GLOBAL DIALOGUE ON NUCLEAR SECURITY PRIORITIES[1]

NON-PAPER 1: THE NEED FOR A STRENGTHENED GLOBAL NUCLEAR SECURITY SYSTEM[2]

Despite the growing importance attached to nuclear security by world leaders, there is still no global system in place for tracking, accounting for, managing, and securing all weapons-usable nuclear materials (e.g., highly enriched uranium and separated plutonium). The global nuclear security system today is a patchwork of agreements, guidelines, and multilateral engagement mechanisms. All of these, however, have numerous gaps and limitations which undermine global security as well as our confidence in the effectiveness of the system. The challenge then is to strengthen the system, to the benefit of each state individually and for all states globally.

Nuclear security is both a shared and sovereign responsibility. While this is certainly the case for states which possess relevant nuclear materials and facilities, all states—even those without nuclear materials—must be alert to the possibility that their territories could be used as a safe haven, staging ground, or transit point for terrorist operations involving stolen nuclear materials.

The national responsibility to effectively meet nuclear security objectives, however, cannot be viewed as the exclusive domain of each state. In a world where global nuclear security is only as strong as the weakest link in the chain, every state has a security interest in how well others meet this responsibility. Sovereignty need not mean operating in isolation, particularly when the nuclear security system should be viewed as a global responsibility because risks related to nuclear security have a global impact. Many terrorist groups are transnational in their membership, objectives, and activities. Terrorists are opportunistic. They are likely to attempt to seize nuclear material where security is believed to be lax, and if they succeed in making a nuclear device, they may decide to use it where access to an attractive target is easiest. Thus, a failure of nuclear security in one state could well result in an attack in another. Likewise, as in Fukushima, a major radiation release in one state has serious political, economic, and environmental consequences in many other states and can erode

[1] Through the Global Dialogue on Nuclear Security Priorities, leading government officials, international experts and nuclear security practitioners engage in a collaborative process to build consensus about the need for a strengthened global nuclear security system, how it would look and what actions would be needed at the 2014 Nuclear Security Summit and beyond. The Global Dialogue discussions are conducted on a not-for-attribution basis; where individuals and governments are free to use the information obtained during the meeting, but that information should not be attributed to a specific individual or government. For more information: http://www.nti.org/about/projects/global-dialogue-nuclear-security-priorities.

[2] Participants raised whether to use the terms “global” versus “international” and “system” versus “architecture” or “framework.” Terms can be further debated during formal negotiations, however, the group wanted to note the additional options for consideration. For the sake of brevity, this paper uses the phrase “global nuclear security system.”

the public confidence needed to sustain long-term public support for civilian nuclear technology, in all of its forms.

This paper identifies key elements of the existing nuclear security system, reveals gaps in the existing system, and proposes characteristics to define a strengthened global nuclear security system.

Objective of Nuclear Security

For the purposes of this paper, the overarching objective of nuclear security is:

> *To ensure that nuclear materials are secure from unauthorized access and theft and that nuclear facilities are secure from sabotage.*

A nuclear security system is effective if it meets this objective.

The Existing System

The current nuclear security system is defined by a number of international conventions and agreements, Security Council resolutions, International Atomic Energy Agency (IAEA) recommendations and guidance documents, and the security practices of states. Key defining or guiding documents and agreements include:

- The 1980 Convention on the Physical Protection of Nuclear Material (CPPNM) applies, primarily, to protection of nuclear material in international transport.
- The 2005 Amendment to the CPPNM extends the CPPNM's application to protection of nuclear material in domestic use, as well as protection of nuclear facilities against sabotage. The 2005 Amendment is not yet in force.
- The Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT).
- United Nations Security Council Resolution 1540.
- Various IAEA guidance documents, such as:
    - Fundamental Principles of Physical Protection of Nuclear Material and Nuclear Facilities
    - INFCIRC/225, Rev. 5, the current version of the IAEA's nuclear security recommendations
    - INFCIRC/153 and 66 (Safeguards Agreements) and their related requirements for the establishment of a State System for Accounting for and Control of Nuclear Material (SSAC).
- Various multilateral, regional, and bilateral agreements and initiatives that address nuclear security.

The foundational agreements, guidelines, and initiatives, even when combined, do not yet add up to a system that ensures that all nuclear weapons, weapons-usable nuclear material, and major nuclear

facilities worldwide are effectively protected against today's terrorist and criminal threats—let alone those that may arise in the future. Furthermore, the majority of these arrangements are non-binding and both participation and implementation varies widely.

[Note: See the accompanying resource "Nuclear Security Primer: The Existing System," on the Global Dialogue website (www.nti.org/globaldialogue) for a brief overview of key elements of the existing system, their benefits, and limitations.]

Proposed Characteristics of a Strengthened Global Nuclear Security System

Proposed below are five characteristics of a strengthened global nuclear security system.

1. The system should be **comprehensive**; it should cover all nuclear materials and facilities in which they might be present, at all times.

The system should cover all nuclear materials and facilities, especially weapons-usable nuclear materials and facilities where sabotage could cause a major radiation release. The 2010 and 2012 Nuclear Security Summit communiqués reaffirmed the, "fundamental responsibility of states to maintain effective security of all nuclear materials, including nuclear materials used in nuclear weapons, and nuclear facilities under their control." Military and other non-civilian materials are estimated to comprise 85% of global weapons-usable nuclear materials. Yet still today, the vast majority of weapons-usable materials are not subject to international standards, guidelines, best practices, or any mechanisms for assuring anyone else about the security arrangements around them.

