GLOBAL DIALOGUE ON NUCLEAR SECURITY PRIORITIES

July 23-25, 2012
Airlie Center
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RAPPORTEUR'S REPORT

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ACKNOWLEDGEMENTS

CONTEXT

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. NTI decided to convene a Global Dialogue on Nuclear Security Priorities of leading officials, experts, and representatives from nuclear industry and the International Atomic Energy Agency (IAEA) to build consensus on elements of a comprehensive global nuclear security system. NTI plans to convene this group three or possibly four times before the 2014 Nuclear Security Summit in the Netherlands.

NTI hosted the first meeting of the Global Dialogue on Nuclear Security Priorities in Warrenton, Virginia, on July 23-25, 2012.

The objectives of the Global Dialogue on Nuclear Security Priorities are to:

- Create an integrated platform for discussion among government officials, experts, nuclear industry, and other stakeholders
- Build greater consensus for strengthening the global nuclear security system
- Identify priorities and key elements of a common nuclear security system
- Develop tangible recommendations to support the 2014 Summit and beyond.

FRAMEWORK FOR DISCUSSION

Prior to the meeting, participants in the Global Dialogue were provided with two documents: "Strengthening the Global Nuclear Security System" white paper; and "Nuclear Security Primer: The Existing System." The white paper was provided as a strawman to frame the discussion. The purpose of the Nuclear Security Primer was to provide an overview of existing elements of the existing global nuclear security system and an assessment of their limitations.

The white paper provided an overarching objective of nuclear security: *To ensure that nuclear materials are secure from unauthorized access and theft and that nuclear facilities are secure from sabotage*. It characterized the existing system as one in which "[t]he 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."

The white paper proposed five characteristics of an effective nuclear security system:

- 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 employ best practices, consistently and globally.
- At a national level, each state's system should have internal assurance and accountability mechanisms.
- Globally, the system should facilitate a state's ability to provide international assurances that all nuclear materials and facilities are secure.
- 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.

Finally, the white paper posed the following questions for discussion:

- What characteristics should make up an effective system?
- How can states strengthen their systems for internal assurance and accountability?
- How can states develop best practices to provide international assurances without compromising internal security?
- What are the challenges and opportunities to strengthening elements of the global nuclear security system?

GLOBAL DIALOGUE ON NUCLEAR SECURITY PRIORITIES MEETING, JULY 2012

"*Do Nuclear Security Priorities Matter?*" – Remarks by Senator Sam Nunn

The Global Dialogue began on Monday evening, July 23, with opening remarks delivered by Senator Sam Nunn, in which he used real-world examples to make vivid the threat and provided a call to action for participants to think creatively during their time together. To emphasize the need for a global response, Senator Nunn cited what the IAEA in 2012 stated were the biggest risks to nuclear security:

1. The state that does not recognize the threat of nuclear terrorism
2. The state that does not take protective action
3. The state that is complacent

Senator Nunn brought the threat to life by offering several scenarios posed as Fact or Fiction. He closed by asking two questions: "If we do nothing, and a disaster occurs, what would we wish we had done to stop it? Why don't we do it now?" Senator Nunn's full remarks are available upon request.

Global Implications of Nuclear Security

The purpose of the first session on Tuesday, July 24, titled "Global Implications of Nuclear Security" and led by NTI president Joan Rohlfing, was to review the concepts discussed in the white paper and provide an opportunity for participant reactions. The meeting opened with a review of the context of the meeting.

Rohlfing noted that while important progress—in particular country commitments—had been made at the two summits, "attention to strengthening the global nuclear security architecture has lagged behind." Although the Seoul communiqué referenced nuclear security architecture and urged countries to adhere to relevant treaties, it did not acknowledge the weaknesses of existing arrangements or the need to close gaps. Nor was there a commitment to specific actions to close these gaps. Rohlfing noted that despite this, some countries have put themselves on record recognizing the need to strengthen the global nuclear security architecture. Yet there has been little consensus on what that means or what actions states must take.

Before the main discussion, two participants made brief remarks about the 2012 Seoul Summit and the upcoming 2014 Summit in the Netherlands. The first participant noted that while the Summit process is "fundamentally important" to prevent nuclear terrorism, many countries "do not show interest in participating in this progress." Therefore, a key challenge is to ensure that countries understand that preventing nuclear terrorism is a global issue in their interest, not just the interest of a narrow set of countries. The participant noted that attendees at the Seoul Summit introduced the concept of global legal governance, but the terminology was not well-received, or understood, by some countries. Finally, the participant asked whether summit-level participation could continue after 2014, noting the merit of such high-level participation.

A second participant echoed some of the issues raised, namely what role the Summit has in setting up a global governance system and whether the Summit process can continue after 2014. He noted that summits focus attention, force events, and put pressure on participants to deliver results. They also provide a "political framework for technical people to do work and get into details." He described the Summit process as a "sprint within a marathon." He asked whether there are other ways to embed what the Nuclear Security Summit process is trying to accomplish into existing structures, such as adding a political component to the IAEA's Nuclear Security Conference held every three years. In terms of outcome, he asked whether seeking consensus or encouraging gift baskets by groups was the correct approach, and whether the process should be moving towards a nuclear security convention or a more incremental approach. In response, Rohlfing noted that an initial goal of reaching a negotiated treaty could "delay the ability to implement improvements to nuclear security that could be undertaken through other mechanisms" and that an informal approach would be more productive and pragmatic.

