

Sustainable Nuclear Security: A Holistic Approach to Address Risk Convergence

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With the laudable goal of addressing “all vulnerable materials” in his first term, the Obama administration hosted the first Nuclear Security Summit (NSS) in April 2010. The NSS resulted in a communiqué which affirms President Obama’s four year global lockdown goal and commits participants to a Work Plan detailing the various initiatives and activities which this effort will encompass. Although it is clear from the verbiage set forth in the Summit Communiqué and the Work Plan that the negotiators clearly understand the multi-faceted nature of ensuring the lockdown is sustainable, the need is still dire to view the nuclear security challenge as an issue of materials, technology, and know-how *governance*. This will require bridging the gap between the nuclear nonproliferation community, whose efforts have been more focused on guards, guns, and gates to mitigate the risk of diversion, and the development community, whose decades of lessons learned in providing assistance should be culled for their pertinence to the nonproliferation community’s efforts in achieving rapid lockdown in a holistic, and therefore, sustainable manner.¹

From Prague Rhetoric to Summit Reality

On April 5, 2009, President Obama gave an historic speech in Prague outlining his vision of a nuclear free weapons world. The speech included many steps toward this vision, including a commitment to secure “all vulnerable material around the world” in four years and to host a nuclear security summit within the year. These two commitments culminated in an unprecedented summit of 38 Heads of State, several high-level delegations and representation by three international organizations (United Nations, International Atomic Energy Agency, and European Union) in Washington, DC, on April 13, 2010.² The meeting resulted in a formal

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Communiqué, a Work Plan and numerous unilateral declarations setting forth individual countries' commitments relevant to the four year goal of securing vulnerable fissile materials and combating nuclear terrorism.³

The Summit Communiqué and Work Plan

The Communiqué

The Communiqué conveys the broad commitments on the “global lockdown,” while the Work Plan details the various facets of source security, nuclear controls and infrastructure necessary to achieve and sustain the objectives. The Communiqué encompasses the following:

- efforts to improve security and accounting of materials and strengthen regulations – with a particular focus on plutonium and highly enriched uranium (HEU);
- consolidation of HEU and plutonium stocks and a reduction in the use of HEU;
- promotes key treaties on nuclear security and nuclear terrorism;
- underscores the Global Initiative to Combat Nuclear Terrorism (GICNT) in capacity building among law enforcement, industry, and technical personnel;
- calls for additional resources affording the IAEA to develop and facilitate implementation of nuclear security guidelines, and;
- urges the nuclear industry to share best practices.

Significantly, in terms of instigating a process to maintain momentum on this agenda, the NSS Sherpas will meet again in December 2010 and South Korea agreed to host a summit in 2012.

Work Plan

Using a tried and true formulation for non-specific commitments to progress while connoting shared responsibility, the work plan stipulates that all participating states will work to ratify, implement and ensure compliance with the Conventions, Resolutions and existing mechanisms pertinent to nuclear security. The shared responsibility comes in the form of an ill-defined commitment of requests for and offers of assistance amongst the states in attendance. The relevant Conventions, Resolutions and Initiatives include⁴:

- the International Convention on Suppression of Nuclear Terrorism (ICSANT)
- the Convention on the Physical Protection of Nuclear Materials (CPPNM)

- UN Security Council Resolution 1540 (Operative Paragraph 3), and;
- The Global Initiative to Combat Nuclear Terrorism (GICNT).

The Work Plan further promotes the consolidation of materials, secure transport, and reduction in HEU use. It also calls for special attention to separated plutonium and other radioactive substances. As a shorthand for effective implementation of the measures set forth by these instruments and related commitments, the following chart distills the essential, high-level requirements:

Instrument	Source/ Facility Protection	Legal / Regulatory Infrastructure	Policing/ Enforcement	Information Sharing	Detection/ Interdiction/ Forensics ⁵	Human Capacity/ Culture ⁶
ICSANT	X	X	X	X	X	
CPPNM	X	X	X	X	X	X
UNSCR 1540	X	X	X	X	X	
GICNT	X	X	X	X	X	

While the details or emphasis in terms of specific competencies may differ amongst these various instruments, the fundamental governance requirements are astoundingly uniform.⁷ For effective *nuclear* security these basic governance requirements must be coupled with robust technical competencies across each facet of the infrastructure. In light of this reality, the immediate challenge for the nonproliferation community is to make the leap from its traditional focus on technology and training of immediate nuclear security personnel, a bias exacerbated by a congressional culture focused on quantitative metrics, to taking a comprehensive, integrated approach in each iteration of assistance. It is only through such a systems-wide view of the relevant infrastructure, especially as it pertains to the human dimension of these requirements, that sustainable results from our nuclear security assistance will be achieved. The Work Plan clearly recognizes this reality in its extensive treatment of infrastructure (robust regulatory capacity, including independent oversight and enforceable standards for industry) and calls out specifically the “human dimension” that will support and sustain that infrastructure.

