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MANAGING INTERAGENCY NUCLEAR NONPROLIFERATION EFFORTS: ARE WE EFFECTIVELY SECURING NUCLEAR MATERIALS AROUND THE WORLD?

HEARING

BEFORE THE

OVERSIGHT OF GOVERNMENT MANAGEMENT, THE FEDERAL WORKFORCE, AND THE DISTRICT OF COLUMBIA SUBCOMMITTEE

OF THE

COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS UNITED STATES SENATE

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

MARCH 14, 2012

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MANAGING INTERAGENCY NUCLEAR NONPROLIFERATION EFFORTS: ARE WE EFFECTIVELY SECURING NUCLEAR MATERIALS AROUND THE WORLD?

WEDNESDAY, MARCH 14, 2012

U.S. SENATE,
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT, THE FEDERAL WORKFORCE, AND THE DISTRICT OF COLUMBIA,
OF THE COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:34 p.m., in Room SD–342, Dirksen Senate Office Building, Hon. Daniel K. Akaka, Chairman of the Subcommittee, presiding.

Present: Senator Akaka.

OPENING STATEMENT OF SENATOR AKAKA

Senator AKAKA. Before I call this hearing to order, I just want to say it is so good to have all of you here. And as usual, we run from one event to the other, so it is good to be here almost on time. But thanks for being here.

I call this hearing of the Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia to order. I want to say aloha and welcome to our guest witnesses, and thank you so much for taking the time to be here with us, and together we will work on trying to take care of this challenge that is facing and growing in our country.

Today the Subcommittee will examine interagency efforts to prevent nuclear and radiological materials from falling into the wrong hands. Since 1999, I have chaired 10 related hearings on this subject and requested 10 Government Accountability Office (GAO) investigations, and they have been good in meeting those requests.

The terrorist threat remains serious and the consequences of a nuclear or radiological terrorist attack would be catastrophic. In 2010, President Obama stated that nuclear terrorism is the single biggest threat to U.S. security, short-term, medium-term, and long-term. The International Atomic Energy Agency (IAEA) reported more than 2,000 unauthorized incidents, such as illegal trade or movement of nuclear or radioactive material, from 1993 through 2011.

On Sunday, we commemorated the 1-year anniversary of Japan's Fukushima nuclear tragedy. That incident highlighted the poten-

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tially dire implications of failing to adequately prepare for and defend against unexpected events.

I want to commend President Obama, the agencies represented here today, and the many Federal employees in those agencies for their commitment and hard work to bolster nuclear and radiological security. I also want to thank GAO for its diligent work, which has strengthened those efforts.

In a landmark 2009 speech in Prague, the President announced a new international effort to secure all vulnerable nuclear material within 4 years. The successful 2010 Nuclear Security Summit (NSS) in Washington, DC, spurred progress on this aggressive timetable. Since the President's speech, more than 31 nuclear bombs worth of material have been removed from countries around the world.

Most notably, Libya's nuclear weapons program was dismantled before the recent uprising began, and all highly-enriched uranium (HEU) has been removed from Chile, Romania, Serbia, Taiwan, and Turkey. I hope this progress will be accelerated when the President joins leaders of 52 other nations and four international organizations at the second Nuclear Security Summit in Seoul, Korea, in less than 2 weeks.

The scope of the upcoming Seoul Summit has been broadened to include radiological material security. I have pressed for more focus on radiological material security for more than a decade, and GAO has investigated various aspects of this issue at my request.

In 2007, GAO reported troubling shortfalls in the security of high-risk radiological materials internationally, including in Russia and the Ukraine. Today GAO will testify to preliminary findings that highlight a number of egregious security weaknesses at domestic hospital and medical facilities where radiological materials are used and stored. These disturbing findings demonstrate the need to strengthen the security requirements for domestic radiological sources.

There is a model that could be used to enhance domestic radiological security nationwide. The Department of Energy's (DOEs) National Nuclear Security Administration (NNSA) has worked with partners in my home State of Hawaii to complete security enhancements on all high priority radiological materials within the State. Hawaii is now safer, and I urge the Department to accelerate the implementation of this important program and to better coordinate with the Nuclear Regulatory Commission (NRC) to secure all high-risk sites across the country. The United States should serve as a model worldwide on domestic radiological security. The upcoming summit in Seoul provides an opportunity to focus the world's attention on this issue.

The Administration's bold commitment to secure all nuclear material worldwide could be paired with a new international initiative to secure all high-risk radiological materials in 4 years. When the United States leads by example, we can make great strides to improve international safety and security.

In addition to radiological sources, I remain concerned that Federal agencies face challenges defining and implementing a strategic plan for nuclear security. Agencies must prioritize the highest-risk materials, ensure that nuclear and radiological materials the

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United States supplies to allies do not become a threat, and coordinate with the IAEA. So I look forward to these discussions that we will be having in today's hearing. I also hope the Administration witnesses identify how Congress can best support their efforts—through adequate funding, ratification of relevant treaties, legislation, or otherwise.

The security of nuclear and radiological materials has been a priority during my tenure in the U.S. Senate, and I will continue focusing on this issue during my last year.

This is a bipartisan issue that I hope all of my colleagues will actively pursue in the future. This is not and should not be a political issue. It is about safeguarding human life, the environment, and the economy. The stakes are too high for partisanship or for Congress and the American people to ignore it. And I look forward to continuing to work with you on these issues. And so I want to welcome our witnesses for the first panel:

The Hon. Thomas M. Countryman, Assistant Secretary for International Security and Nonproliferation (ISN) at the U.S. Department of State;

The Hon. Anne Harrington, Deputy Administrator for Defense Nuclear Nonproliferation at the U.S. Department of Energy's National Nuclear Security Administration;

The Hon. Kenneth B. Handelman, Principal Deputy Assistant Secretary for Global Strategic Affairs at the U.S. Department of Defense (DOD);

And Mr. Gene Aloise, Director, Natural Resources and Environment, at the U.S. Government Accountability Office. Mr. Aloise, it is good to see you testify before this Subcommittee again.

As you know, it is the custom of this Subcommittee to swear in all witnesses, and I would ask you to please stand and raise your right hand and take this oath with me. Do you swear that the testimony you are about to give before this Subcommittee is the truth, the whole truth, and nothing but the truth, so help you, God?

Mr. COUNTRYMAN. I do.

Ms. HARRINGTON. I do.

Mr. HANDELMAN. I do.

Mr. ALOISE. I do.

Senator AKAKA. Thank you very much. Let it be noted for the record that the witnesses answered in the affirmative.

Before we start, I want you to know that your full written statements will be made part of the record, and I would also like to remind you to please limit your oral remarks to 5 minutes.

Assistant Secretary Countryman, will you please proceed with your statement?

TESTIMONY OF HON. THOMAS M. COUNTRYMAN,[1] ASSISTANT SECRETARY FOR INTERNATIONAL SECURITY AND NONPROLIFERATION, U.S. DEPARTMENT OF STATE

Mr. COUNTRYMAN. Chairman Akaka, thank you for inviting us here to discuss United States efforts to secure vulnerable nuclear materials around the globe. This mission is vital to the national se-

[1] The prepared statement of Mr. Countryman appears in the appendix on page 33.

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curity of the United States. Congressional support remains critical, and we deeply appreciate your personal engagement in the issue.

In his Prague speech, President Obama laid out his vision for a world without nuclear weapons and free from the threat of nuclear terrorism. A year later, at the Nuclear Security Summit in Washington, participants emphasized the need for each State to take responsibility for the security of nuclear materials under its control, and each State made specific commitments to advance nuclear security.

Now, to follow through, the United States has a three-tiered strategy to lock down or remove vulnerable nuclear materials: First, at the site level; second, at the country level; and, third, at the global level.

At the site level, we work with other countries to minimize the civilian use of highly enriched uranium, to eliminate unneeded weapons-usable material, and to improve security at specific sites. Where site-level assistance is not appropriate, we cooperate at the country level with foreign governments to exchange best practices and to demonstrate the safe use of equipment. At the global level, we develop global initiatives through the Nuclear Security Summit process, the United Nations (UN), and other fora to improve nuclear security around the world.

As we do this important work to keep Americans safe, we use tax dollars wisely. Through the Global Partnership (GP) against the Spread of Weapons of Mass Destruction and through the United Nations 1540 Committee, we encourage international partners to share the costs of improving security. Building this safer world and protecting the American people also requires that the International Atomic Energy Agency has the resources and authority to carry out its vital mission as the global focal point for nuclear cooperation. We are confident that every effort is made to advance our shared interests in peaceful nuclear uses and security.

With this three-tiered strategy, we have made significant progress in the 4-year effort to secure vulnerable nuclear materials. Still, the persistence of illicit trafficking, as you referred to, of weapons-usable nuclear materials demonstrates that efforts to consolidate materials and secure facilities are not enough. My bureau, ISN at the State Department, has several programs to promote this international capacity to detect and investigate cases of nuclear material outside proper control.

First, the Nuclear Smuggling Outreach Initiative (NSOI) is a State Department-led interagency effort to develop partnerships with key countries to combat nuclear smuggling.

Second, our Preventing Nuclear Smuggling Program (PNSP) works to leverage international funding to promote law enforcement cooperation and nuclear forensics cooperation.

Third, our bureau's Export Control and Border Security (EXBS) Program leads interagency efforts to build comprehensive export and border control systems in more than 50 partner countries.

And, fourth, we lead the United States engagement with the Global Initiative to Combat Nuclear Terrorism (GICNT), a partnership of 82 nations that conduct activities to strengthen plans, policies, and interoperability on the issue of nuclear terrorism.

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In terms of congressional support for the fight against proliferation of weapons of mass destruction (WMD), in addition to providing us the resources we need to do this important national security job and to keep Americans safe, we also need your help to fill critical gaps in the international legal framework of nuclear security. In 2008, the Senate provided advice and consent unanimously to ratification of four nuclear security-related treaties, including the Nuclear Terrorism Convention. I strongly urge Congress to expeditiously enact the implementing legislation for these treaties in the national security interests of the American people.

Finally, let me stress that reducing the risk of nuclear terrorism is a complicated task, but the interagency is working well to meet this challenge. My colleagues not only from Energy and Defense but also Justice, Homeland Security, and others, work together well. With your support we will continue to do all we can to protect the American people. Thank you, sir.

Senator AKAKA. Thank you very much, Mr. Countryman.

And now let me call on the Hon. Anne Harrington, Deputy Administrator from the Department of Energy. Please proceed with your statement.

TESTIMONY OF HON. ANNE HARRINGTON,[1] DEPUTY ADMINISTRATOR FOR DEFENSE NUCLEAR NONPROLIFERATION, NATIONAL NUCLEAR SECURITY ADMINISTRATION, U.S. DEPARTMENT OF ENERGY

Ms. HARRINGTON. Thank you very much, Mr. Chairman. Thank you for this opportunity to brief the Subcommittee on the Department of Energy's National Nuclear Security Administration's contribution to the international effort to secure the world's most vulnerable nuclear material.

Before I continue, I would like to thank you, Mr. Chairman, for your leadership in drawing attention to the issue of nuclear and radiological security. As you have already noted, the State of Hawaii serves as a model for the rest of the country for how to implement a comprehensive radiological security program. It has been a pleasure for my staff and experts to work with the committed State, city, and local officials who have supported this work, and we look forward to continuing our partnership.

The President's 4-year effort is indeed unprecedented. It is led by the United States but with significant contributions from dozens of countries around the world. The White House, in close coordination with our interagency and international colleagues, is leading and implementing an impressive three-tiered strategy which Assistant Secretary Countryman just described. I am pleased to report that NNSA has made significant contributions to the U.S. Government's efforts in each of these three strategic areas.

Most of our important contributions to the 4-year effort have taken place at the site level. These include securing, removing, and disposing of high-priority nuclear materials worldwide; converting highly enriched uranium-fueled research reactors to low enriched uranium (LEU); assessing the physical security of U.S.-obligated material and providing security upgrades at nuclear sites; consoli-

[1] The prepared statement of Ms. Harrington appears in the appendix on page 42.

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dating materials to fewer, more secure sites; improving international capabilities to detect and interdict illicit nuclear and radiological materials trafficking; and promoting a culture of awareness, responsibility, and security in the countries and sites in which we work.

We have made important contributions also to the national-level efforts, including working with partner countries on their nuclear security Centers of Excellence. These centers form an important network that will allow countries and regions to strengthen capabilities to secure facilities and to deter, detect, and interdict illicit trafficking of nuclear and radiological material.

On the global level, NNSA has always been a strong supporter of the International Atomic Energy Agency as an important means of advancing our nuclear security objectives. NNSA led the 5-year international effort to develop and finalize the fifth revision of the IAEA's nuclear security recommendations on physical protection of nuclear material and nuclear security.

We also partner closely with the IAEA on training and education activities. We provide subject matter experts to assist the IAEA's Office of Nuclear Security (ONS), and contribute to the development of the documents in IAEA's Nuclear Security Series.

Our interagency cooperation is also strong and very institutionalized. We participate actively in the National Security staff-led interagency policy committees and subcommittee meetings.

We also have strong coordination mechanisms on an agency-to-agency basis. For example, NNSA holds quarterly coordination meetings with our colleagues at the Department of Defense at the Assistant Secretary level to discuss areas of common interest, coordinate on program ideas, and do forward planning.

Similarly, we have a trilateral coordination group on radiological security that includes senior-level representatives from NNSA, the NRC, Department of Homeland Security, and the FBI, also meeting on a quarterly basis to review activities.

We share your excitement about the 2012 Nuclear Security Summit. We fully expect that the leaders who participate there will renew their commitments to ensure that nuclear and radiological materials under their control are not stolen or acquired by terrorists. This means renewing their respective pledges to continue to evaluate the threat and improve the security as changing situations may require, and to exchange best practices and practical solutions for doing so. We would be happy to brief you after the summit has concluded on the achievements and pledges announced there.

For our part, NNSA will complete a number of activities under the 4-year effort by the end of 2013, but our mission to secure nuclear material will extend well beyond then.

I apologize if I have run over my time, but I want to thank you again for the opportunity to brief you on DOE–NNSA's contribution to this international effort, and I look forward to your questions. Thank you.

Senator AKAKA. Thank you very much for your testimony.

And now I would like to call on Principal Deputy Assistant Secretary Handelman. Please proceed with your testimony.

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TESTIMONY OF HON. KENNETH HANDELMAN,[1] PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR GLOBAL STRATEGIC AFFAIRS, U.S. DEPARTMENT OF DEFENSE

Mr. HANDELMAN. Thank you, Mr. Chairman. It is an honor to appear today with two close colleagues to my right and a distinguished public servant to my left to discuss the Department of Defense's contributions to U.S. Government's nuclear security campaign. My colleagues have given the Subcommittee a good overview of the administration's strategy and diplomatic efforts related to the 4-year lockdown specifically and nuclear security in general. I would like to focus my remarks on DOD's contribution to what is truly a governmentwide team effort, as well as offer a few observations about the evolution of nuclear security as a military mission.

DOD's contribution to the nuclear security effort being discussed at this hearing comes primarily through the Nunn- Lugar Cooperative Threat Reduction Program (CTR). In my statement for the record, I have provided details on CTR's activities in the former Soviet States, as well as plans to expand CTR's nuclear security work to other parts of the world in coordination with the Departments of Energy and State.

CTR has a long history, and your colleagues Senators Lugar and Nunn continue to play true leadership roles in the program's activities. I would be remiss if I did not thank you and your House colleagues for the ongoing strong congressional support for the CTR program and, indeed, for all of our programs, writ large, on nuclear security.

For fiscal year 2013, the President has requested $519 million for CTR, roughly $130 million of which would be devoted towards nuclear security-related activities. And I urge congressional support for this request and the entire range of nuclear security-related programs.

Mr. Chairman, let me turn to the big-picture view of DOD's nuclear security mission. Nearly everything this panel will discuss with you today deals with the thorny problem of how to prevent the bad guys from getting their hands on really bad things. As I have said, DOD's principal contribution in this regard is through the CTR program. However, given DOD's overall mission to defend the Nation, there is a whole world of separate nuclear security activities for which my agency plans, equips, and trains. These activities center on a scenario none of us want to confront, namely, what to do when we think the bad guys actually have their hands on really bad things.

Our planning for this type of loose-nuke situation is evolving substantially, and I think it is an important backdrop to the Subcommittee's discussions today. And I want to emphasize that the watch word for our new thinking for this type of loose-nuke scenario centers on integration—integration across DOD's many components and integration across our government.

For instance, the instability or collapse of a nuclear-armed State could quickly lead to the proliferation of nuclear weapons or materials well beyond the country of origin and involve multiple State and non-state actors as it moves across the globe. The U.S. military

[1] The prepared statement of Mr. Handelman appears in the appendix on page 50.

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seeks to improve our defensive posture against this type of threat, a process which will bear fruit regardless of how a terrorist obtains nuclear material. This includes enhancing the protective posture of the homeland; working with the intelligence community to better analyze and track terrorist networks and identify likely paths to proliferation; and improving our ability to characterize the source and nature of a loose-nuke threat. We can be certain that in a nuclear or other type of WMD crisis, all of these activities would be occurring simultaneously. Our work at DOD has focused on how U.S. military units would coordinate with other U.S. agencies and with allies and partners in the face of such a loose-nuke threat scenario.

Of course, as with most DOD missions, we hope we never need to execute this one. The key is to have a layered defense against the loose-nuke threat. The first layer or the first line of defense is the group of activities that Secretaries Countryman, Harrington, and I are here to discuss with you today.

Mr. Chairman, the nuclear security mission area has enjoyed the broad bipartisan support that it deserves, as you observed in your opening remarks. We all thank Congress for that confidence and look forward to your questions today.

Senator AKAKA. Thank you very much, Mr. Handelman.

And now I would like to call on Mr. Aloise. Would you please proceed with your statement?

TESTIMONY OF GENE ALOISE,[1] DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. ALOISE. Thank you, Mr. Chairman. I am pleased to be here today to discuss our work that directly relates to the goals of the upcoming Nuclear Security Summit. Specifically, my testimony will focus on two of our recently issued reports. The first is on the strategy for supporting the President's goal of securing all vulnerable nuclear materials worldwide within 4 years. The second is on U.S. agencies' ability to track and evaluate the security of U.S. nuclear material transferred to foreign countries. And I will also discuss our ongoing work on Federal efforts to secure radiological sources in U.S. hospitals and medical facilities.

Regarding the President's 4-year initiative, a little more than a year ago we reported that the strategy approved by the National Security Council (NSC) for the initiative was vague and lacked details regarding how the initiative would be implemented. Specifically, the administration's strategy did not identify vulnerable nuclear material sites, which agencies and programs would be responsible for each site, and the potential challenges in securing nuclear material around the world. The strategy also lacked details on cost and time frames to accomplish this difficult but worthwhile work.

We recommended that NSC lead and coordinate a plan for implementing the initiative with details in several areas, including identifying those countries where nuclear materials are thought to be poorly secured.

[1] The prepared statement of Mr. Aloise appears in the appendix on page 58.

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In September of last year, we reported on an issue that could impact the 4-year goal of securing nuclear materials. We reported that United States efforts to secure nuclear materials worldwide would be difficult because U.S. agencies do not systematically track the location of nuclear material that the United States has transferred to other countries under nuclear cooperation agreements.

Specifically, DOE and NRC do not have a comprehensive current inventory of U.S. nuclear material, including weapon-usable material, located overseas. In 1993, NRC and other agencies, at the direction of Congress, tried to develop an inventory, but were only able to verify the location of 1,160 kilograms out of 17,500 kilograms of HEU remaining overseas, and no estimates have been developed since.

In addition, even though partner countries are required to guarantee the physical protection of U.S. nuclear material, U.S. agencies do not have access rights allowing them to systematically assess the security of this material. U.S. interagency teams found that countries they could visit only met security guidelines set by the IAEA about half the time. We made several recommendations to improve oversight and accountability, including recommending the development of an inventory of U.S. nuclear material overseas.

Now, as you mentioned, Mr. Chairman, in addition to nuclear materials, this year's summit plans to address the security of radiological sources. The nuclear material in these radiological sources could be used to make a dirty bomb. Therefore, it is essential that devices containing radiological sources be secured from theft or sabotage.

Based on preliminary results from our ongoing work that we are doing at your request, Mr. Chairman, we found that NRC's security controls for hospitals and medical facilities may not go far enough to protect these highly radioactive materials. As a result, we are finding that hospitals and other medical facilities are implementing the security controls in a variety of ways, some better than others, leaving some facilities more vulnerable to theft or sabotage than others.

According to NNSA, there are about 1,500 hospitals and medical buildings in the United States that contain high-risk radiological sources, with a cumulative total of about 22 million curies of radioactive material. DOE's Domestic Material Protection Program provides hospitals with security upgrades to the devices that contain high-activity radiological sources, such as gamma knives and blood irradiators. It also provides training for hospital personnel and local law enforcement on how to protect themselves and their communities when responding to an incident involving highly radioactive materials.

Mr. Chairman, during the course of our work, my team and I have visited numerous medical facilities and observed instances where equipment containing extremely high curie amounts of some of the most dangerous radiological material were highly vulnerable to theft or sabotage. For example, in one hospital we visited, the door to the room housing a blood irradiator with 1,500 curies of Cesium-137 had a combination lock on the door, but the combination to the lock was written in pencil on the door frame for everyone to see.

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We also saw equipment containing high-risk sources that should have been secured, but instead were on pallets with wheels and close to areas of public access. In our view, it would not be very hard for someone to steal these devices. My full statement contains other examples from our visits.

NNSA is doing a commendable job in securing these high-risk radiological sources, but some facilities considered high risk by law enforcement officials have declined NNSA's assistance, which is voluntary, including hospitals in cities thought to be attractive terrorist targets. We are continuing to perform our work in this area of high national security importance and plan to issue our full report later this year.

Thanks, Mr. Chairman I would be happy to answer any questions you may have.

Senator AKAKA. Thank you very much, Director Aloise.

Mr. Countryman, the summit process has done an excellent job of focusing the international community's attention on the problem of nuclear material security. What do you hope to achieve at the upcoming Nuclear Security Summit in Seoul?

Mr. COUNTRYMAN. Thank you, Mr. Chairman. I would like to speak only in the most general terms about the summit meeting in Seoul because we anticipate that President Obama and other international partners will make a number of announcements, and I would not want to preview those and take away the opportunity to do that. But since the purpose of the summit is to review and build upon the commitments that we made collectively and that nations made individually at the Washington Summit 2 years ago, I think there will be both a significant record of accomplishments to list as well as renewed and updated and improved commitments by participants. And in the particular structure of the summit where the presidents and prime ministers have an opportunity to discuss things in a less formal structure than many other summit meetings, I think they will have a very frank conversation about the remaining challenges that we have around the world.

I hope that you can accept this very general characterization of our expectations.

Senator AKAKA. Yes, well, thank you very much.

Let me further ask you, after the 2014 summit in the Netherlands is completed, what is the future of the summit process? And how do we continue the international emphasis on preventing nuclear terrorism?

Mr. COUNTRYMAN. Thank you, sir. The summit is a unique process in that having this very dramatic development, the largest gathering of presidents and prime ministers ever to come to Washington for the 2010 Nuclear Security Summit, was intended explicitly to have that dramatic effect of focusing both public attention and governments' attention on commitments that they could make to improve nuclear security in each country and globally. And it had that effect. I think that a number of countries responded to the uniqueness of the summit by making those commitments and by following them up over the last 2 years.

It was never the intent to create a new international organization or a permanent process, but as to whether there would be still

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another summit after 2014, I would prefer not to speculate on that, but to let the leaders discuss it in Seoul.

Senator AKAKA. Well, it has grown over the years, and now as you point out, there are 50-plus partners in this, and it is certainly getting some attention.

My next question is to the witnesses from State, DOE, and DOD. Despite considerable progress, it seems likely that at the end of the Administration's 4-year effort, all of the vulnerable nuclear material worldwide will not be secured. Please discuss whether you anticipate there will be countries and facilities that you likely will not be able to address during the 4 years, the reasons why, and what contingency plans are in place to revise or extend this particular initiative. Mr. Countryman.

Mr. COUNTRYMAN. Again, we have always understood the 4-year effort to be a focused international effort, not a uniquely U.S. effort. It requires the commitments not just of our government, all of our agencies working together, and an important expenditure of resources, but a similar effort and a similar commitment on the part of our partners around the world.

We believe that the progress report that will be discussed in Seoul 2 weeks from now will show significant progress, and we believe that it will refocus us on the most important areas that we still have to address, some of the places where the physical or the political challenge may have been greater.

We have always assumed that there will be continuing work to do after the 4-year time frame. As long as nuclear materials exist, we will have the same need to set the best possible example in the United States of securing those materials and of sharing that capability for protection without other countries, motivating them to do the same.

I would not want to predict now which particular spot in the world will turn out to be the most difficult place to secure nuclear materials.

Senator AKAKA. Thank you very much. Ms. Harrington.

Ms. HARRINGTON. I would agree with Assistant Secretary Countryman. The 4-year effort was aimed at securing a prioritized list of materials that was considered to be the most vulnerable. It does not imply that it captures everything. We know that the job will continue following 2013, that there will be more to do.

We also are looking forward into a global nuclear economy which, despite the incidents at Fukushima, will continue to expand in terms of use of nuclear power and uranium commerce.

So those things are all on our minds as we consider next steps, and as Mr. Countryman said, these are things that will be considered by the leaders when they convene in Seoul, and I think we all sit here fully expecting that we will get new direction and a new sense of energy out of that Summit.

Senator AKAKA. Thank you. Mr. Handelman.

Mr. HANDELMAN. Mr. Chairman, the three of us have a colleague, a very senior colleague, on the national security staff who describes the 4-year lockdown effort as "a sprint within a marathon." I am a career civil servant. I have been doing this for a number of years. The United States attention to nuclear security did not start with the 4-year lockdown. It is not going to end at the

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end of 4 years. What I think is particularly significant about this sort of frame of reference that the President has set up is that he has devoted his personal attention and a lot of time to this effort. That is pretty unique between the Prague speech and two summits—or three summits, which would occur—I am not going to presume the results of the election. That is pretty unprecedented in terms of a world leader's personal attention to this issue.

So as my colleagues have said, wherever we are at the end of 4 years, it will be a substantial accomplishment, but our jobs will not have ended in this regard.

Senator AKAKA. Thank you very much.

Mr. Countryman, I know you are going to have to leave, but let me ask you a question. Your testimony notes the importance of implementing legislation for four key treaties that are important United States commitments to enhance the tools to fight international terrorism and WMD proliferation. In 2008, the Senate unanimously provided its advice and consent to ratification of all four treaties. However, the implementing legislation needed to formally ratify these treaties is still, I think, languishing here.

What are the road blocks to congressional approval of this implementing legislation?

Mr. COUNTRYMAN. Thank you, Senator. I am certain you do not want me to do an analysis of the congressional process. All I can say is that the Bush Administration first submitted a draft of the implementing legislation. The Obama Administration has submitted essentially the same text. We know that there is support not just from our predecessors in a previous administration who have made clear that this should move forward. We know there is support of both parties in both Houses. And I also know that these are somewhat complex legal issues when you need to amend the U.S. Code to provide for a new category of criminal offense, as these treaties would oblige us to do.

I do not have any advice for you today, sir, on how to overcome that. I would only want to emphasize that we ask for rapid action on these in the interests of the national security of the United States. We believe it gives our law enforcement community new, significant avenues by which to investigate and prevent the risk of nuclear terrorism in the United States, and that matters to our national security. It has the added advantage of providing the kind of example to the rest of the world in terms of completing ratification that we always seek to provide and that the United States has traditionally been a leader in.

So there are many good reasons to do it. I do not assume that the obstacles are huge, but I cannot give you an analysis of what is happening outside the drafting process.

Senator AKAKA. Thank you very much for your response.

The next question is to any of the Executive Branch witnesses. This is to whoever has this type of responsibility. Nuclear materials in the hands of rogue or unstable nations are a particular threat. The consequences could have been dire if we had not dismantled the Libyan nuclear weapons program before the chaos leading up to the revolution began there.