Following these opening remarks, Rohlfing made a brief presentation of the issues discussed in the white paper. In the discussion that followed, a number of themes emerged.

Meaning of Nuclear Security

In the opening presentation, nuclear security was defined as "the set of measures that are in place to prevent the theft, diversion or sabotage of nuclear material or facilities by an insider or an outsider." One participant proposed that we define nuclear security as a "status . . . we want to achieve" and that we need measures to achieve it.

Nuclear Security Convention Versus Informal Approach

After being introduced as a question in earlier remarks, one participant voiced a preference for an incremental approach over a nuclear security convention, noting that conventions "are good at holding the standard" rather than "compelling" an "increased standard." Another participant noted that pursuing best practices would be the "best way to draw everyone towards a good standard" and that a convention could then hold that standard. He cautioned that conventions lead to the lowest common denominator.

Rohlfing clarified that NTI was not proposing the negotiation of a nuclear security convention as a first step for strengthening the global nuclear security system. Rather, NTI believed that a series of informal or voluntary steps and measures could be undertaken by states in the near term. She noted that the word "incremental" is not an ideal word because it implies something that is a slow and deliberate process. The threat is so great, she added, that we "shouldn't be talking about a process that is multiple decades long in terms of its achievement." At the same time, she suggested, it is possible to "develop mechanisms that aren't necessarily legal mechanisms" such as those that are bilateral or regional in nature.

Universality

The white paper states that "[t]he national responsibility to effectively meet nuclear security objectives . . . cannot be viewed as the exclusive domain of each state." One participant noted, however, that "doing well at home" contributes to global security.

Another participant noted that the word "universal" was missing from the characteristics listed in the white paper. He explained, while the system should be comprehensive in that it covers all material, there "should be certain rules that are applied everywhere in the world," otherwise some areas would have good or excellent security, while others have almost none, and terrorists will go where there is none. Universality is important in addition to comprehensiveness, he suggested, because "[e]ven if you cover all material, you don't cover all governments that make the rules. We first need rules and then apply them." Rohlfing proposed that the white paper could be modified to include "universal" if participants accepted this idea.

Internal Assurance and Accountability

The white paper highlighted internal assurance and accountability as a characteristic, and on that topic a participant noted the importance of a "good national authority that is independent and know[s] what they are doing," and has the training and resources to implement the security regime.

Resources and Capacity

Another theme that emerged was the lack of resources and capacity to implement security objectives. One participant noted that while good systems and architectures are needed, we also need "capacity and capabilities." He added that systems in place must be "flexible" as "rigid systems may be so rigid they can't move."

Networking

Throughout the meeting, the value of increasing interaction among practitioners, operators, experts, and policymakers emerged as a theme. One participant proposed that we remove the "boxes" we put people in—industry, agency, government, and non-government—and instead think in terms of the role they play, e.g., implementation and oversight. He suggested that using different labels would allow these groups to "understand each other better and understand drivers of how decisions are made and priorities created."

The Role of the IAEA

More than one participant noted that the role of the IAEA in nuclear security has been a topic of discussion at the Summits. In agreeing that the IAEA did have a potential role, one participant noted that while it could be given a mandate, it would also need to be given the resources to fulfill this new expanded role. Another participant noted that the IAEA is holding a conference on nuclear security in July 2013 and commented that the IAEA has experience working with many states, including the states that participate in the Summit process.

Threat Perception

A key challenge identified through the course of the discussion was the differences in states' perceptions of the threat. Some countries do not recognize the threat at all and even countries that do recognize the threat may not recognize the full scope of the threat. One participant noted that "threat awareness" needs to be understood globally, and that while everyone does not have to think the same, there should be "base level awareness."

Learning from Nuclear Safety and from Other Industries

The need to learn from nuclear safety and from other industries was a prominent topic throughout the Global Dialogue. Rohlfing's presentation made a distinction between nuclear safety and nuclear security, but one participant noted that in reality, measures towards nuclear safety and nuclear security might overlap despite being conceptually distinct. Another participant identified three lessons that can be learned from nuclear safety and should be taken into account in creating a nuclear security architecture:

- Although the global impact of an accident or security incident in terms of targeting where something could happen is understood, economic effects are not. Therefore, global responsibilities for mitigation and how to coordinate and cope with a security incident need to be thought through.

- While recognizing that Design Basis Threats (DBT) are useful, the Fukushima accident shows that people may have different assessments of the threat, some more accurate than others. Many countries do not include insider threats in their threat assessments. Moreover, there is no system that provides an accurate or competent assessment of the threat to inform how to design security systems.
- There are minimal ways of assessing whether other countries are following through on appropriate implementation. In Fukushima, for example, there were assessments about the vulnerabilities posed by earthquakes and tsunamis, but measures had not been implemented. Internationally, we see this problem in the underutilization of IAEA International Physical Protection Advisory Service (IPPAS) missions—countries insist they have good security programs, but do not know whether they have been implemented appropriately.

Another participant urged that lessons could be learned from how other industries, such as aviation and airports, deal with security, noting that although nuclear security is specific, security itself is not.

