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Global Lockdown: Moving the Needle on Nuclear Security

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From Prague Commitment to the DC Communiqué

President Obama's historic address on April 5, 2009, announcing his vision of a world free of nuclear weapons was met with applause and a serious dose of skepticism. Proponents and skeptics alike agreed, however, that his commitment to secure vulnerable fissile materials would amount to a great leap forward for US national security and would assuage mounting international concerns regarding nuclear terrorism. The speech outlined many steps toward fulfilling the vision of a world free of nuclear weapons in light of this threat, including the president's commitment to host a Nuclear Security Summit (NSS) within the year. This objective culminated in an unprecedented summit of leaders from 46 countries, including 38 heads of state, and representatives of the United Nations, the International Atomic Energy Agency, and the European Union in Washington, DC, on April 13, 2010.[1]

The April 2010 summit also featured numerous bilateral meetings between President Obama and heads of state, including those of China, India, Ukraine, Kazakhstan, and Pakistan, in addition to other meetings between US officials and their counterparts.[2] The meeting resulted in a communiqué, a work plan, and numerous unilateral declarations setting forth countries' commitments to meeting the four-year goal of securing vulnerable fissile materials and responding to the threat of nuclear terrorism.[3]

Communiqué

The communiqué sets forth the broad objectives regarding nuclear security catalyzed by the summit. The communiqué begins by stating the shared goals of summit participants: nuclear disarmament, nuclear nonproliferation, and peaceful uses of nuclear energy. This commitment mirrors the "three pillars" of the nonproliferation regime embodied in the Nuclear Non-Proliferation Treaty (NPT). In the same line, however, the participating states also declare their shared objective of "nuclear security," essentially adding this dimension to the nuclear agenda amongst a formidable grouping of states.[4] The communiqué also encompassed the following:

- Efforts to improve security and accounting of materials and strengthen regulations—with a special focus on plutonium and highly enriched uranium (HEU).
- Consolidation of HEU and plutonium stocks and a reduction in the use of HEU.
- Promotion of the "universality" of key treaties on nuclear security and nuclear terrorism.
- The role of the Global Initiative to Combat Nuclear Terrorism (GICNT) in capacity building among law enforcement, industry, and technical personnel.
- A call for additional resources affording the International Atomic Energy Agency (IAEA) to develop and facilitate implementation of nuclear security guidelines.

- A push for the nuclear industry to share best practices.

Significantly, in terms of instituting a process to maintain momentum on this agenda, South Korea agreed to host a summit in 2012, and the NSS sherpas are scheduled to meet again in November of 2010.

Work Plan

The NSS Work Plan details the specific facets of source security and nuclear controls being sought in order to achieve and sustain the communiqué's overarching objectives. The work plan also sets forth nonspecific commitments related to various efforts and initiatives to promote progress while connoting shared responsibility. It stipulates that all participating states will work to ratify, implement, and ensure compliance with the numerous conventions, resolutions, and multilateral 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 conventions, resolutions, and initiatives that received mention include:

- International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT).
- Convention on the Physical Protection of Nuclear Material (CPPNM).
- UN Security Council Resolution 1540 (Resolution 1540).
- Global Initiative to Combat Nuclear Terrorism (GICNT).

In addition, the work plan includes strong support for the work of the IAEA in providing technical assistance to states and promulgating best practices, including a call for quick completion of the fifth revision of Information Circular 225 on "The Physical Protection of Nuclear Material and Nuclear Facilities," (INFCIRC/225). The work plan further promotes consolidation of materials, secure transport, and reduction in HEU use. It also places special emphasis on separated plutonium and other radioactive substances. Finally, highlighted in the document is the need for a robust, independent regulatory infrastructure, the critical role of the nuclear industry, as well as attention to the "human dimension" (i.e. personnel capacity and security culture) of the nuclear terrorism threat.

When viewed in tandem, the NSS Communiqué and Work Plan establish an embryonic but evolving framework for an international nuclear security regime based largely on existing treaties and multilateral instruments, some of which have yet to enter into force and others that are still being negotiated. As high-level US officials noted prior to the summit, the international community has no appetite for creating a "new regime" to specifically address nuclear material security. In light of nuclear security being a closely held issue of national sovereignty, and the lack of desire for a new regime specific to nuclear materials, the efficacy of the administration's approach in this context is a critical issue. After a brief review of the preexisting instruments and initiatives encompassed by the summit documents, the discussion will turn to the remaining gaps within this architecture and an assessment of potential measures to promote progress and close those gaps.

Instruments and Initiatives

The following offers a brief description of the treaties and instruments mentioned in the communiqué and work plan in order to delineate the obligations encompassed by the Nuclear Security Summit documents and to expose potential limitations or opportunities for progress in achieving the summit's nuclear security objectives.

