2nd GLOBAL DIALOGUE ON NUCLEAR SECURITY PRIORITIES

October 9-11, 2012
Mooirivier Hotel and Congres
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RAPPORTEUR'S REPORT

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EXECUTIVE SUMMARY

Impetus for the Global Dialogue on Nuclear Security Priorities

After the 2012 Nuclear Security Summit, two issues emerged: (1) the need for a strengthened global nuclear security system and (2) the need for an integrated discussion among government officials, experts, nuclear security practitioners, and other stakeholders about how best to strengthen the global nuclear security system as it pertains to weapons-usable nuclear materials. To address these issues, NTI initiated a Global Dialogue on Nuclear Security Priorities of leading government officials, experts, nuclear security practitioners, and other stakeholders to build consensus on elements of a comprehensive global nuclear security system.

Five Characteristics of a Strengthened Global Nuclear Security System

At the first meeting of the Global Dialogue on Nuclear Security Priorities in Warrenton, Virginia, on July 23-25, 2012, NTI proposed five characteristics of a strengthened global 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 international standards and 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.

The meeting concluded with strong agreement about the need to strengthen the global nuclear security system. To further advance the nuclear security mission, participants wanted the next Global Dialogue discussion to focus on further developing several of the concepts listed above, in particular the role of

best practices, international assurances, and comprehensiveness. In addition, participants indicated an interest in jointly working to identify near-term steps that states could take to advance these broad concepts.

Meeting Objectives

The objectives of the second meeting of the Global Dialogue on Nuclear Security Priorities were to:

- Build greater consensus on the elements of a strengthened global nuclear security system
- Based on the outcomes of the first meeting, further develop and prioritize tangible proposals
- Further strengthen our integrated platform for discussion among government officials, experts, nuclear industry, and other stakeholders.

Meeting Results

At the second meeting of the Global Dialogue on Nuclear Security Priorities in Dalfsen, Netherlands on October 9-11, 2012, the participants advanced thinking on: (1) the role of best practices and standards in strengthening security; (2) the global security benefits of international assurances; and (3) the feasibility of achieving a system that is comprehensive in its coverage of all weapons-usable nuclear materials, including materials outside civilian programs. In addition, the group considered initial proposals for actions states could take individually or collectively to animate the three characteristics associated with the issues above (best practices, international assurances, and comprehensiveness).

Participants also worked together to generate tangible proposals for (1) prospective international priorities for strengthening the nuclear security system; (2) actions states can take, either individually or in groups, to strengthen the global nuclear security system; and (3) actions that can be taken across sectors, including actions by industry, non-governmental organizations, and international organizations, among one another or in cooperation with states.

2014 Nuclear Security Summit Priorities

The participants reaffirmed that a top-level priority for the 2014 Nuclear Security Summit should be to seek the commitment of participating states to strengthening the global nuclear security system. In conjunction with that commitment states should define a set of principles to guide the future architecture of such a system. Regarding those principles, there was conceptual convergence around the five characteristics proposed as part of the Global Dialogue process, with one notable addition to the second characteristic to incorporate a widely shared view that the system should employ international standards as well as best practices.

International Assurances

There was also widespread agreement about the value of developing a range of voluntary international assurance measures for states to undertake individually, bilaterally, or multilaterally. For instance, in the second white paper distributed before the meeting, seven discrete and illustrative proposals were offered for discussion:

- Information sharing
- Expanding IPPAS and other peer review mechanisms
- Globalizing the sharing of best practices
- Physical protection assessments
- Certification
- Trusted agent
- Bilateral cooperative programs.

The proposals are described in detail in the white paper. As a next step in the Global Dialogue process, states could consider advancing various assurance mechanisms through further work with experts, nuclear security practitioners, or other states in further developing them with an eye toward offering gift baskets at the 2014 Summit.

Comprehensiveness

A great deal of progress was made in improving the group's understanding about what comprises materials outside civilian programs. This category of non-civilian materials represents 85 percent of total weapons-usable nuclear materials. However, to describe that 85 percent as "military material," as is often the case, is a misnomer because not all of this material is used for military purposes. Participants agreed that it was important that the 2014 Nuclear Security Summit show some action related to assuring the security of this category of material. As one option for advancing this, the group identified the development of a gift basket by some combination of nuclear-armed states. Some participants agreed that doing so would be perceived as important by non-nuclear-weapon states.

The Role of Best Practices

There was agreement that best practices are an essential complement to internationally accepted standards and guidelines. However, more work needs to be done in advancing government understanding about how best practices can play a role in accelerating on-the-ground implementation of nuclear security. Considering the necessary lag time in updating standards and guidelines, wider acceptance and implementation of best practices are an important additional tool for a comprehensive strategy for addressing the dynamic nature of the threat. With the creation of new capacity in the nuclear security field (which has been historically resource constrained) with institutions like the World Institute for Nuclear Security (WINS), both governments and nuclear security practitioners should make use of every resource available to ensure an environment of continual improvement in their nuclear security enterprises. Participants also suggested that governments should remove barriers to facilitating the exchange of best practices.

Next Steps

NTI intends to convene the Global Dialogue one or two more times in the first half of 2013. As part of the ongoing support of the Global Dialogue process, NTI will continue to assess additional analytic needs. Participants are also invited to give their suggestions and priorities to NTI.

All participants, particularly those who are part of the official Nuclear Security Summit process, are urged to widely share the proposition of a strengthened global nuclear security system along with attendant and relevant practical proposals. To that end, we plan to launch a project page on the NTI website on the Global Dialogue which will describe the project, the not-for-attribution nature of the discussions, and make available several resources such as the Nuclear Security Primer, the two white papers, and Senator Nunn's opening remarks from the first meeting of the Global Dialogue. We will also make available on the website four, short, executive-level, non-branded "non-papers" addressing the following issues:

- The Need for a Strengthened Global/International Nuclear Security System/Framework
- The Strategic Value of Best Practices for Nuclear Security
- Comprehensiveness: Understanding Non-Civilian Nuclear Materials
- Practical Proposals for Providing International Assurances

We look forward to continuing to be in touch with you as we plan for the next stage of the process.

FRAMEWORK FOR DISCUSSION

Prior to the second meeting and to inform discussions, participants in the Global Dialogue were provided with an NTI white paper, "Options for Strengthening the Global Nuclear Security System."

The purpose of the NTI white paper was to advance the group's thinking on three of the key issues that emerged from the first meeting of the Global Dialogue and for which no other fora currently exist. In particular, the white paper addresses (1) the role of best practices and standards in strengthening security; (2) the global security benefits of international assurances; and (3) the feasibility of achieving a system that is comprehensive in its coverage of all weapons-usable nuclear materials, including materials outside civilian programs. The white paper provided practical proposals for illustrating actions that states could taking individually or in cooperation with other states to animate specific characteristics of a strengthened global nuclear security system.

GLOBAL DIALOGUE ON NUCLEAR SECURITY PRIORITIES MEETING, OCTOBER 2012

Below is a session-by-session report on the October 2012 Global Dialogue meeting.