The Role of Technology

Technology in addressing nuclear security also emerged as a theme. In particular, one participant noted the importance of technology in solving the problem of nuclear terrorism, pointing specifically to technology that would eliminate highly enriched uranium (HEU) and Plutonium (Pu) by using low enriched uranium (LEU) in HEU research reactors.

Scope of the Global Dialogue

One participant noted the exclusion of radiological materials from the Global Dialogue, pointing out that it thus covered fewer issues than the Summit. Rohlfing explained that while NTI understands the threat posed by radiological materials, the white paper focused primarily on weapons-usable nuclear material because the consequences of its use by terrorists would be much greater. She noted, however, that the characteristics of a global nuclear security system could apply to radiological materials, although implementation would take a different form.

Gaps in the Existing Nuclear Security System

Corey Hinderstein, NTI's Vice President for International Programs, led the discussion of gaps in the existing nuclear security system. The presentation categorized existing elements into one of three types: agreements and guidelines, multilateral engagement mechanisms, and implementation services. Elements of the system were matched against the five characteristics identified in the white paper to provide a visual representation of the gaps. In the discussion, as in the previous session, some common themes emerged.

Elements of the System

Hinderstein began the discussion by asking whether any elements were missing. The following were proposed:

- Bilateral engagements, such as the Cooperative Threat Reduction Program
- Nuclear weapon free zones (clauses in agreements setting up these zones can relate to security)
- International law enforcement and counterterrorism organizations which play a role in combating nuclear smuggling
- Local and state regulators ("in terms of how requirements flow to [the nuclear] industry, they flow through governments and regulators")
- Training and Centers of Excellence
- Informal exchanges of ideas by some regions' regulators (e.g., the Western European Nuclear Regulators Association holds discussions on regulating nuclear security and best practices; the recently released Nuclear Power Plant Exporters' Principles of Conduct, supported by the Carnegie Endowment for International Peace).

Global Governance

One participant noted the tendency to focus on the complexity of the problem of creating a rules-based and binding governance system, but the goal is actually the security status the international community seeks to achieve, not the measures themselves. He made the case that "[i]f the next summit could try to marshal a commitment to those outcomes rather than the process to get there or the governance system that would manage it" this would be an achievement because it would allow states to "run the long race" while making short-term improvements. He noted that this will end up being an amalgam of culture, voluntary actions, regional actions, and sharing of technology and practices. A rules-based system, he continued, will only come after states get comfortable taking these steps on an informal or voluntary basis. He pointed, as an example, to the fact that few states previously believed they could participate in a mechanism for sharing best practices without compromising their own security until they actually did so by engaging, in particular, in dialogue on a peer-to-peer basis.

Another participant noted that while he was "a fan of global governance," the goal was not good global governance but "effective nuclear security implemented at all sites where it is needed." Global governance is "one tool to move toward that goal but not the only tool." He asked what can realistically be done with global and multilateral instruments and what can be better done with bilateral discussion or cooperation on the ground or a state's voluntary initiatives? He noted that "bigger progress could come from a few countries working on a problem together" than focusing on a global system.

Another participant noted that "legal, regulatory, [and] special conditions" in different countries need to be taken into account and that international governance is, therefore, not realistic. Instead, "an internal review system and monitoring" may be good enough for providing international assurances.

Hinderstein then suggested that ensuring that nuclear materials are "effectively protected against today's terrorist and criminal threats" does not have to fall under the purview of one measure, as long

as all material is effectively protected. "If variable implementation is still consistent with what we decide is necessary it might be the outcome that we not only accept, but what we desire," she said. This framing can also contribute to flexibility of the system. She noted that a "one size fits all [approach] doesn't work because of threats and geography, but we can set common objectives that we can try to achieve."

Internal Assurance and Accountability and its Link to International Assurances

One participant noted that two critical gaps in the system are both assurance gaps—how do states assure themselves that their stewardship responsibilities are being appropriately and effectively discharged and how do they assure others without compromising their security?

As an initial matter, participants discussed the importance of a state's ability to review its own system. One participant noted that states first need to have a better understanding of their own systems and vulnerabilities and that a tabletop exercise staged for world leaders at the 2014 Summit could help do so. (Another participant noted that such a tabletop exercise was scheduled for the November 2012 Sherpas meeting.)

The linkage between internal assurance and accountability and international assurances, briefly raised in the first session, was raised again. One participant noted that the "onus should be on internal review of each state's position" and there should be ways for this review to provide international assurances. Another noted that it is important to determine which internal assurances can provide international assurances. A third participant expressed concern that information on the level of security in a country could be misused.

In terms of practical measures, one participant noted the importance of realistic exercises to "test how systems perform" such as force-on-force exercises, which few countries actually perform, because "it is the understanding of the threat that drives security systems." Another participant noted that states have no way of answering whether they have "appropriate effective means" as required by UN Security Council Resolution 1540 or of answering the question, "Is our system appropriate and effective to the DBT and how do we test it?"