Risk Convergence

Even assuming unequivocal success in the immediate efforts to secure vulnerable materials, a convergence of factors should prompt us to ensure we simultaneously are building the

foundation for sustainability of these security measures and shaping the necessary security culture for decades to come. The estimated global stocks of materials amount to 300 tons of HEU and an estimated 25 tons of plutonium, the equivalent of about 120,000 nuclear weapons.⁸ As Robert Gallucci stated in a recent address: “When you’re in a hole, you should stop digging. The first step to denying access is to stop producing any more HEU or separating any more plutonium.”⁹ Alas, no amount of summitry could achieve this outcome. With the continued use of HEU in research reactors and isotope production facilities, as well as naval reactors around the world, (potentially vulnerable) HEU will continue to be in use for the foreseeable future. In addition, countries reliant on reprocessing will continue to produce separated plutonium as part of their routine civilian energy production.

Whereas the possibility exists to eradicate the need for HEU, particularly in the civilian domain, the possibility of ending reprocessing would appear extremely remote. This reality must be viewed in light of the potential expansion of nuclear energy production and as yet unresolved issues surrounding access to full fuel cycle capabilities under Article IV of the Nuclear Nonproliferation Treaty (NPT).¹⁰ By 2025, experts estimate a 75% growth in global electricity demand. Escalating demand, in conjunction with increasing concerns over climate change, is making civilian nuclear power more attractive to a broader range of countries. This could lead to a significant increase in the number of states that will develop or expand nuclear power capacity—an increase from the existing 30 nuclear power-using states to perhaps 50 or 60 by 2050. The countries contemplating acquisition of nuclear energy capability include 12 Middle Eastern and North African states, seven states in Southeast Asia, and five in Central and Southern Asia.

Building the governance foundation to address convergence of risks

At some point, the convergence of risks related to the continued use and potential vulnerability of these materials, the rising availability and accessibility to critical knowledge, the growing strength of international terrorist groups, and the gaps in governance will produce a catastrophic alchemy unless we get serious now about addressing this convergence in the most comprehensive manner feasible. Getting materials under lock and key addresses the immediate concern of diversion. But how do we ensure that measures are sustainable? What should preface our engagement with countries to ensure measures taken to address immediate vulnerabilities are matched by efforts to ensure long-term success?

This convergence of risks and the need for sustainable assistance is where bridging the gap between the nonproliferation and development communities comes to the fore. Two brief, interrelated examples should illustrate the point: 1) Lessons from Fighting Hunger, and; 2) Lessons on Transparency and Accountability.

Fighting Hunger, Mitigating Nuclear Risk?

A 1994 article by former President Jimmy Carter on the Carter Center's efforts to combat hunger points to the most basic lessons that should guide the nuclear security community's approach to the coming decade of assistance. To paraphrase pertinent observations from this article:

- National leaders must share responsibility with donors. Regular meetings with the head of state and relevant ministers is critical to establishing the trust and building the working relationships necessary for success. Most importantly, parties should have an agreement negotiated and signed, specifying the roles that we and the local Government will play.
- Programs need to be country-specific and comprehensive, interrelating disparate factors relevant to the entirety of effective progress. There needs to be a cooperative approach – both among donors and within the recipient country, involving official agencies, NGOS, and representatives of relevant stakeholders.
- There are also too many fragmented, uncoordinated, even competitive international aid programs within a given nation.
- In the evolution of any major project, a top priority should be developing the local people's sustained capacity to meet their own needs.¹¹

These lessons from fighting hunger mirror the findings from two years of focused research on US nonproliferation assistance.¹² First, sustainability starts before assistance begins. By formulating roles and responsibilities and determining mutually shared objectives at the outset, high-level agreements can ensure “ownership” of the operations after international assistance sunsets. Second, the development community knows that assistance must take into account the unique political and cultural context to be effective; moreover, connecting the dots to ensure our approach is not only tailored to the full panoply of governmental actors in each country but includes participation of all relevant stakeholders will further bolster the efficacy of the assistance provided. Third, a long-standing challenge to our efforts has been to more effectively integrate and coordinate across bureaucratic stovepipes; the expansion of assistance to the countries under the Global Partnership Against the Spread of WMD in 2002 turned this into a

multilateral challenge. Ultimately, sustainable outcomes hinge on adequately addressing the human dimension of the challenge.