Strengthening the Global Nuclear Security System

The purpose of the first session on Wednesday, October 10, titled "Strengthening the Global Nuclear Security System" and led by NTI President Joan Rohlfing, was to review the five characteristics of a strengthened global nuclear security system discussed in the first meeting of the Global Dialogue, areas of consensus or convergence from the first meeting, open issues from the first meeting, and the

objectives of the second meeting of the Global Dialogue.

Rohlfing identified the key areas of consensus and convergence from the first Global Dialogue meeting. There was agreement on the:

- Need to strengthen the global nuclear security system
- Importance of international assurances, though more work needs to be done to better define "international assurances" so that states feel comfortable in contributing such voluntary measures. Rohlfing affirmed the need to identify specific ways that states can offer international assurances while respecting that some sensitive information should remain classified.
- Value of peer reviews and, specifically, support for increasing the number of IPPAS missions
- Value of "coalitions of the willing" because much can be done by states in different configurations: bilaterally, regionally, and multilaterally
- Need to strengthen institutions that support nuclear security both internationally and nationally
- Importance of learning lessons from other industries, including nuclear safety, on how to improve security.

Rohlfing then noted several open issues from the first Global Dialogue meeting:

- Some had questioned the feasibility and/or desirability of bringing non-civilian materials into the discussion (i.e., moving toward a comprehensive system).
- The role of standards versus best practices was not fully understood.
- There was no agreement on how to achieve international assurances while protecting sensitive information.
- There was a need to develop consensus around international priorities.
- What the follow on process to the Nuclear Security Summit process would be was left unanswered.

Finally, Rohlfing described the goals of the second meeting. The first goal was to further explore the:

- Role of best practices and standards in strengthening security
- Global security benefits of international assurances
- Feasibility of achieving a system that is comprehensive in its coverage of all weapons-usable nuclear materials, including materials outside civilian programs.

The second goal was to develop concrete proposals for:

- Prospective international priorities for strengthening the nuclear security system
- Actions that states can take, either individually or in groups, to strengthen the global nuclear security system
- Actions that can be taken across sectors, including actions by industry, non-governmental organizations, and international organizations, between one another or in cooperation with states.

Although it was not the focus of the agenda for this meeting, one notable comment in the discussion that followed was about the Nuclear Security Summit process after 2014. One participant reminded the group that when the first Nuclear Security Summit was held in Washington, D.C., people did not envision that it would continue indefinitely. He suggested that the country hosting the last or penultimate summit should think about how to wrap up the summit process and what actions should follow. He pointed to the need to reach consensus on this within the summit process and that one idea is to find commonalities in the achievements of the summits and bring them to the IAEA. He described how the 2012 Nuclear Security Summit recognized the central role of the International Atomic Energy Agency (IAEA), but argued that the IAEA is not ready to play a central role in nuclear security. He instead recommended that the IAEA needed a "new and strong mandate" and more personnel. As the summit-participating countries represent only part of the membership of the IAEA, the rest of the membership of the IAEA should be consulted early and widely about the prospect of the IAEA assuming additional nuclear security responsibilities after the 2014 Nuclear Security Summit process.

The Role of Best Practices in Strengthening Security and Increasing Assurances

William Tobey, Senior Fellow at Harvard Kennedy School's Belfer Center for Science and International Affairs led a discussion of the role of best practices in strengthening security and increasing assurances.

Tobey began by noting that "best practice" is an overlooked and abused term. He defined best practice as "a method empirically proven to yield excellent results to accomplish a stated objective." He then described the methodology to derive a best practice. It first requires stating a goal—i.e., asking what do you want to accomplish? Second, known efforts in pursuit of that goal should be surveyed. Third, a method yielding exceptionally successful results in achieving that goal, as well as other universal criteria (e.g., efficiency), should be identified. Fourth, specific means to success—i.e., why a practice works—should be documented. Finally, testing the conclusions in an objective manner should be attempted.

Tobey then offered several characteristics of best practices:

- Empirical—Best practices are built on experience. They are not derived from law or logic but on what we do.
- Inductive—Best practices are based on a probabilistic set of judgments, not a certain logic or knowledge.
- Relative—Best practices involve the best known practices but not necessarily the ideal.
- Dynamic—Best practices change as knowledge advances.
- Tacit—Best practices involve "know how" not "know what." The example used was to contrast a written drivers test (the "know what") to being able to parallel park (the "know how").
- Distributed—Best practices concern a wide range of areas which affect each other, e.g., information security, physical security, etc.

Tobey suggested that three characteristics—inductive, relative, and dynamic—require humility and persistence from practitioners. In other words, just because something is best does not mean it is ideal.

Instead, it means that the practice in its current states works well, but could change. Moreover, practices should change because persistence is necessary for improvement.

Tobey called on three individuals for comment based on their own experience and knowledge.

The first person asserted the need for a standard that is the minimum required but also for best practices to encourage exceeding the standard. Using the example of armed officers at nuclear facilities, the participant said officers should be able to meet the standard "in the middle of the night with a head cold," i.e., something that can be achieved with no difficulty and no remedial training. Best practices would then encourage officers to go beyond the standard, perhaps by offering incentives.

The second person started by noting the difference between "best" and "better." He suggested that the purpose of best practices is to encourage an atmosphere of continuous improvement. In that environment, a best practice will not always be a best practice because practices become better. He also argued that best practices do not need to be the most expensive practices and that "it costs you as much to manage a security program badly as it does to manage it well." He asserted that best practices develop from practitioners talking to one another and that there needs to be a way to allow them to do so without becoming nervous. He noted that nuclear security has much to learn from other industries and that although nuclear security professionals complain they are overregulated, in truth nuclear security is a long way behind other industries. He also proposed the need to encourage dialogue by encouraging people to think independently. He suggested asking people who are new to nuclear security jobs to read the WINS guides and perform the assessments contained within the guides.

The third person remarked that the relationship between standards and best practices is like the chicken and egg problem. He defined standards as documents that codify requirements on what should be done and how to do things. Yet, he urged that there are different ways to do things and therefore there may be different practices. He suggested that standards are not static and have to take into account best practices, yet care must be taken to avoid conveying a message that there is only one set of best practices for everyone.

He also explained that best practices have a role to play in the evolution of standards. As standards are applied, many ways to meet those requirements are discovered, and best practices can be identified. He noted, however, that some practices, while not best practices, could be sufficient to meet requirements. He noted that standards take time to prepare and revise because they require consensus. In contrast, best practices develop more quickly because of a desire to be innovative and to find better ways to meet requirements. In this way, best practices will always be ahead. When standards are revised, however, they take into account best practices and a best practice today could be the standard of tomorrow. Citing IAEA publications, he asserted that publications like implementation and technical guides reflect best practices because they are updated more frequently than the Fundamental Principles which provide the overall framework.

In the discussion that followed, as in the previous session, some common themes emerged and are outlined below.