One participant suggested that after the 2005 Amendment to the Convention for the Physical Protection of Nuclear Material (CPPNM) enters into force, IPPAS missions could provide an independent review to assess whether states are living up to their commitments. He noted that more could be done to promote IPPAS missions. For example, members of the Nuclear Suppliers Group could require physical protection as a condition for supply, with IPPAS missions fulfilling that requirement. Another participant suggested that states at the 2014 Summit, including nuclear-weapon states, could agree to have an IPPAS mission in the following two years. He suggested that it would be useful for NTI to give the group a sense of what that budget would be and how much the IAEA Nuclear Security Office would have to be improved to manage that task.

Priorities, Resources, and Capacity

One participant suggested that the phrase "all nuclear weapons or weapons-usable nuclear material" was too ambitious because "we will never be able to secure all material in the world." Rather the focus should be on a list of priorities, with the biggest risk as the highest priority. However, another participant responded that comprehensiveness should be the goal with priorities set along the way.

One participant noted that it is difficult to achieve comprehensiveness because quite a few states, though willing, are not in a position to achieve key nuclear security goals due to a lack of financial or human resources, and that we "cannot wait until all of them are at the same level of some developed states." On a related note, one participant noted that there is a budgetary squeeze and that systems are deteriorating. It was noted that this is where best practices could be useful—not for setting a standard but maintaining quality of implementation.

Security of Material Outside of Civilian Programs

The issue of whether recommendations should apply to materials outside of civilian programs, such as materials in military programs or otherwise in government control, generated lively discussion. One participant advocated that "weapons and military should be out of the discussion because security is based on different principles." Several people challenged the notion that there is universal agreement that nuclear weapons should be out of the scope, noting that nuclear material is a threat no matter the form or location, as recognized in the first Nuclear Security Summit communiqué; all weapons-usable nuclear materials are mentioned in UNSCR 1540; and within the Global Partnership, Germany has a program to secure Russian nuclear weapon storage sites using Black Box technology.

Acknowledging the difficulty associated with the issue, Rohlfing noted the need to think about what can be done in a way that does not compromise a state's security of its military programs. At the same time, she asked whether there are steps which can provide assurance that systems are in place for nuclear weapons, perhaps not yet cooperatively, but that "can be done individually in a way where confidence is increased." Noting that only 15% of nuclear material is covered under safeguards (which do not address actual security of materials), she asked, "Is it good enough to secure 15% of nuclear material or should we at least, on an aspirational basis, be thinking in terms of a system that provides a benchmark or set of best practices for material in military programs, even if actions are taken nationally without cooperation?" Another participant suggested that "things can be done on a national basis and on a confidential, careful bilateral basis that protects everyone's security interests," pointing to cooperation between the United States and Russia as an example.

One participant noted that the "appetite for international cooperation on security of nuclear weapons or nuclear material in military use is much less than the appetite for strengthening cooperation and instruments for dealing with civil nuclear material that is weapons-usable." Therefore, when establishing priorities for 2014, the international community is "naturally drawn to civil [material]," largely because it is easier to make progress on civil material than nuclear weapons because of "sovereignty and the secret nature of military programs." One participant noted that to reach comprehensive coverage, ratification of the 2005 Amendment to the CPPNM should be a central task because it expands coverage from

nuclear material in transit to nuclear material in use and storage and includes the IAEA's Fundamental Principles.

Other Comments

The following other comments were made:

- One participant was concerned that the discussion of best practices and adequacy of security assumed "that if we get it right, we'll get it right." Rather, best practices should "include a commitment to emergency response and warning—and an assumption that it won't be perfect."
- One participant remarked that institutions such as NTI should develop concrete recommendations for the Summit. Rohlfing noted that the process for developing recommendations within the Global Dialogue process is one where recommendations are made by a "vast group of voices" which would be "stronger" than recommendations made solely by NTI or another NGO. Recommendations "have to be embraced and invented by the community responsible for implementing them."
- One participant pointed to the problem of terminology and the need for consistency, noting that you can find the terms "system," "architecture," and "regime" used broadly and interchangeably.

Identifying Practical Steps to Strengthen the Global Nuclear Security System: Breakout Sessions

Following the two plenary sessions, participants were assigned to groups that met in separate breakout sessions. The purpose of the breakout sessions was to allow participants to take a deeper dive into the issues raised in the plenary sessions and the white paper. The four sessions were:

- Topic 1: Internal Assurance and Accountability
- Topic 2: International Assurances
- Topic 3: Strengthening the Global Nuclear Security System: Opportunities and Challenges
- Topic 4: Continuing the Nuclear Security Mission.

The objectives of Topic 1 were to:

- Reach a common understanding of the central element to creating internal assurance and accountability
- Develop a list of practical proposals for helping states strengthen their internal assurance and accountability mechanisms.

The objectives of Topic 2 were to:

- Reach a common understanding of the extent to which states have a security interest in knowing how effectively other states manage their security without those states disclosing sensitive national security information

- Reach a common understanding of existing mechanisms for providing international assurances and their limitations
- Develop a list of ideas of how states can provide international assurances and a list of opportunities for advancing practical proposals.

The objectives of Topic 3 were to:

- Reach a common understanding of the challenges to a strengthened global nuclear security system
- Develop a list of practical proposals of what states could do individually or in groups to strengthen the global nuclear security system.