I would like to give you an opportunity to discuss the Libya initiative as well as its broader implications.

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Mr. HANDELMAN. Mr. Chairman, the Libya case is really an important example, and it is certainly one where it is an illustration of a successful coming together of like-minded allies to work with a partner country that was in the frame of mind to make some changes.

I think certainly where my Department is in terms of the implications of another Libya or indeed if a nuclear possessor State does not give up its nuclear materials in an orderly manner, our attitude is we are never really going to be able to predict with certainty how materials, be they weapons or radiological materials, might wind up in the hands of terrorists or somehow not be in positive custody of a competent authority. So very briefly, let me describe sort of a framework that we are using for planning, along with our interagency partners.

The proposition is that intelligence or information is always going to be incomplete on a loose nuke. We will be extremely lucky if we get a hold of information or intelligence that pinpoints a warhead or material and, we are able to do perhaps what our military forces do best or our diplomats do best. We are not planning for that. That is too good a scenario.

So the notion is that there is going to be a zone, indeterminate, that we would refer to as the "source zone." It is coming from someplace, and you can pinpoint perhaps a region of the world. Then there is a transit zone. It is obvious what that would be, the different routes that terrorists or others might take to transport material. And then there is a target zone, and it seems that the United States is always somebody's target. There might be others as well.

So from a military planning perspective, the issue is: What does a commander, one of our regional commanders, need to think about if he happens to be responsible for U.S. military forces in the source zone, the transit zone, or the target zone? And there are lists of activities that—some are common for each of those three zones, and some are very different. All of them involve different partnerships with other U.S. agencies.

What we realized is that because of the likelihood that we will have incomplete intelligence, these lists of activities that we will have to be doing in each of these zones is probably going to be happening simultaneously.

So I guess our perspective on the Libya situation is that was a success and we should continue to be working with other governments to achieve continued success. But as is typical for DOD's mission, we are sort of planning for a worse kind of situation and how we would work with our interagency partners to deal with it.

Ms. HARRINGTON. If I could add to what Mr. Handelman just said, Libya, of course, was one of the six countries cleaned out of HEU since the Prague speech, and it was not a simple affair. It took a great deal of concerted effort, diplomatically led by the State Department, but also with pressure from Russia, the involvement of the IAEA, when Colonel Gaddafi decided he would hesitate a little bit before giving up his final material. And it was only because we all worked together both across agencies and across nations that we were able to accomplish this task.

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I think in terms of an object lesson, we need to take our opportunities when we find them and be able to have the flexibility and the nimbleness, which is not necessarily something the U.S. Government is always known for, to be able to react quickly and move into a situation, remove material, stabilize a situation, and accomplish our security tasks.

We sometimes have challenges in that regard. Sometimes there are legislative requirements for concurrence from the State Department or coordination elsewhere. We are working on these issues right now across the agencies. I do not think it requires any help from Congress. It requires a bit of creativity on our side. But we are looking ahead at exactly that kind of situation where all of us will have to come together, work quickly, and be highly effective.

Senator AKAKA. Thank you very much, Ms. Harrington. My next question is for all of you. Ken Luongo, who is President of the Partnership for Global Security, has raised concerns that this budget is inadequate to meet the nuclear threat to American and international security and could undermine the 4-year nuclear security agenda. Others likely will argue that we cannot fully fund the President's request.

Please respond to Mr. Luongo's view that more funding is needed and address what effect less funding would have on our ability to effectively secure vulnerable nuclear and radiological materials. Ms. Harrington.

Ms. HARRINGTON. I notice that Mr. Handelman is letting me take this question first. Thank you.

If you look at budget projections that were presented several years ago for where we would be in the 2013–14 space, they are quite different from where we are right now. But that is very much a reflection of fiscal realities in the United States. The Budget Control Act governs what our limits are going to be. The Budget Committees are very constrained overall. And so across the government, every agency, every program is looking at how it can continue to meet mission goals, but with less resources.

We are no exception, and we are confident that the 2013 budget as presented will allow us to continue to meet our 4-year goals. That does not mean that it is only the Global Threat Reduction Initiative (GTRI) program, but we have to maintain the funding in other programs that are also part of this overall effort. There are at least four different program areas that support the 4-year effort in my office.

So we have done our best to balance across those programs, to make some tough decisions, but we believe they were the right decisions to be able to carry this effort forward. Thank you.

Senator AKAKA. Thank you. Mr. Handelman.

Mr. HANDELMAN. Yes, Mr. Chairman, Secretary Harrington I think used the word "balance" three times in her answer, and I think that is the key point. The Federal deficit is a national security issue. All of us have multiple responsibilities, and we just have to balance one against the other when it comes time to building a budget.

I will note that the program that I described where DOD makes its primary contribution to the U.S. Government's overall nuclear security effort, the Nunn-Lugar CTR program, over the past 3

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years has seen between a 20- and a 25-percent increase in the budget that we have requested, and Congress has supported it. So for our part of the contribution, I think we are appropriately funded right now.

Senator AKAKA. Thank you very much for that.

Mr. Aloise, as you know, the upcoming summit in Seoul will focus in part on radiological security. I was alarmed by your testimony about unsecured radiological materials in hospitals and medical facilities. A terrorist determined to build a dirty bomb seems unlikely to go through the trouble of smuggling radiological material into the United States if they can get it here.

What can the Administration and the Congress do to address this problem?

Mr. ALOISE. Well, you are correct, Mr. Chairman. There is plenty of the material here. It does not have to be smuggled into the United States.

We looked at NRC's increased controls governing the security of radiological sources at hospitals and medical facilities over radiological materials, and basically I think we are coming to the conclusion that they are too broadly written and need to be tightened. A lot of the personnel we visited in these hospitals and medical facilities needed more guidance on how to better secure these radiological sources. They also needed better training regarding the security of radiological sources. They are trained in the health services.

NNSA has a commendable program to lock down these sources. I think it needs and deserves continued congressional support.

Senator AKAKA. I was surprised to learn and was, of course, concerned about the problem. Is it that we need to set up programs that can help them learn how to take care of these materials?

Mr. ALOISE. Right.

Senator AKAKA. And that was the point I thought that was interesting, that many of them do not know how to handle it.

Mr. ALOISE. That is correct, yes.

Senator AKAKA. And so my question was, what can we do to help this situation across the country?

Mr. ALOISE. Well, again, if NRC could tighten up their increased controls, provide more training to health physicists and health providers who are working in this area and, frankly, expand NNSA's efforts to lock down these sources would be the most effective thing we could do right now, because medical equipment in these facilities is essential for providing health care. Providing this health care is the primary function of hospital personnel. They are not thinking security as their first priority. So we need a culture change that recognizes the importance of these facilities and this equipment, but also recognizes that the equipment has to be secured. Ultimately the licensee who holds these radiological sources is responsible for ensuring their security.

Senator AKAKA. Thank you.

Ms. Harrington, do you agree with GAO's assessment that U.S. medical facilities with radiological sources are vulnerable to theft or sabotage?

Ms. HARRINGTON. We know through our program experience and what we have seen along with GAO in various of these facilities

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that there is substantial room for improvement. Having discussions like this, you bringing attention to this issue, I think is extremely helpful. Just as we work on developing security cultures in other countries, we need to work on the same kind of security culture in our country, particularly on this radiological issue. So I agree that there is certainly more that we can do.

Senator AKAKA. Are you aware of any actual incidents of potential theft or sabotage of radiological sources in U.S. medical facilities in the last several years?

Ms. HARRINGTON. There are some examples, but they would not be something I could discuss here.

Senator AKAKA. Fine. Thank you.

Ms. Harrington, GAO cites two impediments to your ability to secure all domestic radiological sources: Your programs are voluntary, and the costs to maintain security upgrades may be too burdensome for some hospitals and medical facilities.

Do you agree with that assessment? And what steps can be taken to advance your work to secure radiological sources?

Ms. HARRINGTON. Mr. Chairman, I think there are a number of things that can be done. Again, having a broader conversation on the need to pay attention to security, introducing training, as Mr. Aloise said, for people in the health profession, including that as part of their education, that this needs to be an issue that is integrated into how they perform their daily work.

Because we do not have a national requirement, as Mr. Aloise said, the NRC regulations are what they are, so we offer this as a voluntary program. We actually have excellent cooperation with the NRC, which often will reach out to facilities and recommend that they work with us. So it is not that the NRC is not trying to help. They really are trying to do, I think, a good job in promoting this kind of work.

Similarly, as we look forward, if we have this broader discussion and get hospitals and medical facilities and clinics and so forth to think about security as they are designing their programs, then it becomes something that is simply part of the conversation and probably less expensive than putting security on top of a facility that already exists.

So I think, again, broadening the conversation and engaging in more community-based discussions is very good.

Senator AKAKA. Thank you.

Let me ask GAO, Mr. Aloise, whether you have any comments on the questions I just asked of Ms. Harrington.

Mr. ALOISE. I would just add that many of the security vulnerabilities we observed on our visits were in facilities that were under NRC's increased controls. Many of the law enforcement officials we talked to said that the NRC's increased controls were better than nothing, but that would not stop someone who wanted to get their hands on those sources. That is why NNSA's program is so important, because the upgrades we witnessed that NNSA put in were very impressive.

Senator AKAKA. Thank you very much for those responses.

I would like to ask the next question to DOE and DOD. In 2010, GAO raised concerns that although your agencies had individual strategic plans, there was no overarching interagency strategy to

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meet the 4-year goal. GAO recommended that the National Security Council lead the development of a strategic plan that includes details about vulnerable foreign nuclear sites, planned activities at each location, agency responsibilities, potential challenges and strategies for overcoming them, and cost and timeline estimates.

What is the status of an interagency strategic plan? And I want to commend you folks for using an interagency process in your work. Thank you.

Mr. HANDELMAN. Mr. Chairman, I will start off. I think—well, let me answer directly. The status of interagency planning is that it is intense. I think there is a challenge perhaps in how one defines strategic plan. I must say just an executive branch manager, I think we need to be left some flexibility to how we establish metrics of success and budgets and targets for our own programs. Is there a telephone book-sized product, labeled "Strategy" with all of the things that one might include some of the things that you have referenced? No. Does the Cooperative Threat Reduction Program have a telephone book-sized product that sets targets and identifies the impediments to achieving our goals? Sure, it does. And so does Ms. Harrington, and we see a huge amount of each other, often at the Old Executive Office Building, or as Ms. Harrington described, in some of our, I will call them, "bilateral agency coordination meetings," where we are trading notes and synchronizing what these plans are.

I personally reflect on what the state of planning is today and what it was when I first got involved in the nuclear security business around 2001, and I will tell you, back then we tried our best in Washington. What we always knew is that if we were working on nuclear security projects or, indeed, any kind of weapons of mass destruction nonproliferation project overseas, we could always rely on the embassy country teams to deconflict if we just missed a beat here in Washington and, for example, the State Department and DOD were spending money to address the same nuclear security type of threat in a particular country. My confidence at the time in the embassy country team was much higher than my confidence in the interagency process to get it right from the start here in Washington at headquarters. Today my confidence is equal, both from where we do our original planning and targeting and budgeting here in Washington, but it is still great to have the safety net of our great State Department colleagues out in the field who actually have to work with the implementers, who are there to just double-check and make sure that we are not double-tapping on a project or that we are not missing something.

Senator AKAKA. Any further comment, Ms. Harrington.

Ms. HARRINGTON. Mr. Chairman, let me add to that. Each one of these efforts is unique. There are diplomatic, technical, logistical, and financing dimensions for each one of these that have to be separately developed, negotiated, concluded. In some cases, there are contracts that have to be executed. So there is no cookie-cutter approach that we can apply. We have basic goals that we want to achieve with each one, but I think it is a real demonstration of success of how closely we have worked, and how successful, that we have this chart[1] here, which is our set of goals for vulnerable material removals. And all of the green is what we have accomplished.

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The yellow is currently in process, and between now and 2013, our goal is to complete the white.

So I think this visually demonstrates that the process that we have in place is actually working quite well. Sometimes, however, there are things that are extremely disruptive to being able to implement even the best plan.

We found, for example, that in 2011, when we had a whole series of continuing resolutions (CRs), we actually could not put enough money together to actually place the contracts that were needed in order to manufacture the replacement fuel or secure logistic support and so forth, and we experienced a fair amount of slippage, which we have been making up, but there are external factors that play extremely heavily on these kinds of operations.

And so to the extent that we can be precise, we are. To the extent that we can predict when a foreign partner's government may change very quickly, those are things that we have to basically step back from, recalibrate, work with our State and Defense colleagues, and then figure out how to go forward most effectively.

Senator AKAKA. Well, thank you for your responses.

Let me ask this question to Ms. Harrington and ask GAO also to respond to this. In 2011, GAO reported that the United States is not able to account for most U.S. nuclear materials sent overseas as part of civilian nuclear cooperation agreements. This included significant amounts of weapons-usable material. GAO noted that these agreements often do not provide U.S. agencies with the right to access nuclear materials in order to verify that materials are secure. We rely on other countries to safeguard them.

Do new nuclear cooperation agreements guarantee U.S. agencies will have access to United States supplied nuclear materials?

Ms. HARRINGTON. Thank you, Mr. Chairman. This is probably going to be an interesting conversation between Mr. Aloise and me because, as you probably are aware, DOE, the State Department, and NRC had a quite different view from GAO's in terms of this report, and I think all three agencies provided fairly strong responses to GAO's conclusions.

We believe that working together with the NRC and the State Department and the Defense Threat Reduction Agency (DTRA), that our bilateral assessments to visit foreign facilities and assess the status of U.S.-obligated materials provides us a good basis to keep track of those materials. We do follow the IAEA Physical Security Guidelines, and the IAEA also provides its own safeguard inspections of facilities. So we, I think, feel quite comfortable that the system that is in place actually is adequate.

In terms of accounting, the Nuclear Materials Management and Safeguard System serves as our central repository and database for our inventories. It has existed since material first started being sent outside the United States, and that in combination with the IAEA safeguards program give us a sense of confidence that we do have a good picture of the status of our materials.

Senator AKAKA. Thank you. Mr. Aloise.

Mr. ALOISE. Well, as you might guess, I have a different perspective on that. From 1994 to 2010, the United States, the interagency

[1] The chart referenced by Ms. Harrington appears in the appendix on page 138.

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teams—made 55 visits overseas to check on the physical security of U.S. nuclear material, and about half of those visits found that countries did not meet IAEA physical security guidelines.

Much of this information is a black hole. We do not know where the material is, how well it is being secured, and we have made visits over there, and I visited some of those countries myself and saw some situations which urgently needed upgrading.

So we think the status quo in this area is not good enough. We think more effort needs to be made to develop an inventory of where this material is. I know it is a delicate dance with our foreign partners who hold the material. However everybody needs to understand that physical security guidelines should be followed and our material needs to be protected.

Senator AKAKA. Well, thank you, and let me ask a final question to this panel, and particularly to DOE and DOD. Well, let me put it this way. This question is for any of you that want to respond.

Many agencies face difficulties recruiting and retaining high-skilled employees, particularly in fields requiring specialized technical, scientific, language, or other training. An increasing number of Federal employees are retiring, further complicating this challenge on personnel.

What actions are you taking to address recruitment and retention challenges in your nuclear security workforces? Ms. Harrington.

Ms. HARRINGTON. That, Mr. Chairman, is an excellent question and an issue that occupies our minds often. Ensuring the future security of the country is as important to us as the current security, and making sure that we have the right people to step into our shoes when we all retire is essential.

We approach this in a number of different ways. I left in our office a nonproliferation graduate fellow who works with us. We usually have 20 or more of them who are recruited every year. Young professionals who are interested in following a career, who come into our offices, get security clearances, work side by side with us, travel with us, and many of them end up as part of our nuclear security family, either in the Department of Energy, some in the Department of State. I already lost one to you this year, Ken, who is now working permanently with the Defense Threat Reduction Agency.

We also have within our laboratories a very good pipeline of fellows and young scientists, and, similarly, with our research and development office, we have a new university laboratory consortium which allows a large group of U.S. universities to work directly with Department of Energy laboratories and allows our laboratories to work directly with university faculties. It is a very exciting program. We think it will give us a long pipeline into the future. But we do think about this issue a great deal. Not only for us, but also for other countries that are suffering through the same kind of retirement bubble that we are experiencing in the United States. We are not unique in this respect, and we have interesting conversations with our Russian colleagues, for example, who are looking at similar issues.

Thank you.

Senator AKAKA. Thank you. Mr. Handelman.

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Mr. HANDELMAN. Mr. Chairman, it is an excellent question. I think my response is not going to be completely satisfying because I come from a policy organization, so we are not people typically who can do mathematics in public. We can think big thoughts and spell-check them.

If it makes you feel any better, I will tell you that every time I am with colleagues at NNSA or, even more important, out at the laboratories, the issue of recapitalization of our physical scientific base is—those discussions are never ended without a similar discussion about the recapitalization of the intellectual base. So the people who can do math in public, I can attest, are thinking about it very carefully.

I will tell you that in my organization, because of Secretary Gates' efficiencies program, right now we are in a hiring freeze, but I like to think that we—well, when we are not in a hiring freeze, I like to think that we do need good policy thinkers to pair up with the technical experts, and for whatever it is worth, the people that we have been recruiting, who had been applying to our jobs before the hiring freeze was imposed, were absolutely stupendous. I mean, I could not compete with them.

I will embarrass a close colleague in my organization, Dr. Jason Hamm, who is sitting right behind me, who is a great example of a person who is actually a Ph.D. experimental physicist, who is in the policy world, and I get to take credit for his good work.

So from a policy perspective, as retirements go forward, I am actually pretty confident in DOD that we are able to keep that human capital pipeline flowing.

Senator AKAKA. Thank you very much.

Would you like to make any comments, Mr. Aloise.

Mr. ALOISE. Yes, Mr. Chairman. In a few months, we will have a report to you that we are doing at your request looking at the challenges NNSA is facing in hiring, in keeping people in the areas such as nuclear weapons. People do not graduate college as weaponeers. It takes years for them to become smart on nuclear weapons. So that report will lay out the challenges and what NNSA is doing to address those challenges.

Senator AKAKA. Well, I want to thank you very much. Your responses have been valuable, and it will certainly help us in our further discussions and trying to deal with the challenges that we will be facing on these issues.

I want to thank you so much for what you are doing, and you have been responsive to us, and we are all working together to make it better for our country. So thank you very much to the first panel.

Now I would like to call the second panel to the table here. [Pause.]

I want to welcome Mr. Kenneth Luongo, President of the Partnership for Global Security, and Dr. Page O. Stoutland, Vice President of the Nuclear Materials Security Program at the Nuclear Threat Initiative.

As you know, it is the custom of this Subcommittee to swear in all witnesses, so I ask you to please rise and raise your right hands. Do you solemnly swear that the statement you are about to

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give the Subcommittee is the truth, the whole truth, and nothing but the truth, so help you, God?

Mr. LUONGO. I do.

Mr. STOUTLAND. I do.

Senator AKAKA. Thank you very much. Let it be noted for the record that the witnesses answered in the affirmative.

Before we start, again, I want to remind you that your full statements will be included in the record, and we ask you to please limit your oral remarks to 5 minutes.

Mr. Luongo, will you please proceed with your statement?

TESTIMONY OF KENNETH N. LUONGO,[1] PRESIDENT, PARTNERSHIP FOR GLOBAL SECURITY

Mr. LUONGO. Thank you, Mr. Chairman. Thank you for the invitation to testify today, and thank you for holding this hearing. I think it is a very important subject.

The Nuclear Security Summit in 2010 was unprecedented, and it was a successful event where the participants agreed to a communique that highlighted many issues of global importance and, in particular, endorsed the President's goal of securing all vulnerable nuclear materials in 4 years. As you noted, a second summit is in Seoul later this month, and then the next one is in the Netherlands.

I think that the summit process has been important for a variety of different reasons, including setting some new precedents. One is that the pursuit of improved nuclear material security does not need to be universal all the time. It can be selectively multilateral, which is essentially what the Nuclear Security Summit is. It does not include all nations.

Another important precedent is that it seeks to achieve goals within specific time frames, and I think that some of that has happened and some of it has not happened, which I will talk about a little bit more.

There are developments that have essentially further solidified the current regime, but not allowed new policies and strategies to be introduced to supplement today's system to address nuclear terrorism. And I think a good precedent is that each summit should build on the previous one to introduce some new ideas and some new thoughts.

My expectation for the upcoming Seoul summit is that it should build on the foundation of the Washington summit and then create an improved governance structure for nuclear material security. And it should focus on three things: It should be comprehensive; it should help standardize the way we do this across borders; and it should be accountable. If this policy evolution can be initiated, then I think it will significantly strengthen the nuclear security regime in the future.

The current nuclear material security regime is essentially a patchwork that is primarily designed and controlled by national agencies and actors. It includes very little transparency. International obligations are largely voluntary, with no uniformity of security regulations or procedures. And what is needed is a con-

[1] The prepared statement of Mr. Luongo appears in the appendix on page 84.

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fidence-building architecture that allows for comprehensive and clear but flexible standards.

You were kind enough to mention my criticism of the budget. Thank you. I really think that the budget is a serious problem. It has never been commensurate with the President's vision or the goals that he set out in the Prague speech, and this year's budget in particular I think is very problematic, and both as it relates to the Second Line of Defense (SLD) and as it relates to the GTRI program.

As your line of questioning in the first session indicated, there is much more that we could do on radiological security, and we really should do it. It is very important.

On the Second Line of Defense program, I would just make one comparison. In the United States domestically, in New York City in particular, we have installed about 6,000 radiation monitors around New York City. Around the rest of the world, we have only installed about 2,000 for all of the rest of the globe. And yet the program is being cut by a very substantial margin this year, and I think it does not make any sense. And I think that the justification for that cut has never been made clear, and I think it should be.

The President's goal of securing all vulnerable nuclear materials in 4 years, as Gene mentioned, has never been very well defined. I think it is a mistake that we in the outside world never pushed for a specific definition. The definition that we received today, which is that it was the protection of high-priority materials as opposed to all vulnerable nuclear materials, is not completely consistent with what the President said.

I think that between now and 2020 a bolder agenda should be pursued, and I think that part of that bolder agenda should be the elevation and prioritization of radiological source security. There is a serious problem with radiological materials around the world, and one initiative that the Congress could enact, should they so decide, is radiological zones of security around the world.

I would just say that another item that would be useful is to unify the current regime under a nuclear material security framework. There is precedent for it in the environmental area, and the Convention on Nuclear Safety also has precedent that could be used.

In general, I would say that the Congress should provide leadership on nuclear security by ensuring adequate budgets, by authorizing and funding these radiological security zones, by supporting a dialog among international regulators and nuclear facility security personnel, and then, finally, by encouraging the administration to focus on the need to improve nuclear security governance and to explore the value of this framework agreement that I mentioned. Thank you very much.

Senator AKAKA. Thank you very much, Mr. Luongo.

Mr. Stoutland, would you please proceed with your statement?

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TESTIMONY OF PAGE O. STOUTLAND,[1] PH.D., VICE PRESIDENT, NUCLEAR MATERIALS SECURITY PROGRAM, NUCLEAR THREAT INITIATIVE

Mr. STOUTLAND. Thank you, Chairman Akaka. My name is Page Stoutland. I am the Vice President for Nuclear Materials Security at the Nuclear Threat Initiative (NTI), a nonpartisan, nongovernmental organization founded and co- chaired by former Senator Sam Nunn and CNN founder Ted Turner. Over the last 10 years, we have worked to strengthen material security around the world in a range of projects and are trying to catalyze governments to do more in this area.

My remarks today will focus primarily on the urgent need for leaders to reach a global consensus on priorities for nuclear materials security and on steps the international community and individual countries can take.

Because there is no baseline assessment of nuclear materials security conditions around the world, we recently developed a first-of-its-kind Nuclear Materials Security Index that scores 32 countries that have what we call "weapons-usable nuclear materials" on their nuclear materials security conditions, and also an additional 144 countries that have small amounts or none of these materials but could be used as safe havens or staging grounds.

Our hope is that this index will serve as a much-needed basis for a dialog on security priorities and can be used as a baseline against which progress can be measured.

In developing the index, we found that governments generally are more aware of the threat posed by nuclear materials and the urgent need to strengthen security and also are more engaged in this effort. That was the good news, and it was due, at least in part, to the 2010 summit.

We also, however, confirmed that there is currently no global consensus on what steps matter most to achieve security. There is no agreed international system or globally accepted practices for regulating the production of, use of, and security requirements for weapons-usable nuclear materials. And, further, there is deliberate lack of transparency about security measures that makes it impossible to hold States accountable for their security responsibilities.

Briefly, we also believe that the nuclear terrorism threat remains high. There are currently thousands of tons of nuclear materials in the world, and many of those are not well secured. That is why all countries with weapons-usable material have a responsibility to secure them and to make sure that their materials are not at risk of theft or diversion, and that is why we, NTI, working with the Economist Intelligence Unit, undertook the development of this index. Detailed information is available at www.ntiindex.org.

Let me make one important point. The index is not merely a rating system. It is not meant to be used to congratulate some and chastise others. Rather, it is designed to be used as a resource and a tool for all countries and international organizations as we make the world a safer place.

[1] The prepared statement of Mr. Stoutland appears in the appendix on page 96.

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Let me briefly summarize some of our key recommendations that get to your question as to are we effectively securing nuclear materials around the world.

An overarching recommendation is that all States must work together to build a system for tracking, protecting, and managing nuclear materials in a way that builds confidence that each State is fulfilling its obligation.

Specifically, we recommend establishing an international dialog on the priorities for materials security. Such a global consensus does not yet exist, and the Nuclear Security Summit or some other process would be a good place to start to build a common framework for action.

Second, we must benchmark progress and hold States accountable for security. Over the past 20 years, there has been progress on securing and eliminating materials, but we must track progress around the globe over time, and it is critical that governments provide declarations of their weapons-usable nuclear materials as well as the current status of their nuclear materials security conditions.

Third, it is important to build appropriate transparency to increase international confidence. We understand, of course, that many details about security for sites where materials are stored are—and should be—protected. But other information, such as the general approaches to materials security and broad descriptions of materials security regulations and holdings, could be made public and could greatly enhance international confidence in a country's security conditions.

Individually, countries can do more as well. The United States ranked 13th among countries with weapons-usable nuclear materials in our index. That rating was affected, in part, by the quantity of materials and number of sites where they are stored. If the quantities and sites were not included, the United States would rank second, indicating high scores in other areas. But in the future, the United States could improve its leadership and its ranking by ratifying the relevant international agreements that are critical in this area.

We are encouraged by reactions to our new index, by progress on the President's goal of eliminating all materials, and by ongoing attention. But today it is imperative that the Congress continue to support these critical programs and continue to support United States leadership in this area. We strongly urge the Senate to complete ratification steps on the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) and the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT). Doing so would set a powerful example for the world and reinforce the United States' leadership in this area.

Again, great progress has been made on nuclear security. We welcome the United States leadership provided by the summit, and we are optimistic about continued progress. The index can help inform that process and serve as a valuable tool to help all of us better secure and protect some of the world's deadliest materials.

I would like to take the opportunity again to thank you and this Subcommittee for this work, and I am happy to answer any questions you might have.

Senator AKAKA. Thank you very much, Dr. Stoutland.

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Mr. Luongo, your testimony recommends that we devote greater attention and resources to securing high-risk radiological materials worldwide, and I agree with you on that. You provide recommendations for expanding NNSA's radiological security work both domestically and abroad.

Please elaborate on these recommendations, as well as any observations you may have regarding GAO's findings on the serious vulnerabilities at domestic hospitals.

Mr. LUONGO. Well, I have two reactions, Mr. Chairman. The first is that I think NNSA is doing a great job on radiological with the money that they have, but the money is not adequate for the mission. And I think the second reaction I have is that what GAO found is a function of the fact that there is not enough of an effort in hospitals to secure radiological materials.