Terminology

From a strategic perspective, accelerating the use of best practices consistently and globally, as a complement to internationally accepted standards and guidelines, is one of the quickest and most efficient ways for ensuring improved on-the-ground implementation of nuclear security. As such, "the system should employ best practices, consistently and globally" is one of the five characteristics of a strengthened global nuclear security system. This strategic articulation of best practices as a way to improve the implementation of nuclear security at times became lost when the dialogue veered into a semantic discussion about terminology.

One participant preferred to say that the system "should employ *standards* that are recognized internationally." He agreed that it is important to share knowledge but noted that people employ different practices in different countries and industries and questioned whether anyone would know what is "best" when new practices frequently appear.

Several participants disliked the word "best," suggesting that it works better when there is a singular goal (e.g., who is the best sprinter). One participant also suggested that in the context of nuclear security there are a "whole set of conditions" to fulfill rather than a singular goal, and because of the different circumstances at different sites there is no general best practice. In lieu of "best," he proposed instead the phrase "most appropriate practice" to capture the reality that for every situation there is a most appropriate approach.

One participant intervened to suggest that the group, instead of focusing on terminology, not lose sight of the concept and accept that the phrase "best practice" is a term of art used widely throughout industry. She suggested that we should aspire to the best practices available rather than settle for those that are good enough. She proposed that the group focus on why best practices are important and how to expand their application to improve the implementation of nuclear security, which is the ultimate goal of both standards and best practices.

Voluntary versus Mandatory

Several participants contributed to a discussion on whether implementation of best practices should be mandatory or voluntary:

- One participant posited that trying to define or impose a certain best practice would be problematic and that best practices should be aspirational.
- Another participant cautioned that if best practices are too prescriptive and specific, they might meet the same fate as standards, which are less dynamic than best practices and are a "top-down" rather than "bottom-up" approach.
- Another participant stated that the only way to get governments to implement best practices is to have internationally recognized standards and a legal basis for implementation. Other participants disagreed, noting that their countries had voluntarily shared and implemented best practices.

Best Practices in Context of System

One participant put best practices in the context of the entire system, noting that the system includes conventions, the IAEA system, and best practices. She noted that while conventions are less specific, they set out goals in the preambular paragraphs and the majority of states subscribe to them. She remarked that best practices are influenced by the processes and structure of the system. For example, INFCIRC/225 is revised infrequently, but the IAEA's implementation guides, like best practices, set forth how to accomplish INFCIRC/225's objectives. She suggested the need for a better understanding of how these pieces of the existing system work together.

Government and Industry

When one participant attempted to draw a distinction between what governments are doing and what industry is doing, another participant challenged this assertion, pointing out that even when material is owned by a government, private security contractors are often responsible for providing security (for instance, at the Y-12 National Security Complex in the United States). Another participant also suggested that the distinction between government and industry may not matter because best practices take a broader approach and do not define specific measures at specific sites. Therefore, a blurring of the lines between commercial and government practices is appropriate because each sector can learn from the other, using peer-to-peer dialogue and cross-sector interaction. Finally, the same participant suggested that what actually exists is a continuity of responsibility which begins with the government—taking on legal responsibilities—and continues to nuclear security practitioners, sometimes in the nuclear industry, who implement nuclear security on the ground.

Information Sharing and Reporting

The group had a lively discussion of the risks and benefits of information sharing and reporting:

- One participant emphasized that openness on the formulation of best practices and the methodology for creating a security system gives confidence that there is a system that works.
- Another participant observed that sharing knowledge about incidents also promotes sharing of lessons learned. He suggested that security regulators should investigate incidents and produce inquiry reports, similar to what the U.S. Department of Energy did in response to the Y-12 National Security Complex incident. He noted that governments do not like to publish weaknesses or admit that they got something wrong, but that government secrecy is a barrier to the development and sharing of best practices. He noted that for every major incident there may be 100 or 1,000 minor incidents that we can learn from, but that inquiries usually happen only after serious incidents.
- A different participant suggested that at the next Nuclear Security Summit, there should be a principle that more opprobrium should attach to secrecy than to the incident itself.
- Someone else added that during the first Nuclear Security Summit U.S. President Barack Obama was not interested in cataloguing states' achievements, but using states' experiences to identify lessons for the international community. He noted that states did not heed this call.
- Another participant described the risk of governments being defensive and hiding behind the

need for secrecy which prevents spreading knowledge. He made the case that being as transparent as possible by, for instance, publishing reports about incidents would be beneficial and that governments should "be grown up enough" to understand this.

- One participant cautioned that too much transparency could assist those seeking to steal material or breach a facility because of known weaknesses.
- One participant noted that nearly 117 countries participate in the IAEA database (the Illicit Trafficking Database) to promote the sharing of lessons learned and best practices for material outside regulatory control. However, he acknowledged that a system for sharing lessons learned for material under regulatory control is missing. He explained that such a system could only work with government involvement, not just operators.

Standards and Best Practices

One participant said that while governments take on legal obligations through conventions, engagement with the IAEA, and other means, and are held accountable, they usually implement these obligations through regulators. She suggested that commercial actors' ability to implement these commitments also should be held to account. She added that thinking about security responsibilities through a regulatory channel does have its limits. Rather, she proposed, a regulator's responsibilities should be broader than simply carrying out regulatory oversight. Instead, regulators need to see the value in regulated entities doing even better. She suggested that best practices can, and must, be consistent with good regulations, but do not have to be tied inextricably to legal obligations. They are instead a counterpoint to regulation.

One participant remarked that best practices are the driving force to improve standards but that, while there needs to be global consensus and legally binding standards (e.g., through the IAEA), best practices and knowledge need to be shared and improved as soon as possible (e.g., through WINS). Another participant posited that when countries implement standards, they are, in fact, implementing best practices and that this is borne out by self-assessments conducted by countries.

Another participant argued that there is interaction between best practices and standards and the process by which they are reviewed. He added that most incidents he knows of would have been avoided with reviews, including by trusted agents.

Training and Exercises

One participant suggested that training and exercises are means by which to share best practices and that doing so among professionals rather than between governments is more productive. He also highlighted the need for exercises to test training in real-life circumstances. Another participant thought that training academies could be a venue for "road testing" ideas.

Regional Approaches

One participant believed that a regional approach to sharing best practices may have a great advantage because of the understanding of culture, regional particularities, and language. She also suggested that

this approach may also promote recognition that every country has some best practices to bring to the table.

The Roles of the IAEA, WINS, and Other Organizations

There was extended discussion on the role of the IAEA. While most recognized its importance and influence, many also questioned its role in developing and sharing best practices.

One participant noted that while coalitions of the willing are good for progress, eventually practices must be integrated back into the legal system, i.e., the IAEA. Another participant added that the IAEA would be a natural place for sharing of best practices because states can do so at whichever level of openness (or secrecy) they feel comfortable. Similarly, one participant suggested, the IAEA's legitimacy and inclusivity would mean a broad acceptance of best practices developed within the IAEA. Another participant noted that IAEA guidelines already represent best practices to which member states have agreed. Despite this, many participants felt that the IAEA could not take on all of the nuclear security responsibility by itself. One participant cautioned that focusing on the IAEA might dilute some of the cutting-edge nature of best practices because the IAEA requires consensus. While there is a need for authoritative guidance, which the IAEA provides, there is also a need for best practices to create balance.