International Convention on Suppression of Nuclear Terrorism

Arising from a 1996 report of the UN secretary-general and a draft convention proposed by the Russian Federation, an ad hoc committee was established to close substantial gaps in the 1980 Convention on the Physical Protection of Nuclear Materials in countering potential acts of nuclear terrorism and responding to an act of nuclear terrorism. The Russian Federation's explanatory note to the draft convention claimed it was the first international legal instrument designed as a "pre-emptive instrument" in addressing nuclear terrorism. Adopted on April 13, 2005, by the UN General Assembly, ICSANT has been ratified by 67 of the 115 states parties to the convention and entered into force with the first 22 states' ratification in July of 2007.[5] Specifically, ICSANT includes a broader definition on materials and facilities covering both military and peaceful applications than the one in the Convention on the Protection

of Nuclear Materials; criminalization of planning, threatening, or carrying out acts of nuclear terrorism through domestic legislation and the establishment of penalties proportionate to the gravity of such crimes; conditions under which states may establish jurisdiction for offenses and guidelines for extradition and other measures of punishment; and a requirement for states to take all practicable measures to prevent and counter preparations for offenses inside or outside of their territories.[6]

The convention is specific to the acts of individuals and, therefore, does not cover the activities of armed forces during a military conflict or exercise. Although it does not include a definition of terrorism, the convention's provisions include acts with nuclear and radiological sources or those pertaining to the use or threat of use to damage to nuclear facilities or installations.

Convention on the Physical Protection of Nuclear Material

The CPPNM was the first attempt to address the risk of diverted or stolen materials. Momentum for an international agreement on the physical protection of nuclear materials began with the NPT's entry into force in 1970. This early momentum culminated in the signing of the CPPNM on March 3, 1980, and its entering into force nearly seven years later. Currently, 141 states are parties to the original convention.[7] The key provisions of the original convention require states to take appropriate measures to protect civilian nuclear material *while in international transport*. The convention also requires states to make the theft, misuse, or threats of misuse of nuclear material criminally punishable offenses and either prosecute or extradite for prosecution alleged offenders. It also obligates states to designate a point of contact to provide information should any material be stolen or diverted.[8]

The original convention's failure to address *domestic* use, storage, and transport of nuclear materials led states to question its efficacy at the CPPNM 1992 Review Conference.[9] Three years of negotiations resulted in the July 2005 amendment to the convention, which requires the enforcement of a physical protection regime for nuclear material to prevent theft, diversion, or sabotage and which expands nuclear security provisions to include nuclear storage facilities and nuclear materials not in transport.[10] Despite these important additional measures in the amended convention, it has been ratified by only 26 parties—far shy of the two-thirds necessary for its entry into force.[11]

UN Security Council Resolution 1540

The events of September 11, 2001, ushered in an acute and widespread awareness of the potential destructive means available to nonstate actors and gave rise to multiple new initiatives. Less than three weeks later, on September 28, 2001, the UN Security Council passed Resolution 1373 requiring all UN member states to take steps to combat terrorism. Resolution 1373's passage marks the first time since its formation in 1945 that the Security Council invoked its Chapter VII authority to legislate a functional, rather than state-specific, threat to international peace and security. The measures called for in Resolution 1373, however, were insufficient to close loopholes in the treaty regime regarding the potential role of nonstate actors. The ensuing revelations about the A. Q. Khan network throughout 2003 and early 2004 offered additional impetus for actions to target WMD terrorism, and on April 28, 2004, the UN Security Council unanimously adopted Resolution 1540.[12] This was followed by Resolutions 1673 and 1810, both of which reaffirmed the original obligations of Resolution 1540 and placed particular emphasis on the need for *implementation*.

Resolution 1540 attempted to compensate for the inadequacies of existing treaty measures and the specific challenge of WMD proliferation by nonstate actors in a single all-encompassing directive. It includes 12 points obligating all UN member states to legislate and enforce laws which prohibit any nonstate actor from manufacturing, acquiring, possessing, developing, transporting, transferring, or using nuclear, chemical, or biological weapons and their means of delivery, and it also calls on them to develop and maintain effective physical protection measures, border controls, and law enforcement efforts to address illicit trafficking as well as the export of sensitive items from their territory. In short, the Security Council legislated on every UN member state in the world extensive supply-side obligations to prevent WMD proliferation.[13]

Global Initiative to Combat Nuclear Terrorism

Launched jointly by Presidents Bush and Putin in 2006, GICNT encompasses an array of commitments, such as securing nuclear material, detecting

illicit trafficking, interdicting diverted nuclear items, and responding to nuclear terrorist incidents, as well as criminalization and enforcement. The 82 partner states within the global initiative also commit to collaborate with civilian nuclear power producers as well as with the IAEA and other multilateral institutions involved in addressing the safety and security of nuclear materials. Many GICNT activities also emphasize the capacity-building requirements through exchange of technical capabilities and best practices to enhance capacities to deter, detect, prevent, and respond to nuclear terrorist threats.[14]