I was struck—there is a study from the Congressional Research Service (CRS) on radiological terrorism, and I have been working in this field for a long time, but I have to tell you, the person that wrote that report came to something that I was at and held up a vial of Cesium-137 and said this is what it would take to have a radiological incident that had the scope of radioactivity dispersal that he had in his report, which would have gone from the White House up beyond Capitol Hill, and that capsule was as big as my thumb.

It is a very serious problem because we have hundreds of thousands of these sources around the world. The most high intensity of them are less than the average source, and most of them are found in hospitals and food irradiation facilities and things like that.

So I think an initiative that—as a high priority for the United States—is to secure all high-intensity radiological materials in hospitals and other public locations would be a great initiative between now and the next summit in 2014 in the Netherlands. And I think it is something that the United States could spearhead, and I do not think it is going to cost that much. I think to do the job in the United States alone would be something less than $200 million. But I think it is an important initiative, and it has been undervalued. The President never mentioned it in Prague, but I do think it is something—now that the 4-year goal is coming to an end, it is something that we need over the next 2 years or next 4 years a much more intense effort on this issue.

Senator AKAKA. Thank you very much for that response.

Dr. Page Stoutland, I applaud NTI's useful Nuclear Materials Security Index. One factor you analyzed was the level of political stability in each country with weapons-usable nuclear materials. As the recent unrest in the Middle East makes clear, this can change rapidly.

How does political instability undermine nuclear materials security? And how can we best prepare for it?

Mr. STOUTLAND. Thank you very much for that very important and interesting question. When we created the index, we tried to create a very holistic framework, if you will, that included the full range of things that we thought could affect a country's materials security conditions. And as you highlighted, it included political stability; it also included levels of corruption.

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And as challenging as those things are to evaluate—and I should point out that we depended on the Economist Intelligence Unit, which is part of the Economist Group and has a long history of evaluating these things—we thought it was important to couple the conversation of materials security to political stability, because I think as we have seen just over the last few years, both in Libya and the Middle East, and even in North Korea where there has been a recent change, those changes introduce a whole set of uncertainties that are very unpredictable; and yet they must be considered as we think about securing materials in each of these countries.

So you then ask the question, well, what can we do about that beforehand to better deal with it given the potential uncertainties and yet the potential seriousness of this. I think there are several things that can be done. Probably the most important would be to remove and eliminate materials from as many countries as possible so that as we saw in Libya, the situation was very different since the materials had been removed beforehand. And so the potential for political stability I think should motivate us to do even more in that regard.

Second, I think we should make sure that the materials are as secure as possible, and so for countries where they have either high levels of corruption or political instability, or in many cases both, those countries, I think, need to go the extra mile, so to speak, to show the international community that their materials are under very effective control and would remain so, even in changes of government or other dangerous situations.

Senator AKAKA. Dr. Stoutland, your testimony states that to effectively track, protect, and manage nuclear materials, the IAEA would need to be significantly strengthened or a new international entity created. Your testimony provides specific recommendations for desirable outcomes, but does not address how to strengthen the IAEA itself.

What recommendations do you have for building the IAEA's capacity to achieve these goals?

Mr. STOUTLAND. Thank you for your question. This is actually one of the areas where we have received many questions after the index has come out, and, in fact, there is even a short section in the index that talks specifically to the role of the IAEA, because what we have found is that many people who are interested in this area do not understand that the role of the IAEA is currently restricted to civilian nuclear materials. And, of course, the vast quantity of nuclear materials are in nuclear weapons programs around the world. And so the mandate of the IAEA would have to be dramatically expanded to include military materials to accomplish such a thing, and obviously, that is something that would be very difficult to do and take a very long period of time.

Second, there is just the resource issue. The IAEA is currently underresourced to do many of the jobs that it has been asked to do, in fact, and so that is something else that would have to be addressed.

So in the meantime, we have proposed that it is critical that an international discussion be initiated, first of all, on what the priorities are, and our index has offered a framework for discussion that

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we can use to start to consider in a very specific way what the priorities are. And as we do that, I think we then have to consider what such a system might look like and what its governance might be. But those things, I think, are some time in the future as we start to sort this out.

Senator AKAKA. Well, let me ask Mr. Luongo the same questions, what recommendations you may have for building the IAEA's capacity to achieve these goals.

Mr. LUONGO. Yes, Mr. Chairman, I would say that, first and foremost, the IAEA after September 11, 2001 created an Office of Nuclear Security. It is under Nuclear Safety and Nuclear Security, and the problem with that office is not that it is not good. It is that it is underresourced significantly, and there is a challenge in the IAEA in balancing how different parts of their mission get money. So most of the money that goes to the Nuclear Security Office comes from voluntary contributions from individual countries. I think their budget is somewhere around $25 or $30 million a year. I think they could do more, provide more assistance to countries, if they had more money and more specialists that could go out and evaluate the security in individual countries. That is one specific thing that I think would be very helpful.

Reforming the IAEA so that it has a mandate that is greater than what it is now or that is more mandatory than what it does now I think is going to be extremely difficult because in nuclear security, what it does is it makes recommendations, and it will do assessments, but it cannot enforce them. And the issue, I think, that Page mentioned and others in the first panel mentioned is that we do not have uniformity of implementation of the security recommendations. The recommendations are all very good, but we do not know how they are implemented in a lot of countries, and there is no requirement that they be implemented uniformly.

So I think trying to get a uniform baseline would be extremely useful, and that is something that the IAEA could contribute to. But the enforcement and the transparency of how the implementation occurs is a key issue, and I think that is not something that the membership in the IAEA would ever allow in the short term, but it is a long-term goal.

Senator AKAKA. Thank you very much for that response.

Dr. Stoutland, as you know, Iran, Pakistan, and North Korea received the lowest scores in your security index. Please discuss why they received such low scores and to what extent their lack of transparency about their nuclear materials contributed.

Mr. STOUTLAND. Yes, thank you for your question. I think, first, one of the key messages coming out of our index is that, independent of where countries rank, there is more that all of us can do to improve our security conditions. That said, I think the countries you mentioned have a lot of room for improvement, so to speak. We have found that some of these countries do not fully participate in all of the international legal arrangements. Many of these countries have very challenging societal factors, be they political stability or corruption. Many of them have capacity issues just in terms of an ability to implement the guidelines that may have been promulgated by the IAEA as an example.

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And so these countries have a lot of challenges in front of them, and I think you have mentioned the transparency issue. One of the key things in our index which differentiates it from some other projects is that we included the role of transparency because we thought it was critical that not only did countries have good materials security conditions but, in addition, that they can assure others that they have good security conditions. And so that issue featured prominently in several countries, and I think there are specific things that those countries can do.

Some have commented in reviewing our index, "Isn't it at odds with security to have too much transparency?" And we are very clear to say that we are not asking for transparency on the specific security measures that might be in place at a site. Those, of course, should be appropriately protected. Rather, we are asking for some fairly general things related to having a country have its regulations be public, by making public declarations about materials quantities and overall security practices. That could go a long ways to assuring the international community that they, in fact, have their material security under good control.

Senator AKAKA. Thank you.

Mr. Luongo, you support GAO's recommendation to compile an inventory of U.S. nuclear materials overseas, and you heard the discussion during the first panel of that issue. Would you like to comment on the issue and the agency witnesses' testimony?

Mr. LUONGO. Yes, Mr. Chairman. On the one hand, I have a certain amount of sympathy for the NNSA and other agencies that have to go out and try to verify where this United States-origin material is because a lot of it was delivered years and years and years ago, and the level of scrutiny was not as intense as it is today.

That being said, I think that getting the most accurate record of where nuclear material is and who owns it is extremely important, and there is this whole new field of science called "forensics," so if there is a nuclear incident, you can identify what country that material came from.

I would hate to see United States-origin material used in a nuclear terrorist incident, and I think that stronger efforts should be made to try and identify where this material is.

Senator AKAKA. Thank you.

To both of you, it took over a decade to publish revised IAEA recommendations for the physical protection of nuclear materials and facilities. Achieving international consensus often takes quite some time, as you know.

What more can be done to make sure we have international nuclear security mechanisms that respond quickly enough to evolving security needs? Mr. Luongo.

Mr. LUONGO. Yes, thank you, Mr. Chairman. I think the challenge that we have in the international community is that when you are seeking unanimity in support of something, you end up with the lowest common denominator because it is always watered down by countries that are least interested in making progress on the issue.

So I think in a way the Nuclear Security Summit process, even though it has not tackled the really difficult issues that we are

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talking about today, has created this precedent for selective multilateralism where I think leaders could emerge and put in place, agree among themselves to be more transparent, to agree to a common standard for nuclear materials security, to submit their materials to peer review with confidentiality.

I think leadership among some key nations—and those nations I consider to be the United States, South Korea, Japan, and others—would be an extremely positive example that others could follow. The example that we have in the environmental area for fluorocarbons, for example, is that not all countries agreed on protecting the ozone layer at the beginning, but ultimately many more came on board after the initiative was begun and the agreement was put in place.

So I think we need to start with leaders, and then I think we will gather followers.

Senator AKAKA. Thank you.

Mr. STOUTLAND. If I could just make a quick comment and largely second what Kenneth said, with perhaps an anecdote. As we finished the index, we had many people come to us and say, well, why didn't the IAEA or some other international organization do such a thing, because it is in many ways obvious that we want some sort of framework and be able to track progress. And the answer we received was that it would be either impossible or it would take a very long period of time for an international organization that operates by consensus to do something that in principle is actually quite straightforward.

So we went ahead and did it. As we did it, we tried to—a key part of our project was to have a fairly small international panel so that at least we achieved some level of international consensus on the framework and then, of course, offered it for broader comment. But I think the notion of putting forward something that is a nucleus around which people can gather and start to achieve some consensus and hopefully some momentum is a good one. I think the summit is a good example of that, and there are others where we can start to build consensus perhaps by starting with small groups.

Senator AKAKA. Thank you very much. I would say that would be my last question to you, and I want to thank you so much. Your responses have been valuable, and it will help us move forward with the security initiatives that we certainly want to strengthen, not only in our country but abroad as well. And you have been helpful in doing that, so I want to thank you so much for being part of this hearing today.

The President's 4-year effort and the upcoming Nuclear Security Summit in Seoul have put a much-needed international spotlight on nuclear materials security. This renewed focus has led to significant achievements in securing nuclear materials abroad. However, many challenges remain, and our Nation is alarmingly vulnerable. GAO's testimony today regarding unsecured radiological materials in hospitals and other medical facilities nationwide should serve as a wakeup call to these facilities as well as to our Federal agencies and Federal regulators.

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I look forward to working with the Administration and my Senate colleagues in continuing the critical effort to promote nuclear and radiological materials security worldwide.

I will keep the hearing record open for 2 weeks for additional statements or questions other members may have.

Again, thank you for your responses here and for being part of this. This hearing is adjourned.

[Whereupon, at 4:30 p.m., the Subcommittee was adjourned.]

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APPENDIX

STATEMENT OF CHAIRMAN DANIEL K. AKAKA

Managing Interagency Nuclear Nonproliferation Efforts: Are We Effectively Securing Nuclear Materials Around the World?

Hearing
Subcommittee on Oversight of Government Management,
the Federal Workforce, and the District of Columbia,
Senate Committee on Homeland Security and Governmental Affairs

Aloha and thank you for being here. Today, the Subcommittee will examine interagency efforts to prevent nuclear and radiological materials from falling into the wrong hands. Since 1999, I have chaired ten related hearings on this subject and requested ten Government Accountability Office (GAO) investigations.

The terrorist threat remains serious and the consequences of a nuclear or radiological terrorist attack would be catastrophic. In 2010, President Obama stated that nuclear terrorism is the single biggest threat to U.S. security, short-term, medium-term and long-term. The International Atomic Energy Agency (IAEA) reported more than two thousand unauthorized incidents, such as illegal trade or movement of nuclear or radioactive material, from 1993 through 2011.

On Sunday, we commemorated the one year anniversary of Japan's Fukushima nuclear tragedy. That incident highlighted the potentially dire implications of failing to adequately prepare for and defend against unexpected events.

I want to commend President Obama, the agencies represented here today, and the many federal employees in those agencies for their commitment and hard work to bolster nuclear and radiological security. I also want to thank GAO for its diligent work, which has strengthened those efforts.

In a landmark 2009 speech in Prague, the President announced a new international effort to secure all vulnerable nuclear material within four years. The successful 2010 Nuclear Security Summit in Washington, DC, spurred progress on this aggressive timetable. Since the President's speech, more than 31 nuclear bombs worth of material have been removed from countries around the world.

Most notably, Libya's nuclear weapons program was dismantled before the recent uprising began, and all highly enriched uranium has been removed from Chile, Romania, Serbia, Taiwan, and Turkey. I hope this progress will be accelerated when the President joins leaders of 52 other nations and four international organizations at the second Nuclear Security Summit in Seoul, Korea in less than two weeks.

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The scope of the upcoming Seoul Summit has been broadened to include radiological material security. I have pressed for more focus on radiological material security for more than a decade, and GAO has investigated various aspects of this issue at my request.

In 2007, GAO reported troubling shortfalls in the security of high-risk radiological materials internationally, including in Russia and the Ukraine. Today, GAO will testify to preliminary findings that highlight a number of egregious security weaknesses at domestic hospital and medical facilities where radiological materials are used and stored. These disturbing findings demonstrate the need to strengthen the security requirements for domestic radiological sources.

There is a model that could be used to enhance domestic radiological security nationwide. The Department of Energy's National Nuclear Security Administration has worked with partners in my home state of Hawaii to complete security enhancements on all high priority radiological materials in the State. Hawaii is now safer, and I urge the Department to accelerate the implementation of this important program and to better coordinate with the Nuclear Regulatory Commission to secure all high-risk sites across the country. The U.S. should serve as a model world-wide on domestic radiological security. The upcoming summit in Seoul provides an opportunity to focus the world's attention on this issue.

The Administration's bold commitment to secure all nuclear material worldwide could be paired with a new international initiative to secure all high-risk radiological materials in four years. When the U.S. leads by example, we can make great strides to improve international safety and security.

In addition to radiological sources, I remain concerned that federal agencies face challenges defining and implementing a strategic plan for nuclear security. Agencies must prioritize the highest-risk materials, ensure that nuclear and radiological materials the U.S. supplies to allies do not become a threat, and coordinate with the IAEA. I look forward to discussing these issues today. I also hope the Administration witnesses identify how Congress can best support their efforts – through adequate funding, ratification of relevant treaties, legislation, or otherwise.

The security of nuclear and radiological materials has been a priority during my tenure in the U.S. Senate, and I will continue focusing on this issue during my last year.

This is a bipartisan issue that I hope all of my colleagues will actively pursue in the future. This is not and should not be a political issue – it is about safeguarding human life, the environment, and the economy. The stakes are too high for partisanship or for Congress and the American people to ignore it.

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GOVERNMENTAL AFFAIRS

STATEMENT OF

MR. THOMAS M. COUNTRYMAN
ASSISTANT SECRETARY OF STATE
FOR INTERNATIONAL SECURITY AND NONPROLIFERATION

BEFORE THE SENATE COMMITTEE ON HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS

SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT,
THE FEDERAL WORKFORCE, AND THE DISTRICT OF COLUMBIA

MARCH 14, 2012

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THE SENATE COMMITTEE ON HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS

Managing Interagency Nuclear Nonproliferation Efforts:
Are We Effectively Securing Nuclear Materials Around the World?

INTRODUCTION

Chairman Akaka, Ranking Member Johnson, and Members of the Committee, good afternoon and thank you for having me here to discuss the Department of State's role in interagency efforts to secure vulnerable nuclear material around the globe. This is an important priority for the United States and Congress's past support has been critical to this mission.

My testimony today will focus on State's support to accomplish the President's vision to secure all vulnerable nuclear materials in four years—a goal endorsed by 47 nations at the 2010 Nuclear Security Summit. I also will discuss cost sharing efforts with our international partners and international organizations. Finally, I will conclude with some thoughts on how Congress can continue to support this vital effort.

HARNESSING DIPLOMACY TO MEET NUCLEAR SECURITY

In April 2009 in Prague, President Obama shared his vision for a world without nuclear weapons, free from the threat of nuclear terrorism, and united in our approach toward shared nuclear security goals. The specter of nuclear terrorism is one of the most challenging threats to global security today. We know, for example, Al Qaeda has tried to obtain or develop a nuclear attack capability to use against the United States. And we also know that there are large quantities of weapon-usable nuclear materials – that is, highly-enriched uranium (HEU) and separated plutonium –around the world. While it is impossible to predict the likelihood of a nuclear attack by terrorists, they have openly declared their desire to launch mass-casualty attacks on civilian population centers.

Given the catastrophic and perhaps existential political and economic repercussions of such an attack anywhere in the world, nations everywhere share a common interest in establishing the highest levels of security and protection for weapon-usable nuclear material. The international community also shares a common responsibility to strengthen national and international efforts to prevent smuggling of these materials, and to detect and intercept smuggled nuclear materials in transit.

Though the efforts to secure nuclear material across the globe have improved our security, the persistence of illicit trafficking of weapons-usable nuclear material demonstrates that efforts to consolidate materials and secure facilities must be complemented by broader efforts to detect and investigate cases of nuclear materials outside proper control. In particular, cases of illicit trafficking of highly enriched uranium in 2010 and 2011 suggest caches of nuclear materials may exist on the black markets that need to be found and secured. Effective detection, law enforcement, and nuclear forensics capacities and international cooperation are needed to identify and investigate such cases, establish links between incidents, locate materials on the black market, arrest and prosecute nuclear smugglers, and identify facilities from which materials were stolen so security gaps can be addressed.

THE U.S. LOCKDOWN STRATEGY

To guide the implementation of the 2010 Nuclear Security Summit commitment to a focused and intensified international effort to lock down or remove vulnerable nuclear materials, U.S. Government departments and agencies, working with countries around the world, are executing an integrated strategy that aligns authorities, capabilities, and resources to address global nuclear threats. This strategy has three levels:

- **Site-Level Approach:** The United States takes seriously its responsibility to secure its own nuclear materials, and constantly evaluates its nuclear facilities and activities to ensure preparedness to respond to the full range of potential threats. Wherever possible, the United States and its international partners work cooperatively with other countries to minimize the civil use of HEU, to eliminate unneeded weapons-usable material, and to improve security by providing equipment, training, transportation, and other assistance that requires direct access to these countries' facilities.

- **Country-Level Approach:** Where site-level assistance is either not possible or not appropriate, the United States cooperates with the governments of other countries to exchange nuclear security best practices and to demonstrate the safe use of equipment and methodologies. One component of this approach is U.S. support for "centers of excellence" that can carry out national and regional training as well as research and development of nuclear security technologies.

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- **Global-Level Approach:** The United States is a leader in developing global initiatives that emphasize the responsibility and actions that all nations must undertake to improve nuclear security. Through the Nuclear Security Summit and other international fora, the United States promotes the ratification and implementation of key treaties and UN Security Council resolutions governing nuclear security, increased funding and assistance for nuclear security, and augmenting the International Atomic Energy Agency's nuclear security activities.

Our goal is to remove, consolidate, or eliminate as much material as practicable, and to ensure that all remaining sites are, at a minimum, in compliance with the guidelines set forth in the International Atomic Energy Agency (IAEA) document, "Nuclear Security Recommendations for the Physical Protection of Nuclear Material and Nuclear Facilities," with the understanding that some sites will require more extensive security measures. The prioritization of U.S. efforts is driven by a combination of the assessed threat environment, the vulnerability of nuclear material, and political opportunity. Although the focused four-year effort will end in 2013, ensuring nuclear security will remain an enduring responsibility for as long as nuclear materials continue to exist.

STATE DEPARTMENT SUPPORT

The Department of State makes important contributions across all three levels of the U.S. lockdown strategy. At the site level, in connection with our peaceful nuclear cooperation with other countries, U.S. interagency teams, which State participates in and sometimes leads, must confirm whether physical protection at foreign sites requesting nuclear material from the United States meets accepted international physical security recommendations before an export license may be granted. Additionally, sites that hold U.S.-obligated material are also assessed on a periodic basis, depending on the category of material at the site. Our goal is to assess sites with Category I material every five years. In addition to assessment, the interagency teams also share with their foreign counterparts "best practices" for securing nuclear material and nuclear facilities. The physical protection recommendations used for comparison are those described in the previously mentioned IAEA document, *"Nuclear Security Recommendations for the Physical Protection of Nuclear Material and Nuclear Facilities."* The United States led an international effort to revise this document to take into account the revised threat environment post-9/11. The revised document was published in January 2012.

At the country level, The Nuclear Smuggling Outreach Initiative (NSOI) is a State Department-led interagency effort that seeks to develop partnerships with key countries to enhance nuclear security and combat nuclear smuggling. NSOI has developed joint actions plans with 12 partner countries. These joint action plans specify steps to improve nuclear security, including following through on commitments to remove nuclear materials and sustain facility upgrades. NSOI has secured funding from 15 international donors and several U.S. programs for 67 projects to help partner states implement their joint action plans, improve nuclear security, and combat nuclear smuggling. NSOI works closely with U.S. assistance providers and international donors, including the International Atomic Energy Agency (IAEA), to ensure these efforts are complementary and focused on the countries and projects that will produce the greatest nuclear security impact. The Preventing Nuclear Smuggling Program (PNSP) works closely with NSOI to leverage international funding and to fund projects where no foreign donors can be found, particularly in the areas of promoting law enforcement and nuclear forensics cooperation. Through PNSP, State is working with other U.S. agencies and partner nations to build robust counter nuclear smuggling teams similar to those that have been responsible for most of the interdictions of weapons-usable nuclear material since the 1990s. PNSP has also helped front-line states develop nuclear forensics capabilities, facilitate cooperative relationships with international partners, and establish reference libraries of nuclear materials, an essential tool for effective identification of smuggled material.

Through the Export Control and Related Border Security (EXBS) Program, the State Department leads the interagency effort to combat WMD-related procurement by helping to build comprehensive national export and border control systems in over 60 foreign partner countries. With over 500 capacity-building training activities a year, EXBS strengthens the capabilities of partner states to prevent illicit or irresponsible transfers of goods and technologies for use in nuclear weapons by promoting adoption, implementation, and enforcement of export and transshipment controls, including controls over transfers of proliferation-sensitive information via electronic or "intangible" means. EXBS also assists partner countries in combating illicit procurement of nuclear and fissile material by strengthening their border security capabilities. To that end, in 2010-2011, EXBS provided over 50 bilateral and regional training activities to 35 EXBS partner nations addressing nuclear detection, isotope identification, and response; commodity identification; and WMD targeting and interdiction. The EXBS program also provides equipment necessary to detect, deter, and interdict smuggling of radioactive and nuclear materials, WMD-related components, and other weapons-related items at ports of entry and across borders. Since 2008, 28

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EXBS partner nations received over 1500 units of EXBS-donated equipment, including radiation detection equipment, x-ray imaging equipment, and isotope identifiers.

At the global level, the Department of State also leads U.S. participation in the Global Initiative to Combat Nuclear Terrorism (GICNT), a partnership of 82 nations and four official observers (IAEA, European Union, INTERPOL and the United Nations Office on Drugs and Crime) committed to working individually and collectively to implement a set of shared nuclear security principles.

The mission of the GICNT is to strengthen global capacity to prevent, detect, and respond to nuclear terrorism by conducting multilateral activities that strengthen the plans, policies, procedures, and interoperability of partner nations. To date, GICNT partners have conducted almost 50 multilateral activities and seven senior-level meetings in support of these nuclear security objectives. The United States and Russia serve as Co-Chairs of the GICNT, and Spain serves as Coordinator of the Implementation and Assessment Group.

COST SHARING AND INTERNATIONAL COOPERATION

We are committed to being responsible stewards of taxpayer dollars and have taken steps to ensure that we share the costs of nuclear security with our international partners. Three key examples of this are our work with the G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction (GP), the UN 1540 Committee, and the IAEA's Office of Nuclear Security, all of which support the global level of the U.S. lockdown strategy.

The GP is a forum that promotes assistance to other nations to secure nuclear material, as well as other material and expertise that could be utilized for WMD. The GP was launched by G8 Leaders at the 2002 G8 Summit as a $20 billion commitment over ten years (2002-2012). Since then, the GP has grown to include 24 Partners and has allocated about $21 billion worldwide. At the 2011 G8 Summit, G-8 leaders decided to extend the Global Partnership beyond 2012.

The United States currently chairs the GP. The GP highlights and focuses on nuclear and radiological security, bio-security, scientist engagement, and facilitating implementation of UN Security Council Resolution 1540.

In this way, the GP will continue to be a positive cost sharing arrangement that allows the United States and international partners to further coordinate their

efforts on WMD nonproliferation and material security while working towards the President's goal of securing vulnerable nuclear material.

Another important example of cost-sharing and international cooperation to address the challenge of nuclear security is the global effort to implement UN Security Council Resolution 1540. Unanimously adopted in 2004, this resolution mandates that all UN Member States take specific measures and impose domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons, related materials, and their means of delivery. It also provides another mechanism through which we share the costs of achieving nuclear security. Countries that lack sufficient capacity to implement UNSCR 1540 can request implementation assistance, through the 1540 Committee, from other UN Member States which have offered assistance.

The United States has been a strong and consistent supporter of the 1540 resolution. When the mandate of the 1540 Committee – established to oversee 1540 implementation activities – was due for renewal, the United States led efforts to extend it. On April 20, 2011, the Security Council unanimously adopted Resolution 1977 extending the mandate of the 1540 Committee for another 10 years.

The 2010 Nuclear Security Summit reaffirmed the IAEA's essential role in the international nuclear security framework and pledged to ensure that the IAEA's Office of Nuclear Security (ONS) has the resources it needs to develop international guidance and help Member States apply that guidance. The United States is one of the largest contributors to ONS, and we continue to advocate providing more funding for ONS from the IAEA's regular budget to increase predictability, flexibility, and accountability.

We also work to ensure that these activities are fully coordinated with all appropriate IAEA Departments and implemented consistently with our broader IAEA agenda.

I would therefore like to take this opportunity to reaffirm that we have worked tirelessly to ensure that the management-related recommendations from the 2009 report from the Government Accountability Office on the IAEA's Technical Cooperation (TC) program are implemented. The IAEA TC Department has enacted substantial reforms and has become significantly more transparent in recent years, including increasing the quantity of information on specific project proposals and the timeframe in which this information is provided to the United

States and others. We are working hard to ensure that the program does not create new proliferation concerns.

CONTINUING CONGRESSIONAL SUPPORT

I would like to briefly turn now to congressional support for these important efforts. In particular, I want to highlight the need for implementing legislation for four key treaties that are significant tools in the nuclear security toolbox as well as in the fight against international terrorism and the proliferation of WMD.

- The International Convention for the Suppression of Acts of Nuclear Terrorism ("ICSANT" or "the Nuclear Terrorism Convention") addresses a critical category of terrorist activity, the nexus between terrorism and nuclear weapons and other radioactive materials and devices, such as "dirty bombs;"

- The Amendment to the Convention on Physical Protection of Nuclear Material ("CPPNM Amendment") addresses the physical protection of nuclear material used for peaceful purposes in domestic use, storage, and transport—in addition to that in international nuclear transport—and the physical protection of nuclear facilities used for peaceful purposes; and

- Two Protocols to the Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation and the Convention for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf ("2005 SUA Protocols"), address the potential use of maritime vessels and platforms as a means of conducting or enabling terrorist activity and the unlawful transport of WMD and related items via commercial ships.

In 2008, the Senate unanimously provided its advice and consent to ratification of all four treaties. We have submitted proposed implementing legislation needed for the United States to meet its obligations under these treaties, and we strongly urge passage of legislation so that the United States can formally ratify the treaties.

Their ratification is important for several reasons.

First, and most importantly, our joining these treaties will enhance U.S. national security. These treaties fill gaps in the international legal regime and in so doing they modernize and strengthen the international legal framework in a manner that

is critical to our efforts to prevent terrorists from acquiring or using WMD.

Second, the treaties further nuclear security priorities such as the Global Initiative to Combat Nuclear Terrorism and the implementation of United Nations Security Council Resolution 1540.