Some participants felt that WINS also could be a venue for sharing of best practices. One participant agreed that WINS fills a niche that is difficult for the IAEA to do because WINS is able to reach out at the operator level while the IAEA engages at the state level. The IAEA and WINS, therefore, play complementary roles. Another pointed out that the advantage of organizations like WINS is that they spend a lot of time thinking about how best to implement regulations and encourage excellence and can drive programs when there is a lack of political will at higher levels.

Another participant contended that while passing legislation and regulations and having a regulator is important, additional mechanisms are needed to encourage, motivate, and incentivize the people accountable for security and encourage operators to take their roles seriously. He explained that this is similar to the safety model, in which the IAEA recognizes the importance of the World Association of Nuclear Operators (WANO) and is seeking to strengthen this relationship. One participant expressed concern, however, that WANO is "a club" and that sharing only takes place between members of the club, who are operators not regulators, while regulators can share through the reporting system at the IAEA. He acknowledged, however, that sharing between operators is complementary to sharing between regulators.

The Role of Peer Review

One participant suggested that peer review is one way for governments to facilitate sharing of best practices. He pointed to the Netherlands as a model—it asked the IAEA to conduct an IPPAS mission to review physical protection of installations and their effectiveness and intends to share some of the best practices identified with others. He highlighted that more countries are asking for peer review, such as the United States, the United Kingdom, Australia, and France. He also suggested that such reviews

promote confidence in nuclear security.

Another participant made the case that the IPPAS system is powerful because it has the ability to reach the largest possible community (i.e., IAEA members), allows members to share information in confidence, and does not require states to reveal everything, thus providing a balance between openness and secrecy.

Fundamentals Necessary for Best Practice Sharing

One participant asked whether the fundamentals are in place to have a system to seek out good or best practices and, if they are not, to use those as leverage points. He suggested that the fundamentals include (1) a commitment to improvement in a country or at a set of facilities, (2) an awareness of practices that occur in other countries or organizations, and (3) a way to propagate values and commitments from the top level through all levels of an organization (i.e., a management system in place for filtering practices within an organization).

Networking

The importance of networking to share best practices was another theme, with one participant noting that communication between facilities on best practices should be improved, but participants pointed to key barriers.

- Some governments make it difficult for security professionals and practitioners to engage with peers outside of national or bilateral processes. She acknowledged that while these processes are important, governments should consider the value of allowing professionals to engage with one another.
- Some regulators and government agencies conceive of their own mandate as domestic, not international, and do not participate in overseas training or sharing of best practices, despite potential benefits, including testing their own training.

Other participants emphasized the value of reaching out to other entities like WINS or other practitioners to share expertise, suggesting that governments should not work in isolation and should use all the tools and resources available, including international tools (e.g., WINS and the IAEA), operators, and universities.

Other Comments

The following comments were also made:

- One participant suggested that the scope of best practices should include management or specific practices but should not include nuclear technology as this could lead to a "beauty contest" of technology.
- Some participants suggested that greater exchange of information on security incidents with the public and a defense, where justified, of the current system would be positive since the absence of communication implies there is no system in place.

- One participant pointed out that the impetus for improvement usually occurs after an incident but that in nuclear security we need to avoid waiting for an incident.

Tobey wrapped up the session with a summary of the conversation, noting that the IAEA and WINS have a clear understanding of their respective and complementary roles and that they are fulfilling different but important jobs. He also noted that governments need to work harder on how to promote and remove barriers to sharing of best practices, including sharing information.

The Global Security Benefits of International Assurances

Deepti Choubey, Senior Director, Nuclear and Bio-Security, NTI, led the discussion of the global security benefits of international assurances.

Choubey began the discussion with a definition of international assurances:

> *Activities undertaken, information shared, or measures implemented voluntarily by a state or other stakeholders to provide confidence to others (the public, another government, a designated organization, etc.) of the effectiveness of nuclear security within a given state*.

She noted, in particular, the use of the word "voluntarily" and that, while some legally binding measures might ultimately be desirable, it would be helpful to start with voluntary measures.

Choubey explained that the idea of international assurances is not a new concept and that assurance mechanisms are widely used. For example, there are more than 19,000 International Organization for Standardization (ISO) standards in hundreds of fields and ISO uses conformity assessments to provide international assurances that members of an industry are complying with these standards. These conformity assessments can be done through certification, inspection, and testing. She also stressed that commercial competitors are willing to subject themselves to these assessments because they have shared equities and believe compliance with standards is important for public confidence.

Choubey noted that international assurances are important because they build confidence in the effectiveness of the global nuclear security system. She stressed that their purpose is not to make guarantees about specific behaviors. Importantly, she made the case that while nuclear security is a sovereign responsibility, because the consequences of a nuclear catastrophe would reverberate around the globe and shake public confidence in both the nuclear industry and in governments, other governments and the public have an equity in having some insight into how well the global nuclear security system is functioning. International assurances can play a vital role in building confidence among publics, raising the level of practice among governments and industry leaders responsible for nuclear security, and ultimately, yielding important global security benefits.

Choubey then described the seven examples of international assurances that were suggested in the second white paper, "Options for Strengthening the Global Nuclear Security System." These examples

are:

- Information sharing
- Expanding IPPAS and other peer review mechanisms
- Globalizing the sharing of best practices
- Physical protection assessments
- Certification
- Trusted agent
- Bilateral cooperative programs.

She began the discussion portion of the session by calling on two individuals to share their thoughts on the ideas presented.

The first individual discussed peer review. When asked about the difference between the IAEA's IPPAS missions and WINS peer review, he proposed an analogy to nuclear safety: the IAEA's missions look at the way safety is managed, while WANO and the Institute of Nuclear Power Operations (INPO) have programs within operating companies to conduct reviews. He explained that the IAEA's missions are well-planned ahead of time; all of the parties in the requesting state must be comfortable with the review; the member state, not the operator, requests the mission; and the member states choose the facility or part of facility that is being reviewed. WANO, however, is able to go to an organization and conduct its review and talk to anybody, anywhere, about anything and the discussions are private and confidential. In other words, the IAEA and WANO provide complementary processes. Similarly, IAEA and WINS peer reviews can also be complementary, because WINS corporate peer reviews are requested at the operator level. In both cases, he suggested, more resources need to go into peer review.