Transparency and Accountability

As a follow-on to fragmented efforts and the need for coordination, the work of the UK's Department for International Development (DFID) provides an embryonic, but significant, attempt to increase transparency between donors and recipients to facilitate more effective assistance. In September 2008, DFID launched the International Aid Transparency Initiative (IATI), which aims to promote greater transparency and deliver access to information on aid flows amongst 18 donors and 13 partner countries to date.¹³ Greater transparency of aid helps achieve the following:

- Put governments and citizens in a stronger position to plan, manage and account for the resources invested.
- Promote more effective spending and a stronger focus on results.
- Reduce opportunities for corruption, and
- Foster greater accountability between donors and partners as well as between governments and their citizens.¹⁴

As President Carter's article pointed out more effective coordination is critical. In addition, the development community has long regarded accountability as essential to effective assistance. Since its launch almost two years ago, IATI has been working to define the scope and protocols for sharing of information amongst participants. Actual implementation is slated for late this year, so it is premature to gauge its effectiveness. While it is clear that nonproliferation assistance will confront sensitivities related to what information is made available and to whom, the nonproliferation community involved in lockdown efforts should jumpstart a process to define a workable model to provide transparency and track progress on lockdown efforts. Even with the disappointing delay of the geographic expansion and timeline extension of the Global Partnership's efforts, greater transparency not only will serve to ensure better coordination and allocation of resources, it can bolster greater accountability for the results.¹⁵

Conclusion

The challenge is vast and time is of the essence. Simultaneously, the maxim "well begun is half done" would appear applicable. Sustainability starts before the first technology is transferred or training session begins. Immediate lockdown efforts must take a holistic and country-specific

approach to the materials, technology and know-how governance challenge in order to start building the foundation to address the convergence of risks beyond immediate lockdown. Additionally, transparency among participants can greatly improve coordination and promote accountability. Most importantly, sufficient attention must be given to building local capacity adequate to support or maintain the measures put in place. The nonproliferation community can avoid costly missteps and advance the effectiveness of its efforts by learning from the decades of additional experience resident in the development community. Catalyzing the conversation and reciprocal exploration is the first step; the next, and more formidable, is to better coordinate mutually reinforcing efforts across this same divide.

Notes:

¹ There is a growing distinction between nonproliferation and nuclear security, the former applying to states and the latter focused on terrorists. For purposes of this article, the “nonproliferation community” refers to those persons involved in providing nuclear security -formerly known as nonproliferation or threat reduction - assistance.

² For the full list of attendees go to:

http://thecable.foreignpolicy.com/posts/2010/04/10/white_house_announces_nuclear_summit_attendees

³ Significant declarations included: Ukraine’s commitment to eliminate the remaining HEU within its territory; Kazakhstan’s pledge to convert its research reactor and eliminate HEU; Canada’s commitment to return HEU from its isotope production to the U.S., and; China and India establish nuclear security centers of excellence. For other unilateral commitments from the summit go to:

http://www.fissilematerials.org/blog/docs/100413_highlights%20of%20national%20commitments%20at%20the%20Onss.pdf

⁴ The Work Plan focuses also on the role of the IAEA as the standard bearer through its Nuclear Security Programme and its Nuclear Security Series documents, especially the forthcoming “Physical Protection of Nuclear Material and Nuclear Facilities” (INFCIRC/225).

⁵ Nuclear forensics capability and cooperation is only called out in the Nuclear Security Summit documents. It was added as an additional facet of interdiction and detection as a technical capability expected of the summit participants.

⁶ This column was added as a dimension that receives attention only in the amended CPPNM, which calls out “security culture” as a priority, and the NSS Work Plan, but is an obvious requirement throughout the infrastructure.

⁷ For example, whereas the Conventions and Resolution 1540 put heavy emphasis on the legal and regulatory framework, the GICNT’s Statement of Principles is more weighted toward detection, interdiction, and information sharing.

⁸ See the International Panel on Fissile Materials website at:

http://www.fissilematerials.org/ipfm/pages_us_en/inventories/inventories/inventories.php

⁹ To see Robert Gallucci’s remarks go to:

<http://www.macfound.org/site/apps/nlnet/content3.aspx?c=IkLXJ8MQKrH&b=4255617&ct=8163111>

¹⁰ See Lawrence Scheinman, “Article IV of the NPT: Background, Problems, Some Prospects” available at: www.wmdcommission.org/files/No5.pdf

¹¹ The full article is available at: www.cartercenter.org/news/documents/doc1371.html

¹² For a detailed discussion see *Cooperative Nonproliferation: Getting Further Faster* by Brian Finlay and Elizabeth Turpen (Stimson, 2007).

¹³ Australia, Denmark, European Commission, Finland, GAVI, Germany, Hewlett, Ireland, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, UNDP, Asian Development Bank and the World Bank. For additional information go to: <http://www.aidinfo.org/iati>

¹⁴ For information on IATI see: <http://siteresources.worldbank.org/ACCRAEXT/Resources/4700790-1219773241752/IATI-Launch-Programme-280808.pdf>. For additional information on the impact of transparency on aid effectiveness, see also Oxfam’s recently released report, “Information: Let Countries Know what Donors are Doing” available at: <http://www.oxfamamerica.org/files/information-let-countries-know-what-donors-are-doing.pdf>

¹⁵ G8 leaders failed to renew their commitment extend the Global Partnership Program, instead opting to evaluate the geographic expansion and renewed funding commitments for the program. Press release, 'Experts disappointed by failure to extend G-8 Global Partnership,' Fissile Materials Working Group, 26 June 2010.