Finally, U.S. ratification of these treaties will encourage widespread ratification and implementation by other countries. This, in turn, will advance our national security and reinforce U.S. leadership in this crucial arena.

I urge Congress to expeditiously enact implementing legislation that would allow us to ratify these key treaties.

CONCLUSION

I will conclude by stressing that reducing the risk of nuclear terrorism is a complicated undertaking, but that the interagency is working together effectively to meet the challenge. Led by the National Security Staff, the Departments of Defense, Energy, Justice, Homeland Security, and State, among others, are working urgently to reduce the risk of terrorists, criminal organizations, or extremists getting their hands on nuclear weapons, or the materials, expertise, and technology necessary to build them. We cannot afford to be diverted from this endeavor. The President's four-year effort to secure vulnerable nuclear material around the world and the Nuclear Security Summit process convene our allies and other countries around the globe to ensure that we bring every resource to bear on this important challenge.

Thank you for your time and focus on this critical issue. I look forward to your questions.

Statement of Anne Harrington
Deputy Administrator for Defense Nuclear Nonproliferation
National Nuclear Security Administration
U.S. Department of Energy
On
Managing Interagency Nuclear Nonproliferation Efforts
Before the
U.S. Senate Homeland Security and Government Affairs Committee

March 14, 2012

Mr. Chairman, Ranking Member Johnson, and Members of the Subcommittee:

Thank you for this opportunity to brief the committee on the Department of Energy's National Nuclear Security Administration's (NNSA) contribution to the international effort to secure the world's most vulnerable nuclear material. The President's four-year effort is an unprecedented global undertaking, led by the United States, with significant contributions from dozens of countries around the world. The White House, in close coordination with our interagency and international colleagues, is leading and implementing a comprehensive three-tiered strategy to secure vulnerable material at the individual site level, the national level and the global level. I am pleased to report that NNSA has made important contributions to the U.S. Government's efforts in each of these strategic areas.

NNSA is executing a detailed four-year work scope to meet the President's goal of accelerating international efforts to secure the world's most vulnerable nuclear material, covering a vast array of activities, to include: (1) removing and disposing of high-priority nuclear materials worldwide; (2) converting highly enriched uranium (HEU)-fueled research reactors to use low enriched uranium (LEU) fuel; (3) assessing physical security and providing security upgrades at nuclear sites; (4) consolidating materials to fewer, more secure sites; (5) improving international capabilities to detect and interdict illicit nuclear and radiological materials trafficking; and (6) promoting a culture of awareness, responsibility and security in the countries and sites in which we work.

NNSA has supported programs at the level of nuclear sites for a number of years and its contributions have been significant, including: (1) removing 3,125 kilograms of HEU and Pu from 39 countries (enough for over 125 nuclear bombs;

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approximately 1000 kg since the Prague speech); (2) cleaning out all HEU from 19 countries [six since the Prague speech]; (3) converting or verifying as shut down 77 HEU-fueled research reactors; (4) and upgrading material protection, control, and accounting measures to strengthen security at Russian nuclear warhead, research, and bulk processing sites.

Before the end of December 2013, NNSA will: (1) remove an additional 1,228 kilograms of HEU and Pu (for a total of 4,353 kgs); (2) clean out all HEU from an additional 8 countries for a total of 27 (14 of which will have taken place during the 4-year effort; (3) convert or shutdown an additional 11 HEU-fueled research reactors (for a cumulative total of 88).

We will sustain material protection, control, and accounting upgrades at Russian nuclear warhead sites and continue material protection, control, and accounting upgrades at additional nuclear material sites in Russia and other countries that qualify for our technical and financial assistance due to the sensitivity and/or quantity of material. In countries like Russia, which will continue to have substantial holdings of nuclear materials, NNSA will work to promote the approach we have used in the United States, namely to consolidate weapons-usable materials into fewer buildings at fewer sites and to down-blend HEU to LEU. In FY 2012, we expect that we will have down-blended over 15 metric tons of Russian civil HEU since the start of these efforts in 1999, permanently eliminating the threat from this material. This is in addition to the over 440 Metric Tons of Russian HEU downblended under the HEU Purchase Agreement.

The material removal process, though often the public focal point of our work scope, forms only a portion of a complex set of actions that we carry out to address the risk of nuclear terrorism. NNSA also leads U.S. interagency bilateral assessment visits to ensure that the physical protection measures at foreign nuclear facilities that house U.S.-obligated nuclear material meet International Atomic Energy Agency (IAEA) recommendations for nuclear security as set forth in the IAEA guidelines for the physical protection of nuclear materials and facilities ("INFCIRC/225/Revision 5"). These bilateral assessments visits allow the U.S. Government to confirm that U.S. supplied or obligated nuclear material is adequately protected, as is called for in each 123 Agreement that the United States enters into. The bilateral assessment visits are staffed by interagency teams from NNSA, the Nuclear Regulatory Commission (NRC), the Department of State, and the Department of Defense's Defense Threat Reduction Agency. From FY 2010 to FY 2011, we more than doubled the number of countries visited and quadrupled the number of facilities visited. Our plans for FY 2012 include additional

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increases in the number of country and facility visits. The Department of Energy employs a specific methodology for prioritizing physical protection visits that considers variables such as: the type and quantity of U.S.-obligated material at a facility; whether a country is making recommended security improvements; pending NRC licenses; and information from previous physical protection assessments. DOE/NNSA works closely with our interagency colleagues to prioritize and plan visits based on these criteria. We track U.S. inventories of nuclear material overseas with the Nuclear Materials Management and Safeguards System (NMMSS), which serves as the government's central repository and database for U.S. inventories of nuclear material overseas. The USG relies on this and the International Atomic Energy Agency's (IAEA) comprehensive safeguards system as important tools to help maintain continuity of knowledge of the location of nuclear materials in a country, including U.S.-obligated nuclear material.

NNSA has also been actively working with partners countries on the second tier of the strategy, or national efforts. An important element of this tier has been the establishment of nuclear security Centers of Excellence. These Centers play a vital role in sharing best practices in all disciplines related to nuclear security, both domestically and regionally, and at various levels. With regard to nuclear site personnel, the Centers will train site-level activities, including on measurements and accounting of nuclear material and on the design and installation of nuclear material security systems. The Centers will also engage with governmental officials on issues related to design basis threat and regulatory oversight. NNSA has supported similar trainings in many nations, including Russia.

Establishing these centers has been an exercise in interagency coordination. In the case of India, for example, the interagency has worked together seamlessly to help implement the Memorandum of Understanding (MOU) signed by our two countries in November 2010 during the President's trip to India. This MOU provides the basis for our nuclear security -related cooperation at India's planned center of excellence, which it calls a Global Centre for Nuclear Energy Partnership. The interagency has also worked together to implement a similar MOU signed last month between the United States and China.

The U.S. is pleased that the IAEA has taken the lead in coordinating the various Centers of Excellence and other relevant training centers to reduce the potential for overlap and redundancy and promote best practices worldwide in nuclear security. In our efforts to reach the benchmarks set at the Washington Nuclear Security Summit and the Four Year effort to secure the world's most vulnerable nuclear

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materials, the United States will continue to support partner countries in this area and will work in parallel with the IAEA to further our shared nonproliferation and nuclear security goals.

For over 30 years, one of our most active bilateral partnerships on nonproliferation and nuclear security has been with Japan. Following the Washington Nuclear Security Summit, the United States and Japan established a bilateral Nuclear Security Working Group (NSWG) to demonstrate leadership on and further expand bilateral cooperation. The NSWG has evolved to include representatives from 12 Japanese agencies and 8 U.S. agencies and has successfully expanded nuclear security cooperation to meet nine mutual goals outlined in a jointly-developed Roadmap. NNSA has led the collaborative efforts under several high-priority NSWG Roadmap goals, including cooperation on Japan's Center of Excellence, nonproliferation nuclear forensics, safeguards implementation, HEU conversion and removal, and implementation of INFCIRC/225/Revision 5.

National level activities are also taking place at international border crossings, airports, seaports, and points of entry to increase the capability to deter, detect, and interdict illicit trafficking of nuclear and other radioactive material that may have been covertly removed from nuclear facilities or overtly purchased for commercial use and transported across international borders and through the maritime shipping network. Our Second Line of Defense (SLD) program, responsible for increasing partner country capacity in the area of radiation detection, reached a major milestone in 2011. In cooperation with the Russian Federal Customs Service, the two parties completed the deployment of 383 radiation detection systems at border crossing sites in Russia. Worldwide, since the start of the Four Year effort, SLD has installed radiation detection systems at 192 international crossing points and at 20 Megaports (for a cumulative total of 421 Core sites and 41 cumulative Megaports since the program's inception) and has deployed 10 mobile detection systems in five countries.

At the global level, NNSA is engaged in a number of important ongoing activities. As one of the first deliverables to come out of the 2010 Nuclear Security Summit Work Plan, NNSA led the five-year international effort to develop and finalize the fifth revision of the IAEA's nuclear security recommendations on physical protection of nuclear material and nuclear security, INFCIRC/225. This document is used to assess the security of U.S.-obligated nuclear material abroad. We are conducting an intensive effort to promote global implementation of this revised guidance through outreach and engagement activities with the IAEA and a number

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of Member States. We also partner with the IAEA on training and educational activities, provide subject matter experts to assist the IAEA's Office of Nuclear Security, and provide assistance for the production of documents in the IAEA's Nuclear Security Series.

The second Nuclear Security Summit will be held in a matter of weeks. In 2010, the leaders of 47 nations came together to demonstrate a commitment to nuclear security at the highest levels. I have sometime been asked what the benefit of a Summit is, given the time and complexity required to organize a meeting at that level. Let me reply simply that gaining that level of commitment and motivation for nuclear security efforts was unprecedented prior to 2010, and the actions that have followed have been significant. When a head of government decides that an issue is important, it can lead much of that government's supporting bureaucracy to act with levels of energy that could not be generated from the bottom up. We fully expect that the leaders who will attend will renew their commitments to ensure that nuclear materials under their control are not stolen or acquired by terrorists. This means renewing their respective pledges to continue to evaluate the threat and improve the security as changing conditions may require, and to exchange best practices and practical solutions for doing so. At the end of this month, leaders will gather again—this time in the Republic of Korea—to take stock of the work that has taken place since the Washington Summit and to set new goals for nuclear security. We would be happy to brief you after the Summit has concluded on the achievements announced and pledges made there.

As we complete certain activities under the Four-Year Effort, we will continue our critical nuclear security efforts beyond 2013 by: (1) converting or shutting down all remaining HEU-fuel research reactors and isotope production facilities, discharging research reactor HEU cores for cooling; (2) after cooling, removing and permanently disposing of the HEU and assisting countries with the disposition of excess plutonium; (3) accelerating efforts to secure high activity radiological materials that could be used in dirty bombs; (4) completing additional security upgrades and training infrastructure at HEU and plutonium storage and processing facilities in Russia; (5) continuing work to establish nuclear security Centers of Excellence in several countries to better promote best practices and stronger security cultures; (6) ensuring the sustainability and eventual transition of security at hundreds upgraded nuclear and radiological sites around the world; and (7) working with existing partners to upgrade physical security to the recent IAEA standards.

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In addition to converting research reactors and isotope production facilities from the use of HEU to LEU, DOE/NNSA is also working with companies in the United States to develop the ability to produce the medical isotope molybdenum-99 (Mo-99) using technologies that do not use HEU. These projects will have the effect of replacing Mo-99 produced with HEU around the globe with non-HEU-based Mo-99, while at the same time establishing a reliable supply of this critical medical isotope.

We are also working to reduce the risk that terrorists might acquire radiological materials for use in a radiological dispersal device (RDD), or "dirty bomb," by securing high-priority radiological materials both domestically and internationally. To date, NNSA has made significant progress. At home, we have upgraded the security of more than 300 facilities; internationally, we have upgraded the security of more than 850 sites. Our domestic security enhancements are voluntary and compliment the U.S. Nuclear Regulatory Commission's regulatory security requirements. As part of the President's FY2013 budget request, we have requested increased funding for NNSA's radiological security programs. In addition, we have established a very effective coordination mechanism to ensure that all U.S. domestic radiological security activities are coordinated and to avoid duplication of effort. This Trilateral Coordination group includes senior level representatives from NNSA, the NRC, DHS/DNDO, and the FBI. We meet on a quarterly basis to review all activities related to radiological security and to agree on next steps.

The President's proposed budget for FY2013 provides the funding necessary to carry out all of these activities; however, given the current fiscal constraints on all government agencies, we have stepped up our efforts to identify areas where our interagency partners and other nations can help share the costs associated with this important work. I am happy to report that since Congress granted NNSA programs the ability to receive international contributions in FY2005, we have received over $70M from Canada, the United Kingdom, Finland, South Korea, New Zealand, Norway, and the Netherlands. In addition, we have cost sharing efforts underway with Russia on nuclear and radiological security and Second Line of Defense activities, through the U.S.-Russia Bilateral Presidential Commission, and are working with our interagency and international colleagues and China as that country develops its Nuclear Security Center of Excellence. The full value of cost sharing with our international partners is hard to estimate precisely, but the financial, technical and diplomatic resources that they bring to these efforts have saved the U.S. Government millions of dollars over the last several years.

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My colleague from the Department of State, Assistant Secretary Countryman, has already mentioned our engagement under the Global Partnership. NNSA routinely receives contributions from countries working under the Partnership to help complete priority projects. We will continue our outreach efforts to all countries in the Partnership throughout the coming year, as the U.S. holds the Presidency of the Global Partnership in 2012.

One of the best parts of my job is working with the people sitting at the table with me today. Our interagency cooperation is strong and institutionalized. We participate actively in National Security Staff-led Interagency Policy Committee (IPC) and Sub-IPC meetings. These meetings are routinely held to develop consistent interagency policy positions and implementation strategies. The IPC and Sub-IPC process continues to be a productive venue for interagency coordination.

Through the "Bridge Process", we hold quarterly coordination meetings with the Department of Defense (DoD). This is led at the Assistant Secretary level and we discuss all areas of common interest. At the working level, we have established five permanent working groups that meet regularly. This is another area where we can reduce costs, as there are ways that DoD and NNSA strengths and unique capabilities can complement each other.

Congress has been very supportive of the various programs that support the Four-Year effort, but there are a few steps that could be taken to strengthen our nuclear security efforts.

One of the most important things Congress can do to ensure that NNSA executes the Four-Year Effort as planned is the budget process to avoid a situation where we have to manage programs under continuing resolutions (CRs). CRs present numerous difficulties for the implementation of our programs because a vast majority of our efforts are done through large contracts for long-lead time activities and we require the funds to sign the contracts early in the fiscal year.
CRs pose serious problems to program execution and can often cause delays, and in some cases cancellations of certain projects. NNSA does its best to manage its funds effectively and minimize the impact of CRs, but this is often at the expense of other critical nonproliferation and nuclear security program objectives.

Many of the program authorities that Congress put in place that allow NNSA to receive international contributions end in the FY2013 timeframe. Given the success of this authority in saving taxpayer dollars by bringing funding to high

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priority projects and in building international nuclear security partnerships, Congress could extend and expand the authority of NNSA programs to receive these contributions. As I mentioned earlier, this authority has resulted in the transfer of over $70 million to NNSA's nuclear security efforts since 2005.

In our continuing efforts to minimize the use of HEU, Congress could work with the Administration to develop industry-wide incentives for the medical community to preferentially procure non-HEU based Mo-99 as it becomes available. Such incentives could involve labeling or other World Trade Organization-consistent trade measures for medical isotopes certified to have been produced without HEU; additional constraints on the export of HEU for isotope production as non-HEU sources become available; and an examination of the costs, fees, and reimbursement processes for medical procedures that utilize these important isotopes. The U.S. interagency is currently evaluating such alternatives and I encourage you to call upon the interagency stakeholders at your disposal to discuss these alternatives in detail. Such actions would both reduce proliferation concerns and ensure a reliable and diverse supply of Mo-99 for the long-term.

Thank you again for the opportunity to brief the committee on DOE/NNSA's contributions to the international effort to secure the world's most vulnerable nuclear material. As I mentioned earlier, the four-year effort is an unprecedented global undertaking, led by the United States, but with significant contributions from dozens of countries around the world. We have enjoyed tremendous support from Congress, and have coordinated our efforts closely through the White House, and with our interagency colleagues represented at this table. I look forward to answering any questions you may have.

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THE SENATE COMMITTEE ON HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS

STATEMENT OF

MR. KENNETH HANDELMAN
PRINCIPAL DEPUTY ASSISTANT SECRETARY OF DEFENSE
FOR GLOBAL STRATEGIC AFFAIRS

BEFORE THE SENATE COMMITTEE ON HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS

SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT, THE FEDERAL
WORKFORCE, AND THE DISTRICT OF COLUMBIA

MARCH 14, 2012

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THE SENATE COMMITTEE ON HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS

Mr. Chairman, Ranking Member Johnson, members of the subcommittee, it is an honor to appear before you to discuss the Department of Defense's contributions to U.S. Government efforts to improve nuclear security and combat nuclear terrorism. The Department is building upon our successful legacy of nonproliferation and threat reduction cooperation, adjusting our programs to meet today's proliferation challenges and emerging threats.

President Obama made clear in his April 2009 Prague speech that combating nuclear terrorism, "the most immediate and extreme threat to world security," requires a comprehensive approach. Recent diplomatic initiatives and policy reviews have increased broad awareness of the threat – and expectations for the United States, the Department of Defense, and our international partners to work collaboratively to reduce and counter it. Of note, Secretary Panetta's January 2012 strategic guidance, "Sustaining U.S. Global Leadership: Priorities for 21st Century Defense," reinforces countering weapons of mass destruction as a primary mission of the Department and specifically names the Nunn-Lugar Cooperative Threat Reduction (CTR) Program as a key contributor towards that mission. CTR is the Department's primary mechanism to support all three approaches of our interagency strategy to implement the President's four-year nuclear security effort: site-level, country-level, and global-level.

Site-Level Cooperation

Since its inception two decades ago, CTR has worked in the former Soviet Union (FSU) to reduce WMD threats, including those associated with the security of nuclear weapons and material. In Russia, CTR's Global Nuclear Security (GNS) Program continues to support the security of nuclear weapons and materials in transportation and storage. This includes an extensive joint project with the Department of Energy to improve Russia's expertise and logistics capacity to sustain and improve the security

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systems the United States has provided and supported to date. These activities represent some of our best-known contributions to the President's four-year nuclear security effort. Allow me to highlight some of our successes in this area since the April 2010 Nuclear Security Summit. Over the last two years, CTR/GNS has increased U.S. and global security by:

- securely transporting 92 train loads of nuclear warheads from Russian Ministry of Defense operational locations to dismantlement facilities or more secure, consolidated storage sites;
- securely transporting spent nuclear fuel containing weapons-usable, highly enriched uranium, from two decommissioned Russian submarines to the Mayak fissile material disposition site;
- maintaining security systems at 23 nuclear weapons storage sites in Russia, and conducting site visits to confirm operational capability at four sites;
- initiating expansion of nuclear weapons inventory management systems to 11 Russian additional Ministry of Defense (MOD) facilities;
- increasing the capacity of the Russian MOD's nuclear security training center outside of Moscow from 961 to 1,501 students per year;
- conducting 37 different nuclear security courses for the Russian MOD, providing training for up to 213 security experts; and,
- deciding with the Russian MOD to establish a joint program to identify and assess next generation physical security technologies and processes.

I'm pleased to report that CTR cooperation continues to be a steady component of the U.S.-Russian relationship that has remained largely insulated from the broader peaks and troughs. Although the international agreement that governs our CTR cooperation with Russia (i.e., the CTR "Umbrella Agreement") is due to expire in June 2013, we look

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forward to an uneventful extension of that key agreement and a continuation of our work with Russia.

Country-Level Cooperation

We are also leveraging our experience in the FSU as we adapt the CTR Program to meet the challenges of an evolving global security environment. CTR has expanded geographically and built new partnerships to advance shared nonproliferation objectives, including nuclear security. You've heard from my Department of Energy colleague about the U.S. Government's new partnerships to establish Nuclear Security Centers of Excellence, through which we will be able to exchange nuclear security best practices, demonstrate equipment, contribute to national and regional training programs, and collaborate on the research and development of nuclear security technologies. The Department of Defense is supporting the establishment of those Centers by providing technical expertise and a modest level of resources.

Although securing WMD materials at their source is an important objective of the CTR program, our strategy requires a layered defense against proliferation threats. The WMD Proliferation Prevention Program (PPP) is CTR's means to enhance our partners' ability to detect and interdict WMD "on the move" through the provision of detection, surveillance, and interdiction capabilities. The Secretary of Defense, with the concurrence of the Secretary of State, recently authorized CTR to undertake activities in select countries in Southeast Asia, where there are requirements for the detection and interdiction of WMD and related materials while in transit. It is our hope that as cooperation matures, the resulting relationships with these new partners will endure beyond the four-year effort and support our broader security objectives in these regions.

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Although not an element of CTR, the International Counterproliferation Program (ICP) is a DoD activity that complements the capital-intensive investments of the CTR/PPP program through its modest yet effective "train-and-equip" efforts. ICP is unique in that its legislative authority explicitly directs a partnership with the Federal Bureau of Investigation and U.S. Customs and Border Protection in furtherance of deterring the proliferation of WMD in priority countries and regions. ICP and PPP are tightly coordinated with complementary programs managed by our interagency partners, to include the Department of State's Export Control and Related Border Security (EXBS) Program and the Department of Energy's Second Line of Defense (SLD) program.

Global-Level Cooperation

The Department of Defense is also active within nuclear security efforts at the multinational and global level. As you might expect, the Nuclear Security Summit is keeping us all quite busy these days, and we're pleased to support the White House in this high-profile event. DoD also participates in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, described by my Department of State colleague as an important mechanism to coordinate and deconflict international threat reduction and nonproliferation assistance. While the Global Partnership has made it easier to share work on threat reduction projects with like-minded international partners, thanks to CTR's legislative authority to receive funds from outside contributors, we now have greater flexibility also to share costs.

The nuclear security treaties described by my colleagues – the International Convention for the Suppression of Acts of Nuclear Terrorism, the Amendment to the Convention on Physical Protection of Nuclear Material, and the 2005 Suppression of Unlawful Acts Protocols – represent an important element of the U.S. global approach. The Department of Defense encourages the passage of implementing legislation that will

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allow the United States to meet its obligations under these treaties, and clear the way for their ratification.

CTR is one element of the broader United States nonproliferation framework, and collaborating with our interagency partners is critical to our success. The geographic expansion of CTR that I described earlier happens only after formal coordination with the Department of State, and consultation with the Department of Energy and the White House. You've already heard about our Bridge process, but allow me to underscore that although we may get together for Bridge Meetings at a senior level every few months, there is robust collaboration at the working level on a daily basis. Of course, the White House leads a broader interagency coordination process that also regularly brings us together to discuss all aspects of the four-year effort.

For Fiscal Year 2013, the Department of Defense has requested $519.1 million for the Nunn-Lugar Cooperative Threat Reduction Program; this includes $99.8 million for the Global Nuclear Security Program and $32.4 million for the Proliferation Prevention Program. Congressional support for this request will enable the Department to continue its important contributions to the President's nuclear security objectives.

Additional Department of Defense Contributions

I would be remiss if I did not mention our two other approaches to counter the spread of nuclear material and the threat of nuclear terrorism that fall outside the immediate nuclear security focus of the four-year effort. For years we have worked with our allies and partners to develop a global nonproliferation infrastructure that can reduce our collective vulnerability to these weapons. The current network of initiatives, regimes, and treaties offers some important tools for advancing this critical agenda – but much more remains to be done. Today, we are accelerating efforts to work with other

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government agencies, and with our allies and partners to rejuvenate the nonproliferation regime, starting with a renewed commitment to strengthen the international legal frameworks that serve as the foundation for our efforts. The Administration is working to strengthen the global non-proliferation regime. We are seeking to strengthen the Nonproliferation Treaty (NPT) as we begin the next five-year treaty review cycle, and we are pursuing negotiations for a Fissile Material Cutoff Treaty (FMCT). All of these efforts are instrumental to increasing the barriers to proliferation of WMD.

Another element of the Department's approach involves improving our ability to deter, detect, defeat, and respond to emerging WMD threats. Here the Department has a particular responsibility to our nation, as well as to our allies and partners. For instance, instability resulting from the collapse of a nuclear-armed state could risk the global proliferation of nuclear material, weapons, or technology, posing a threat to our homeland and the homelands of our allies. We must improve our ability to detect WMD threats, defend against them, and ultimately defeat them. This includes close and continued coordination with the intelligence community.

With the nuclear terrorism threat in mind, DoD is working with other U.S. agencies on an expanded whole-of-government response should we suspect a terrorist organization is actively pursuing efforts to obtain one or more nuclear devices. Faced with such a threat, we will need a globally synchronized response to detect, interdict, and contain the effects of nuclear weapons. This would include activities such as securing material at the source, intercepting material on the move, and increasing defenses to protect against an attack on the homeland. We are confident in our ability to take on this tactical challenge, but we understand the potential risks.

This threat of nuclear terrorism is also closely intertwined with challenges related to unstable governments. For instance, the instability or collapse of a nuclear-armed state

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could quickly lead to the proliferation of nuclear weapons or materials well beyond the country of origin and involve multiple state and non-state actors as it moves across the globe. We therefore seek to improve our defensive posture against these threats. This includes enhancing the protective posture of the homeland; working with the intelligence community to analyze and track terrorist networks and identify likely paths to proliferation; and characterizing the source and nature of the threat. We can be certain that in a nuclear or other WMD crisis, all these activities would be occurring simultaneously. Our work at DoD has focused on how U.S. military units would coordinate with other U.S. agencies and with allies and partners in the face of such a "loose nuke" threat scenario.

We also must enhance our ability to respond quickly to an attack should these efforts fail. In this regard, the President's budget request includes new resources to improve capabilities for technical nuclear forensics technologies and the fielding of new capabilities, including funding for ground and air collection, in order to attribute the source of a terrorist attack more quickly. For Fiscal Year 2013, we have requested $6.5 million to accelerate integration, testing, evaluation, and certification of new air sample collection systems, and we are conducting a comprehensive review of the overall nuclear sample collection requirements to inform future-year efforts. We are also working to enhance capabilities for interdiction, elimination, and consequence management.

Conclusion

Through site-level security efforts, country-to-country engagement, and support to multinational fora, the Department of Defense is actively supporting President Obama's four-year nuclear security vision at all levels. We will continue to work alongside our colleagues at the Departments of State and Energy to make this vision a reality, and to plan for our enduring nuclear security responsibilities after 2013.

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United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia, Committee on Homeland Security and Governmental Affairs, U.S. Senate

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NUCLEAR NONPROLIFERATION

Further Actions Needed by U.S. Agencies to Secure Vulnerable Nuclear and Radiological Materials

Statement of Gene Aloise, Director
Natural Resources and Environment

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GAO-12-512T

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Highlights

Highlights of GAO-12-512T, a testimony before the Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia, Committee on Homeland Security and Governmental Affairs, U.S. Senate

Why GAO Did This Study

In 2009, President Obama announced an international initiative to secure all vulnerable nuclear material worldwide within 4 years. Leaders of 47 nations endorsed this effort at the 2010 Nuclear Security Summit and will meet again in March 2012 to evaluate their work and set new goals for nuclear security. The United States has been a leader in promoting nuclear nonproliferation efforts worldwide. GAO has issued numerous reports on U.S. nonproliferation programs administered by several agencies, including the departments of Energy (DOE), State, and Defense (DOD); and the Nuclear Regulatory Commission (NRC). This testimony, which is based primarily on previously issued reports, discusses (1) the U.S. strategy to secure all vulnerable nuclear material within 4 years, (2) U.S. agencies' ability to track and evaluate the security of U.S. nuclear materials transferred to foreign countries, (3) challenges coordinating federal nuclear nonproliferation efforts, and (4) preliminary observations regarding GAO's ongoing work on federal efforts to secure radiological sources in U.S. hospitals and medical facilities. To conduct its ongoing work, GAO visited 25 hospitals and medical facilities in 7 states and the District of Columbia.