GICNT relies on an Implementation and Assessment Group (IAG) as a coordinating body to facilitate implementation. IAG participants are expected to take concrete measures, and, in some cases, to assist other states in implementing the GICNT Statement of Principles.[15] The Statement of Principles[16] lists eight core objectives:

- Develop and improve accounting, control, and physical protection of nuclear and other radioactive materials.
- Enhance security for civilian nuclear facilities.
- Improve the ability to detect nuclear and other radioactive materials.
- Bolster capabilities to search, confiscate, and control unlawfully held nuclear materials.
- Deny safe haven and financial resources to potential nuclear terrorists.
- Strengthen national legal and regulatory frameworks against nuclear terrorism.
- Improve capabilities to investigate, analyze, and respond to an incident involving nuclear and other radioactive materials.
- Augment information sharing among participants while protecting confidential data and sources.

Impediments to Progress

The instruments selected as focal points for the NSS commitments run the gamut—from traditional treaty-based efforts to UN Security Council-legislated obligations to an initiative void of an institutional framework. This range parallels the efficacy-to-expediency spectrum that will be discussed below. Whereas Resolution 1540 is the most comprehensive instrument to address the role of nonstate actors in WMD proliferation, GICNT reflects an expeditious "coalition of the willing" approach to advancing the agenda. Unfortunately, the UN- and US-driven efforts share four weaknesses: lack of standards, questionable legitimacy, low priority, and a governance gap.

Lack of Standards

Concerns over the diversion or theft of nuclear materials, the physical security of materials or facilities, and anything associated with nuclear security beyond existing IAEA safeguards commitments, including enforcement, has remained the prerogative of either the facilities themselves or the sovereign terrain of individual governments. As mentioned, ICSANT and the CPPNM represent the most traditional and legitimate approach, but these took 11 and 17 years, respectively, to negotiate and bring into force. With agreement on the 2005 CPPNM amendment, 80 states consented to new standards for protection of nuclear materials, but the standards agreed to are largely discretionary.[17]

The nontreaty approaches confront the same problem. Resolution 1540 calls on states to implement "appropriate effective physical protection measures" to ensure security of nuclear material and facilities but, unfortunately, these measures remain undefined. The Statement of Principles under the GICNT specifies goals and targets potential types of activities to be undertaken, but offers no baseline regarding the level of standards or the desired degree of participation.

Questionable Legitimacy

The conventions represent the most traditional and legitimate means to create an international nuclear security regime. Lengthy multilateral negotiation of obligations and the ratification requirements of a predetermined number of states parties prior to entry into force are necessary to achieve a truly legitimate international regime. However, such an approach is anything but expeditious. In the "race between cooperation and catastrophe," as former Senator Sam Nunn has termed it, this traditional approach has taken a back seat to more expeditious, largely cooperative, means to address an emerging and evolving challenge.[18]

Resolution 1540, as only the second iteration of the Security Council legislating functional obligations under its Chapter VII authority, confronts a legitimacy deficit. Under Chapter VII, the Security Council is given the explicit authority to decide matters that constitute "a threat to the peace, a breach of the peace, or an act of aggression." However, prior to September 11, 2001, this authority was used to address state-specific challenges to international peace. While Resolution 1373, as the first iteration, has been impeded by an inability to reach consensus within the political dialogue at the United Nations on a definition of "terrorism," Resolution 1540, in its specific targeting of WMD proliferation by nonstate actors, is not impeded by such definitional challenges. Instead, it suffers from backlash related to preexisting treaty obligations, specifically those relevant to nuclear weapons states encompassed in Article VI of the NPT. These claims are losing ground over the course of time—with two subsequent Security Council resolutions bolstering 1540 objectives since its passage in 2004 and growing momentum to tackle the threat of nuclear terrorism—but the legitimacy deficit remains, even if the argument is political rather than legal.

GICNT continues to gain additional participants and its staying power and relevance are certainly elevated through inclusion in the NSS documents. However, it reflects a "tiered membership" of those participating states within the IAG and those outside that mirrors the debilitating reality of the nuclear nonproliferation regime itself. In addition, it is void of any institutional framework upon which to build a universal and obligatory basis for fulfillment of its principles.

Low Priority

For a vast majority of states, the threat of nuclear terrorism is remote and concern about the physical protection of materials or facilities is esoteric at best. For states in the "have not" camp regarding nuclear technology, the continuous trickle of UN reporting requirements and correlative obligations to implement measures to address farfetched threats cannot garner the priority the United States, among others, might desire. Worse yet, some states view UN activities on nonproliferation, such as Resolution 1540, as another exercise driven by the North's security interests to the detriment of the Global South. Importantly, there remains a substantial degree of suspicion amongst some states that US efforts on nuclear security are a ploy to curtail others' civil nuclear ambitions. With all of their existing problems and other critical development priorities, many wonder why they should divest resources to deal with WMD proliferation.