The second individual, who is familiar with U.S.-Russia cooperation, spoke about the value of bilateral cooperative programs. He explained that the United States routinely works with partners at very sensitive sites which are, by definition, related to weapons of mass destruction and, therefore, deal in expertise that they do not want the "bad guys" to know. He described many positive experiences which can serve as models:

- Senator Richard Lugar (R-IN) visited a Russian strategic offensive missile dismantlement facility in August 2012 and the United States was able to subsequently verify that SS18 and 19 missiles were being dismantled. This gives the United States assurances they will not be used again or find their way to third countries. This was done in a way that prevented public release of information related to that sensitive facility and activities going on inside.
- There is a major project to build a fissile material security storage facility at Mayak with the assistance of a large engineering company. The United States does not have day-to-day access to the facility but is still assured that the facility is being used for its intended purpose, which is to store fissile material removed from dismantled nuclear warheads.
- The United States was involved in a secret project with Russia and Kazakhstan to secure large quantities of plutonium at a test site and was able to do so in a way that prevented terrorists and criminal groups from knowing about the project or the existence of the materials at the site.

It involved the exchange of classified information among three partners through classified channels.

He finished by stating that the United States has been participating in these activities for decades and other activities in the realm of arms control, which require elaborate inspection processes that protect specific information.

Choubey then posed several discussion questions. In the discussion of each question, as in the previous session, some common themes emerged.

QUESTION 1: Does the definition reflect the right concepts and ideas we are trying to capture with this term "international assurance"?

Definition of International Assurances

One participant clarified that international assurances do not need to be limited to voluntary measures but could also result from legal obligations.

Another participant pointed out that the definition mentioned different audiences and, therefore, different types of information would be shared to assure the different audiences.

One participant highlighted the absence of the word "communication," suggesting that communication, in particular two-way communication, is important for assurances.

Another participant thought that the language "to provide" did not fully capture the purpose of sharing information. He suggested that the purpose is to strengthen internal systems and that providing confidence is a by-product of doing so. He suggested that the definition should read "that provides" rather than "to provide."

One participant highlighted the absence of the word "international," stating that assurances must be international and cannot simply come from one state. There was not common agreement on this point as some of the options for providing international assurances can be undertaken by states individually or in cooperation with others.

Information Sharing

One participant suggested that information alone is not enough and that it needs to be independently validated to provide confidence that another state's system is effective. Another participant agreed that when assurances are voluntary there is no way to check that the information shared is true or complete.

Another participant, however, suggested that in the case of publishing reports of material holdings, although the information cannot be verified, the very fact that the information has been collected provides a sense of assurance that there is a system in place to track material.

Another participant intervened to clarify that this discussion is not meant to be about verification. Rather, she suggested, the idea of international assurance is based on the concept that uncertainty can

undermine the process—e.g., uncertainty may drive one set of actions while less uncertainty may drive a different set of actions. She framed the idea as follows: "When looking at my neighbor, he could be implementing security perfectly, effectively, and efficiently, but if I do not know about it, I will make certain decisions and judgments. If I do know, then I will come to different decisions and judgments." She instead posed the questions: What do I want to know? How will I know it? The answers to these questions will influence what tools are needed to get there.

Levels of Assurance

One participant explained that you can map assurances by identifying the types of assurance states can give, and then define the sub-activities that states undertake. For example, the state and regulator could require operators to provide certain types of assurances. This would require a board of directors or chief executive to have oversight. This then cascades down to all levels.

> *QUESTION 2: Considering that international assurance is a mainstream concept in other industries like nuclear safety, given what is at stake for weapons-usable material going missing, what would it look like to bring this concept into the mainstream for nuclear materials security?*

Assurance Mechanisms

One participant suggested three legislative and administrative ideas for assurances: publishing legislative and administrative structures (laws and other guidance); statements of leaders; and statements with regard to domestic processes.

Another participant recognized that some organizations like INPO have information sharing and transparency within the club that is not communicated publicly. While sharing within a small group is positive, the assurance benefits are limited.

> *QUESTION 3: How should we further develop the proposed international assurance options and what is missing?*

To start the discussion, one participant posed additional questions to the group: Which of the things on the list of ideas in the presentation, or other ideas should states to sign up to? Shouldn't all states commit to undertaking an IPPAS mission? Shouldn't all states participate in a best practices mechanism? Shouldn't all states publish security regulations?

The Importance of Assurances

One participant argued that providing assurances across a range of audiences—to others internally within the state, between ministries, regionally, bilaterally, and internationally—assures all relevant stakeholders that standards are followed and commitments are kept.

Another suggested thinking about assurances in the context of a smuggling incident. If an incident occurred, how could a state assure others that the materials did not come from that state? A state

would need to have sufficient accounting practices to be able to say with a high level of confidence that the material did not come from it and convince others of this. Another approach is to ask oneself, what could a state say to me to give me confidence in a crisis?

Models for Assurances

One participant proposed that an assurance framework could include a hierarchy of actions, from state-level commitments down to the activities of people in an operating unit, and that identifying such a model would take only six to nine months of work. He added, however, that the model would have to be dynamic.

Another idea was the creation of regional nuclear security regulatory authorities, similar to the European model, which is a good level at which to share best practices.

Information Sharing and Reporting

As in a previous session, the theme of information sharing and reporting emerged. One participant informed the group that the U.K. government has published publicly available annual reports on the status of security in the nuclear industry in the United Kingdom, which includes inspections and the findings of inspections. He added that only a few countries do this but that if it was widely done it would provide international assurances. Another participant pointed out that such reporting provides internal domestic assurances as well as international assurances.

One participant said that information sharing is key, does not require new obligations or agreements, and can be done voluntarily. Another participant added that information sharing is important for sharing of best practices.

One participant believed that transparency, even if it cannot be verified immediately, is a good thing. He pointed to U.S.-Russia cooperation where a flow of official declarations can be evaluated for consistency, even though they cannot be verified. He felt that evaluating for consistency can help determine whether the reports reflect the actual state of affairs. He also explained that there is experience with transparency in INFCIRC/549 declarations, suggesting that there is no reason other states cannot do the same, and that these types of declarations can provide a degree of certainty that states are keeping track of their materials.

Another participant suggested that there should be a balance between transparency and secrecy—people need to be able to see how something is implemented without knowing everything.

Networking

As in a previous session, networking was also considered important for assurances. One participant suggested that a way of sharing information would be to conduct exercises with other countries and then share lessons learned from the exercise.

Another participant suggested that multilateral exchanges can be best done through IPPAS missions and

the United Kingdom had a positive experience with this.

Peer Review

One participant identified difficulties some countries faced when participating in IPPAS missions that need to be addressed. In particular, he explained that translating regulations into English is a major barrier.

Learning from Other Industries

One participant asserted that assurances are a "no brainer" for other industries and spheres of endeavors. When an industry is doing something connected to safety and security, it is expected that entities will communicate to others that safety and security is important and that they are doing it. She posed the question, "Why is nuclear security different"?

Other Comments

The following comments were also made:

- One participant suggested that in the lead up to the next Nuclear Security Summit, a country could volunteer to define the elements of a model nuclear security system at the national level and demonstrate that it has achieved such a system.
- One participant said that assurances are linked to authenticity and reputation and that for authentic assurance there needs to be peer review, auditing, stress tests, and other tools.
- One participant suggested the need for additional work on information security.