To make real the communiqué commitment to secure "all materials," participants in the Global Dialogue process encouraged states to begin exploring how materials or facilities outside of civilian programs could be brought under international security standards and best practices. Could states devise ways to assure each other that their non-civilian materials are secured consistent with international guidelines and best practices? How can sensitive security information be protected under this scenario? Are there any instructive examples of information sharing or cooperative work among states on military and other non-civilian materials?

2. The system should **employ international standards and best practices, consistently and globally.**

Effective nuclear security requires the implementation of international standards and guidelines. Employing best practices consistently and globally is a strategy for rapidly and effectively improving nuclear security practices worldwide.

According to generally accepted "generic" definitions, a standard is established by authority, custom, or general consent and defines performance requirements, specifications, guidelines, or characteristics. A best practice is a method or technique that has consistently shown results superior

to those achieved with other means and that, through experience and research, has proven to reliably lead to a desired result.

Standards are relatively static, usually evolve slowly over time, and often lag behind emerging threats or new technology. Unlike standards, which are agreed upon and adopted by an organization or body, best practices develop not by consensus but from the experience of many individuals and groups and are constantly evolving. They are dynamic and can be tailored to a specific set of circumstances and conditions. Although the characteristics of best practices and standards may be different, they are related concepts and play parallel, complementary roles in ensuring security.

The international community has authoritatively established the value of best practices for rapid and effective security improvement. The 2012 Nuclear Security Summit communiqué "encourage[d] States to share best practices" and the Terms of Reference for the Global Initiative to Combat Nuclear Terrorism (GICNT) called for members to participate in "workshops to share best practices."

While the sharing of best practices has helped increase standards of security in many places, more work should be done to expand the sharing and implementation of best practices and to garner political and financial support for these activities. The World Institute for Nuclear Security (WINS) is the only international organization solely devoted to the development, exchange, and promulgation of nuclear security best practices.[3] WINS offers a series of best practice guides on a wide range of topics and conducts workshops to gather and disseminate best practices. Best practices are transmitted informally through other mechanisms as well, such as workshops or training programs where security professionals gather from around the world and through peer reviews offered by the IAEA.

3. At a national level, each state's system should have **internal assurance and accountability mechanisms.**

Basic guidelines/requirements for effective security are defined by a number of international conventions, agreements, resolutions, and IAEA recommendations and guidance documents. For more information on existing system "requirements," please see the Nuclear Security Primer: The Existing System, on the Global Dialogue website. These existing agreements and guidance urge states to provide internal assurance and accountability mechanisms through their legal and regulatory structures. However, not all states currently meet these guidelines. The Nuclear Security Summit process has greatly facilitated progress in this area as states follow through on relevant commitments, but more work remains to be done. All national authorities and their publics should have confidence that their nuclear security systems are effective and that all persons and entities involved are held accountable for how they implement their security responsibilities.

[3] To help fill a capacity gap in the nuclear security field and assist with nuclear security implementation, WINS was created to provide an international forum for developing and promulgating best practices to the boards, CEOs, security directors, security practitioners, and regulators who have responsibilities for developing, overseeing, and maintaining nuclear security.

4. Globally, the system should facilitate a state's ability to provide **international assurances** that all nuclear materials and facilities are secure.

Few mechanisms exist for a state to assure others that its nuclear security system is effective in meeting nuclear security objectives. International assurances can be defined as: activities undertaken, information shared, or measures implemented voluntarily by a state or other stakeholders that can build the confidence of others (other governments, a designated international organization, the public, etc.) about the effectiveness of nuclear security within a given state while protecting sensitive information about materials and sites. Assurance mechanisms are widespread, commonplace and highly valued in other fields involving sensitive information, including nuclear safety. Some limited assurance mechanisms already exist in the nuclear security field and demonstrate that assurances can be provided without disclosing sensitive information. Assurances are about security. Because the economic and security consequences of a nuclear catastrophe would be global in scope, all governments and the global public have an equity in how effective other governments are in meeting their security responsibilities. International assurances also provide insight into how the global nuclear security system is functioning.

5. The system should work to reduce risk through **minimizing** or, where feasible, **eliminating weapons-usable material stocks** and the number of locations where they are found**.**

Today, there is no international obligation to minimize or eliminate holdings of weapons-usable materials, and there is no ready way to track what states are doing in this regard as few states disclose their holdings of these materials. A major international program is working to phase out the civilian use of HEU and eliminating HEU holdings has been successful, but 25 countries still have 1 kilogram or greater holdings of either HEU or separated plutonium.[4] This is another area where the Nuclear Security Summits have facilitated progress that otherwise may not have taken place.

For more detailed information on these characteristics, please see the separate short non-papers and other resources on the Global Dialogue on Nuclear Security Priorities website (www.nti.org/globaldialogue):

- Non-Paper 2: Practical Proposals for Providing International Assurances
- Non-Paper 3: Comprehensiveness: Understanding Non-Civilian Nuclear Materials
- Non-Paper 4: The Strategic Value of Best Practices for Nuclear Security

[4] NTI analysis as of November 2013 based on the NTI Nuclear Materials Security Index www.ntiindex.org