The Governance Gap

The governance gap pertains not only to the chronic systemic issues that plague much of the developing world but also to donor states' inability to take a holistic approach where they adequately prioritize and systematically address those needs. On the one hand, initiatives such as GICNT list over 80 participating states, but a quick review of those listed readily indicates that many lack any real capacity to contribute to actual activities in the Statement of Principles. So while the effort may attain near-global coverage of "buy-in" regarding the principles, many states' wherewithal to contribute is circumscribed by the priority assigned to nuclear terrorism and the allocation of resources that follows, never mind the tiered system already embedded in the effort.

The work plan's litany of the different dimensions—from legal and regulatory infrastructure to the nuclear security culture—can only be achieved by donor states providing holistic and properly coordinated assistance. Recognition that fundamental governance requirements may need to be addressed in order to assure the viability of the technical assistance is a first-order priority. Second, formulating partnerships to address mutually identified needs that are directly pertinent to nuclear security objectives creates requisite ownership of the outcomes and maximizes donor states' return on investment. The requirements for effective nuclear security in many regions of the world will not be easily attainable. Without a long-term commitment and a comprehensive approach, however, donor states' assistance will not be sustainable.

A Framework for Assessment: Expediency, Efficacy, and Sustainability

Within the framework of international law, the efficacy of the NSS hinges on two long-term factors: its enforceability and the establishment of some standards or practices as customary norm. As an example, some scholars posited that the activities practiced under the Proliferation Security Initiative (PSI), while currently questionable under international law, would eventually achieve the

level of customary norm through the continued practice of interdiction targeting illicit transfers of WMD-related items.[19] Based on the current state of play with respect to established and enforceable standards, the nuclear security regime is a long way from meeting the requirements for standing in international law. Without entirely elevating the evaluation to that of a legal international framework, but instead relying on less rigid assumptions pertaining to an embryonic international nuclear security regime, the picture becomes, at once, less onerous and strikingly similar.

Expediency has dictated the need for several instruments in the toolkit to address the concern related to nonstate actors and proliferation. Those efforts suffer from a legitimacy deficit, even though their objectives and potential impact are laudable. The other dimension is that the effort's efficacy (i.e. legitimacy), is assumed to help create a foundation for sustainability. Only given consensus regarding the threat, baseline standards formulated by consensus, and an enduring and widespread commitment to address it, can we assume that the effort will take root, endure, and evolve to respond to the challenge.

Several issues play into an assessment of the ultimate efficacy and sustainability of "global lockdown" based on the results of the NSS. In this particular domain, the most expedient approaches to the threat of nuclear terrorism, such as Resolution 1540 and the GICNT, appear to fall far short. US initiatives to address nuclear terrorism have run headlong into this conundrum. This international context and the conundrum were depicted most accurately by former Principal Deputy Assistant for Nuclear Nonproliferation, Andrew Semmel, regarding US support for UNSCR 1540:

> Over the three years since 9/11, the United States has looked through fresh eyes at the nonproliferation "toolbox." After a frank review, we assessed that the nonproliferation architecture… needed to be reinforced and fortified by new measures. We did not identify any "quick fixes" or simple solutions for this threat. We recognized starkly that, when it comes to the WMD threat and its correlation with terrorism, time is not on our side. *We simply did not believe that we had the luxury of our predecessors for negotiation crossing many months or years to arrive at a solution to this danger* [emphasis added].[20]

In light of vulnerable stockpiles spanning the globe and the metastasizing threat of nuclear terrorism, negotiating a treaty over 11 to 17 years is not an option. However, any avenue taken—short of inclusive negotiations of a new treaty instrument that then requires several years of ratification prior to entry into force—seems illegitimate. And whereas in other iterations of international legal frameworks, the five permanent members of the UN Security Council also provide the "power filter" for what achieves global coverage (or sets forth the obligation), in this case they also constitute the treaty-based legitimate nuclear weapons states. This creates an additional bifurcation within the international system for politically viable outcomes and an additional hurdle to attaining legitimacy in the nuclear domain.

In some respects, expediency has severely undermined efficacy and, therefore, sustainable outcomes are highly unlikely. On the other hand, to the extent that even the most legitimate form of an initiative—e.g. treaty-based instruments—remains within the confines of sovereign equality, the most legitimate exercise in nuclear security hinges on political will. A Security Council resolution or a US-launched initiative that attempts to prescribe standards and dictate obligations on nuclear security will elicit suspicion and be deemed illegitimate. Although the Obama administration has offered plenty of signals regarding the US commitment to its own treaty obligations, whether verbalized or realized, such will be insufficient to overcome these international divisions anytime soon.