Materials Outside of Civilian Programs

Corey Hinderstein, Vice President, International Programs, NTI, led the discussion of materials outside of civilian programs.

Hinderstein began the presentation by noting that 85% of weapons-usable nuclear materials is outside the discussion. She explained that there is confusion about what the widely used phrase, "military material," is comprised of, and that use of the phrase, "military material," to describe that 85% is a misnomer because not all government-owned material is used for military purposes. Rather, some non-civilian material is owned by governments but not used for military purposes and not just in nuclear weapons. She posed the questions: What comprises this material? To what use is it being put? Are there voluntary measures that nuclear-armed states can take with regard to this material without undermining national security? Why does it matter?

Hinderstein suggested that all managers of nuclear material should be held accountable for its security no matter to what purpose it is being put. She made the case that even the military does not have perfect control and is not above improvement. She used several examples (diversion of naval fuel in Russia involving insiders; six nuclear weapons being flown across the United States without anyone

knowing for more than 36 hours) to question the assumption that because material is in the control of the military then it is protected to high standards. These incidents demonstrate that this problem is not simply academic. Nuclear security requires that we comprehensively address all nuclear materials and not just those in civilian use.

She also pointed out that the 2010 Nuclear Security Summit's Communiqué recognized that this material does matter, as it "reaffirm[ed] the fundamental responsibility of States, consistent with their respective international obligations, to maintain effective security of all nuclear materials, which includes nuclear materials used in nuclear weapons, and nuclear facilities under their control."

In a short presentation, Pavel Podvig, Researcher at the Russian Nuclear Forces Project, offered more detailed data on what exactly comprises material outside of civilian programs. He explained that civilian material is only a small fraction of highly enriched uranium (HEU) and about half of plutonium. He further explained that non-civilian material is often referred to as "military material," despite the fact that it is not a single category and that this material is in various shapes and forms, which are subject to different security arrangements. In particular, he highlighted that only 13% of material is in active warheads, 10% in retired warheads, 7% is associated with naval fuel cycles, and 11% is material declared excess to defense use. The largest category, 43% of material, is a catchall that includes material stored in bulk, in weapons components, and used in research. He also observed that the category of nuclear warheads can be divided into subcategories: deployed warheads, warheads that are active in reserve, and retired warheads. All of these subcategories are in different locations and subject to different levels of security.

Then, Hinderstein stated that since only approximately 25% of non-civilian material is in weapons, then at least 75% can potentially be included within the traditional security dialogue. She noted especially that there is a gray area with regard to this material.

Hinderstein then offered some proposals on voluntary measures nuclear-armed states can take to build confidence in the security of these materials without undermining national security:

- States could declare more material excess. Once this occurs, states begin to shift the material into forms and locations that can be included in nuclear security discussions.
- States can announce their intention to apply the Convention on the Physical Protection of Nuclear Material (CPPNM) and the 2005 Amendment to the Convention to this material on a voluntary basis.
- States can include non-civilian material in their UNSCR 1540 reports.
- States can enable their security professionals responsible for these materials to participate in peer-to-peer dialogues, peer reviews, and the sharing of best practices. Hinderstein noted that for securing a building, for example, best practice sharing and peer review can take place while protecting much of the specific sensitive information.
- States can make more, and more complete, declarations of materials to demonstrate accountancy.
- States can convert, shut down, or eliminate facilities and materials where non-HEU options

exist.

- States can expand bilateral engagements and increase the visibility into these arrangements to non-parties. This would encourage states to begin discussions with a smaller group of peers rather than being entirely open. These discussions would not have to divulge details but instead focus on steps taken to secure facilities and material.
- States could establish a dialogue on material control and accounting measures for non-civilian materials.

To begin the discussion, Hinderstein posed the questions: Is there value to taking some steps toward including non-civilian material in international nuclear security discussions? What other examples already exist? What additional measures might be possible? In the discussion that followed some common themes emerged.

Understanding the Threat

One participant underscored that the threat is real, noting that there have been 18 cases of weapons-usable material in bulk form recovered outside the control of appropriate authorities. He suggested, therefore, that there should be a particular emphasis on material in bulk form.

One participant proposed that there was a need for a collective security briefing for summit participants to highlight the urgency of the threat and spur greater action. Another participant responded that such a briefing was derailed at the last Nuclear Security Summit because of sensitivities.

Some participants questioned whether non-civilian materials were at a high risk, while other participants noted that the risk is not theoretical and that the amount of non-civilian material is extremely high. However, one participant articulated the issue differently, explaining that risk is a function of likelihood and consequence. While the likelihood of theft of weapons-usable material may be low, the consequences of an act of nuclear terrorism are extremely high, and, therefore, the risk is also high. Another participant stressed that there is a "gaping hole" in the system and that there is a real risk of nuclear terrorism until the hole has been plugged.

Declarations and Accountancy

One participant suggested that accountancy of non-civilian material is more important than security outside the facility. Another participant responded, however, that accountancy inside is about the insider threat, but the outside threat is also a concern.

Networking

One participant pointed to the ability of the United States to share best practices and offer peer-to-peer engagement because of its experience protecting its nuclear weapons stockpile as well as expertise in matters such as convoy security and personnel reliability programs. He stated that the United States was open to working with partners within the P3 or P5, and with non-nuclear-weapons states on the sharing of best practices. He maintained that cooperation within a state is important and that the Department of Defense and Department of Energy were working together to harmonize security practices.

Another participant suggested that non-civilian expertise could be brought to the civilian sphere and that some security areas and experience—e.g., transportation security—could be commonly shared no matter what type of material is involved.

One participant revealed that the United States, through the Department of Energy, has also shared its experience with Chinese experts, sharing the means by which the department secured materials, without providing precise details.

Another participant pointed out that the United States and Russia could share lessons learned from their joint experience of securing nuclear weapons and material in the former Soviet Union with other states through an empirical exercise that records these lessons in an abstract way.

Comprehensiveness

One participant revealed that some people in his country thought the Nuclear Security Summit would be more credible if it included more actions addressing the 85% of materials outside civilian programs. He suggested that states with weapons-usable nuclear material should agree on minimum measures for non-civilian materials.

One participant suggested that states with nuclear weapons could commit at the next Nuclear Security Summit to the principle that non-civilian material should be maintained at levels as good as or better than those applied to civilian materials (e.g., UNSCR 1540, INFCIRC/225, and the CPPNM and its amendment).

Another participant, however, suggested that trying to include non-civilian material in discussions at the summit could jeopardize the summit process because it could devolve into a discussion of military stockpiles.

One participant proposed, however, that this issue need not be part of the core summit process but could be something that individual countries address in the form of national commitments or in gift baskets. Another participant cautioned the group about strains in the diplomatic effort. He suggested that a "P-x", meaning some combination of nuclear-armed states, could craft a joint commitment, or gift basket, addressing non-civilian material, which would not open the issue for what could be an unproductive debate. Other states could then join the gift basket.

