of COEs is the United States. US support for nuclear security COEs, according to the Department of Energy, “varies by region and country and focuses on meeting the training needs identified by the respective host country or organization.” This support covers physical protection, nuclear safeguards, and material control and accounting; nuclear forensics; nuclear detection technology; nuclear emergency preparedness and response; and export controls.<sup>8</sup> Since 2010, the United States has established a Bilateral Nuclear Security Working Group with Japan (which encompasses Japan’s COE) to expand collaboration in this area, and signed memoranda of understanding with India and China.

Some coordination is also evident within the G-8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (Global Partnership).<sup>9</sup> In other cooperative threat-reduction areas, G-8 partners have coordinated and targeted their assistance, so it is not surprising that nuclear security is handled similarly. Under US chairmanship in 2012, the Global Partnership set up a COE working group and explored the potential for using the EU's COE to facilitate regional exchanges of information and to avoid duplication by G-8 donors.<sup>10</sup>

### **Building Capacity for the Regime**

The April 2010 Washington Nuclear Security Summit communiqué stressed “the importance of optimizing international cooperation and coordination of assistance,” acknowledging the “need for capacity building for nuclear security and cooperation at bilateral, regional and multilateral levels for the promotion of nuclear security culture through technology development, human resource development, education, and training.”

There is little argument about the need for capacity building in nuclear security. For some states, this means completing construction of and installing equipment at COEs, as in the cases of South Korea and China. For other states, this means setting up an organizational framework to accept assistance from the outside, such as training from IAEA, US, or EU experts. It is important to remember that many of these centers are in their infancy, and their full potential may not be reached for several years.

The current approach on these COEs is to “let a thousand flowers bloom.” In this completely voluntary system, the IAEA is empowered to offer assistance as states identify their needs for improved nuclear security. The IAEA may, if asked, help states identify and prioritize those needs. The IAEA approach has been to put together “model centers,” all the while acknowledging that requirements may differ drastically across countries. The IAEA Office of Nuclear Security coaches states on how to put together the most effective and sustainable center and assists in developing a tailored training program to match the country's needs.

The imperative for optimizing and coordinating assistance comes as much from the strain of limited resources as anything else. The IAEA is a nat-

ural focal point for coordination, given its substantive knowledge and convening ability. The agency has an incentive to optimize coordination: greater coordination among COEs on training, in particular, could reduce some of that burden the IAEA currently confronts. However, the IAEA has no master plan for coordination. In fact, its function is limited to facilitating coordination among parties as they desire it. The agency has stepped up its coordinating activities, hosting a first meeting in July 2011 to discuss coordination among countries with COEs, and a second in February 2012, after which the INNSTSC was established. In February 2013, the IAEA Secretariat will present its concept paper on NNSC with the objective of winning member-state approval.

The EU's phased approach to its CBRN COEs initiative resembles a master plan for coordination, but its objectives are not limited to nuclear security. Because the EU is a significant source of funding for its network, it may be able to foster greater collaboration among national nuclear security points of contact.<sup>11</sup> The EU and the IAEA are exploring how to formalize collaboration between the CBRN COEs initiative and the agency's network of NSSCs.

Lastly, although the United States has encouraged coordination of COEs through the Global Partnership, it has not necessarily encouraged coordination among individual COEs. One potential explanation is that US funding of COE-related programs is handled on a bilateral basis and is not oriented toward collaborative efforts. US government efforts have focused on the relationships with individual centers, rather than on potential collaboration among them. For example, assistance to individual COEs is handled by different personnel and appears to be stovepiped even within individual departments. With individual program funding, there are few incentives to promote collaboration. The US government supports IAEA leadership in coordinating activities among various governments and organizations, but there is no formal policy to promote collaboration among COEs.

### **A Policy Role for COE**

The COEs will provide technical training on nuclear security and perhaps conduct some research and development, but they could also apply these technical skills to help implement

some policy objectives. For example, one of the goals of Korean organizers of the 2012 summit was to formalize a process to encourage continued progress in nuclear security. However, countries involved in that summit resisted even creating a standard format for reporting on progress in their implementation of nuclear security measures. COEs could help develop practical mechanisms for tracking summit implementation at the national and regional levels. Technical experts at COEs could offer peer review beyond or in conjunction with the IAEA. In other words, COEs could become more than just training centers. Over time, such centers could support regularized reporting on nuclear security improvements in a region. The IAEA has described coordinated collaboration as helping facilitate the sharing of generic information, experience, and lessons learned across borders; accelerating the development of nuclear security capacities; fostering nuclear security culture; and leading to innovative approaches in the delivery of training and technical assistance and provision of scientific support. These kinds of coordinated collaboration would provide a critical bridge to developing a policy role for these centers.

A path for implementing a policy role for COEs might look like this:

- Sharing information informally in nonsensitive areas such as training, course development, and goals, as well as transitioning to more-established mechanisms (routine, regularized) for sharing information.
- Developing measures for tracking and information sharing on nonsensitive aspects of implementation of summit commitments.
- Reporting regularly on nuclear security improvements in a region.
- Sharing tracking measures among a wider group of COEs.