Within this context and along the efficacy-expediency spectrum, the Nuclear Security Summit represents a hybrid. Although initiated by the United States, the 46 states at the summit represented broad regional coverage, advanced nuclear states as well as civil nuclear power aspirants, the five nuclear weapons states, and those nuclear weapons states not party to the Nuclear Non-Proliferation Treaty. Achieving this degree of diversity would have been highly improbable in anything other than an ad hoc international forum. In addition, the communiqué includes the appropriate and sufficiently "legitimate" instruments from the menu of different options, and the

work plan clearly recognizes the manifold facets and critical actors in implementing sustainable measures for protecting nuclear materials and combating nuclear terrorism. Importantly, implementation need not await ratification and entry into force of ICSANT and CCPNM in light of the fact that repeated Security Council resolutions have mandated all UN member states to implement the full menu of obligations found in the treaty-based approaches, even though the resolution's "appropriate, effective" standard lacks definition and its passage has yet to catalyze sufficient action toward implementation. Now the question is: how do we spur aggressive action from here?

Moving the Needle

The legitimacy hurdle remains too high to address the nuclear material challenge at a pace commensurate to the threat. In order to overcome the interrelated impediments to progress and the gaps in the framework, creative approaches must be found, either to offer better incentives or threaten laggards with consequences for failure to comply. A brief exploration of the options for promoting progress reveals some obvious pitfalls and potential opportunities to address these impediments and move the nuclear security needle between now and the summit in South Korea slated for 2012. Some of these solutions, however, will take much longer to show real impact, and there is little doubt that while taking stock of the progress at the 2012 summit should be part of the agenda, it will take many years to achieve sustainable implementation of the measures resulting from the 2010 summit.

Although some suggest that nuclear forensics can play a role in compelling states to take their nuclear security obligations seriously and commit the preventive resources required, an approach focused on incentivizing political will through cooperative efforts to close the governance gap and surmount the legitimacy hurdle would appear more effective and enduring for achieving the objectives sought. Simultaneously, the international context would seem to preclude the establishment of treaty-based standards at this time and must rely instead on negotiating and promoting best practices to address this facet of the agenda.

Nuclear Forensics: Compellence or Deterrence?

Policymakers and international relations theorists posit that nuclear attribution via robust forensics capabilities would offer a means of assigning responsibility to states and individuals for the potential damages or actual harm inflicted by either intentional or inadvertent leakage or use of nuclear materials.[21] If states were held accountable for the potential or actual damage wrought by a nuclear or radiological device, this would spur them to better protect any vulnerable materials under their authority.[22] Similarly, nuclear security personnel with access to materials would not flirt with diversion of materials for financial gain if they could be held responsible for the material they handle. From this perspective, nuclear forensics would form a means of compelling states to apply all available means toward prevention, including severe punishment of individuals who contribute to acts of nuclear terrorism.

Compelling states to get serious about their nuclear security obligations through nuclear attribution raises two major dilemmas. First, international efforts to create a framework for holding states accountable based on attribution are too nascent to provide an incentive anytime soon. This includes formulation of a legitimate international framework for decision making that would render actionable conclusions regarding the source of the materials as well as what and how punishment would be meted or liability assessed. Second, the incentive to cooperate in such an endeavor confronts countervailing pressures related to eventual liability for the information gained through that cooperation. In the forensics domain, the state asked to cooperate in forming the foundation for mechanisms to make nuclear attribution a reality must weigh the value of that cooperation against the possibility that the material interdicted or used may have originally come from or transited that state. Thus, early cooperation may result in future punishment.[23]

Whereas nuclear forensics is a critical piece of the future international framework for addressing potential weaknesses in the nuclear material security domain, and certainly could play a role in deterring states from complicity in an act of nuclear terrorism, its current relevance in compelling compliance with NSS commitments seems questionable. Beyond these two key dilemmas, such activities could again, based on technical capabilities, fall into a have and have not framework—such as the IAG under GINCT—creating additional hurdles to achieve the level of legitimacy necessary to have impact. Given that attempts to compel implementation would likely only generate greater

animosity and resistance to realization of the summit's objectives, providing incentives would appear, in the vast majority of cases, to be the more effective means by which to facilitate progress.

Synergistic Approaches? Carrot Compliance

In response to a 2008 congressional mandate, the National Academy of Sciences (NAS) convened a high-level panel to analyze "options for strengthening and expanding the Cooperative Threat Reduction (CTR) Program."[24] CTR, also known as Nunn-Lugar, encompasses the efforts spurred by the Soviet Union's collapse to address an array of proliferation threats, physical protection of nuclear weapons and materials being chief among them.[25] The NAS study, *Global Security Engagement: A New Model for Cooperative Threat Reduction*, published in early 2009, praised CTR efforts by the United States and various international partners and recommended an enhanced suite of threat reduction programs (known as CTR 2.0). NAS defines CTR 2.0 as "a set of programs and projects to be undertaken by the US government, as part of a *cooperative network* [emphasis added] that includes a wide range of countries, international organizations, and nongovernment partners, to prevent, reduce, mitigate, or eliminate common threats to US national security and global stability that have emerged since the end of the Cold War.[26]