The objectives of Topic 4 were to:

- Reach a common understanding of the kinds of interactions and processes that are needed to continue the nuclear security mission
- Develop a list of processes, institutions, or tools that need to be strengthened or created, and a list of opportunities and specific proposals for advancing key ideas.

Breakout Session Report Out and Reactions

On the morning of Wednesday, July 25, volunteers from the four breakout sessions presented their findings.

Topic 1: Internal Assurance and Accountability

The presenter first distinguished between two groups of individuals that could be assured at the country level. The first group included those involved at all levels at facilities with nuclear materials, e.g., security managers and the CEO or board of directors of a company, policy and political leadership, and law enforcement and security institutions. The second group was the public. This analytical distinction was made because of divergences in the levels of disclosure necessary to provide assurances to different audiences. To assure the first group, extensive nuclear security information could be shared for assurance purposes because of the ability to prevent widespread dissemination. However, to assure the broader public, more limited levels of information could be shared for assurance purposes while keeping the most sensitive information protected.

The presenter then outlined the benefits and cautions of assurance mechanisms needed for both groups. For the first group, the presenter outlined the following benefits of internal assurances:

- Essential for achieving high performance
- Accountability for job performance
- Enhancement of security culture
- Image and reputation, including commercial standing

- Protection of investment
- Reduction of risk of operations interruptions and assurance of production goals (both in daily operations and in the long term in the case of a major incident)
- Pride in carrying out security obligations.

The presenter cautioned, however, that limiting the number of people with access to sensitive information may limit the independence of oversight, and burdens felt from carrying out security obligations may be perceived as imposing constraints on the organization's main missions.

For the second group, the presenter outlined the following benefits of a robust internal assurance mechanism:

- Transparency can build public confidence
- Validation of the system from outside actors
- Ability to respond to minor incidents before they become major incidents
- Gives countries standing to demand higher standards from others and to set an example.

The presenter then identified the following cautions:

- The need to protect confidential information
- The public may be suspicious of secrecy even if it is appropriate
- There is potential for misuse of the assurance process for political purposes
- Track records can skew public opinion and lead to a lack of trust
- "Matters of concern" can be exaggerated by the public and perceived as security weaknesses
- Exercises and performance test results can be misunderstood.

Noting the importance of a regulator in any system of internal assurance, the presenter then listed some characteristics of a credible regulator of both civil and government operators:

- Independence (from politics, those subject to oversight, and, perhaps, government)
  - The presenter noted that this quality might not be possible or desirable for materials under government or military control.
- Consistency and fairness
- Technical and managerial competence
- Appropriate balance of transparency and information control
- Effective industry outreach and communication
- Adequate resources, including equipment, personnel, and training.

The presenter noted that providing internal assurances has inherent implications for international assurances, namely, that internal confidence in the system is critical for providing international assurances: a state cannot assure others without being assured itself. Moreover, IAEA IPPAS missions and other mechanisms for international assurance can also enhance internal assurance, and ratification of international legal instruments or requests for IPPAS missions can also assure the public. Finally, the presenter contended that for international assurance purposes, countries can describe the programs

and processes (not specific measures) it has set up to provide internal assurances in a way that does not reveal too much detail.

Keeping these in mind, the presenter proposed the following practical steps to lead to better internal assurance and accountability:

- Visible metrics for security performance should be defined and recognized by management and incorporated into board oversight
- Security systems should be integrated into the management structure
- Incentives should be provided for those responsible for security to do well and report problems
- There should be internal peer reviews using a structure similar to the Institute of Nuclear Power Operators, which promotes nuclear safety
- There should be more networking among security professionals to exchange operating experience
- There should be a domestic advisory committee to evaluate security performance
- There needs to be regular, realistic performance testing, including force-on-force exercises
- Emergency response forces should be specially trained to respond to nuclear incidents
- There needs to be improved interaction between safety and security communities
- A national day of security awareness could educate the public, providing an additional layer of accountability to the public
- Regular reports on security should be provided to senior government officials
- Information on threats, incidents, and lessons learned should be shared between civilian and government operators
- Bilateral cooperation agreements should incorporate security requirements and require validation that these requirements are being met.

The presenter noted that some participants in the group, though not all, thought that finding a common definition of UNSCR 1540's obligation for "appropriate effective" security and accounting was important.

In the discussion that followed the presentation, the distinction between materials in civilian control and materials in government or military control was raised again. One participant posited that some of what is do-able for civilian materials would be do-able on a smaller scale for the military but that exchanges between a couple of countries would be more realistic. Another participant contended that because civilian and military are different fields—with the military having strict rules and lines of command—it would be difficult to apply the recommendations to the military.

One participant suggested the creation of an International Organization for Standardization (ISO) standard which would incorporate a common definition and allow that standard to be developed, implemented, and audited. The same standard would be applied across the board, have brand identity, and could be incorporated into the government procurement channel to incentivize good behavior. Another participant responded that having one standard for everyone does not take into account different practices in different countries.

One participant suggested the need for different levels of oversight, for example different reports to different parts of the government. He recognized the importance of boards of directors who are accountable to the public and suggested that security could be part of risk management and insurance risks. Another participant agreed that a risk management framework would be useful. He described the recommendations as a "menu of assurances that can be used in a scaled way depending on the material you are trying to protect."

One participant suggested undertaking research to determine what the most important elements on the list are and to answer how to differentiate and prioritize between military systems and non-military material.