Collaborating COEs could choose to use the IAEA's network or the regional secretariats established under the EU's COEs initiative as a vehicle for information exchange, or they may choose to establish their own. If the IAEA and EU reach an agreement on collaboration between the NSSCs and the EU's COEs, the choices might be narrower but simpler.

## A Path Forward in Asia

Immediately following the 2011 Fukushima accident, the prospects looked good for cooperation among Japan, China, and South Korea on nuclear emergency response and accident mitigation. In late 2011, South Korean officials hinted that the three countries might issue a statement regarding collaboration among their COEs as a deliverable for the 2012 summit. However, the Joint Statement on Nuclear Security Training and Support Centers that was released at the summit was signed by many countries, including Japan, but not by China or South Korea. In part, this may be simply a question of diplomatic priorities during the summit, or it could signal that the Chinese and Koreans are not ready to move forward with collaboration because their centers are not yet up and running. However, several of the countries that signed the joint statement do not run nuclear security centers but could have been motivated by other factors in joining the statement.

In October 2012, officials from the COEs in China, Japan, and South Korea participated in a meeting on the margins of the IAEA's coordinating meeting for NSSCs and agreed to set up a subgroup for coordination. This was a significant achievement, particularly given the escalating political tensions in Northeast Asia over disputed territories that touched virtually all the actors: Russia, China, South Korea, and Japan. Another meeting of the subgroup took place in February 2013, but progress has been slow. Achieving practical collaboration may need a push from political leaders.

Next steps would be to encourage collaboration among Chinese, Japanese, and Korean centers, with meetings to discuss potential divisions of labor or specialization (e.g., Japan on training, Korea on research and development, China on best practices). These three COE could be encouraged to develop a pathway or mechanisms for increased information sharing. South Korea, as the 2012 summit host, might particularly support a potential policy role for these centers in tracking summit implementation. In fact, given the uneven stages of development of the three centers, discussing potential policy coordination might be easier than defining coordination on a technical basis.

**Recommendation 1.** Sherpas (or sous-sherpas) from South Korea, China, and Japan should

promote a gift basket at the 2014 summit on COEs collaboration in the context of building an institutional framework beyond 2014.

The task of developing a gift basket (one of the innovations of the 2012 nuclear security summit) for the next summit could help focus collaboration on tangible action items. It could also provide a political push that may be necessary to move technical efforts forward. For the states themselves, such an approach has incentives: the gift basket could help cement Korea's leadership in nuclear security, support Japan's efforts to revitalize its nuclear expertise, and bring China further into the fold of the nuclear nonproliferation and security fields. A joint gift basket on COEs collaboration from these three states could become a leadership model for other regional efforts, including the EU CBRN network. The gift basket could also establish a working group to identify areas of coordination and information exchange.

**Recommendation 2.** The South Korea, China, and Japan subgroup on COEs coordination should explore outreach to Southeast Asian countries.

While collaboration within Northeast Asia is a worthy objective in itself, all three COEs envision a regional role for themselves. Given the EU's experience with its CBRN COE in Southeast Asia, as well as significant IAEA experience assisting countries such as Malaysia in the development of its COE, such outreach could link the subgroup to these two important efforts and make the connection between regional and international coordination.

**Recommendation 3.** Objectives identified by the INNSTSC subgroup on coordination should be fed into US assistance programs to South Korean, Chinese, and Japanese COEs.

US assistance programs should be more firmly linked to diplomatic efforts within the State Department to encourage coordination and collaboration, whether within the Global Partnership or through the INNSTSC.

## Conclusions

The 2010 and 2012 nuclear security summits produced some concrete achievements on the one hand and a set of expectations on the other. Among the more visible deliverables from the

first summit, in 2010, were the announcements by some countries that they would establish centers of excellence. The development of these centers is under way, and there is now an opportunity to leverage them not just to support on-the-ground improvement of nuclear security but also to build the institutional framework that will support nuclear security in the long run.

The expectations emanating from the summits differed. For the 2010 summit, it may have been enough to find a host for the next summit. By 2012, however, the summit had a few unique characteristics that may have influenced expectations: with South Korea at the helm, the effort became much less of a US-driven exercise, and it took place a little more than a year after the Fukushima nuclear accident. In fact, the 2012 summit seemed to respond to the expectations raised in the public's mind by Fukushima—they view international coordination and assistance as necessary when radiation crosses national boundaries. Simply, publics expect international assistance and a global authority to come to the rescue in the event of a massive release of radiation, which could be caused by a nuclear accident or a nuclear terrorist attack. This may account for more attention to coordination and collaboration as a result of the 2012 summit.

The 2014 summit should be a focal point not just for reaching the four-year goal of securing the world's most vulnerable nuclear material but also for identifying a path—or paths—forward. As perhaps the last opportunity to engage such a broad array of countries at such a high level, the summit should push for creating an institutional basis for coordination and collaboration that is not currently called for within the disparate elements of the nuclear security regime. The centers of excellence, as fledgling as they are, could be assigned that function of coordination and collaboration. Government officials would need to bestow policy roles or objectives to these essentially technical centers.