While certain recommendations focus on US governance of its programs, many suggested improvements apply to the global suite of threat reduction activities and tools. Under CTR 2.0, "the preferred mechanism and long-term goal for the cooperation is partnership."[27] These partnerships should focus on achieving mutually agreed-upon security goals.[28] In addition to standard CTR projects such as nuclear security and infrastructure destruction, CTR 2.0 will include efforts to promote industrial chemical and biological safety and security; counter-smuggling; counter-piracy; counter-trafficking; export controls; border security; maritime security; securing and eliminating excess conventional munitions; nuclear contamination assessment; and emergency response planning and training.[29]

CTR 2.0 will also aim to complement other multilateral nonproliferation efforts. The NAS study specifically referenced Resolution 1540, PSI, and GICNT.[30] Presumably, the NSS commitments provide a new foundation for aggressive rollout of CTR 2.0 partnerships and implementation activities. The CTR 2.0 focus on mutually agreed-upon objectives is a means by which to generate incentives for states to implement the obligations set forth by the NSS documents. Such an approach has the following benefits: engendering "ownership" and therefore bolstering sustainability of the assistance rendered, focusing on the capacity building that will afford states the wherewithal to contribute more effectively to multilateral efforts in combating nuclear terrorism, and, most importantly, providing a critical incentive to help overcome the legitimacy deficit of existing initiatives, including the NSS objectives.

While this may seem farfetched and impractical, the obligations stipulated in the NSS documents themselves offer key indicators of where to focus in building partnerships to move implementation forward. Effective implementation of the measures set forth by the instruments highlighted in the NSS documents includes the following essential, high-level requirements:

Instrument	Source/ Facility Protection	Legal/ Regulatory Infrastructure	Policing/ Enforcement	Information Sharing	Detection/ Interdiction/ Forensics[31]	Human Capacity/ Culture[32]
ICSANT	X	X	X	X	X	
CPPNM	X	X	X	X	X	X
Resolution 1540	X	X	X	X	X	
GICNT	X	X	X	X	X	

Across the suite of instruments referenced in the NSS Communiqué, the underlying capacity requirements are astoundingly uniform. Obviously, for effective *nuclear* security, these basic governance capacities must be coupled with robust technical competencies across each facet of the infrastructure. In light of this reality, the immediate challenge is to make the leap from a traditional focus on technology and training of immediate nuclear security personnel to taking a comprehensive, integrated approach with 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 NSS Work Plan clearly recognizes this reality in its extensive treatment of infrastructure (robust regulatory capacity, including independent oversight and enforceable standards for industry) and its attention to the "human dimension" that will support and sustain that infrastructure.

Real progress, both for implementation of commitments made at the summit and eventual effectiveness of initiatives such as GICNT, likely entails an approach that both recognizes good governance as a prerequisite to effective implementation and engenders ownership by the participating state of the objectives sought. Such ownership of the obligations can be facilitated by forming partnerships to address mutually identified needs, as indicated by the CTR 2.0 study, among others. In light of the significant overlap regarding governance capacities requisite to effective implementation of NSS obligations, including the operational capacities necessary to attain capable partners in adherence to GICNT Principles, closing the governance gap is essential. Most importantly, embracing good governance objectives and formulating partnerships to address these gaps will encourage ownership and incentivize implementation to overcome the legitimacy deficit.

Addressing the Standards Gap

Recognition of the standards gap is also evident in the NSS Work Plan's extensive attention focused on the IAEA Nuclear Security Programme and the guidance and recommendations being promulgated through its Nuclear Security Series. The IAEA has deep-rooted legitimacy and is the appropriate international body to facilitate formulation of nuclear security standards. Currently, the IAEA is providing advisory services to states on a voluntary basis to evaluate their infrastructure to protect materials and facilities as well as to combat illicit trafficking. Additionally, the IAEA has issued 12 publications to date under its Nuclear Security Series to complement and provide further guidance to all of the instruments included in the NSS Communiqué. Given the manifest resistance to establishing standards within the context of international treaties or conventions, efforts to influence formulation of baseline recommendations and promulgate best practices should focus on the role of the IAEA.

As one prominent example, the NSS Work Plan highlights INFCIRC/225 and urges prompt finalization of its fifth revision. As a critical element of the international physical protection regime for nuclear materials and facilities, INFCIRC/225 provides the criteria by which physical protection of nuclear material and facilities is evaluated by the United States during assessment visits to countries holding US-obligated nuclear material and it also provides the foundation for the IAEA's International Physical Protection Advisory Service (IPPAS) missions. Negotiations on the fifth revision are hoped to reach a conclusion by the end of 2010 and would amount to achievement of the first goal set forth in the NSS Work Plan. The proposed expanded scope of the revised INFCIRC/225 includes: introduction of a physical protection regime; the rapid recovery of missing nuclear material and mitigation of sabotage; strengthened performance testing versus prescriptive requirements; introduction of a graded approach to take into account the threat, relative attractiveness of material, and potential consequences associated with theft/sabotage; clarified use of Design Basis Threat (DBT) and required use of DBT for high-consequence materials. Upon finalization, INFCIRC/225 should be leveraged as a baseline for adherence to GICNT Principles and provide substantive guidance to CPPNM implementation.