One participant cautioned that if the 2014 summit is indeed the last summit, participants would be "remiss and irresponsible" to leave the process without at least recognizing, as they did in the first summit, that security of material in all forms and no matter where located needs to be addressed.

Strengthening the Global Nuclear Security System: Breakout Sessions

Following the plenary sessions, participants were assigned to groups that met separately. The purpose of these breakout sessions was to allow participants to formulate specific, tangible steps for

strengthening the global nuclear security system. The three sessions were:

- Topic 1: Identifying prospective international priorities for strengthening the global nuclear security system at the 2014 Nuclear Security Summit and beyond
- Topic 2: Identifying specific actions that states can take individually to strengthen the global nuclear security system
- Topic 3: Identifying specific actions that states can take in groups or across sectors to strengthen the global nuclear security system.

The objectives of Topic 1 were to:

- Reach a common understanding of the prospective international priorities for strengthening the global nuclear security system at the 2014 Nuclear Security Summit and beyond
- Develop a list of work areas and messages that we would like to see reflected in various parts of the 2014 Nuclear Security Summit that would support strengthening the global nuclear security system.

The objective of Topic 2 was to:

- Identify a menu of specific actions that states can take individually to strengthen the global nuclear security system.

The objective of Topic 3 was to:

- Identify specific actions that states can take in groups or across sectors to strengthen the global nuclear security system.

Breakout Session Report Out and Reactions

On the afternoon of Thursday, October 10, volunteers from the three breakout sessions presented their findings.

Topic 1: Prospective International Priorities

The presenter began by articulating the top-level priority for the Nuclear Security Summit and beyond: to "seek states' commitments to strengthen the global/international nuclear security system/framework." The rationale for starting at the top level was the essential need to close perceived gaps and to strengthen the existing system. The presenter cautioned there might be a closing window of opportunity if the 2014 Nuclear Security Summit is the final summit, and, therefore, leaders are focused on the issue of nuclear security collectively for what may be the last time.

The presenter then explained that the group had identified four complementary areas of priority:

- To strengthen and widen existing instruments

- To define principles and ideas to guide the future architecture
- To define architectural structures needed to implement principles and ideas (noting the central role of the IAEA)
- To develop steps (including gift baskets) to advance the structure.

The presenter offered three examples for strengthening and widening existing instruments:

- Speed up ratification of the 2005 Amendment to the CPPNM and other legal instruments
- Expand the use of peer review, including IPPAS missions and WINS
- Upgrade the Code of Conduct on Safety and Security of Radiological Materials to a binding arrangement.

Regarding peer review, the presenter suggested that peer review also leads to building assurances. He explained that the group defined the principles and ideas that would guide the future architecture, which were similar to the five characteristics posed by NTI:

- The system should be comprehensive in scope
- The system should employ international standards and best practices
- The system should include national assurance and accountability mechanisms upon which assurance can be built
- The system should provide international assurances
- The system should reduce risk through minimizing and eliminating weapons-usable materials.

The group then offered its view of the architectural structure needed to implement these principles and ideas. First, it proposed that the IAEA should have a central role. The group also thought that communities of practice (e.g., nuclear forensics, Centers of Excellence, WINS, and WANO) should be strengthened as they provide opportunities for peer gathering and sharing of best practices. The group asked whether a convention or code of conduct might be needed, while noting that a code of conduct would be more achievable, at least in the short term. Finally, the group argued that more resources are needed.

The presenter offered some ideas of steps to advance this structure. First, the presenter described the need to create new "connective tissue"—i.e., a process for coordinating and collaborating on gift baskets and further steps. The presenter also identified the need to empower officials to advance nuclear security beyond the summit process. Another idea would be for some number of the nuclear-armed states (designated by the shorthand "P-x") to consider developing a gift basket on non-civilian materials. The presenter noted that this could empower "non-P states" to do more on nuclear security. Finally, the group believed that a progress report of some sort regarding the four-year goal established at the 2010 summit and progress on the 2010 Work Plan would be expected.

Topic 2: Actions by States Individually

The presenter reviewed the five characteristics of a strengthened global nuclear security system and a menu of potential actions for individual states that could animate these characteristics. Some were

cross-cutting, i.e., they could animate more than one characteristic. A chart with the options, including additional options suggested in the discussion, is included in the Appendix.

The presenter cautioned that the list was not meant to be a one-size-fits-all approach, but rather a draft menu of voluntary actions for states to consider as appropriate to national circumstances. NTI committed to revising and developing the list as a potential resource in consultation with others.

In the discussion that followed, participants discussed the value of self-assessments, explaining that IAEA assessments are measured against standards while WINS assessments measure implementation of best practices, as developed in the WINS guides. Another participant noted that there will be a workshop on IPPAS missions at the IAEA Nuclear Security Conference scheduled for July 2013, and countries that have participated in an IPPAS mission will be invited to share lessons learned and best practices.

One participant cautioned that consolidation of materials (one idea listed) might have some drawbacks because it involves transporting material, which creates additional risks.

Finally, there was discussion about the meaning of "accountancy" and whether states should publish information about actual quantities of materials. There was agreement, however, that simply demonstrating that there is regular accounting and auditing while not reporting on actual holdings would be a positive way of providing assurances.

Topic 3: Actions by Groups or Across Sectors

The presenter remarked that the primary emphasis of nuclear security is on sovereign responsibility of states. The last Nuclear Security Summit saw the creation of gift baskets where states (or groups of states) took on specific commitments. There are, however, a variety of stakeholders across the nuclear enterprise in other sectors that also have equities in how nuclear security is responsibly implemented. The presenter then posed the question: Can we think beyond the state-only frame to develop innovative proposals that may facilitate cross-sector cooperation and encourage cooperative ventures among governments?

The presenter then listed a range of stakeholders: Nuclear Security Summit teams; regulators; government agencies; national labs; non-governmental organizations; navies and militaries; experts; scientists; international organizations; energy policy developers; diplomats; nuclear power industry; nuclear facility operators; security forces and law enforcement officers; border control; intelligence agencies; and regional organizations.

The presenter then offered several ideas for cross-sector cooperation. First, he offered the idea of "users groups," an industry approach where there are commonalities among competitive organizations that share special security considerations unique to a specific set of activities (e.g., enrichment, reprocessing, isotope production, research reactors, or transporters of materials like fresh mixed-oxide fuel (MOX) and radiological sources). For example, in the area of enrichment, the stakeholders involved could include WINS, facility operators and companies like URENCO, government entities and regulators,

the IAEA, technology holders, and facility designers. Such groups would have a strong basis for cooperation because of shared interests.

Another idea is certification of security professionals to provide assurances that practitioners have the proper background, experience, and education for their tasks. Certification could be supported by the IAEA, WINS, Centers of Excellence, trade groups, or other professional security organizations. A generally accepted certification process would help increase assurances.

A third idea is a material database for forensics. Industry, governments, the IAEA, and national laboratories could compile databases or samples of materials to use in a forensic exercise. The purpose would be to help determine the origin of materials in the case of a smuggling or terrorist incident.