GAO is making no new recommendations, but continues to believe that implementation of the recommendations made in its recent reports complements and supports the administration's goal of securing vulnerable nuclear material in a timely fashion.

View GAO-12-512T or key components. For more information, contact Gene Aloise at (202) 512-3841or aloisee@gao.gov.

March 14, 2012

NUCLEAR NONPROLIFERATION

Further Actions Needed by U.S. Agencies to Secure Vulnerable Nuclear and Radiological Materials

What GAO Found

The President's 4-year initiative is a worthwhile effort designed to accelerate U.S. and international efforts to secure nuclear material worldwide. However, as GAO reported in December 2010, the governmentwide strategy approved by the National Security Council (NSC) for the initiative lacked specific details regarding how the initiative will be implemented. As a result, key details associated with the initiative are unclear, including its overall estimated cost, time frame for completion of work, and scope of planned work. In its 2010 report, GAO recommended, among other things, that NSC lead the interagency development of a more detailed implementation plan for the President's 4-year initiative. NSC did not comment on GAO's recommendations.

The United States also faces challenges accounting for and evaluating the security of U.S. nuclear material overseas. As GAO reported in September 2011, federal agencies are not able to fully account for U.S. nuclear material overseas that is subject to nuclear cooperation agreements. GAO also found that the agreements do not contain specific access rights that enable agencies to monitor and evaluate the physical security of U.S. nuclear material overseas. GAO found that the agencies responsible for reviewing foreign partners' security are not doing so systematically. GAO suggested that Congress consider directing DOE and NRC to fully account for U.S. weapon-usable nuclear materials overseas and consider amending the Atomic Energy Act to require access rights allowing the United States to verify adequate protection of U.S. nuclear materials if future agreements cannot be negotiated to include such rights.

GAO also reported in December 2011 on the challenges in coordinating U.S. governmentwide nonproliferation efforts. Specifically, GAO identified potential fragmentation and overlap among some U.S. programs that played a role in preventing and detecting the smuggling of nuclear materials overseas. GAO also found that no single federal agency had the lead responsibility to direct these efforts. GAO recommended, among other things, that NSC review U.S. programs working to prevent nuclear smuggling overseas to reduce fragmentation and potential overlap. NSC declined to comment on the recommendations.

In addition to nuclear materials, the Summit plans to address the security of radiological sources—material that could be used to make a dirty bomb. Based on preliminary results from ongoing work on federal efforts to secure radiological sources in U.S. hospitals and medical facilities, GAO found that NRC's security controls for hospitals and medical facilities do not prescribe the specific steps that must be taken to protect their radiological sources. GAO also found that medical facilities have implemented the controls in various ways. This has created a mix of security measures at the locations GAO visited that could leave some facilities more vulnerable than others. DOE's National Nuclear Security Administration (NNSA) has established a voluntary program to upgrade the security of domestic facilities that have radiological sources. NNSA has made progress in securing domestic radiological sources, but some facilities have declined NNSA's assistance, including hospitals located in high-risk urban areas.

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Chairman Akaka, Ranking Member Johnson, and Members of the Subcommittee:

I am pleased to participate in this hearing in advance of the Nuclear Security Summit in South Korea. As you know, in 2009, President Obama announced an international initiative to secure all vulnerable nuclear materials around the world within 4 years, and leaders of 47 nations endorsed this initiative at the 2010 Nuclear Security Summit here in Washington. The leaders pledged to work together toward this end and also reaffirmed the fundamental responsibility of nations to maintain effective security of the nuclear materials and facilities under their control. At the conclusion of the summit, the leaders agreed to meet again in South Korea in March 2012 to evaluate their work and set new goals for nuclear security, including the security of radiological material. We recognize the importance of the Summit as a way to galvanize international support for reducing the risks posed by the proliferation of these dangerous materials and are pleased to see that radiological material security will be given greater attention. This could provide a more comprehensive and balanced approach to risk reduction efforts by the international community.

One of the most serious threats facing the United States and other countries is the possibility that other nations or terrorist organizations could steal a nuclear warhead or nuclear weapon-usable materials from poorly secured stockpiles around the world,[1] or that nations could divert nuclear material intended for peaceful purposes to the development of nuclear weapons. Terrorists or countries seeking nuclear weapons could use as little as 25 kilograms (Kg) of weapon-grade highly enriched uranium (HEU) or 8 Kg of plutonium to construct a nuclear weapon. Of great concern is that terrorists could fashion a crude nuclear bomb made from either HEU or plutonium into an improvised nuclear device (IND). An IND would create an explosion producing extreme heat, powerful shockwaves and intense radiation that would be immediately lethal to individuals within miles of the explosion, as well as radioactive fallout over thousands of square miles. Nonproliferation experts estimate that a successful IND could produce the same force as the equivalent yield of the bomb that destroyed Nagasaki, Japan, in 1945; it could devastate the

[1]Weapon-usable nuclear materials are highly enriched uranium, uranium-233, and any plutonium containing less than 80 percent of the isotope plutonium-238. Such materials are also often referred to as fissile materials or strategic special nuclear materials.

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heart of a medium-sized U.S. city. The explosion could cause hundreds of thousands of deaths and injuries, as well as pose long-term cancer risks to those exposed to the radioactive fallout.

Radiological material also poses a significant security threat to the United States and the international community. Radiological material, such as cobalt-60, cesium-137, and strontium-90, is encapsulated or sealed in metal—such as stainless steel, titanium, or platinum—to prevent its dispersal and is commonly called a sealed radiological source. Sealed radiological sources are used worldwide for many legitimate purposes, such as medical, industrial, and agricultural applications. The total number of these sources in use worldwide is unknown because many countries do not systematically account for them. If certain types of these sources were obtained by terrorists, they could be used to produce a simple and crude but potentially dangerous weapon—known as a radiological dispersion device, or dirty bomb. Although experts believe that a dirty bomb could result in a limited number of deaths, it could have severe economic consequences. Depending on the type, amount, and form, the dispersed radiological material could cause radiation sickness for people nearby and produce serious economic, psychological and social disruption associated with the evacuation and subsequent cleanup of the contaminated area. The economic consequences resulting from the improper use of radiological materials is not theoretical. Some actual incidents involving sources can provide a measure of understanding of what could happen in the case of a dirty bomb attack. For example, in 1987, an accident involving a medical device containing about 1,400 curies of cesium-137,[2] killed four people in Brazil's Goiania region and injured many more. The accident and its aftermath caused about $36 million in damages to the region. The decontamination process required the demolition of homes and other buildings and generated 3,500 cubic meters of radioactive waste.

To address these threats, respond to the President's goal of securing vulnerable nuclear material worldwide within 4 years, and meet the objectives of the Nuclear Security Summit, U.S. agencies have undertaken a number of nuclear nonproliferation efforts. Specifically, the

[2]A curie is a unit of measurement of radioactivity. In modern nuclear physics, it is defined as the amount of substance in which 37 billion atoms per second undergo radiological disintegration. In the international system of units, the becquerel is the preferred unit of radioactivity. One curie equals 3.7×10^{10} becquerels.

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National Nuclear Security Administration (NNSA), a separately organized agency within the Department of Energy (DOE) has more than 20 programs that are intended to, among other things, secure nuclear warheads; reduce the risk of nuclear smuggling; and protect, consolidate, and dispose of weapon-usable nuclear material and radiological sources. The two other U.S. agencies that conduct major nuclear nonproliferation programs and activities overseas are the departments of Defense (DOD) and State. DOD administers the Cooperative Threat Reduction program, which has facilitated the removal of nuclear weapons from Ukraine, Belarus, and Kazakhstan and has helped Russia and Ukraine meet their arms control commitments by assisting in the elimination of strategic delivery systems. State manages its own nonproliferation programs, such as the Export Control and Related Border Security program,[3] provides support to NNSA and other U.S. agencies' nuclear nonproliferation programs working overseas, and conducts bilateral and multilateral diplomacy to address proliferation threats around the world under its Bureau of International Security and Nonproliferation. The Department of Homeland Security is responsible for, among other things, developing and deploying technologies to detect, prevent and interdict nuclear materials smuggled into the United States. National Security Council (NSC) staff have the principal role in coordinating the implementation of NNSA, DOD, State, and other agencies' nonproliferation programs. NSC oversees development of general policy and establishes guidelines for U.S. nonproliferation programs, but it does not implement programs or control their budgets. In addition, the Nuclear Regulatory Commission (NRC) and NNSA are involved in regulating and/or securing radiological sources within the United States and in foreign countries.

My statement today is based primarily on reports we issued from September 2010 to December 2011 that assess various U.S. nuclear nonproliferation programs and activities that support both the President's 4-year initiative and, more broadly, the goals of the Summit. Specifically, I will focus my testimony on (1) the U.S. governmentwide strategy for supporting the President's goal of securing all vulnerable nuclear materials worldwide within 4 years, (2) U.S. agencies' ability to track and

[3]The Export Control and Related Border Security program seeks to prevent the proliferation of weapons of mass destruction and advanced conventional weapons by helping to build effective national export control systems in countries that possess, produce, or supply strategic items as well as in countries through which such items are most likely to transit.

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evaluate the security of U.S. nuclear materials transferred to foreign countries, (3) challenges in coordinating federal nuclear nonproliferation efforts, and (4) ongoing work on federal efforts to secure radiological sources in U.S. hospitals and medical facilities. Detailed information on our scope and methodology for our prior work can be found in these reports. To develop our preliminary observations on efforts to secure radiological sources in U.S. medical facilities, we visited 25 hospitals and medical facilities in seven states and the District of Columbia, interviewed regulatory officials from 20 states, and interviewed agency officials at DOD, DOE, NRC, and the Department of Veterans Affairs (VA).[4] We also reviewed relevant laws, regulations, and guidance for overseeing commercial radiological sources. We are conducting our ongoing work in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We obtained the views of DOE, DOD, VA and NRC for new information in our statement concerning radiological source security at U.S. hospitals and medical facilities. We incorporated the agencies' technical comments where appropriate.

Background

The 2010 Nuclear Security Summit highlighted the global threat posed by nuclear terrorism and the need for countries to work in a comprehensive and concerted fashion to ensure that nuclear materials are not stolen or diverted for weapons use. The Summit produced a communiqué, a high-level political statement by the leaders of the 47 participating countries. The communiqué identified several measures that countries planned to take to strengthen their nonproliferation efforts. These efforts included, among other things, (1) focusing on improving security; (2) accounting for and consolidating HEU and plutonium; and (3) ensuring that the

[4]We conducted site visits at hospitals and medical facilities in California, Maryland, New York, Pennsylvania, Tennessee, Texas, Virginia, and the District of Columbia. We also interviewed regulatory officials from Alabama, Arizona, Arkansas, California, Colorado, Florida, Kentucky, Maryland, Massachusetts, Mississippi, New Mexico, New York, North Carolina, Pennsylvania, Rhode Island, Tennessee, Texas, Virginia, Washington, and Wisconsin.

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International Atomic Energy Agency (IAEA) has the necessary resources to carry out its nuclear security activities.[5]

The 2010 Summit produced results. For example, Ukraine announced at the Summit that it would ship approximately 236 pounds of HEU and 123 pounds of spent nuclear fuel to Russia by the end of 2012.[6] During the Summit, the United States, Canada, and Mexico announced a new agreement that calls for the conversion of HEU fuel at Mexico's nuclear research reactor to low enriched uranium. Malaysia, Egypt, and Armenia planned to enact new export control laws to limit nuclear trafficking. Malaysia, an important hub in the A.Q. Khan illicit nuclear trafficking network, approved a new export law curbing transfers of nuclear weapons-related materials. Many other nations expressed their support to funding efforts for international nuclear safety organizations. For example, Belgium, Japan, the United Kingdom, Norway, and New Zealand all pledged funding efforts towards IAEA's Nuclear Security Fund.[7]

[5]The International Atomic Energy Agency is an independent organization based in Vienna, Austria, that is affiliated with the United Nations and has the dual mission of promoting the peaceful uses of nuclear energy and verifying that nuclear technologies and materials intended for peaceful purposes are not diverted to weapons development efforts. As of February 2012, the agency had 153 member states. We have recently begun a review of IAEA programs and activities at the request of this subcommittee.

[6]In February 2012, NNSA officials told us that the Summit process has accelerated U.S. efforts to remove HEU from several countries. Specifically, since the 2010 Summit, NNSA has worked with international partners to remove 380 Kg of HEU from civilian sites in seven countries: Belarus, the Czech Republic, Kazakhstan, Poland, Serbia, South Africa, and Ukraine.

[7]IAEA's Nuclear Security Fund supports the agency's efforts to assist countries in protecting their nuclear and radiological materials and facilities. For more information, see GAO, *Nuclear Nonproliferation: IAEA Has Strengthened Its Safeguards and Nuclear Security Programs, but Weaknesses Need to Be Addressed,* GAO-06-93 (Washington, D.C.: Oct. 7, 2005).

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Governmentwide Strategy to Implement the President's 4-Year Global Nuclear Material Security Initiative Lacked Important Details

In December 2010, we reported on aspects of U.S. planning and strategies to secure all vulnerable nuclear materials worldwide within a 4-year period.[8] Following President Obama's announcement of the 4-year initiative, NSC took the lead in coordinating efforts among different federal agencies that will contribute to the initiative. NSC officials approved a U.S. governmentwide strategy entitled "Interagency Efforts to Improve the Security of Nuclear Weapons and Fissile Materials," which, among other things, described the scope and objectives of the interagency effort and identified the main activities by agencies and programs in support of the President's initiative. U.S. agencies—including NNSA, DOD, and State—had identified individual plans describing how they intend to contribute to the 4-year initiative. NNSA, for example, had developed a formal written plan with specific details regarding how it intends to contribute to the 4-year nuclear material security goal. The NNSA plan details a prioritized five-part effort, including (1) continuing nuclear security cooperation, especially nuclear material protection, control and accounting (MPC&A) upgrades and efforts to transition responsibility for sustaining MPC&A systems;[9] (2) expanding nuclear security cooperation with other countries; (3) accelerating nuclear material removal with other countries; (4) strengthening nuclear security standards, practices, and next-generation nuclear safeguards; and (5) building international capabilities to prevent illicit nuclear trafficking and smuggling.

Despite individual agency efforts to implement the 4-year initiative, we found that the overarching interagency strategy coordinated by NSC lacked specific details concerning how the initiative would be implemented, including the identity of, and details regarding, vulnerable foreign nuclear material sites and facilities to be addressed, agencies and programs responsible for addressing each site, planned activities at each site, potential challenges and strategies for overcoming these challenges, anticipated timelines, and cost estimates. NSC officials told us that developing a single, integrated cross-agency plan that incorporates all these elements could take years. However, we found that, absent such

[8]GAO, *Nuclear Nonproliferation: Comprehensive U.S. Planning and Better Foreign Cooperation Needed to Secure Vulnerable Nuclear Materials Worldwide*, GAO-11-227 (Washington, D.C.: Dec. 15, 2010).

[9]NNSA's MPC&A program works to improve the security of nuclear warheads and materials in Russia and at nuclear sites in other countries, consolidate and convert weapon-usable nuclear material stocks, and enable Russia and other countries to sustain MPC&A upgrades over the long term without continued U.S. support.

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an implementation plan, essential details associated with the 4-year initiative were unclear, including the initiative's overall estimated costs, time frames, and scope of work. For instance, we reported that the costs of implementing the initiative were unknown. Among other things, NSC officials told us that estimating the costs associated with the President's goal is impossible because the initiative is predicated on having other countries provide assistance and share costs, and it is impossible to forecast cooperation that may occur with other countries, including the resumption of denuclearization efforts in North Korea.

We also found that the time frames for the initiative are uncertain because NSC officials did not consider the 4-year time frame to be a hard and fast deadline. Rather than achieving a specific level of nuclear material security around the world within the 4-year time frame, the President's proposal has value in broader terms, according to NSC officials. They described the value of the President's proposal as a "forcing function" to (1) accelerate ongoing U.S. nuclear nonproliferation programs, (2) drive closer integration of nuclear nonproliferation programs across the federal government, and (3) mobilize greater international responsibility for and commitment to nuclear material security. Furthermore, we reported that other details relating to the overall scope of the 4-year initiative were vague. For example, we were unable to identify the scope of nuclear material worldwide that would be addressed under the initiative, because such details were not included in the interagency strategy document. We also identified concerns with how the initiative intends to address sites with potentially vulnerable nuclear materials located in countries that may impose access limitations that could complicate or preclude U.S. security assistance.

We recommended that NSC lead and coordinate the development of a comprehensive plan for implementing this initiative. Such a plan, in our view, should clearly identify the specific foreign countries, sites, and facilities, where materials have been determined to be poorly secured, and include information specifying the agencies and programs responsible for addressing each location; planned activities, potential implementation challenges, and steps needed to overcome those challenges at each location; and estimated time frames and costs associated with achieving the 4-year goal. NSC did not comment on our recommendation.

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U.S. Agencies Have Limited Ability to Account for, Monitor, and Evaluate the Security of U.S. Nuclear Material Overseas

Improving the U.S. government's management of nuclear cooperation agreements could contribute to the administration achieving its goal of securing all vulnerable nuclear material worldwide in 4 years.[10] The United States has exported special nuclear material, including enriched uranium, and source material such as natural uranium under these framework agreements for many years. These agreements must contain certain obligations that govern, among other things, the U.S. rights of approval over the transfer, retransfer, enrichment, and reprocessing of certain kinds of nuclear materials transferred from the United States and, in some cases, produced overseas. Partners are required to guarantee the physical protection of U.S. nuclear materials. In September 2011, we issued a report that (1) assessed U.S. agency efforts to account for U.S. nuclear material overseas, (2) assessed DOE and U.S. agencies' efforts to evaluate the security of these materials, and (3) described DOE's activities to secure or remove potentially vulnerable U.S. nuclear material at partner facilities.[11]

We found that U.S. agencies—DOE, NRC, and State—are not able to fully account for U.S. nuclear material overseas that is subject to the terms of nuclear cooperation agreements because (1) the agreements do not stipulate systematic reporting of such information, and (2) there is no policy to pursue or obtain such information. These agreements generally require that partners report inventory information upon request. However, the agencies have not systematically sought such information. Specifically, DOE and NRC do not have a comprehensive, detailed current inventory of U.S. nuclear material—including weapon-usable material—that is located overseas. In addition, NRC and DOE could not fully account for the location and disposition of U.S. HEU overseas in

[10]The United States has 27 nuclear cooperation agreements in force for peaceful civilian cooperation with partners, including foreign countries, the European Atomic Energy Community (EURATOM), IAEA, and Taiwan. Governmental relations between the United States and Taiwan were terminated on January 1, 1979. All agreements concluded with the authorities on Taiwan prior to January 1, 1979, are administered for the United States by the American Institute in Taiwan, a nonprofit corporation based in Washington, D.C. The United States has two nuclear cooperation agreements with Australia, including one for Separation of Uranium Isotopes by Laser Excitation technology, bringing the total number of agreements to 27.

[11]GAO, *Nuclear Nonproliferation: U.S. Agencies Have Limited Ability to Account for, Monitor, and Evaluate the Security of U.S. Nuclear Material Overseas*, GAO-11-920 (Washington, D.C.: Sept. 8, 2011).

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response to a 1992 congressional mandate.[12] The January 1993 report that NRC produced in response to the mandate stated that it was not possible to reconcile this information from available U.S. sources of data with all foreign holders of U.S. HEU within the 90-day period specified in the act. Our analysis of other documentation associated with the report shows that NRC, in consultation with U.S. agencies, was able to verify the location of 1,160 kilograms out of 17,500 kilograms of U.S. HEU remaining overseas as of January 1993. According to DOE and NRC officials, no further update to the 1993 report was issued, and the U.S. government has not subsequently attempted to develop such a comprehensive estimate of the location and status of U.S. HEU overseas.

Nuclear cooperation agreements do not contain specific access rights that enable U.S. agencies to monitor and evaluate the physical security of U.S. nuclear material overseas, and the United States relies on its partners to maintain adequate security. In the absence of access rights, DOE, NRC, and State have conducted physical protection visits, when permitted, to monitor and evaluate physical security conditions of U.S. nuclear materials at overseas facilities. However, we found that the agencies have not systematically visited countries believed to be holding the most sensitive material or systematically revisited facilities not meeting international physical security standards in a timely manner. U.S. interagency teams made 55 visits from 1994 through 2010 and found that countries met IAEA security guidelines approximately half of the time.

There are several countries that have U.S. nuclear material that are particularly problematic and represent special cases for concern. Specifically, U.S. nuclear material has remained at sites in three countries where physical protection measures are unknown or the sites have not been visited by an interagency physical protection team in decades. DOE's Global Threat Reduction Initiative (GTRI) removed a large quantity of U.S.-spent HEU recently from one of those countries. However, according to NRC and State officials, U.S. transfers to these three countries were made prior to 1978, when a requirement that the partner countries guarantee that they will maintain adequate physical security for transferred nuclear material was added to the U.S. Atomic Energy Act of 1954. Therefore, these countries have not made the same commitments

[12]Energy Policy Act of 1992, Pub. L. No. 102-486, § 903(b), 106 Stat. 2776, 2945-46.

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regarding the physical security of U.S.-transferred material as the United States' other nuclear cooperation agreement partner countries.

We also found that physical security concerns are not confined to countries that have limited infrastructure and resources. The potential vulnerability of nuclear material at certain facilities in high-income countries was raised to us by NSC officials.[13] Specifically, we reported that there may be security vulnerabilities in certain high-income countries, including three specific high-income countries. For sites in these countries, GTRI officials told us the U.S. government's strategy is to work bilaterally with the countries, provide recommendations to improve physical protection, and follow up as needed.

In our September 2011 report, we found that DOE has taken steps to improve security at a number of facilities overseas that hold U.S. nuclear material but faces constraints. DOE's GTRI program removes U.S. material from vulnerable facilities but can only repatriate materials that have an approved disposition pathway and meet the program's eligibility criteria. GTRI officials told us that of the approximately 17,500 kilograms of HEU exported from the United States, 12,400 kilograms are currently not eligible for return to the United States. The vast majority of this amount—about 10,000 kilograms—is currently not eligible for return because the material does not have an acceptable disposition pathway, such as permanent disposal or potential reuse. Another 2,000 kilograms of material is located primarily in the European Atomic Energy Community (EURATOM) member countries and is in use or adequately protected, according to GTRI officials.[14]

As a result, we made several suggestions and recommendations to improve oversight and accountability. For example, we suggested that Congress consider directing DOE and NRC to compile an inventory of U.S. weapon-usable nuclear materials overseas. As a separate matter, we also suggested that Congress consider amending the Atomic Energy Act if State, working with other U.S. agencies, does not include enhanced measures regarding physical protection access rights in future and renewed agreements, so that U.S. interagency physical protection teams may obtain access when necessary to verify that U.S. nuclear materials

[13]GAO-11-227.

[14]EURATOM is composed of the 27 countries of the European Union.

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have adequate physical protection. We also recommended that the Secretary of State, working with the Secretary of Energy and the Chairman of the NRC, establish better inventory reporting and reconciliation procedures, particularly when it comes to foreign facilities holding U.S. weapon-usable material.

DOE, NRC, and State generally disagreed with our recommendations when commenting on our draft report, including the need to reconcile inventories with partner countries, stating that these reconciliations were unnecessary. State believes that implementing the recommendations, generally, would adversely impact U.S. commercial competitiveness in overseas markets and diminish U.S. influence to advance our nonproliferation objectives and cost jobs at home. DOE, however, now agrees in principle with several recommendations we directed to that agency according to a January 24, 2012, letter to us. For example, we recommended, among other things, that DOE, working with its interagency partners, develop formal goals and a systematic process to determine which foreign facilities to visit for future interagency physical protection visits. DOE informed us in the January 2012 letter that it is working with NRC, State, and other agencies to develop a new methodology and improve their efforts to set priorities for U.S. interagency physical protection visits. To that end, DOE has established regular interagency conference calls to coordinate upcoming visits and directed a national laboratory to establish a repository of information regarding past physical protection visits to assist in determining which sites to visit in the future and in what time frame to do so.

Agencies Face Challenges in Coordinating U.S. Efforts to Combat Nuclear Smuggling Overseas

Reducing the risks posed by vulnerable nuclear material worldwide requires a layered approach to protecting such material. As a first layer of defense, the United States has helped countries secure nuclear materials in place at civilian and defense facilities. As a second line of defense, the United States has also helped countries improve their border security to address the threat posed by nuclear smuggling. According to IAEA, there were 2,164 confirmed cases of illicit trafficking in nuclear and radiological materials worldwide from 1993 through 2011.

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In December 2011, we reported on issues relating to the coordination of U.S. programs involved in combating nuclear smuggling overseas.[15] We reviewed 21 federal programs and offices under five federal agencies—NNSA, DOD, State, DHS, and the Department of Justice. These programs (1) conduct research and development on radiation detection technologies, (2) deploy radiation detection equipment along foreign borders and points of transit, (3) train and equip foreign customs and border security officials to identify and interdict illicit nuclear materials or technology transfers, (4) assist foreign governments in the development of export control systems, (5) enhance and coordinate with foreign antismuggling law enforcement and prosecutorial capabilities, and (6) analyze potential foreign nuclear smuggling cases and incidents.

However, we found impediments to the coordination of U.S. efforts to combat nuclear smuggling overseas. Specifically, we found that none of the existing strategies and plans for coordinating federal efforts to prevent and detect nuclear smuggling and illicit nuclear transfers overseas incorporate all of the desirable characteristics of national strategies, such as identifying the financial resources needed and monitoring mechanisms to be used to determine progress and make improvements. For example, the 2010 Global Nuclear Detection Architecture Strategic Plan—developed jointly by DHS, DOD, Energy, State, Justice, the intelligence community, and NRC—did not identify the financial resources needed to achieve the strategic plan's objectives or the monitoring mechanisms that could be used to determine programmatic progress and needed improvements.

We also identified potential fragmentation and overlapping functions among some programs. Specifically, we identified six programs that provide training to improve the capabilities of foreign border security and customs officials to prevent smuggling and illicit nuclear shipments: (1) NNSA's Second Line of Defense program, (2) International Nonproliferation Export Control Program, and (3) Cooperative Border Security Program,[16] (4) State's Export Control and Related Border

[15]GAO, *Nuclear Nonproliferation: Action Needed to Address NNSA's Program Management and Coordination Challenges*, GAO-12-71 (Washington D.C.: Dec. 14, 2011).

[16]The Cooperative Border Security Program was an independent program at the time of our review on the coordination of federal programs involved in combating nuclear smuggling overseas. However, the program is no longer an independent program, and its functions were merged into the International Nonproliferation Export Control Program in June 2010.

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Security program, (5) DOD's Weapons of Mass Destruction-Proliferation Prevention Program, and (6) International Counterproliferation Program. Similarly, we identified four programs that are involved in providing equipment to foreign governments to enhance the ability of their customs and border security organizations to detect nuclear smuggling: (1) NNSA's Second Line of Defense program, (2) State's Export Control and Related Border Security program, (3) DOD's Weapons of Mass Destruction-Proliferation Prevention Program, and (4) DOD's International Counterproliferation Program. In prior reports on nuclear nonproliferation programs, we have found that consolidating programs that share common goals and implement similar projects can maximize limited resources and may achieve potential cost savings or other programmatic and administrative efficiencies.

Agency officials representing these programs told us that not all of them have the same focus, that some concentrate on specialized niches, and that many are complementary. For instance, regarding the provision of equipment, NNSA, State, and DOD officials noted that the Second Line of Defense program tends to provide larger equipment, such as radiation portal monitors and cargo scanning equipment, while the Export Control and Related Border Security Program and International Counterproliferation Program provide smaller-scale equipment, such as hand-held radiation detection pagers, hazardous materials kits, and investigative suits to foreign customs and border security organizations. Nevertheless, in our view, the fragmented and overlapping nature of the programs raise questions as to whether greater efficiency could be obtained through possible consolidation of such efforts.