The US and other NSS participants should continue to promote the IAEA's role as the standard bearer, even if this remains on a voluntary basis for the foreseeable future. This will require forbearance in the painstaking formulation of the recommendations and best practices that would constitute baseline nuclear security standards for the international community. Tighter collaboration with the IAEA is already embedded under the GICNT, and the guidance and recommendations

put forward in the IAEA's Nuclear Security Series parallel the key instruments included within the NSS Communiqué. Coupling adherence to IAEA recommendations, including potential IAEA involvement in formulating a state's nuclear security plan, in implementation of NSS commitments would appear to be the only politically feasible first step in the slow march toward specific nuclear security standards as a "customary norm." Notably, this approach will also require greater capacity—financial and human—for the IAEA to tackle this dimension of the nonproliferation agenda. However, it is the first best institutional solution for addressing the standards gap in our efforts to tackle the threat of nuclear terrorism. Moreover, the IAEA has made substantial contributions with insufficient means in addressing this aspect of the agenda.

Conclusion

The NSS represents a well-thought-out and executed experiment to strive for legitimacy with a nontreaty, expedited forum of "like-minded" states. It was unilateral in its genesis, but broadly multilateral and diverse in the collection of states for its delivery. The commitments it produced provide the initial framework for an international nuclear security regime in light of the overlapping and extensive obligations encompassed by the communiqué as well as the layered delineation of critical requirements detailed in the work plan. These characteristics bode well for its efficacy and, therefore, sustainability, if creative solutions are found to remove the impediments to progress and close the remaining gaps.

As with any international framework, however, the efficacy of the effort boils down to the political will and wherewithal of NSS participants to aggressively implement the obligations set forth. Addressing the will and wherewithal can be one and the same if taken as an opportunity to address mutually identified needs that can, at once, help states address endemic governance challenges and provide the enduring foundation for the sustainable implementation of the obligations set forth by the NSS as well as preexisting UN Security Council mandates. Consolidation, elimination, and security of the most vulnerable materials is an urgent priority. At the same time, fulfilling the requirements for sustainable implementation of the NSS commitments will help ensure that "global lockdown" does not become a recurring theme in the decades to come.

Endnotes

[1] For the full list of attendees go to: *http://thecable.foreignpolicy.com/posts/2010/04/10/white_house_announces_nuclear_summit_attendees*.

[2] For a full accounting see Josh Rogin, "So which world leaders scored Obama meetings next week?" *Foreign Policy* April 6, 2010 at: *http://thecable.foreignpolicy.com/posts/2010/04/06/so_which_world_leaders_scored_obama_meetings_next_week*.

[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 United States; and China and India's commitments to establish regional 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%20nss.pdf*.

[4] This article continues to use "nuclear security" for activities ranging from source security to detection, interdiction, and information sharing. This is consistent with the summit documents and assumes that measures targeting immediate lockdown of existing vulnerable materials must take into account the continued use and production of such materials for the foreseeable future. For full text of the communiqué go to: *http://whitehouse.blogs.foxnews.com/2010/04/13/nuclear-security-summit-communique-and-work-plan*.

[5] An overview of the International Convention on the Suppression of Nuclear Terrorism is available in *Inventory of International Nonproliferation Organizations and Regimes*, Center for Nonproliferation Studies, at: *http://cns.miis.edu/inventory/pdfs/nucterr.pdf*.

[6] Ibid.

[7] IAEA, The Convention on the Physical Protection of Nuclear Material, *http://www.iaea.org/Publications/Documents/Infcircs/Others/inf274r l .shtml*.

[8] Maria de Lourdes Vez Carmona, "The International Regime on the Physical Protection of Nuclear Material and the Amendment to the Convention on the Physical Protection of Nuclear Material," *Nuclear Law Bulletin* 76, 2005, 31-32.

[9] Vez Carmona, "The International Regime on the Physical Protection of Nuclear Material and the Amendment to the Convention on the Physical Protection of Nuclear Material," *Nuclear Law Bulletin* 76, 2005, 34.

[10] Twelve Fundamental Principles were also added, including physical protection should be based on "defense in depth," be contingent on a Party's evaluation of threats, and give due consideration to security culture. IAEA, Nuclear Security - Measures to Protect Against Nuclear Terrorism: Amendment to the Convention on the Physical Protection of Nuclear Material, *http://www.iaea.org/About*

/Policy/GC/GC49/Documents/gc49inf-6.pdf.