The group also proposed a process for health licensing for non-HEU Moly. Licenses could be issued by public health authorities, such as the Federal Drug Administration, or by producers. The purpose would be to remove some of the impediments to use of non-HEU sources and reduce dependence on HEU, which provides security benefits.

The group also proposed creating a mechanism for reporting security incidents and disseminating lessons learned. This could happen through nuclear facilities, the IAEA, or WINS.

Finally, the presenter suggested a counter-smuggling initiative that would expand on current unilateral programs and involve different parts of government, including customs, border protection, law enforcement, and prosecutions.

The presenter pointed to several challenges:

- The need to avoid too much coziness between operators and regulators
- Sensitivities about disclosing sensitive information
- Barriers to sharing information with law enforcement and prosecution
- Commercial considerations with respect to sharing information and its impact on commercial entities
- The perception of the role of non-states in the Nuclear Security Summit process
- Concern that some of these issues might lead to unfunded mandates.

Yet, the presenter also indicated that the group had found much value in a cross-sector approach. First, solving complex problems requires diverse input. In addition, practitioners are often better informed and therefore more able to support the development of effective policies. There is also a need to connect with people not necessarily part of the Nuclear Security Summit process, and commercial entities and non-governmental organizations are useful in making those connections. In reference to the idea of "connective tissue" from the first group, the presenter noted that forming these associations provides an opportunity to develop this connective tissue.

In the discussion that followed the following themes emerged:

Forensics

One participant posited that a forensic database would help all stakeholders quickly identify the origin of stolen material. Another participant highlighted the deterrence role of nuclear forensics—if criminal groups know they have a high chance of being caught, this might reduce their willingness to sell material to terrorists. Another participant added that the IAEA is helping to establish national libraries and that it is important to help states to establish prevention, detection, and response capabilities.

Gift Baskets

One participant suggested the need to create a working group to accomplish each potential action item, which would include a range of relevant stakeholders, including states, non-state actors, industries, or other organizations. She observed that each of the ideas in the presentation has state and non-state participants, including different sectors of a state that are not always part of the summit.

Recommendations and Next Steps

In the final session of the Global Dialogue, "Recommendations and Next Steps," Rohlfing observed that there had been a good deal of convergence and consensus around certain issues while there continued to be open issues or areas where the group did not reach complete agreement. She highlighted the high degree of consensus on the need to strengthen the global nuclear security system based on the five characteristics. She also took note of the rich menu of ideas and activities for states and other stakeholders to take up moving forward.

Finally, Rohlfing welcomed feedback on what issues needed further developing, the timing of subsequent meetings, and how to carry the process forward. She stressed that the Global Dialogue should be a forum for ambition and aspiration and to vet ideas that could take hold within the official process.

In the discussion that followed, several suggestions were made, especially to help narrow down and develop the list of ideas. In particular, participants suggested connecting the best of ambition and aspiration with the political and diplomatic realities of the Sherpa process as well as focusing on the greatest vulnerabilities as a way to prioritize actions. Participants also noted that progress did not have to take place only at the Nuclear Security Summit. Another urged the group to address emerging issues like cyber security.

Finally, one participant proposed that individuals should help reinforce among governments that nuclear security is an issue urgent enough to be discussed between heads of states at bilateral meetings.

NEXT STEPS

In ongoing support of the Global Dialogue process, NTI will continue to assess additional analytic needs. Participants are also invited to provide NTI with their suggestions and priorities. All participants, particularly those who are part of the official Nuclear Security Summit process, are encouraged to share the proposition of a strengthened global nuclear security system and relevant practical proposals with colleagues.

To that end, we plan to launch a project page on the NTI website on the Global Dialogue which will describe the project, the not-for-attribution nature of the discussions, and make available several resources such as the Nuclear Security Primer, the two white papers, and Senator Nunn's opening remarks from the first meeting of the Global Dialogue. We will also make available on the website four, short, executive-level, non-branded "non-papers" addressing the following issues:

- The Need for a Strengthened Global/International Nuclear Security System/Framework
- The Strategic Value of Best Practices for Nuclear Security
- Comprehensiveness: Understanding Non-Civilian Nuclear Materials
- Practical Proposals for Providing International Assurances

We look forward to continuing to be in touch with you as we plan for the next stage of the process.

APPENDIX: Topic 2 Options for Individual Action

Note: This is a draft list of voluntary actions developed based on the deliberations of the Global Dialogue participants. NTI will continue to revise and update this resource. The list is not meant to be a one-size-fits-all approach, but rather a menu of actions for states to consider, depending on national circumstances. Additional feedback is welcome.

OPTIONS FOR INDIVIDUAL ACTION	Compre-hensive	Best Practices	Internal Assurance	Inter-national Assurance	Minimize/ Eliminate
Demonstrate regular accountancy /auditing of nuclear materials as it relates to security (states determine how much information on numbers to publish)			✓	✓	
Ensure independent regulatory oversight			✓	✓	
Enhance physical protection reporting within 1540 mechanism			✓	✓	
Make public testimony, studies, reports, etc., on nuclear security that could enhance public confidence			✓	✓	
Develop strong national forensics system			✓	✓	
Publish annual reports and broad outlines of nuclear security regulations				✓	
Publish materials quantities declarations				✓	

Further consolidate weapons-usable material				✓	✓
Invite an IPPAS mission and share results		✓	✓	✓	
Provide assistance to less developed countries (physical protection; engage lawyers to advise on how to meet international legal obligations, etc.)		✓	✓	✓	
Provide support for IAEA (Office of Nuclear Security, NSF) and WINS		✓	✓	✓	
Develop certification programs for nuclear security professionals		✓	✓	✓	
Conduct a self-assessment (IAEA assessments as first step of IPPAS; WINS self-assessments)			✓		
Improve interagency nuclear security coordination			✓		
Conduct performance tests (e.g., black-hatting exercises, force-on-force exercises, etc.)			✓		
Publish results of performance tests			✓	✓	
Make statement that materials outside of civilian programs have same, if not better, protections in place as civil materials	✓			✓	

Develop certification for practitioners who are implementing security on non-civil material	✓	✓	✓	✓	
Develop best practice sharing mechanism for non-civilian materials	✓	✓	✓	✓	
Develop and/or encourage participation in masters level nuclear security studies programs		✓		✓	
Join WINS		✓		✓	
Create an inter-utility security working group to share best practices and conduct peer reviews		✓	✓	✓	
Establish a system to ensure sharing of best practices in the country (e.g., create a multipurpose center to collect and share best practices at the national level)		✓	✓	✓	
Repatriate, downblend, or disposition weapons-usable material				✓	✓
Formulate and declare policies of no net increase of material (keep production in balance with consumption)				✓	✓
Convert or close facilities				✓	✓

Commit to conducting national level science and technology needs assessments to learn what facilities you need for science and technology goals				✓	✓
Reduce internal transport of materials				✓	✓
Commit to no new facilities using HEU				✓	✓