Specific tasks that could benefit from multilateral collaboration—in contrast to collaboration between individual centers and the IAEA or bilateral networking between countries—could include:

- Setting and implementing standards in training.

- Establishing points of contact for technical information exchanges.
- Developing measures to track national implementation of summit commitments, and, over time, for tracking nuclear security excellence itself.
- Reporting regularly on nuclear security improvements within regions.

The establishment of three COEs in Northeast Asia reflects the importance of nuclear energy in the region and the elements needed for its sustainability: excellence in nuclear safety, security, and nonproliferation. Although significant and long-standing disputes between China, South Korea, and Japan may make far-reaching collaboration difficult, it may be possible to encourage interaction among technical experts that could build confidence for broader coordination. Given the predicted growth in nuclear power in adjacent regions and the desire of these three countries to export their nuclear power plants, China, South Korea, and Japan have a shared interest in ensuring best practices among potential buyers of their nuclear supplies. Although the three centers are at different stages of physical and technical development, they might be quite capable at the policy level of discussing the kinds of information sharing that could be permissible. In fact, moving that kind of discussion out of the political and into a technical realm might actually be useful to avoid the kinds of political roadblocks encountered in other security-related areas. If desirable, the INNSTSC or the EU's CBRN COEs network could dilute trilateral tensions that might arise.

A working model of coordination in Asia might be a model for wider coordination among all the COEs. Although encouraging coordination even before the centers are physically in operation might be viewed as overreaching, the opportunity for making the most of these centers may fade as high-level political attention from the summits declines. Incorporating a policy element within these essentially technical centers could be a first step toward erecting a sustainable institutional framework for nuclear security.

## Endnotes

- <sup>1</sup> See Dr. Alan Heyes, "An Assessment of the Nuclear Security Centers of Excellence," the Stanley Foundation Policy Analysis Brief, May 2012.
- <sup>2</sup> Dr. Alan Heyes, "Study of the Nuclear Security Centres of Excellence for the Carnegie Corporation of New York," Final Report, April 4, 2012, analyzes the full range of such centers, encompassing all those that perform nuclear security training functions, including the International Science and Technology Centers. Therefore, the range of objectives and roles is broader than might be the case for just those centers that have been established in connection with the nuclear security summits. This analysis focuses on the latter.
- <sup>3</sup> Heyes, "Study of the Nuclear Security Centres," 12.
- <sup>4</sup> International Atomic Energy Agency, *Nuclear Security Report 2012*, July 31, 2012, GOV/2012/41-GC(56)/15, available at [www.iaea.org/About/Policy/GC/GC56/GC56Documents/English/gc56-15\\_en.pdf](http://www.iaea.org/About/Policy/GC/GC56/GC56Documents/English/gc56-15_en.pdf).
- <sup>5</sup> [www.cbrn-coe.eu/Portals/0/coe\\_political\\_rationale.pdf](http://www.cbrn-coe.eu/Portals/0/coe_political_rationale.pdf).
- <sup>6</sup> [www.cbrn-coe.eu/Portals/0/cbrn-coe-public-images/the\\_network\\_of\\_excellence.pdf](http://www.cbrn-coe.eu/Portals/0/cbrn-coe-public-images/the_network_of_excellence.pdf).
- <sup>7</sup> See <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:237:0001:0020:EN:PDF>; [http://www.cbrn-coe.eu/Portals/0/cbrn-coe-public-documents/statement\\_herman\\_van\\_rompuy\\_2012\\_nuclear\\_security\\_summit.pdf](http://www.cbrn-coe.eu/Portals/0/cbrn-coe-public-documents/statement_herman_van_rompuy_2012_nuclear_security_summit.pdf).
- <sup>8</sup> National Nuclear Security Administration Fact Sheet on Nuclear Security Centers of Excellence, March 23, 2012, available at <http://nnsa.energy.gov/mediaroom/factsheets/coe>.
- <sup>9</sup> The G-8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction is a 10-year, \$20 billion initiative launched at the G-8 Summit in Kananaskis, Canada, in 2002, with the aim of preventing terrorists from acquiring or developing weapons of mass destruction. Twenty-three partner states (including the European Union) are members. See US Department of State Fact Sheet, available at [www.state.gov/t/isn/rls/fs/180119.htm](http://www.state.gov/t/isn/rls/fs/180119.htm).
- <sup>10</sup> [www.cbrn-coe.eu/Portals/0/cbrn-coe-public-documents/2012%20C%2066%2003\\_en.pdf](http://www.cbrn-coe.eu/Portals/0/cbrn-coe-public-documents/2012%20C%2066%2003_en.pdf).
- <sup>11</sup> In his longer study, Heyes cites critics of the EU's CBRN program who suggested that the EU "had focused too much on the process and methodology of creating the CBRN centers than the practicalities of implementing them." See "Study of the Nuclear Security Centres," 24.

## The Stanley Foundation

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