[11] IAEA, Nuclear Security - Measures to Protect Against Nuclear Terrorism: Amendment to the Convention on the Physical Protection of Nuclear Material, *http://www.iaea.org/About/Policy/GC/GC49/Documents/gc49inf-6.pdf*.

[12] Olivia Bosch and Peter van Ham, "Global Non-Proliferation and Counter-Terrorism: The Role of Resolution 1540 and Its Implications" in *Global Non-Proliferation and Counter-Terrorism: The Impact of UNSCR 1540* (Brookings Institution Press, Washington, D.C., 2007): 2-3.

[13] Braun and Christopher F. Chyba, "Proliferation Rings: New Challenges to the Nuclear Nonproliferation Regime," *International Security* 29, No. 2 (Fall 2004):43-44.

[14] WMD Insights, "Global Initiative to Combat Nuclear Terrorism: Steady, but Slow Progress," August 2008, accessed at: *http://www.wmdinsights.com/I26/I26_G2_GlobalInitiative.htm*.

[15] Text of Terms of Reference for Implementation and Assessment, accessed at: *http://collections.europarchive.org/tna/20080205132101/fco.gov.uk/Files/kfile/Terms%20of%20Reference%20for%20Implementation%20and%20Assessment.pdf*.

[16] Specific activities for implementation may include: encouraging other states to endorse the Statement of Principles; working to improve capabilities to combat nuclear terrorism by providing and receiving assistance to partner states where appropriate to fill capability gaps; participating in or hosting expert-level scenario-based exercises to test capabilities, develop new operational concepts, and enhance preparedness, as well as expert-level workshops to share best practices and develop means for the rapid exchange of technical and operational information among participating states under the condition of appropriate protection of the confidentiality of any information exchanged in confidence; ensuring regular reporting from relevant departments and ministries regarding progress in implementing the Statement of Principles in their respective areas of responsibility (this refers to internal reports being prepared for national purposes in accordance with national procedures and law); and reviewing and, as necessary, strengthening on a continuous basis their relevant national legal authorities to implement the Statement of Principles. US Department of State, "Statement of Principles," accessed at: *http://www.state.gov/t/isn/rls/other/126995.htm*.

[17] George Bunn, "Enforcing International Standards: Protecting Nuclear Materials From Terrorists Post-9/11," *Arms Control Today*. Available at: *http://www.armscontrol.org/act/2007_01-02/Bunn*.

[18] See "The Race Between Cooperation and Catastrophe" by Sam Nunn presented to the American Academy in Berlin on June 12, 2008 at: *http://www.nti.org/c_press/speech_Nunn_Germany61208.pdf*.

[19] See John Yoo and Glenn Sulmasy, "The Proliferation Security Initiative: A Model for International Cooperation," *Hofstra Law Review,* Vol. 35, No. 2 (Winter 2006): 415-416.

[20] See Remarks by Andrew Semmel regarding US support for 1540 at: *http://www.nti.org/e_research/official_docs/dos/dos101204.pdf*.

[21] See Daniel H. Chivers, Bethany F. Lyles Goldblum, Brett H. Isselhardt, and Jonathan S. Snider, "Before the Day After: Using Pre-Detonation Nuclear Forensics to Improve Fissile Material Security," in *Arms Control Today* at: *http://www.armscontrol.org/act/2008_07-08/NuclearForensics*. Also, "Nuclear Terrorism: A Brief Review of Threats and Responses" by Jonathan Medalia, Congressional Research Service, at: *http://www.fas.org/irp/crs/RL32595.pdf*.

[22] Debra Decker, "Who Pays when the Bomb Goes Off?" *Foreign Policy,* December 2006, *http://www.foreignpolicy.com/articles/2006/12/18/who_pays_when_the_bomb_goes_off*.

[23] Graham Allison and Debra Decker, "Before the First Bomb Goes Off" (forthcoming).

[24] Congress, *National Defense Authorization Act for Fiscal Year 2008*, Section 1306(b)(1).

[25] Cooperative Threat Reduction formally applies only to the programs at the Department of Defense. Its usage in this analysis pertains to nonproliferation and nuclear security programs throughout the US government.

[26] Committee on Strengthening and Expanding the Department of Defense Cooperative Threat Program, National Academy of Sciences, *Global Security Engagement: A New Model for Cooperative Threat Reduction*, 2009, ix.

[27] *Global Security Engagement*, 8.

[28] *Global Security Engagement*, 42.

[29] *Global Security Engagement*, 102-104.

[30] *Global Security Engagement*, 10, 12.

[31] Nuclear forensics capability and cooperation is highlighted only in the Nuclear Security Summit documents. It was added as a dimension of desired interdiction and detection capabilities to enhance counterterrorism efforts.

[32] This column was added as a dimension that receives attention only in the amended CPPNM, which identifies "security culture" as a priority, and the NSS Work Plan, but is an obvious requirement throughout the infrastructure and across all initiatives.

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