Furthermore, we found that no single federal agency has lead responsibility to direct federal efforts to prevent and detect nuclear smuggling overseas. In the past, we have reported that interagency undertakings can benefit from the leadership of a single entity with sufficient time, responsibility, authority, and resources needed to ensure that federal programs are based upon a coherent strategy and are well coordinated, and that gaps and duplication in capabilities are avoided.[17] For instance, State and DOD officials told us that neither State nor any

[17]See GAO, *Combating Terrorism: Selected Challenges and Related Recommendations*, GAO-01-822 (Washington, D.C.: Sept. 20, 2001); and *Biosurveillance: Efforts to Develop a National Biosurveillance Capability Need a National Strategy and Designated Leader*, GAO-10-645 (Washington, D.C.: June 30, 2010).

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other federal agency has the authority to direct the activities or coordinate the implementation of programs administered by other agencies involved in preventing or detecting nuclear smuggling overseas.

Regarding interagency coordinating mechanisms, NSC has established mechanisms to coordinate efforts in this area, including a Countering Nuclear Threats Interagency Policy Committee (IPC) and a sub-IPC for international nuclear and radiological border security efforts. NSC officials declined our request to discuss various aspects of the IPC structure and how it coordinates U.S. efforts to combat nuclear smuggling overseas. However, some officials from other agencies expressed doubts about the value of NSC's coordinating role. Notably, DOD officials told us that they believed NSC has played a negligible role in coordinating programs to counter nuclear smuggling.

We made two recommendations to NSC to streamline and eliminate the potential for fragmentation and overlap among U.S. government programs involved in preventing and detecting the smuggling of nuclear materials overseas. Specifically, we recommended that NSC undertake or direct an appropriate agency or agencies to conduct a comprehensive review of the structure, scope, and composition of agencies and programs across the federal government involved in such efforts. Such a review should include, among other things, (1) the level of overlap and duplication among agencies and programs and (2) potential for consolidation to fewer programs and agencies. Following this review, new guidance should be issued that incorporates the elements of effective strategic plans, including clearly delineating the roles and missions of relevant programs, specific priorities, performance measures, overall program costs, and projected time frames for program completion. NSC did not respond to these recommendations.

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Agencies Have Taken Steps to Secure Domestic Radiological Materials, but Gaps Remain

In 2007, we issued a report at the Subcommittee's request focusing on the security of radiological sources overseas.[18] In the course of that work we visited a number of hospitals and medical facilities in foreign countries and identified weaknesses in security. For example, in one country the security cable used to secure a teletherapy machine's cobalt-60 source had been broken for almost a month. In another country, we observed that a storage facility containing devices with thousands of curies of cesium-137 had several unsecured large openings in the roof. Based on the findings in this report, the Subcommittee subsequently asked us to review the security of hospitals and medical facilities in the United States that use radiological sources. Hospitals and medical facilities in the United States are significant users of radiological sources contained in medical devices used primarily for cancer treatment and research. The amount of radiation emitted by the sources in these devices varies according to the size and type of source. For example, teletherapy machines contain a single cobalt-60 source ranging from about 1,000 to 10,000 curies, while irradiators can occasionally contain up to 27,000 curies or more of cesium-137. The following section provides our preliminary findings on our ongoing work.

[18]GAO, *Nuclear Nonproliferation: DOE's International Radiological Threat Reduction Program Needs to Focus Future Efforts on Securing the Highest Priority Radiological Sources*, GAO-07-282 (Washington, D.C.: Jan. 31, 2007).

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NRC's Security Requirements Do Not Prescribe Specific Measures for Protecting Radiological Sources at Hospitals and Medical Facilities

NRC, which is responsible for regulating the security of radiological sources in U.S. hospitals and medical facilities, issued a security order in 2005 that directed licensees possessing radiological sources of concern to implement increased controls for access, detection and assessment, material shipments, physical barriers, information protection, and sensitive information.[19] NRC has relinquished jurisdiction for licensing and regulating radiological sources to 37 states called Agreement States, whose offices are typically administered by state health or environment departments, and which inspect licensees to ensure compliance with state regulations that are generally compatible with NRC regulations. The Department of Veterans Affairs and DOD, which maintain a network of hospitals and medical facilities in the United States, are also required to meet the NRC security order for radiological sources of concern at their facilities.

NRC's security order and implementation guidance are broadly written and do not prescribe the specific steps that licensees must take to secure their sources. Rather, they provide a general framework for what constitutes adequate security practices. According to NRC, the intent of the increased controls is not to provide absolute security from theft or unauthorized access. Rather, the intent is to develop a combination of people, procedures, and equipment that will delay and detect an intruder, and initiate a response to the intrusion. In addition, the controls provide minimum requirements that a licensee must implement, and licensees may go beyond the minimum requirements. However, the ultimate responsibility for securing radiological materials in the United States rests with the licensees that possess these materials.

[19]A licensee is a company, organization, institution, or other entity to which the NRC or an Agreement State has granted a general license or specific license to construct or operate a nuclear facility, or to receive, possess, use, transfer, or dispose of source material, byproduct material, or special nuclear material. Security orders contain requirements for licensees to implement, including interim compensatory security measures beyond that currently required by NRC regulations or licenses. Some of the requirements formalize a series of security measures that licensees took in response to advisories NRC issued in the aftermath of the September 11 terrorist attacks. NRC's regulations impose requirements that licensees must meet in order to use nuclear materials or operate a nuclear facility. NRC has undertaken a rulemaking to promulgate regulations addressing the physical protection of byproduct materials. That rulemaking is currently under review by the Commission.

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The security order directs that licensees limit access to radiological sources and develop a documented program to detect, assess, and respond to unauthorized access. The controls do not prescribe the types of physical security needed. It is up to the licensee to determine, for example, if security cameras are necessary or what types of locks or alarms are needed to secure doors or windows. For some locations, such as blood banks, requirements for access control can be met if the room where the medical device is located is staffed 24 hours a day, 7 days a week by an individual, or individuals, who are determined to be trustworthy and reliable. As long as the room is staffed at all times, the facility is not required to have any additional physical security, such as cameras or motion detection equipment. As a result, the only access control in place could be one or more staff members.

NRC also requires that hospitals and medical facilities verify the trustworthiness and reliability of individuals who are granted unescorted access to the medical devices containing radiological sources. The trustworthiness and reliability process requires that hospitals conduct a background check using information such as employment history, academic records, and other relevant information. It is ultimately the responsibility of the licensee to decide whether to grant the employee unescorted access. In 2007, NRC issued an additional security order requiring individuals employed at facilities containing highly radioactive sources to undergo fingerprinting with verification through the Federal Bureau of Investigation.

According to NRC officials, the requirements are intentionally broad to allow licensees flexibility to tailor security upgrades to their specific facility and operations. The ability to tailor security to a facility's needs and resources is particularly important for commercial facilities with limited resources. For example, officials from smaller medical facilities told us that implementing specific security requirements—such as cameras and other surveillance equipment—could jeopardize their continued operations because of the costs associated with this equipment. NRC officials told us that given factors such as diverse economic conditions, facility type, layout, and operations of facilities, a "one size fits all" approach is neither practical nor desirable.

We found that the NRC controls have been implemented in a variety of ways in the hospitals and medical facilities we visited in seven states and District of Columbia. These approaches have created a mix of security controls and procedures that could leave some facilities' radiological sources more vulnerable than others to possible tampering, sabotage, or

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outright theft. At some locations, the controls resulted in significant security upgrades, such as the addition of surveillance cameras, upgrades to locks on doors, and alarms. In contrast, we observed minimal security in other facilities. Moreover, law enforcement personnel from states with significant amounts of high-activity radioactive sources at hospitals and medical facilities told us that the NRC controls have an inherent weakness: the controls do not specify what the facility is protecting against and are not linked to a design basis threat.[20] Typically, a design basis threat characterizes the elements of a potential attack, including the number of attackers, their training, and the weapons and tactics they are capable of employing. Although NNSA does not use a design basis threat for its security assessments of hospitals and medical facilities, it does employ a threat scenario (known as potential adversary capability) as the basis for its recommendations for security enhancements. According to a VA official, VA initially developed a generic threat scenario for use at its facilities with larger activity sealed radiological sources since NRC did not provide a design basis threat as part of the increased controls. Later, VA partnered with NNSA to implement security enhancements based on the NNSA threat scenario.

All of the 25 medical facilities we visited have implemented the controls and undergone inspections by either NRC or Agreement State inspectors, but we observed a number of potential security weaknesses.[21] For example:

- At a hospital in one state, two cesium-137 research irradiators using approximately 2,000 curies and 6,000 curies, respectively, are housed in the basement of a building that is open to the public. The hallway leading to the irradiator room has a camera, but it is pointed away

[20]NRC noted that, according to IAEA's Nuclear Security Series Implementation Guide No. 11, "Security of Radioactive Sources," the design and evaluation of a security system should take into account the current national threat assessment and may include the development and application of a design basis threat, although it is not required. According to IAEA, a design basis threat includes the attributes and characteristics of a potential insider and/or external adversaries, who might attempt unauthorized removal or sabotage, against which a physical protection system is designed and evaluated.

[21]The 25 sites we visited are a non-generalizable sample, selected on the basis of the number of radiological devices in the state and the total number of cumulative curies contained in these devices in each state. In addition, we also considered if the site had undergone security upgrades funded by NNSA, and if the site is located in a large urban area.

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from the room. The door to the room is opened by a swipe card lock, and there are no cameras or other security measures inside the room. We observed that one of the irradiators was sitting on a wheeled pallet. When we asked the radiation safety officer (RSO)—the designated hospital official responsible for the security of radiological sources—if he had considered removing the wheels, he said no. This response was given even though the irradiator room is located in close proximity to an external loading dock, and the cameras along the corridor to the loading dock are displayed on a single monitor. This facility had passed its most recent NRC security inspection because access to the room where the irradiators were located was restricted through use of a swipe card. However, it could be vulnerable because of the limited security we observed and the potential mobility of the device.

- At a hospital in a major U.S. city, we observed that the interior door to the hospital blood bank, which had a cesium-137 blood irradiator of approximately 1,500 curies, had the combination to the lock written on the door frame. The door is in a busy hallway with heavy traffic, and the security administrator for the hospital said that he often walks around erasing door combinations that are written next to the locks. According to NRC, a single lock is not necessarily a security weakness, however, they noted that writing combinations on the door is a weakness.

- The RSO at a university hospital in another state told us that he did not know the exact number of individuals with unescorted access to the hospital's radiological sources, although he said that there were at least 500 people—the current data system does not allow for entering records of individuals beyond 500. In the past, he said, the hospital had as many as 800 people with unescorted access to sources. In contrast, at a major medical research facility at a military installation we visited, access was limited to 4 safety and security personnel.

- At a blood center in a third state we visited, we observed a cesium-137 blood irradiator of approximately 1,400 curies in a room that was secured by a conventional key lock. The irradiator was located in the middle of the room and not secured to the floor. The room had an exterior wall with a bank of unalarmed and unsecured windows that looked out onto a loading dock. The blood center officials said that while they met the controls, they acknowledged that the center is highly vulnerable to theft or sabotage of their radiological sources. According to NRC, an irradiator sitting in the middle of the floor not bolted down is not necessarily vulnerable.

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Licensees are responsible for implementing the security requirements, including designing a security plan and implementing it. Implementation includes procuring and installing surveillance and alarm equipment that the licensees believe is adequate to protect the radiological materials in their facilities. However, many of the officials at the 25 hospitals and medical facilities we visited told us that they have backgrounds in radiological safety and facilities management and have limited security experience. Furthermore, none of these officials has been trained in how to implement the controls. For example:

- At another hospital we visited, the RSO said that when the controls were instituted in 2005, his new responsibilities included ensuring the security of a cobalt-60 gamma knife of approximately 2,600 curies and a cesium-137 blood irradiator of about 2,400 curies. He told us that he was not comfortable with his security role because his training was as a health physicist.[22]

- One facility manager who oversees the security for an approximately 1,700 curie cesium-137 blood irradiator at a blood bank told us that he has a background in construction, not security. He said that it would have been helpful if NRC's controls were more specific so that he would be in a better position to determine what security measures were necessary to adequately protect the device.

According to NRC, NRC and Agreement State inspectors receive training in security inspections. They also noted that only qualified inspectors can conduct security inspections. Qualification includes training and inspection accompaniments with qualified inspectors. However, some inspectors from NRC and Agreement States we interviewed told us that they do not feel comfortable conducting security inspections at hospitals and medical facilities, despite having received this training. For example, an NRC inspector said that security inspections were particularly difficult for her because she is trained as a physicist. She said that the controls were confusing, and she did not understand the nuances of security. An Agreement State inspector from another state we visited also told us that he was not qualified to do security inspections. However, he said that he

[22]Health physics is a science concerned with recognizing and evaluating the effects of radiation on the health and safety of people and the environment, monitoring radiation exposure, and controlling the associated health risks and environmental hazards to permit the safe use of technologies that produce radiation.

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was doing the best he could to interpret the controls and help the licensees implement the requirements. Other inspectors from this state told us that they were placed in the awkward situation of having to enforce regulations that they did not believe they were fully qualified to interpret.

We also found that Agreement States lacked sufficient staff and adequate training to ensure the security of radiological sources, according to recent NRC reviews of two Agreement States' inspection programs.[23] For example, NRC's review of one of the state's radioactive materials program found that the program experienced significant turnover and that inspectors did not have an adequate understanding of the controls. According to a state official, high staff turnover and the resulting lack of security experience affected the quality of their oversight. As a result, inspectors had difficulty assessing licensee compliance with the security requirements. According to NRC's review of the other state's radioactive materials program, the state's newer inspectors would have benefitted from additional training on NRC's security requirements. A state inspector told NRC that he did not understand the meaning of some of the documentation he was reviewing. Another state official stated that he was authorized to inspect a radiological device independently (without being accompanied by a more experienced inspector) before he was ready to do so. Furthermore, according to state officials, staff turnover has significantly affected the state's timely follow-up of increased controls violations. NRC told us that they plan, based on the findings of these reviews, to take action in future reviews to remedy these problems.

NNSA Has Secured Radiological Sources at U.S. Hospitals and Medical Facilities

According to NNSA, there are approximately 1,500 hospital and medical buildings in the United States —that they have identified—that contain high-activity radiological sources. NNSA also estimates that these buildings cumulatively contain about 22 million curies of radioactive material.[24] One of GTRI's components is the Domestic Material Protection

[23]NRC's Integrated Materials Performance Evaluation Program reviews Agreement State programs to ensure that they meet NRC's standards. Since 2006, NRC has conducted 41 reviews that contained reports on state's performance regarding the inspection and licensing of the increased controls. Of the 41 reviews, 4 noted problems with how the state was implementing the increased controls.

[24]According to NNSA, this estimate reflects the amount of curies for the licensed maximum for each device. It does not reflect what the actual amount of curies may be, because curie levels diminish as the device is utilized.

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program, which further improves security beyond NRC and Agreement State regulatory requirements at U.S. facilities with high-activity radiological sources, including hospitals and medical facilities.[25] This voluntary program provides, among other things, U.S. hospitals with security upgrades to the devices that contain high-activity radiological sources. It also provides training for hospital personnel and local police departments through its Alarm Response Training program at the Y-12 National Security Complex in Oak Ridge, Tennessee. This training is designed to teach facility personnel and local law enforcement officials how to protect themselves and their communities when responding to alarms indicating the possible theft or sabotage of nuclear or radioactive materials. NNSA funds the cost of the security upgrades and training. However, the licensee is responsible for maintaining the security systems once the 3-to-5-year warranty period established by NNSA expires. NNSA officials told us that they estimated the average cost of maintaining the upgrades at each hospital was typically less than $10,000 per year.

According to NNSA officials, as of December 2011, the program spent an estimated $96 million to secure radiological sources at 302 U.S. hospitals and medical facilities. The program plans to complete voluntary security upgrades at all 1,503 hospital and medical buildings it has identified as high-risk by 2025, at a projected cost of $608 million. NNSA officials told us that they estimate the average cost to upgrade a medical building has been $317,800.[26] We plan to analyze these expenditures more fully during the course of our review.[27]

Of the 25 hospital and medical facilities that we visited in seven states and the District of Columbia, 13 have received GTRI upgrades and three were in the process of receiving the upgrades. Officials from most of the 16 hospitals and medical facilities told us that GTRI's program enhanced the security of their facilities. We observed a number of security upgrades at the facilities we visited, including remote monitoring systems, surveillance cameras, hardened doors, iris scanners, motion detectors, and tamper-proof alarms. NNSA has established criteria for determining

[25]The upgrading of hospitals and medical facilities is one component of GTRI's Domestic Material Protection program, which also secures high-activity radiological sources in other commercial facilities and sites.

[26]According to NNSA officials, training costs were excluded from the data.

[27]These cost estimates are of undetermined reliability.

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which hospitals are eligible for assistance; it ranks facilities to be upgraded based on the relative risk of the radiological sources and expected risk reduction resulting from the planned GTRI activity. The criteria NNSA uses include the following: the attractiveness for theft or diversion of nuclear and radiological materials; existing site security conditions; threat environment; and location to a potential target, such as a large population center.

Some hospital officials and police department personnel told us that the GTRI program is limited because it is a voluntary program and because of the potential financial burden placed on hospitals and medical facilities to maintain the upgrades beyond the 3- to 5-year warranty period. We found that some hospitals have declined the upgrades, including hospitals located in high-risk urban areas. For example:

- At a blood bank in one of the states we visited with a cesium-137 blood irradiator of approximately 1,400 curies, staff told us that NNSA was prepared to upgrade the bank's security, but the blood bank decided not to participate because senior management wanted to wait until the blood bank moved to a new location, which it planned to do within the next 3 years. We observed that the blood irradiator appeared vulnerable—it was visible through an unalarmed and unsecured bank of windows overlooking an exterior loading dock. In February 2012, we contacted NNSA officials about this matter. As a result, NNSA and national laboratory officials met with the facility and developed a plan to secure the irradiator before the end of the fiscal year.

- According to police department officials from one major U.S. city, one hospital with a blood irradiator of approximately 1,700 curies has declined the GTRI upgrades, even though the police department considers it a high-risk facility. The hospital officials told us in February 2012 that they decided not to implement the GTRI upgrades because of concerns about maintenance costs associated with the security equipment after the NNSA-funded warranty period expired. The RSO said that the security the hospital has in place is adequate. Furthermore, the hospital is under serious budget pressure that makes it difficult to justify spending more money on protecting the sources.

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Under the GTRI program, NNSA also upgrades some smaller sources, such as those contained in brachytherapy devices.[28] Typically, these devices contain between 10 and 15 curies of iridium-192. The curie level is not considered high enough to be subject to NRC's security controls, but NNSA officials told us that the devices' portability makes them a potential target for theft. NNSA officials stated that GTRI completed security upgrades at some sites before they considered including brachytherapy devices. GTRI is in the process of revisiting these sites and implementing security enhancements. We observed GTRI upgrades for brachytherapy devices at some hospitals, including a device that was put in a locked closet. However, we did visit one GTRI-upgraded facility where the security of the brachytherapy device had not been upgraded. In this facility, there were no security cameras monitoring the area, and in particular, there were no cameras in the room where the device was located. Furthermore, access to the room was controlled by a wooden door with a padlock, and we observed a hospital official retrieve the key to the padlock from an unlocked desk immediately outside the door. Upon entering the room, we observed that the device was not secured to the floor, as required by the hospital's own security protocol.

We are continuing to conduct our audit and plan to visit some additional medical facilities in the United States. We plan to issue our report later this year.

Chairman Akaka, Ranking Member Johnson, and Members of the Subcommittee, this completes my prepared statement. I would be pleased to respond to any questions you may have at this time.

GAO Contact and Staff Acknowledgements

If you or your staff have any questions about this testimony, please contact me at (202) 512-3841 or aloisee@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. GAO staff who made key contributions to this testimony are Glen Levis, Assistant Director; Jeffrey Barron; Alysia Davis; William Hoehn; Will Horton; and Michelle Munn.

[28]A brachytherapy device typically involves inserting radioactive material into the body near the treatment site.

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THE NUCLEAR SECURITY SUMMIT AND GLOBAL NUCLEAR SECURITY GOVERNANCE FOR THE 21st CENTURY

KENNETH N. LUONGO
PRESIDENT, PARTNERSHIP FOR GLOBAL SECURITY

TESTIMONY BEFORE THE
SENATE COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT,
THE FEDERAL WORKFORCE, AND THE DISTRICT OF COLUMBIA

MARCH 14, 2012

Mr. Chairman and members of the subcommittee, I thank you for the invitation to testify before you today on progress securing vulnerable nuclear material around the world. I am pleased to offer my testimony on the role of the Nuclear Security Summit (NSS) process, efforts made by U.S. international weapons of mass destruction (WMD) security programs, and suggestions for how global nuclear security governance must evolve to meet 21st century threats.

I am currently President of the Partnership for Global Security (PGS), which is a non-profit research organization dedicated to preventing the spread of nuclear and biological weapons and materials. PGS works closely with many governments and international experts to develop new security initiatives and to ensure the timely and effective implementation of existing programs. I also serve as the co-chair of the Fissile Materials Working Group which convened a summit of over 200 international nongovernmental experts the day before the official 2010 Washington NSS. This event, titled, *Next Generation Nuclear Security*, helped to educate the press and public on the importance of the effort to secure nuclear weapons materials and prevent nuclear terrorism. A similar event, titled *Innovating Nuclear Security Governance*, is being held prior to the 2012 Seoul summit by the Institute of Foreign Affairs and National Security and Korea Institute of Nuclear Nonproliferation and Control.

I thank the committee for holding this hearing. The proliferation of nuclear weapons and materials remains a significant, central threat to U.S. and international security. The global effort to stem this threat requires the high-level political attention that the committee is providing today.

Mr. Chairman, I will summarize my formal statement, and ask that the full text of my testimony be included in the official record of the hearing.

Background on the Nuclear Security Summit

The April 2010 NSS was an unprecedented and successful event that brought together 47 nations and three international organizations to discuss how to prevent nuclear terrorism by improving

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global nuclear material security.[1] There had never been such a gathering of high-level political officials to discuss the subject of preventing nuclear terrorism and securing nuclear materials.

Participants at the summit agreed to a communiqué which highlighted the global importance of preventing nuclear terrorism and endorsed President Obama's goal of securing all vulnerable nuclear material in four years. Additionally, they underscored the importance of maintaining effective security over all nuclear materials on their territory; encouraged the conversion of reactors that use highly-enriched uranium (HEU) to low-enriched uranium (LEU); and recognized the importance of the Convention on the Physical Protection of Nuclear Materials (CPPNM) and its amendment and the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT) as essential elements of the global nuclear security architecture. Finally, the communiqué emphasized the need for international cooperation on this agenda, including the importance of capacity building and responding to requests for assistance in order to secure these materials globally.

The work plan accompanying the communiqué focused on improving and universalizing existing nuclear security agreements and programs. In addition to the conventions mentioned in the communiqué, the work plan also notes the need to fully implement United Nations Security Council Resolution (UNSCR) 1540, and support the Global Initiative to Combat Nuclear Terrorism (GICNT) and the G-8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction (G-8 Global Partnership). It also recognizes the continuing importance of the International Atomic Energy Agency (IAEA) and its nuclear material security guidelines and activities.

It further highlights the fundamental role of the nuclear industry in the nuclear security agenda, the human dimension of ensuring nuclear material security, and the importance of sharing best security practices.

Other ambitious objectives of the work plan included the consideration of the consolidation of national sites where nuclear material is stored, the removal and disposal of nuclear materials no longer needed for operational activities, and the minimization of the civil use of HEU.

In addition to the work plan, 30 individual countries made commitments for improving security at home, including Ukraine's decision to remove all of its remaining HEU by 2012 and the U.S. and Russia signing an agreement to implement the plutonium disposition accord. A small number of countries made modest financial commitments. Approximately 80 percent of these national commitments have been completed.[2]

Value of the Nuclear Security Summit Process

The NSS also has created some important new precedents in the nuclear security arena. One is that the pursuit of improved nuclear material security should be multilateral but can also be selective in the nations that exercise leadership. This gives some international legitimacy to non-universal action in support of nuclear material security. Another important precedent is that it

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seeks to achieve goals within set timeframes, like implementing the national commitments made at the Washington summit before the Seoul event.

All of these developments are good and positive and will further solidify the current foundation of the current nuclear material security regime. But, even if implemented completely and rapidly, they would not be sufficient to address the evolving nuclear terrorism threat. And, while the NSS process has the political power to produce national commitments, it does not have the ability to drive the agenda and regime significantly beyond where it exists today. The Washington work plan offers many caveats including allowing individual nations to implement many of the NSS objectives "as appropriate." In addition, there is a need for nuclear regulators in all nations to have the opportunity to discuss and harmonize their regulations in order to decrease differences that exist, harmonize standards and accident responses, and promote best practices globally. A similar dialogue would be useful among the security managers at nuclear facilities around the globe. While confidentiality about threats is necessary, it should be possible to discuss management philosophies and practices. The new collaboration between the World Institute for Nuclear Security (WINS) and the World Association of Nuclear Operators (WANO) on the interface between nuclear safety and security would be a good opportunity to launch this dialogue.

The Seoul summit, plus the decision to hold another nuclear security summit in 2014, provides a window of opportunity to both reframe the nuclear material security debate and initiate some key changes in strategy. Each summit needs to be viewed as an opportunity to further strengthen and improve the nuclear material security regime beyond its current limits. The NSS has created a very important process that did not exist before, and it offers an opportunity for making progress at a scale that otherwise would not exist and would have to be done in a much more retail and slow way, country-by-country. The summit process allows for a package of ideas and activities to be placed before more than 50 heads of state for approval – by all, at the same time. That is a unique circumstance that has previously not existed.

Expectations for the 2012 Seoul Summit

The upcoming NSS in Seoul will raise the international profile of the threat of nuclear terrorism and focus attention on the need to better secure weapon-usable nuclear materials in all corners of the globe. Nearly 60 world leaders will endorse a "Seoul Communiqué" that reaffirms many of the same principles that were covered in the 2010 summit, expands on the importance of radiological source security, and addresses the interface of nuclear safety and security. In addition to the political commitments in the Seoul Communiqué, countries are expected to offer new voluntary national commitments ("house gifts") and multinational or regional commitments ("gift baskets"). Several new countries are expected to attend the 2012 summit, including Azerbaijan, Denmark, Gabon, Hungary, Lithuania, and Romania. INTERPOL will join the European Union (EU), IAEA, and United Nations (UN) as international organizations sending delegations to the summit.

The sequencing of biennial high-level international political summits has underscored the global importance of addressing the threat of nuclear terrorism. As a result, the NSS has the potential to become the preeminent international forum where the state of global nuclear material security is

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evaluated and where new commitments are made to improve the world's defenses against nuclear terrorism. But, to fully realize its potential, the NSS process will need to evolve and participating counties must be willing to accept changes that will strengthen the nuclear material security regime.

It is important to recognize that regularized, high-level international summits that address important transnational issues are fairly rare, difficult to establish, and raise expectations for effective action. The closest corollary is the G-8 economic summit process, and the recent addition of the G-20 economic summits. But even the G-7 meetings (the forerunner of the G-8) were not regularly established until 1979. And their creation was an outgrowth of the ad hoc sessions initiated by the industrialized countries following the 1973 OPEC oil embargo.

The NSS has had the foresight to address the clear and dramatic danger posed by nuclear terrorism in advance of any such shocking event. But this strategy of focusing attention on the prevention of nuclear terrorism requires that policies and requirements be stronger than those that the Washington summit, and likely the Seoul summit, will require. It requires the development of an international nuclear security regime that emphasizes transparency of action, shared standards, and confirmed performance and accountability by nations.

The upcoming meeting should build on the success of the first NSS by moving beyond the current elements of the regime and creating the foundation for the construction of an improved governance structure for nuclear security – one that is comprehensive, standardized and accountable. If this policy evolution process can be initiated at the Seoul summit and can be continued in subsequent summits, it would help significantly strengthen and expand the existing nuclear and radiological material security regime.