Topic 2: International Assurances

The presenter began by highlighting a debate within the group about whether the term "international assurances" referred only to voluntary actions such as confidence-building measures or if it also encompassed treaty-based requirements, keeping in mind the different practices in different countries. Ultimately, the group agreed that providing international assurances through confidence-building measures was the correct approach, at least in the near-term, because it would demonstrate transparency within the limits states are willing to undertake.

The presenter noted that existing mechanisms include IPPAS and INSServ missions and World Institute for Nuclear Security (WINS) measures. At the moment, states determine whether to publish reports to the international community, but the presenter observed that doing so could provide additional assurances. The presenter suggested some new mechanisms, including a security training and certification program to create a cadre of people who have undertaken training to a level where they are able to review the state's program internally (i.e., to provide trusted agent review within the state), bilateral or multilateral exchanges of best practices (either within the CPPNM, WINS, UNSCR 1540, or some other forum), and a self-assessment mechanism from the IAEA that could be used and published externally.

The group's practical proposals centered around what Nuclear Security Summit participants could commit to, including IPPAS missions at regular intervals; networking through Nuclear Security Support Centers and Centers of Excellence, which would allow security professionals to speak to one another and provide an understanding of states' best practices through training missions; agreements among states to participate in a best practice sharing mechanism; and publication of states' nuclear materials security regulations, which some states already do.

The presenter also proposed some areas of research to further develop these ideas, including the use of DBT methodology in developing insider threat standards (the group noted that most countries do not protect against this), information security, i.e., assessing what information needs to be kept secret and what can be shared, and what a best practice sharing mechanism would look like. The presenter suggested that we explore how Nitze criteria for effective verification (versus perfect verification) could be applied to international assurances. Nitze was trying to combat the concept of "perfect security." Instead, states should be able to detect with high confidence the degree of violation that would be

harmful to security. The question posed by the group was "how can this kind of standard be applied to nuclear security?"

In the discussion that followed, one of the group's participants noted that states need to have full assurances that they are being proper custodians of their own material in order to give confidence to other states.

Another participant suggested adding to the list of practical proposals bilateral security cooperation (such as that undertaken by the United States and Russia) and publication of reports from national regulators and conference papers.

Finally, another participant asked whether the group had considered incentive mechanisms. Rohlfing suggested that this was a good idea and that another area of research would be to examine potential incentive mechanisms for countries to provide international assurances.

Topic 3: Strengthening the Global Nuclear Security System: Opportunities and Challenges

The presenter opened the presentation by enumerating challenges the group had identified. These were separated into two categories: overarching issues and specific issues. Overarching issues identified were:

- Finding the balance between state responsibility (i.e., a state's responsibility to secure its nuclear material and facilities while protecting certain information) and international assurances
- Different perceptions of the threat between countries and within countries
- Lack of political will (the country recognizes the threat and takes no action) and complacency (the country does not recognize the threat)
- Competing priorities exacerbated by resource constraints and a lack of capacity
- Failure to implement commitments.

Specific issues identified were:

- Sabotage
- Insider threats
- Lack of data to track illegal movement of material and avoid false positives that stop the flow of trade and shipments
- Interagency and institutional challenges (i.e., when several agencies are working on the same issue, the need to work together)
- States that believe that nuclear-weapon states are not the primary concern.

The presenter described some of the practical ideas formed during the session. The group found that it would be more effective for states to work together either bilaterally or in small groups to commit to confidence-building measures than to try to reach consensus for global action, at least in the near term. Like-minded or similarly situated states with comparable levels of infrastructure or common interests (e.g., nuclear-weapon states) could make commitments to each other to share practical information, or

commit as a group to take measures in specialized areas (e.g., specialized commitments made in gift baskets at the last Nuclear Security Summit), agree to standards for implementation, or invite a certain number of IPPAS missions within the next two years, for example.

The group also advocated an IPPAS pilot program which would encourage more missions, perhaps starting small with one plant to alleviate concerns about national security, and sharing of reports or parts of reports of these missions, where possible.

Other recommendations were:

- A ratification conference for the 2005 Amendment (reflecting a point made in the previous day's discussion about the importance of the 2005 Amendment)
- Dialogue and exercises to highlight the changing nature of the threat, recognizing that the threat is not static and the response should be flexible and dynamic
- Identification of technology, given the importance and potential of technology for implementing security objectives
- Reinforcement of norms against state-sponsored terrorism beyond Article 51 of the UN Charter and UNSCR 1540.

In the discussion that followed, one participant liked the idea of small groups of countries joining together to make commitments and suggested that in 2014 there would be more possibility for countries to make greater use of gift baskets. For example, countries could agree on a base level of protection but countries with higher risk could agree to go further. Countries could announce together that they will meet certain standards, provide certain assurances, or make other commitments, and invite other countries to participate, offering financial and other assistance for them to do so. The participant labeled these as "coalitions of the willing."

In reference to the lack of data to track material, one participant noted that it is a complicated process to find material that we do not know about in transit. As he put it, "knowing about unknowns is very complicated."

Another participant suggested that institutions are a key component of the system and that the United States should look at whether the Nuclear Security Summit is an opportunity to strengthen the existing institutional infrastructure (e.g., the United Nations, the IAEA, and INTERPOL).