Advancing Nuclear Material Security

The 2010 Washington summit solidified and underscored the key elements of the current nuclear material security regime, but it did not require countries to take any specific action beyond those that they wanted to take. The most specific actions toward nuclear material security improvements—many important—were declared unilaterally by individual nations in attendance. The summit communiqué and work plan only outlined specific actions and policy objectives without making implementation mandatory[3].

This may have been an acceptable outcome in 2010 at an inaugural summit. But circumstances have changed over the past two years, particularly as a result of the nuclear reactor accident at Fukushima in Japan. While for many nations, including some of those in attendance in Washington, nuclear terrorism remains an abstract and distant threat, Fukushima underscored that nuclear disasters can occur in an extremely technologically advanced country, as a result of an unanticipated event, and have significant economic and social consequences. In addition, the accident at Fukushima made it clear that the global community does not have an adequate system in place to deal with nuclear crises that extend beyond borders.

In fact, in the aftermath of the Fukushima accident a number of high-level international discussions were held, including at the IAEA and the United Nations (U.N.). As a result of a conference on nuclear safety

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and security held in September 2011, the U.N. Secretary General, Ban Ki Moon, declared that, "The effects of nuclear accidents respect no borders. To adequately safeguard our people, we must have strong international consensus and action."

The current nuclear material security regime has improved but it still lags behind the safety, nonproliferation, and arms control regimes. At the very least all of these other regimes require some element of transparency and/or verification of commitments. The current nuclear security regime is still very much designed and controlled by national agencies and actors and remains individualized to specific nations. International obligations are largely voluntary with no uniformity of security regulations or procedures. These are major gaps in the regime in comparison to other, related nuclear issues.

What is needed is a confidence building architecture that emphasizes demonstrated performance and accountability. It must be comprehensive and include clear but flexible standards[4].

U.S. International WMD Security Program Budgets

U.S. funding for nuclear material security is significant, operationally important, and politically symbolic. But, it has been inadequate. The Obama administration's first budget request for international WMD security programs in fiscal year 2010 (FY10) was seven percent below the Bush Administration's final FY09 appropriations when the budgets for the Department of State, Defense (DoD), Energy, (DoE) and Homeland Security (DHS) are combined.[5] This was a missed opportunity to propose the funding necessary to achieve its high priority nuclear security goals, particularly the President's four year effort to secure all vulnerable nuclear materials. While the Obama administration brought a renewed and expanded focus on WMD security and nonproliferation, the revitalized agenda was not matched with sufficient funding or new initiatives to achieve the President's ambitious goals.

The FY11 request for international WMD security programs provided a significant boost to nuclear and biological security programs.[6] The Obama administration touted this request as the "largest ever" for cooperative nuclear security programs in the U.S. national statement at the 2010 NSS.[7] However, Congress did not support the request and cut funding significantly in the final appropriation. The Administration's FY12 budget request was far less ambitious than its FY11 request, reducing funding for WMD security programs in NNSA, DoD, and the Department of State. However, gaining support for even this lower level of funding was a fight in Congress. Thankfully the Senate opposed the deep cuts recommended by the House, and the final appropriation bill included only small cuts to the request.

The Obama administration's FY13 budget request dramatically reduces funding for international WMD security programs from their FY12 appropriated level.[8] While DoD's CTR program funding is slightly increased overall, CTR's Global Nuclear Security program is targeted for a 17 percent cut. Requested funding for NNSA is nearly a quarter below the FY12 appropriation. While the out year funding charts from the Administration's original FY10 budget request showed steady growth for NNSA's Global Threat Reduction Initiative (GTRI)—one of the two key programs implementing the four year goal – its funding has fallen short of these projected

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goals each year. Further, the initial out year projections for NNSA's International Nuclear Materials Protection and Cooperation (INMPC) program – the second key implementer of the four year goal— showed funding steadily rising for its globally-oriented Second Line of Defense (SLD) program while its FSU-focused activities declined. This has not occurred. In FY13, requested funding for SLD is more than 80 percent below the Obama administration's initial projection for the program and $171 million below the FY12 appropriated level. Such dramatic cuts in a globally-recognized U.S. anti-nuclear smuggling program in such a critical year sends the wrong message – to allies and enemies.

The SLD cut amounts to a vote of decreasing confidence in one of the U.S. key nuclear terrorism prevention strategies. It sends the wrong signals to other countries and undermines our leadership. Approximately 6,000 radiation detectors have been installed by DHS' Securing the Cities Initiative in New York City alone, and new technologies continue to be innovated. Why are we pushing aggressively forward with this strategy at home but pulling back in other parts of the globe?

The SLD Core program has deployed about 2,000 monitors in high threat areas, primarily in the FSU. But critical parts of this work remain undone. Key countries, such as Moldova and Belarus, are unequipped and do not have the resources to do this work themselves. To fully benefit from the investments already made, it is imperative that funding be provided to complete this crucial work. Further, there are 41 SLD Megaports in 29 countries around the world. The human capacity and infrastructure that has been built to manage the program cannot be maintained under the FY13 request. Host countries are taking responsibility for the management and sustainability of these ports because U.S. diplomats and technical personnel convinced them that this work was vital to global security. If the FY13 cuts are enacted, the U.S. will not be able to live up to plans it has with Korea and China to do Megaports deployments in those countries.

The nuclear smuggling threat has not abated, so why did SLD program funding decrease 65 percent from the FY12 to FY13 request? Some have suggested that terrorists will use unequipped pathways to avoid detection, but this is not as simple as it sounds. Even if the Megaports and Core sites are avoided, they've seriously complicated smugglers' efforts and increased the opportunity for them to be deterred or detected.

U.S. Government Efficiency in Nuclear Material Security Efforts

The Government Accountability Office (GAO) has conducted a number of investigations into the U.S. government's efficiency in pursuing its nuclear material security objectives and living up to its responsibilities. From among the many worthwhile recommendations proffered by GAO in recent years on combating nuclear terrorism and strengthening nuclear security, I will limit my comments to a few in particular.

Most recently, GAO released its annual report on reducing duplication, overlap, and fragmentation in the federal government which cited its concerns about the coordination of federal programs involved with preventing and detecting nuclear smuggling activities overseas.[9] GAO recommended that a comprehensive review should be undertaken to address the "strategic

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planning limitations and potential fragmentation and overlap concerns among programs." Among these programs was SLD. I believe an interagency process exists to actively coordinate the various U.S. nuclear smuggling-related programs. They all come together under the Global Nuclear Detection Architecture that DHS' Domestic Nuclear Detection Office is charged with creating. It is also important to keep in mind that each program has been tailored to meet a specialized need in the fight against nuclear smuggling.

In December 2011, GAO released a study on program management and coordination challenges associated with NNSA's Defense Nuclear Nonproliferation (DNN) account that include its nonproliferation programs.[10] Among GAO's recommendations are extending the timeframes that allow DNN programs to receive foreign contributions. These program authorities are set to expire between 2011 and 2015. GAO found that three programs received more than $47 million in foreign contributions from seven countries from fiscal year 2006-2010, including INMPC and GTRI. I am a strong supporter of increasing the eligibility of U.S. programs to accept outside funding and encourage Congress to follow through with GAO's authority extension recommendation.

In September 2011, GAO reported on the U.S.' inability to fully account for U.S. nuclear material sent overseas as part of civilian nuclear cooperation agreements.[11] It noted that while cooperation agreements often require partners to report inventory information upon request, it has not been systematically sought by the U.S agencies, including for weapons-usable materials. These agreements also do not include specific access rights for U.S. officials to monitor and evaluate the physical security of materials sent overseas. Some reviews have been permitted by states, but U.S. agencies have not systematically visited countries for this purpose, including those with the highest proliferation risk U.S. materials. GAO recommends that Congress direct DoE and the Nuclear Regulatory Commission (NRC) to compile an inventory of U.S. nuclear materials that are overseas, but DoE, NRC, and Department of State have objected to this. I support GAO's recommendation. It is something that should have been an element of the President's four year effort.

In December 2010, the GAO released a report on its investigations of U.S. efforts to implement President Obama's goal of securing all vulnerable nuclear material around the world within four years.[12] GAO looked at the U.S. government's interagency strategy, the status and challenges that U.S. programs face in Russia, and their activities worldwide. A key finding was that the interagency strategy created by the National Security Council on the four year goal was unclear and lacked vital details. According to GAO, the "strategy lacks specific details concerning how the initiative will be implemented, including the identity of vulnerable foreign nuclear material sites and facilities to be addressed, agencies and programs responsible for addressing each site, planned activities at each location, potential challenges and strategies for overcoming those obstacles, anticipated timelines, and cost estimates."[13] These shortcomings identified by GAO are significant. They indicate the need to evolve the mandates and budgets of U.S. nuclear security programs to today's changing new nuclear security environment.

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The Four Year Goal for Securing All Vulnerable Nuclear Materials

In April 2009, President Obama first announced a four year international effort to secure all vulnerable nuclear materials within four years. Since that time, the G-8, UNSC, and 2010 NSS participants have endorsed it.[14] As a result, it clearly has been a success in rallying international political support for an important security issue. However, nearly three years since its announcement, its practical scope and targets have still not been defined. This was a major shortcoming and it makes it nearly impossible to judge progress made in achieving it.

No new activities have been initiated under the four year effort. Instead, projects already in the pipeline were simply accelerated and branded as "four year goal" activities. Examples of this include the proposed HEU removals from Belarus, Mexico, South Africa, and Ukraine.

The four year goal objective needs to be phased out. It is not a useful framing of the nuclear material security challenge which requires constant vigilance and adaptation of material protection mechanisms to meet new and emerging threats. While it may be possible to significantly raise the bar for nuclear security within four years, it is unrealistic to put an end date on such efforts if quality is to be sustained. And there should be no illusion that by the end of 2013 that all vulnerable nuclear materials will be secured. They will not be.

Between now and 2020, a bolder agenda with creative new initiatives should be pursued by the U.S. and its allies. In particular, one area that could make an important security impact and is ripe for collaboration in the near-term is radiological source security. There is a serious problem with the security of radiological sources around the world. The IAEA estimates that there are 100,000 to 1 million radiological sources around the globe, and no one has an accurate accounting.[15] Only a small fraction of these sources are well-suited for a terrorist device, and their locations are largely known and could be secured for a reasonable cost. Many facilities with high-intensity sources are in open environments, such as universities and hospitals.

Countries should ensure that high-intensity radiological sources used in publicly-owned building have robust security in place, and they should start by focusing on major metropolitan hospitals. NNSA's GTRI operates a program in the U.S. in which it partners with hospitals and other facilities with priority radiological sources to identify and fund security upgrades. Approximately 500 U.S. hospital buildings with high-priority radiological sources could be secured for $200 million or less. GTRI also has an active program in dozens of nations designed to remove and protect vulnerable nuclear and radiological materials. For example, GTRI has worked with partners in the Middle East and Africa to secure more than 80 sites with radiological sources.

Congress should consider sponsoring a U.S.-international initiative to create "Radiological Security Zones" in key regions around the world. GTRI's experience makes it well-suited to lead U.S. engagement on this type of zone. They would work with countries to analyze different classes of radiological materials, review national level regulations and inspections, and discuss threat scenarios and security upgrade options. Installing passive monitoring systems that feed real-time data to a remote regional monitoring center that is jointly staffed by international experts could be an important element of making the zone attractive to countries as an effective

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security tool and regional confidence building measure. It could be a stepping stone to new regional collaborations on advancing nuclear material security, and a marquee project to pursue in advance of the 2014 NSS.

Need for a Nuclear Security Governance Framework Agreement

For all of its improvement over the last 10 years, the nuclear material security regime remains a gap-filled and largely voluntary patchwork of programs, regulations, and agreements. The Seoul summit and its corollary events, including the expert and nuclear energy industry symposia provide a window of opportunity to begin to reframe the nuclear material security debate and develop new strategies and policies.

While the NSS has taken the important step of establishing global fissile material security as a top-level international objective, a more robust, effective, and flexible 21st century nuclear material security architecture will require actions beyond the current mechanisms and international consensus. What is needed is an international nuclear security regime that emphasizes transparency of action, shared standards, and confirmed performance and accountability by nations. If this policy evolution process can be initiated at the Seoul summit and can be continued in subsequent summits, it would help significantly strengthen and expand the existing nuclear and radiological material security regime.

A Nuclear Material Security Framework Agreement is one approach to evolving the regime. Framework agreements addressing transnational challenges have precedent, particularly in the environmental area. They unify the elements of fragmentary regimes and root national obligations in international law. A Nuclear Material Security Framework Agreement would identify vulnerable nuclear material threats, list the actions required to mitigate them, and be supplemented with clear principles that frame the development of the new agreement and its possible protocols. Models for the framework agreement on nuclear material security include the Vienna Convention and Montreal Protocol, the UN Framework Convention on Climate Change (UNFCCC), and the Convention on Nuclear Safety (CNS).

The Vienna Convention established the precedent of countries agreeing to general principles in an accord before negotiating additional implementation protocols with specific binding actions. Negotiations on the Montreal Protocol, a binding protocol to the Vienna Convention, took approximately one year and included special provisions to enable the long-term adaptability of its targets and limits. Like the Vienna Convention, the Montreal Protocol was not accepted initially by all nations, but some key nations exercised leadership and its membership grew over time.

The UNFCCC and its protocols are modeled after the Vienna Convention. The UNFCCC also includes a high-level international scientific advisory panel that could be a model for a similar expert group supporting the nuclear material security framework agreement. The climate change panel only includes government representatives, but a nuclear material security version could be expanded to nongovernmental and private sector experts.

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The CNS is an international agreement with which all nuclear operators are familiar. There are four major elements embodied in the CNS that have been critical to the improvement of safety over time: regularized assessments, information sharing, peer review, and reviews of the implementation of relevant international conventions. The nuclear safety regime could offer a useful platform from which to begin the evolution of nuclear security governance. According to the results of a 2010 GAO survey of CNS parties and relevant international organizations, most believe that the convention has been useful for strengthening the safety of civil nuclear power worldwide, and many cited its establishment of an effective legislative and regulatory framework and regulatory body and national reporting as key reasons why.[16]

The approach to building a modernized governance regime should be careful and deliberate so as not to raise suspicions about hidden agendas or ulterior motives. It must balance sovereignty concerns with international requirements. It should also include a nongovernmental track that can supplement governmental action, or more likely precede it by identifying paths forward and strategies that governments can then consider.

This two track approach—governmental and nongovernmental— should be used to develop the framework agreement in two phases: 2012-2016 and 2017-2020. The long-term objective is to establish a new nuclear governance performance-based architecture in the form of a Nuclear Material Security Framework Convention that is followed by actionable protocols. To build toward that objective in the near-term, a governmental track would continue the NSS process, seek near-universal implementation of key international conventions, and unite a coalition of countries willing to take preliminary steps to evolve nuclear security governance. The nongovernmental track would complement these efforts through the creation of a geographically diverse Global Nuclear Governance Experts Group that would develop policy recommendations and a draft text of a Framework Agreement. This process, moving along dual tracks, should be able to deliver a concrete progress for the 2014 NSS in the Netherlands and beyond.

Conclusion

The NSS process has created a new and unique channel for the improvement of nuclear material security and the prevention of nuclear terrorism. It has created a very important, high level political process that did not exist before. It offers the opportunity for making progress on a scale that otherwise would not exist and would have had to be done country-by-country. But, the consensus-based approach of the process is not well suited to the development of dynamic new policies, the policy objectives are not binding on any nation, and the national commitments are completely voluntary. As a result, additional steps beyond what the NSS likely can deliver, and in support of the continued improvement in the security regime once the summits have ended (if they do), are required to build a stronger security regime for this new century. The upcoming summit and its corollary events, including the expert and industry symposia provide a window of opportunity to begin to reframe the nuclear material security debate and develop new strategies and policies.

Most important among these objectives should be the development of a Nuclear Material Security Framework Convention and subsequent actionable protocols. The framework

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agreement precedents have made clear that this approach is neither radical nor uncommon. The nuclear material security regime is at present fragmented and incomplete. A framework convention can unify it and fill the policy voids. It can begin by taking advantage of the elements that exist in the nuclear safety regime – including regular assessments, information exchange while protecting confidentiality, transparency to generate international confidence, and limited peer review – since most specialists are familiar with this regime and because it has been operational and effective for many years. The concept of the four year nuclear material security goal needs to be phased out, and the priority of protecting high-intensity radiological sources elevated.

Congress can provide leadership on the nuclear security issue this year by taking several steps. The first is ensuring adequate budgets for international nuclear materials security and certifying that the funds are used effectively. Second, it can authorize and fund a new U.S.-led international initiative to work with countries in key regions around the world to create "Radiological Security Zones." Participants in this initiative could begin by focusing on securing all high-intensity sources in public-buildings, starting with major metropolitan hospitals, and utilizing passive monitoring systems and harmonizing regulations. Third, it can and should also support the needed dialogues among international regulators and nuclear facility security personnel. Finally, it should encourage the administration to think more about the need to improve nuclear security governance and the value of a framework agreement that can unify and improve the current global security regime.

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Testimony of Page O. Stoutland, PhD

Vice President, Nuclear Materials Security Program

Nuclear Threat Initiative

Before the Senate Homeland Security and Governmental Affairs Committee

Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia

Managing Interagency Nonproliferation Efforts: Are We Effectively Securing Nuclear Materials Around the World?

March 14, 2012

Good afternoon, Chairman Akaka, Ranking Member Johnson, and distinguished members of the Committee. Thank you for the opportunity to testify today about the grave threat posed by nuclear terrorism and the importance of ongoing global and U.S. efforts to mitigate that threat.

My name is Page Stoutland and I'm the vice president for Nuclear Materials Security at the Nuclear Threat Initiative (NTI). NTI is a non-partisan, non-governmental organization founded and co-chaired by former Senator Sam Nunn and CNN founder Ted Turner. Since its inception in 2001, NTI has worked to strengthen global security by reducing the risk of use and preventing the spread of nuclear, biological and chemical weapons. Our work on these important issues includes efforts to secure nuclear materials around the world and catalyze the work of others, particularly governments, to do the same.

My remarks today will focus primarily on the urgent need for leaders to reach a global consensus on priorities for nuclear materials security and on steps the international community and individual countries should take to enhance security.

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Because there has been no baseline assessment of nuclear materials security conditions around the world, NTI recently developed a first-of-its-kind Nuclear Materials Security Index. The Index scores the 32 countries that have what we call weapons-usable nuclear materials—the highly enriched uranium or plutonium needed to build a bomb. The Index also scores 144 additional countries that have small amounts or none of these materials, but must not be used as safe havens, staging grounds or transit points for illicit nuclear activities.

Our hope is that the Index will serve as a much-needed basis for a dialogue on security priorities and can be used as a baseline against which progress on materials security can be measured. The 2010 Nuclear Security Summit was in large part responsible for elevating government engagement on the problem, and we hope this month's summit in Seoul and the 2014 summit will build on that progress.

In developing the Index, we found that governments generally are more aware of the threat posed by unsecured nuclear materials and the urgent need to strengthen security and also are more engaged in the effort to develop solutions.

That was the good news.

We also, however, confirmed that there is currently no global consensus on what steps matter most to achieve security. There is no agreed international system or globally accepted practices for regulating the production of, use of, and security requirements for weapons-usable nuclear materials. Further, a deliberate lack of transparency about security measures makes it impossible to hold states accountable for their security responsibilities.

Additionally, stocks of weapons-usable materials continue to increase in a few countries, making global materials security a difficult and moving target. Many countries have incomplete security and control measures in place, and some states lag on joining international agreements aimed at tighter security or following up on their commitments when they do join.

Before I go into more detail about our Index and the security of nuclear materials generally, let me take a few moments to address the threat.

We believe that the potential for nuclear terrorism remains high. There are currently thousands of tons of nuclear materials in the world, and those materials today are stored at

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hundreds of sites in over 30 countries. Some of those sites are well secured. Many are not, leaving weapons-usable nuclear materials vulnerable to theft or sale on the black market to terrorist organizations that have publicly stated their desire to use nuclear weapons. As Senator Nunn has said, there is evidence today that the elements of a perfect storm are in place: an ample supply of weapons-usable nuclear materials, an expansion of the knowledge and technical know-how to build a crude nuclear bomb accessible by the Internet or through rogue scientists, and the determination of terrorist organizations to do it.

As you know, the result of a nuclear blast at the hands of terrorists, whether it be here in Washington, D.C., in Moscow or in Tokyo, Tel Aviv or Jakarta, would reverberate around the globe, with tens or hundreds of thousands of casualties, disruptions to markets and commerce, long-term implications for public health and the environment, and risks to civil liberties – not to mention the cost of any response.

That's why all countries with weapons-usable nuclear materials have a responsibility to account for them, to take steps to secure them, and to provide continued assurances to the rest of the world that those materials are not at risk for theft or diversion.

And that is why NTI, working with the Economist Intelligence Unit (EIU) over the course of the last year, undertook the development of this Nuclear Materials Security Index. It scores and ranks countries according to a set of five categories and 18 indicators, and detailed information about that process and the rankings can be found at www.ntiindex.org. I will, however, briefly explain the five key factors we assessed to evaluate security conditions. They are:

- Quantities and Sites. How much material does the country have and at what locations?
- Security and Control measures. What kind of requirements for protection measures are in place?
- Global Norms: What international commitments related to materials security has the country made?
- Domestic Commitments and capacity: What is the domestic capacity of the country to fulfill those international commitments?

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- Societal factors. Could a given country's societal factors – such as corruption or government instability – undermine its security commitments and practices?

Taken together, these factors comprise a country's nuclear materials security conditions.

We assessed countries with highly-enriched uranium, separated plutonium and the plutonium in mixed-oxide fuel across the five categories. There are 32 countries with more than 1 kg of these materials. We assessed another 144 countries with less than 1 kg or no weapons-useable materials in three of the categories.

An international panel of experts helped guide our process, EIU gathered data from publicly available sources and we sought to engage the 32 countries with weapons-usable nuclear materials through briefings and by asking them to validate the data we had collected. Ultimately, more than half of the countries validated the data, providing important data confirmations and corrections. We have worked to have the index be as transparent and as objective as possible, so that over time it may be refined and progress on materials security measured.

Let me reiterate an important point: The Index is not merely a rating system. It is not meant to be used to congratulate some countries and chastise others. Rather, it is designed to be used as a resource and a tool for countries and international organizations as we seek to make the world a safer place.

So now let me summarize for you some of our key recommendations, which go directly to the important question you have raised with this hearing: Are we effectively securing nuclear materials around the world?

There's no question that to do so is a very big challenge – but it is not impossible. The tools, technology and know-how exist for governments to keep dangerous materials secure – and it is urgent that governments act to mitigate the threat. Because no single country can address the threat alone, all countries have a responsibility to work collectively and individually to reduce the threat. In addition, coordination between technical, policy and diplomatic communities – within countries and among international partners is critical.

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NTI's Index offers recommendations both for the global community and for individual countries.

An overarching recommendation is that all states must work together to build a system for tracking, protecting, and managing nuclear materials in a way that builds confidence that each state is responsibly fulfilling its obligation. A necessary part of developing such a system will be establishing an international entity or significantly strengthening an existing entity, such as the International Atomic Energy Agency (IAEA), to play a stronger role in developing standards and conducting peer reviews. Specific recommendations include:

- Establish an international dialogue on priorities for materials security. A global consensus on the highest-priority actions needed for robust nuclear materials security does not yet exist. States should begin, through the Nuclear Security Summit process or some other high-level intergovernmental process, to build a common framework for action. Establishing and prioritizing the actions needed to strengthen nuclear materials security is essential, particularly for states with limited capacity and resources.

- Benchmark progress and hold states accountable for security. Over the past 20 years, there have been pockets of progress on securing and eliminating weapons-usable nuclear materials. For future accountability and to track progress around the globe over time, however, it is critical that governments provide official and accurate inventory declarations of weapons-usable nuclear materials as well as the current status, or baseline, of their nuclear materials security conditions.

- Build appropriate transparency to increase international confidence. We understand, of course, that many details about security for sites where materials are stored are – and should be – protected. But other information, such as the general approaches to materials security and broad descriptions of materials security regulations and materials holdings, could be made public and could greatly enhance international confidence in a country's security measures.

Individually, countries can do more as well, including the United States. The U.S. ranked 13th overall, among countries with weapons-usable nuclear materials. That rating was affected, in

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part, by the quantity of materials and number of sites where they are stored—if, however, the quantities and sites were not included, the U.S. would rank second, indicating high scores in the other areas. In the future, the U.S. could improve its ranking by ratifying relevant international agreements critical for reinforcing U.S. leadership in this area.

Individually, countries can:

- Stop increasing stocks of weapons-usable nuclear materials.
- Eliminate stocks of weapons-usable materials completely where possible.
- Strengthen security and control measures, including physical protection, control and accounting, and personnel measures at facilities and during transport of nuclear materials.
- Bring all civilian production facilities under international safeguards.
- Ratify and implement negotiated treaties.
- Target assistance to states with urgent needs.

Great progress has been made in securing dangerous nuclear materials since the end of the Cold War, but we all know that new and dynamic threats have emerged. Although the risk of all-out nuclear war between superpowers has faded, the risk of a terrorist attack with a nuclear device has increased.

We urge the international community and individual countries to act because we know that in order to build a bomb, terrorists must get access to nuclear materials, and that makes global nuclear materials security only as strong as the weakest link in the chain.

There's no question that the best defense against catastrophic nuclear terrorism begins with securing weapons and materials in every country and at every facility where they are stored, and it continues with ensuring that materials cannot be illicitly shipped or traded or sold on the black market.

Again, as Senator Nunn often says: As we consider the unthinkable – one of the world's great cities devastated at the hands of terrorists with a crude nuclear bomb – we must ask ourselves: What could we have done, what should we have done, to prevent it?

We are encouraged by the reactions to our new Index, by progress on President Obama's goal of eliminating all vulnerable nuclear material around the world and by ongoing attention to

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these issues through the Nuclear Security Summit process. To build a global system for nuclear materials security, we must establish an international consensus on priorities and construct a framework so that progress can be measured and tracked – and so that countries can be held accountable for their role in keeping the world safe from the devastation that could be wrought by determined and capable terrorists.

Within that context, it is incumbent on the United States today to continue to play a leadership role – and there are important steps Congress should take toward that end.

Looking back for a moment, it is clear that U.S. leadership has made a real difference on nuclear security in the 25 years since the end of the Cold War. And for a number of key programs, bipartisan support from Congress has been crucial, beginning with passage of the Nunn-Lugar legislation in 1992 by a vote of 86-8. That groundbreaking law, which fostered a joint U.S.-Russian effort to help Moscow keep control of its weapons, materials and know-how in the face of the Soviet Union's collapse, established the Cooperative Threat Reduction Program (CTR) to secure, deactivate and destroy weapons of mass destruction. Bipartisan congressional support for CTR's Material Protection Control and Accounting Program also has fostered additional work to upgrade and better secure nuclear weapons and materials at sites across Russia and former Soviet states.

Today, it is imperative that Congress continue to support these critical programs and continue to support U.S. leadership on this issue. We also strongly urge the Senate to complete ratification steps on the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) and the International Convention on the Suppression of Acts of Nuclear Terrorism (ISCANT). Doing so would set a powerful example for the world and reinforce the United States' role as a leader on nuclear security.

Great progress has been made on nuclear security in recent years. But the threat remains, and there is much work to be done if we are to prevent a catastrophic act of terrorism on U.S. soil or elsewhere. We welcome the U.S. leadership provided through the summit process, and we are optimistic about continued progress and commitments coming out of the Seoul summit. We believe our Nuclear Materials Security Index can help inform that process and serve as a

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valuable tool for governments and international organizations as they engage in the important work of setting priorities to better secure and protect some of the world's deadliest materials.

I would like to take the opportunity again to thank this committee for your work and attention to these important issues. I very much appreciate the opportunity to testify before you today, and I am happy to answer any questions.