Topic 4: Continuing the Nuclear Security Mission

The presenter started the presentation by listing existing interactions and processes that currently support the nuclear security mission, including the Nuclear Security Summit process, international legal obligations in the form of treaties, voluntary measures, and services and guidance provided by institutions like the IAEA and WINS.

The presenter identified several characteristics of the existing system necessary to continue the mission in a world with or without the Nuclear Security Summit. The first characteristic is a sense of urgency about nuclear security and an understanding that nuclear security is an issue that deserves attention

and should not be seen in competition with other global problems. The second characteristic is the existence of a mechanism that rewards countries as well as creates incentives for the nuclear industry and sets deadlines to drive action. A third characteristic is interactivity among governments, experts, NGOs, and the nuclear industry as a means to support the nuclear security mission. The group agreed that the Summit process has been a catalyst for governments to internally assess and organize themselves and for international cooperation. The group emphasized that Summits are political events as well as technical events which underscores importance and creates visibility.

The presenter identified several challenges to continuing the nuclear security mission:

- The difficulty in assessing whether existing processes and interactions are sufficient for continuing the nuclear security mission
- Maintaining political will and momentum at the right level
- Despite success in identifying important issues to address at the two Summits, the difficulty in actually crafting solutions and implementing ideas
- The difficulty presented by countries with different perceptions of the threat.

The presenter noted several proposals:

- Incentives for both governments and industry, whether political or commercial, such as awards
- Noting the importance of governments and industry making public commitments, making greater commitments at the 2014 Summit with a focus on coalitions, regional groupings, and countries that are neighbors
- Regular peer reviews by the IAEA, regional partners, and neighbors
  - The presenter noted that such peer reviews help ensure effective nuclear security culture and anchor security in social values.
- Strengthen and test emergency response mechanisms, pursue education, training, and capacity building through Centers of Excellence, and continue engagement between NGOs and industry and governments.
  - The presenter noted that such engagement supports a sense of urgency, raises awareness, highlights progress, and creates an environment for internal and international assurance.

The presenter ended by identifying issues that require further discussion, including the role of the IAEA in nuclear security (e.g., how would an expanded nuclear security role affect its broader mission; what resources and staffing would be needed), and the need to focus on implementation (e.g., the need to connect political decisions to implementation; the relationship between minimum standards, best practices, and enforcement).

In the discussion that followed, one participant asked whether the group had considered the distinction between summits, ministerials, or other levels of hierarchy. One participant from the group noted that it had considered whether to add a ministerial day to meetings but questioned whether that would attract the right level of attention.

One participant felt that having a "flow of summits down the road dilutes opportunities." The challenge would be to maintain a high level of interest, especially if progress is not made, and that some mechanism to do so, such as giving awards, could mitigate this challenge. Another participant suggested that ambition could provide sustainability to the Summit process, while another agreed on the need for incentives.

One participant noted that the Summit process provides urgency, accountability, and ambition. To preserve urgency is a challenge "because every day can't be the most important day of your life." The participant proposed that urgency be considered through the lens of sustainability of the security mission and accountability.

Two participants questioned how to get other countries to join the process and gain buy-in from states who have not participated in the Summit process. One participant doubted that buy-in could be obtained through the Summit process or that the Summit could lead to a global consensus. Instead, he suggested that buy-in needs to come through international organizations that include all states so that states do not have the excuse that they did not participate.

Other Comments

Some other general ideas were offered near the end of the session.

One participant suggested using the Financial Action Task Force (FATF) as a model for peer review. FATF members review each other and publish the results. He also noted that in civil aviation, countries review one another to ensure that another country's security, or lack thereof, does not negatively impact their own security.

Another participant stated the need to consider threat evaluation and perception via objective discussions and exchange of information. He asked whether any existing international organizations could fulfill this role and noted the difficulty of sharing security information and intelligence reports.

Additional Presentation

At the close of the session, one participant offered some views on the role of technology in reducing risks particularly in the face of the rapid growth of nuclear power as a way to combat climate change. The participant noted that reactors could be designed to make them virtually immune to an insider threat and that using Thorium makes the fuel cycle proliferation-resistant.

Recommendations and Next Steps

In the final session of the Global Dialogue, "Recommendations and Next Steps," Rohlfing reminded the group of the objectives of the meeting and expressed satisfaction that the group had met those objectives. She summarized themes that had emerged during the discussion as well as open issues.

Themes

A number of themes that had become visible during the meeting were identified:

Strengthening the System

- The group agreed on the need to strengthen the global nuclear security system, but the question remained, how do we get there?
- The group agreed on the importance of international assurances, though not necessarily the depth, scope, or mode of assurance, and identified a linkage to internal assurances.
- One key theme that arose was that of determining priorities, especially given a lack of resources or capacity and the need to allocate those resources and capacity based on the greatest risks.

Strengthening Practices and Institutions

- More than once, the utility of IPPAS missions as a form of peer review was discussed, both in the plenary sessions and the breakout sessions.
- The value of interaction among practitioners, operators, and policymakers emerged on multiple occasions. It was the view of many participants that networking and information sharing between peer groups could provide a forum for sharing of best practices.
- A related theme that emerged from the meeting was the importance of relying on "coalitions of the willing"—i.e., like-minded or similarly situated states that could work in a bilateral, regional, or multilateral fashion—to strengthen nuclear security, rather than striving for consensus. Coalitions of the willing might make commitments to abide by certain best practices or minimum security standards, to welcome IPPAS missions or other forms of peer review, or to share reports and information, among other ideas, and invite other countries to join those coalitions.
- There was acknowledgement of the need to strengthen institutions, both at the international level and the national level. In particular, at the international level, participants noted the key role the IAEA has to play in nuclear security and the need for increased resources for the IAEA to fulfill this new role. WINS is another such institution. Nationally, participants noted the importance of strong institutions at home to regulate nuclear security.
- Many participants identified incentives and rewards as a way to encourage strengthened nuclear security, both of a political and economic nature.

Lessons from Nuclear Safety and from Other Industries

- While the Global Dialogue focused on nuclear security, the issue of nuclear safety became a recurring theme. Participants saw parallels between nuclear security culture today and nuclear safety culture two or three decades ago and discussed how to learn from the nuclear safety arena. Another participant noted that while nuclear safety is seen as a personal responsibility as well as an organizational responsibility, security is seen as an organizational responsibility, not a personal responsibility. Another noted that in nuclear safety, the industry came to realize that safety was part of its mission, not something done simply to follow government requirements.

While nuclear safety developed partly in response to accidents, one participant called for heightening the evolution of nuclear security without waiting for an incident. Finally, one participant noted that safety has improved because utilities realized that their investments were at stake, pointing to organizations like the World Association of Nuclear Operators (WANO) that show a great amount of cooperation within the nuclear industry on safety. Another participant noted that establishing effective mechanisms for peer review, cooperation, and standards of excellence led to dramatic improvements, demonstrating the importance of establishing such frameworks and institutions in the field of nuclear security.

- Participants noted other industries from which we could draw lessons, such as non-nuclear security and aviation.

The Role of Technology

- Many participants noted how science and technology can strengthen nuclear security. One participant noted the concept of "inherent security" or "security-by-design"—i.e., risk reduction through technology, building design, and consolidation, among other things.

Open Issues

While many common themes emerged, it was noted that there were several open issues where participants could either not reach consensus or that warranted further consideration.

Distinctions in Use and Possession

- There was notable disagreement on whether materials should be treated differently depending on whether they were in government, military, commercial, or civil use. Opinions ranged from wanting to exclude material in military programs from the focus of international efforts to merely highlighting the difficulties of including such material, given additional sensitivities and secrecy surrounding military programs. One participant recommended moving on a dual track, establishing separate frameworks for civilian material and military materials or more complex facilities. He suggested that using a differential approach would be less difficult than establishing a common framework.

Threat Perception and Definition

- There was an acknowledgement that there is an uneven perception of the threat, with some states not perceiving that they are under threat from nuclear terrorism and others feeling this threat acutely. One participant noted that threat perception is not well understood and that an area of further analysis would look at what instruments could develop a broader understanding, acceptance, and response to the threat. He suggested that sending countries a list of ten questions could enhance their own awareness. Another participant followed up and suggested the need to compile a much stronger database of incidents that have occurred to learn lessons from them. Another participant noted that we need to understand the threat to give meaning to security, but that threat perception and definitions are difficult to share and highly confidential,

making international assurances difficult. In dealing with the insider threat, he raised several issues: Should there be strict checks for trustworthiness? Should there be two-man rules? Under what rules of engagement are guards authorized to respond? How do guards coordinate with outside contingency forces and what is the response time? Who is responsible for response and mitigation?

Standards and Best Practices

- Some participants believed the goal of developing base-line standards was the correct approach, while others believed that promulgation of best practices would be more effective. One participant noted that history shows that both are necessary and feed off one another. He used the example of the CPPNM and INFCIRC/225, with the CPPNM acting as a base-line standard and INFCIRC/225, which is voluntary and more detailed, serving as a set of best practices. Another participant offered that a base-line standard is itself a best practice. A third participant pointed to quality assurance as an example of base-line standards versus best practice, noting that there is a base-line level of quality assurance, but rewards and incentives lead people to meet best practice.

Future of the Summit Process

- The group identified as a clear challenge how to maintain the "urgency, ambition, and accountability" of the Summit after 2014. Moreover, participants noted the need to gain buy-in from states that have not participated in the Summit process and to make the process more inclusive. Another participant noted that the need to universalize the Summit depends on the goals. If the focus is on the security of HEU or separated Pu, the Summit is only relevant to countries that have it. A broader focus might include countries with nuclear power plants. Yet the vast majority of countries have neither. Therefore, instead of a general desire to universalize the Summit, the question should be what aspects of the Summit are relevant to particular countries?

Common Lexicon

- Finally, participants highlighted the need to ensure more precise and consistently applied terminology.

NEXT STEPS

A number of participants noted that the next meeting of the Global Dialogue would ideally take place well before the next Sherpas meeting in November 2012 to provide an opportunity to further shape participants' thinking. NTI agreed to consider what further analytic work needs to be done to further develop the ideas that emerged from the meeting and to be in touch with participants regarding a summary of the meeting and planning for next steps.