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Post-Hearing Questions for the Record
Submitted to Hon. Thomas M. Countryman, Assistant Secretary for International Security and Nonproliferation, U.S. Department of State
From Senator Daniel K. Akaka

"Managing Our Interagency Nuclear Nonproliferation Efforts: Are we Effectively Securing Nuclear Materials Around the World?"
March 14, 2012

1. Please explain the most significant accomplishments announced at the 2012 Seoul Nuclear Security Summit.

   Answer:
   The Nuclear Security Summit in Seoul was a milestone in our global efforts to secure vulnerable nuclear material and prevent nuclear terrorism. We have seen a number of accomplishments since the 2010 Summit. Mexico and Ukraine have joined the ranks of nations that have removed all the highly enriched uranium (HEU) from their territory. The United States helped Sweden remove all the plutonium from its territory. The United States, Mexico, and Canada announced the completion of a joint nuclear security project to convert the fuel in Mexico's research reactor from HEU to low enriched uranium. The United States, Russia, and Kazakhstan unveiled the near competition of a joint project to eliminate the remnants of past nuclear testing activities at a former nuclear test site in Kazakhstan, safely securing more than a dozen weapons worth of nuclear material. Finally, nearly 20 countries have ratified key nuclear security and nuclear terrorism treaties: the Convention on the Physical Protection of Nuclear Materials (CPPNM) and the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT).

   In addition to accomplishing 2010 Summit commitments, Seoul Summit participants advanced an ambitious nuclear security agenda. States agreed to a detailed Communiqué that sets out priority areas in nuclear security, including strengthening the global nuclear security architecture; improving the security, accounting, and control of nuclear materials and minimizing the use of HEU; and encouraging a strong nuclear security culture. Many countries agreed to a number of multilateral joint commitments, including work on thwarting the illicit trafficking of nuclear or other radioactive materials; drafting national legislation to implement nuclear security agreements; an agreement between the United States and several European nations to greatly minimize the amount of potentially vulnerable HEU by sustaining the supply of medical isotopes without the use of HEU; promoting the security of nuclear materials while in transit; and establishing and promoting centers of excellence. Through the Summit process, the international community has made great strides in the effort to prevent terrorists from acquiring nuclear weapons.

   The 2012 NSS follows a number of other major accomplishments since the 2010 Summit, including the extension of the G8 Global Partnership Against the Spread of Weapons and

Materials of Mass Destruction, expanded membership of the Global Initiative to Combat Nuclear Terrorism (which now has 85 members), and extension of the committee overseeing implementation of UN Security Council Resolution 1540.

2. While progress has been made in removing highly enriched uranium (HEU) from many countries worldwide, some key countries are still not fully cooperating with U.S.-led efforts. What are the greatest challenges that the U.S. and international community face in meeting the goal to secure all vulnerable nuclear material within four years? Please specifically address the challenges of removal of HEU from the South African weapons program and research reactor stocks, as well as the HEU at Belarussian research facilities.

Answer:

So far, DOE's Global Threat Reduction Initiative (GTRI) Program has successfully removed all U.S.-origin HEU from South Africa and has assisted in the repatriation of two significant tranches of Russian-origin HEU fuel from Belarus back to Russia. We have made clear to the Belarusian leadership the benefits of following through on its commitments in the Joint Statement by Foreign Minister Martynov and Secretary Clinton (Astana, December 1, 2010) regarding repatriating its remaining HEU and converting its facilities to the use of LEU. In the meantime, the United States and the IAEA cooperation with such countries has resulted in significant improvements to the physical security systems at facilities that house such material, making it far less vulnerable. Cooperation on such physical protection upgrades continues to be robust and has demonstrated tangible successes in many countries.

That said, a principal challenge to the four-year effort stems from the voluntary nature of the U.S. and international programs aimed at removing vulnerable nuclear material from countries that continue to hold them, and the fact that the 2005 amendment to the Convention on the Physical Protection of Nuclear Materials has not yet entered into force and is thus not yet binding in law. Other challenges include ongoing political differences with certain countries over the perceived magnitude of the threat or their desire to link other issues to the goals of the four-year effort. In the case of Belarus, imposed sanctions and political differences resulting from our condemnation of their crackdown against civil society, political opposition and independent media have made the overall political climate more difficult.

Although some in the South African government would prefer that the United States (and other nuclear weapon states) significantly reduce their own holdings of HEU before South Africa eliminates its remaining stocks, we continue to actively engage South Africa on options for removing or blending down its remaining HEU and are exploring ways to make such options more attractive. As is often the case, such elimination will require a high-level political decision.

3. In public remarks at a Hudson Institute seminar in September 2011, Laura Holgate, National Security Council Senior Director for Weapons of Mass Destruction Terrorism and Threat Reduction, said that the U.S. had initially opposed adding radiological material security to the agenda at the Seoul Summit.

    a. Why did the Administration first object to the inclusion of radiological material security both at the 2010 Washington Nuclear Security Summit and in the run-up to the 2012 Seoul Summit?

The 2010 Washington Nuclear Security Summit (NSS) was an unprecedented gathering of 50 world leaders, just one year after President Obama's historic Prague speech, where he called for securing the most vulnerable nuclear material in four years. In order to achieve concrete commitments and tangible results in this forum, the Administration chose to focus discussion at the Summit on the highest priority issues involving efforts to ensure the security of vulnerable fissile materials usable in an improvised nuclear device (IND).

    b. Has this view changed? If so, please explain.

The Administration, as well as over 50 world leaders who attended the NSS, recognize the importance of radiological security for preventing the use of a radiological dispersal device. As such, it was included as a prominent part of the Summit discussions, communiqué, and action plans. Radiological security will continue to be a critical part of our global efforts over the coming years including the lead up to the 2014 Summit in the Netherlands.

    c. Does radiological material security warrant the same level of presidential leadership and U.S. focus that has been devoted to nuclear material security?

Given the large quantities of radiological materials in commercial use throughout the world that can be vulnerable to theft and illicit trafficking, and the possibility for significant economic impact as a result of its malicious use, radiological material security warrants strong U.S. and international focus and leadership. The United States has demonstrated its commitment to radiological material security through the Nuclear Regulatory Commission's (NRC) issuance of Increased Controls Security Orders, the National Source Tracking System, and rules for the import and exports of radioactive sources. This commitment is also demonstrated through NNSA programs which aim to further enhance the security of high-priority radiological materials beyond regulatory requirements in the United States and to assist countries around the world to identify and secure vulnerable radiological materials.

    d. How does radiological security fit into the President's four-year nuclear material security effort?

Radiological material security was highlighted in the 2012 Nuclear Security Summit and the United States and its international partners have continued to bolster radiological security programs. These measures include the continued implementation of security

enhancements at radiological sites; consideration of Radiological Security Zones; deployment of In Device Delay kits on devices that use radioactive materials; use of remote monitoring of alarms by local law enforcement; and the inclusion of Alarm Response Training and Table Top Exercises with international partners.

e. Now that the Seoul Summit has concluded, what new initiatives or measures do the U.S. and its international partners plan to take to secure vulnerable radiological materials worldwide?

In addition to continuing to secure high-activity radiological materials at more than 8,000 buildings domestically and abroad, the United States and our international partners will strive to enhance the harmonized and effective implementation of IAEA guidelines for the import and export of radioactive sources. In addition, we are investigating the establishment of Radiological Security Zones worldwide. The Radiological Security Zone concept would push for the highest standards in radiological security by seeking sites, cities, and states who wish to volunteer to be models and to go beyond regulatory requirements and global norms to implement radiological security best practices.

4. The Seoul Summit document that addresses nuclear and radiological smuggling was signed by only 19 of the 53 participating countries.

a. What factors contributed to the reluctance of most participating countries to agree to build national capacities to counter nuclear and radiological smuggling?

We view the participation of 19 governments in the 'Statement of Activity and Cooperation to Counter Nuclear Smuggling' as a significant step toward strengthening international capabilities to counter nuclear and radiological material trafficking. Efforts to strengthen internal operational capabilities to counter nuclear smuggling represent a new area of multilateral cooperation relative to other nuclear security sub-disciplines, such as material protection, control, and accounting (MPC&A) and border security, although they complement and extend these disciplines. The important role of intelligence collection and analysis in effectively strengthening national capacities to counter nuclear smuggling can make this a challenging topic to address in a multilateral forum. In addition, the Statement of Activity was circulated to Summit states only weeks before the Seoul Summit, and some states were not able to respond in such a short timeframe. Securing the participation of one-third of the 2012 Summit participants in this Statement of Activity is an important achievement to build upon between now and 2014.

b. What efforts are being made to have more states commit to take steps to thwart the illicit trafficking of nuclear or other radioactive materials?

The United States is working through a number of channels to strengthen commitments made by international partners to thwart illicit trafficking of nuclear or other radioactive material. We are working at the most senior levels through the Nuclear Security Summit and related Sherpa and sous-Sherpa processes to secure relevant commitments. In addition, the U.S. interagency is engaging governments bilaterally to encourage them to

strengthen operational capabilities in this area through the Counter Nuclear Smuggling (CNS) Teams dialogues. The United States is focusing on CNS Teams as an effective mechanism to recover material that remains outside government control, since most nuclear material seizures have been the result of law enforcement and security service operations. CNS Teams can enhance the capacity to detect and respond to smuggling activities taking place within a country's borders, and compliment fixed radiation detection equipment along a country's perimeter. As part of this effort, the Department of Energy's Second Line of Defense program, working closely with the Federal Bureau of Investigation, is increasing its mobile detection program in collaboration with partner country law enforcement organizations. More broadly, the Nuclear Smuggling Outreach Initiative (NSOI) is a bilateral U.S. effort to negotiate joint action plans with partner states to improve the full range of capabilities to prevent, detect, and respond to nuclear smuggling. Thus far, ten partner states have signed joint action plans on countering nuclear smuggling, and most have made significant progress implementing at least 90% of the specific commitments in these plans. In addition to bilateral engagement, the United States also works with INTERPOL to strengthen international law enforcement investigative capabilities to identify and arrest nuclear smugglers.

5. What is the Department of State doing to effectively support, and to coordinate with the International Atomic Energy Agency, and how could these efforts be improved? Please provide specific examples.

Answer:

The IAEA, with the United States' and other Member States' support, is implementing its Nuclear Security Plan for 2010-2013. The objective is to help achieve optimum worldwide security of nuclear and other radioactive material in production, use, storage and transport, and of associated facilities, by supporting States in their efforts to establish, maintain and sustain effective national nuclear security regimes, and to assist, upon request, in the establishment of relevant international legal instruments and international cooperation in their implementation.

The United States has led efforts to promote an even greater role for the IAEA in global nuclear security by providing predictable and increased funding for nuclear security activities. For example, the IAEA's Office of Nuclear Security (ONS) develops international guidance and helps Member States to apply that guidance to protect their nuclear installations and nuclear and other radioactive materials from sabotage, theft, and in combating illicit trafficking in such materials. The ONS currently relies heavily on voluntary contributions from a small number of donors, approximately $26 million last year, which was used to implement its Nuclear Security Plan. Through the State Department's Voluntary Contribution to the IAEA, we contributed $7 million in 2011 and $8 million in 2012 to the IAEA's Nuclear Security Fund. We also provide in-kind support, subject matter experts for various activities such as training and document preparation, and assistance on an as-needed basis in the fulfillment of the IAEA's mandate. We are working with the IAEA and Member States to ensure that the ONS receives adequate resources, and we continue to strongly advocate that the IAEA provide

more funding to the ONS from the regular budget to increase predictability, flexibility, and accountability.

Representatives from the Department of State recently helped promote the work of the IAEA at the 2012 Nuclear Security Summit. Through joint statements the United States "[noted] the essential role of the IAEA in facilitating international cooperation and supporting the efforts of States to fulfill their nuclear security responsibilities," promoted the guidance put forth by the IAEA through its Nuclear Security Series of documents and the IAEA Code of Conduct on the Safety and Security of Radioactive Sources, and "[welcomed] the efforts of the IAEA to organize meetings to provide relevant recommendations on the interface between nuclear security and nuclear safety".

The President's effort to secure all vulnerable materials is coordinated by the Department of State with the interagency and the IAEA. These efforts include removing and disposing of high-priority nuclear materials worldwide; converting highly enriched uranium (HEU)-fueled research reactors to use low enriched uranium (LEU) fuel; providing security upgrades at nuclear sites; consolidating materials to fewer, more secure sites; improving international capabilities to detect and interdict illicit nuclear and radiological materials trafficking; and promoting a culture of awareness, responsibility and security.

The voluntary contribution of the United States also provides assistance to the IAEA in support of the Agency's mandate to verify that nuclear material placed under IAEA safeguards is not diverted for non-peaceful purposes. The U.S. Support Program (USSP) is primarily funded through the Department of State's U.S. Program of Technical Assistance to IAEA Safeguards (POTAS), but additional funding to IAEA safeguards is also provided from other elements of the State Department's Non-Proliferation, Anti-Terrorism, Demining, and Related Programs (NADR) account. The USSP is coordinated through the DOE-chaired Subgroup on Safeguards Technical Support (SSTS) – composed of representatives from the Departments of Energy, State, and Defense, as well as the Nuclear Regulatory Commission. The SSTS coordinates U.S. support for the IAEA, including financial, technical, and personnel support. The USSP is administered by the International Safeguards Project Office (ISPO), located at Brookhaven National Laboratory, with policy oversight from the SSTS.

6. Your testimony noted that Centers of Excellence are one country-level approach to nuclear security in places where site-level assistance is not possible or not appropriate. Please explain what role these Centers will play in China and India, as well as whether country-level work in these two critical nations is sufficient to address U.S. nuclear security concerns.

   Answer:

   Nuclear Security Centers of Excellence (COEs) are intended to act as regional venues for training in all aspects of nuclear security and to support nuclear security training needs of the expanding nuclear complexes of China and India. Working with these countries to

promote the adoption of best practices in nuclear material security contributes to global efforts in securing the most vulnerable nuclear material. As noted, these countries do not have agreements with the United States to permit facility access, but the reciprocal best practice exchanges help raise standards for material security, an important global goal. Cooperative activities of the COE may include: nuclear security and safeguards; physical protection; nuclear material control and accounting; nuclear material measurements, including non-destructive assay; nuclear detection technology; nuclear emergency preparedness and response; and nuclear export controls. The establishment of the COE in China would help enhance China's adoption of nuclear security best practices and will serve as a forum to demonstrate advanced technologies and practices in nuclear security. India's Global Centre of Nuclear Energy Partnership (GCNEP), the equivalent of a COE, will serve a similar purpose and one of its five training schools will focus on nuclear security. The others will concentrate on advanced nuclear energy systems, radiological safety, the application of radioisotopes and radiation technologies, and on nuclear material characterization.

7. In 2011, GAO reported that the Department of State and the Department of Energy were not able to account for most U.S. nuclear material sent overseas as part of civilian nuclear cooperation agreements. This included significant amounts of weapons-usable material. GAO noted that these agreements often do not provide U.S. agencies with the right to access nuclear materials to verify that materials are secure. Instead, agencies rely on other countries to safeguard these materials.
    a. Do new nuclear cooperation agreements guarantee you will have access to U.S.-supplied nuclear materials?

    There is no explicit right of access in any of our peaceful cooperation agreements and it is doubtful whether other countries would accept such a provision as described in the GAO report in any new agreement. Physical protection of nuclear material is considered a sovereignty issue by all States and by international treaty (Convention on the Physical Protection of Nuclear Material). Therefore, the Department of State believes that careful consideration should be given to the potential impact on our bilateral relationships, on U.S. national security, and on U.S. commercial competiveness in the nuclear arena of potentially including new explicit rights for physical protection access as recommended in the GAO report. U.S. physical protection teams have been granted access to every site that they have requested access to under the consultation provisions of our nuclear cooperation agreements currently in force, and we believe that the provisions of the current agreements adequately facilitate the accomplishment of U.S. policy objectives.

    b. What assurances do you have that countries possessing U.S. nuclear material are adequately securing and appropriately accounting for these materials?

IAEA safeguards maintain a continuity of knowledge about the amount and location of nuclear materials in countries, including U. S.-obligated materials. The IAEA inspection, reporting and historical database process serves as an effective, internationally-

sanctioned, and U. S.-supported tracking and accounting mechanism for nuclear material in peaceful use. The United States created the IAEA and its safeguards system 55 years ago to track nuclear materials. We have relied on that system since then to provide assurance of the non-diversion of nuclear material and have sought to make it as strong as possible. The IAEA has far more access to the world's nuclear material than we do, including non-US origin material, and we consider its safeguards system to be a highly cost-effective alternative to the type of bilateral inspections we would have to execute if it didn't exist. And it is a critical part of our effort to deal with the Iran nuclear program as well as other proliferation threats.

Our partners for the 123 Agreements have agreed to verify peaceful end use and to implement internationally accepted standards for physically securing U. S.-obligated exports. Under the Atomic Energy Act of 1954, as amended, one of the requirements for exports of source material or special nuclear material from the United States is that adequate physical security measures be maintained with respect to any such nuclear material to be exported to another country for peaceful uses or used in or produced through the use of nuclear material or certain nuclear facilities exported from the United States. Moreover, under the Act, agreements for peaceful nuclear cooperation must contain a guarantee from the other party that such physical security will be maintained. Under the export regulations of the Nuclear Regulatory Commission, physical security measures in recipient countries must provide protection at least comparable to the recommendations in IAEA publication INFCIRC/225/Rev. 4, 'The Physical Protection of Nuclear Materials and Nuclear Facilities'. In addition, countries must report to the United States any changes in chemical or physical form of the exported nuclear material unless prior approval is granted in the 123 Agreement. All locations of U. S.-obligated Category I material must be reported to and approved by the United States prior to the export of the material.

Interagency teams, led by Department of Energy/National Nuclear Security Administration (DOE/NNSA), periodically assess the physical protection laws, regulations and practices in the country requesting the material, as well as the physical protection systems at the facility that would receive the material. Additionally, there are periodic updates of those assessments. In the case of Category I material, interagency teams try to update the assessments every five years.

Since 1974, the United States has conducted over 150 visits to countries with U.S.-obligated nuclear material to help ensure that there is adequate physical protection over U.S. material provided under agreements for peaceful nuclear cooperation between the United States, individual countries, and EURATOM.

Finally, DOE/NNSA and the National Laboratories have provided technical support and physical protection assistance in countries previously visited by the interagency team.

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Post-Hearing Questions for the Record
Submitted to Hon. Anne Harrington, Deputy Administrator for Defense Nuclear Nonproliferation, National Nuclear Security Administration, U.S. Department of Energy
From Senator Daniel K. Akaka

"Managing Our Interagency Nuclear Nonproliferation Efforts: Are we Effectively Securing Nuclear Materials Around the World?"
March 14, 2012

1. Please explain the most significant accomplishments announced at the 2012 Seoul Nuclear Security Summit.

Answer:

Some of the most significant accomplishments announced at the Summit included: the United States, Mexico, and Canada working together to remove all highly-enriched uranium (HEU) from Mexico; the United States, Russia, and Ukraine announcing the removal of the final HEU from Ukraine; and the removal of all plutonium from Sweden to the United States.

As a result of these shipments, 21 countries have now been cleaned out of all HEU or Plutonium. Chile, Libya, Mexico, Romania, Serbia, Taiwan, Turkey, and Ukraine have been cleaned out since the President's April 2009 Prague speech, while Brazil, Bulgaria, Colombia, Denmark, Greece, Latvia, Philippines, Portugal, Slovenia, South Korea, Spain, Sweden, and Thailand were completed prior to 2009.

There were numerous other accomplishments announced at the Summit. In support of the 4-year effort, Vietnam announced that it will send all of its remaining HEU to Russia next year and Russia announced that it had taken the necessary steps to allow the repatriation of this material; similarly, Hungary also announced that all of its remaining HEU will be sent to Russia by the end of 2013.

China noted in its national statement that it has agreed to convert a miniature neutron source research reactor (MNSR) in China from the use of highly enriched uranium (HEU) to low enriched uranium (LEU) fuel and will work with other countries to convert their MNSRs; (e.g. Ghana and Nigeria). Russia also agreed in its bilateral meeting with Secretary Chu that it would convert some of its HEU research reactors to LEU fuel.

Belgium and Italy announced that they will work with the United States to eliminate their excess HEU and plutonium and noted that they had been working with GTRI to identify materials that can be transferred to the United States for disposition (~8 kg of HEU / ~13 kg of Pu and ~15 kg HEU / ~9 kg Pu respectively) and will complete the removal of this material prior to the 2014 Nuclear Security Summit.

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In the joint statement on Countering Nuclear Smuggling, Jordan, Canada, the Czech Republic, Finland, Georgia, Hungary, Israel, Italy, Japan, the Republic of Korea, Lithuania, Philippines, Sweden, the United Arab Emirates, the United Kingdom, and the United States of America pledged to take steps towards building national capabilities to counter nuclear smuggling, including increasing the use of radiation detectors to find materials outside of regulatory control and increase capabilities in nuclear forensics.

France, Belgium, Netherlands, and the United States announced a joint effort to minimize HEU and ensure the reliable supply of medical isotopes, under which Belgium and Netherlands will convert from the use of HEU targets to LEU targets by 2015. The United States will provide limited exports of HEU to Europe until Belgium and Netherlands convert in 2015 so as to ensure a reliable supply of medical isotopes. In addition, excess HEU scrap material will be removed from Europe and shipped to the United States as part of this Joint Announcement.

Belgium, France, South Korea, and the United States announced a joint effort to produce high-density LEU fuel to replace HEU fuel in research reactors. The United States will provide approximately 100 kilograms of LEU to South Korea for fabrication into atomized uranium-molybdenum powder. South Korea will then ship the powder to France and Areva-Cerca will use this material to manufacture high-density U-Mo lead test assemblies. Subsequently, France (Reactor High Flux) and Belgium (BR-2) will load this fuel into their high-performance research reactors once an appropriate form of high-density fuel has been qualified

The United States, Russia, and Kazakhstan also announced a previously secret program to secure vulnerable nuclear material at the former Semipalatinsk Test Site. The Department of Defense had the lead on this activity, with Los Alamos National Laboratory providing some technical assistance.

Finally, recognizing the importance of a global nuclear security architecture, Summit participants committed to strive to use the IAEA Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.5) document and related Nuclear Security Series documents and reflect them into national practice, while nearly 20 countries ratified the Convention on the Physical Protection of Nuclear Materials (CPPNM) and the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT).

2. You testified that you expected to get "new direction" at the conclusion of the Seoul Summit on how to meet the President's effort to secure all vulnerable nuclear material in four years. Please describe whether and what new direction you received at the summit and how any new guidance will impact the National Nuclear Security Administration's (NNSA) strategic plan to meet the President's goal.

Answer:

President Obama's pledge to lead a worldwide effort to secure the most vulnerable nuclear material worldwide within four years relies, in part, upon countries' willingness

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to collaborate on these efforts. As such, the Summit process offered NNSA guidance and direction on potential future collaboration with foreign partners in support of this effort. Among the commitments announced at the Summit were securing, accounting for, and consolidating nuclear materials; securing radioactive sources; enhancing the security of materials in transport; combating illicit trafficking; improving nuclear forensics capabilities; fostering a nuclear security culture through education and training; protecting sensitive information and enhancing cyber security measures; and engaging in international cooperation to achieve all of these goals. NNSA will support many of the announcements made at the Summit, noted above, all of which will help meet the President's effort to secure the most vulnerable nuclear material in four years.

3. While progress has been made in removing highly enriched uranium (HEU) from many countries worldwide, some key countries are still not fully cooperating with U.S.-led efforts. What are the greatest challenges that the U.S. and international community face in meeting the goal to secure all vulnerable nuclear material within four years? Please specifically address the challenges of removal of HEU from the South African weapons program and research reactor stocks, as well as the HEU at Belarussian research facilities.

Answer:

The National Nuclear Security Administration (NNSA) has been very successful in working with our international partners to quickly implement security upgrades abroad. However, the greatest challenge we face is to ensure that all of our international partners fully complete their commitments in a timely fashion.

As you note, HEU removal efforts in South Africa and Belarus are extremely challenging. The primary challenge facing the Global Threat Reduction Initiative (GTRI) is obtaining high-level political decisions from Belarus and South Africa to allow the removal or conversion of their HEU as part of a global effort to reduce use of HEU in civilian programs. Although there are challenges with both South Africa and Belarus, we remain hopeful that mutually agreeable solutions can be identified in both cases by the end of 2013.

We are optimistic that we can be successful in both Belarus and South Africa because we have already conducted successful HEU removal shipments from these countries. In particular, GTRI has already completed two HEU removal from Belarus - 41 kilograms of spent HEU in October 2010 and 47 kilograms of fresh HEU in November 2010. Originally, Secretary of State Hillary Clinton and Belarusian Foreign Minister Sergei Martynov said in a December 1, 2010 Joint Statement that the U.S. and Belarus would work together to remove the remaining HEU by the end of 2012. However, these plans were postponed by the Belarusian government following the implementation of U.S. Government sanctions. We continue to work closely and actively with Belarus on a technical level and are still hopeful that an agreement can be reached this year to allow for the removal of this material before the end of 2013.

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Similarly with regard to South Africa, we already conducted a successful HEU removal shipment last year. In June 2011, NNSA/GTRI removed all of the U.S.-origin HEU from the Pelindaba site in South Africa. In addition, GTRI has provided assistance to convert South Africa's Mo-99 production from HEU targets to LEU targets, which is expected to be complete by the end of 2013, thereby minimizing the need for South Africa to keep its fresh HEU. We continue to discuss the possibility of downblending South Africa's fresh HEU in-country since it is no longer required for Mo-99 production.

NNSA has also faced challenges in conducting physical protection assessments. To ensure adequate security for U.S.-obligated nuclear material at foreign facilities, the NNSA Office of Nonproliferation and International Security (NIS) increased the number of bilateral physical protection assessment visits it conducts each year. Some of these visits have been delayed due to difficult political circumstances and, in some cases, push-back from the countries themselves. Nevertheless, from FY 2010 to FY 2011, U.S. interagency teams led by NNSA/NIS more than doubled the number of countries visited and quadrupled the number of facility visits made. Plans for FY 2012 and FY 2013 include further increases in the number of country and facility visits. These increases are the result of several factors, including the acceleration of GTRI efforts to repatriate U.S.-obligated HEU in exchange for LEU provided by the United States. These LEU shipments require an NRC license approval and a bilateral physical protection assessment visit to verify the adequacy of physical protection measures.

4. In public remarks at a Hudson Institute seminar in September 2011, Laura Holgate, National Security Council Senior Director for Weapons of Mass Destruction Terrorism and Threat Reduction, said that the U.S. had initially opposed adding radiological material security to the agenda at the Seoul Summit.

   a. Why did the Administration first object to the inclusion of radiological material security both at the 2010 Washington Nuclear Security Summit and in the run-up to the 2012 Seoul Summit?

The 2010 Washington Nuclear Security Summit (NSS) was an unprecedented gathering of 50 world leaders, just one year after President Obama's historic Prague speech, where he called for a worldwide effort to secure the most vulnerable nuclear material in four years. Given the catastrophic effects of an improvised nuclear device (IND) and in order to achieve concrete commitments, tangible results, and facilitate practical dialogue in such a setting, the Administration chose to focus the discussion at the first Nuclear Security Summit on the critical efforts to ensure the security of vulnerable fissile materials.

   b. Has this view changed? If so, please explain.

The Administration, as well as over 50 world leaders who attended the NSS, recognize the importance of radiological security and therefore, included it as a prominent part of the Summit discussions, communiqué, and action plans. Radiological security will

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continue to be a critical part of our global efforts over the coming years and leading up to the 2014 Summit in the Netherlands.

c. Does radiological material security warrant the same level of presidential leadership and U.S. focus that has been devoted to nuclear material security?

Given the large quantities of radiological materials in commercial use around the world and the possibility for significant economic impacts as a result of its malicious use, radiological material security warrants U.S. and international focus and leadership. The United States has demonstrated its commitment to radiological material security through the Nuclear Regulatory Commission's Increased Controls Security Orders and National Source Tracking System. This commitment also has been demonstrated through increased funding for NNSA programs, which aim to further enhance the security of high-priority radiological materials in the United States and around the world.

d. How does radiological security fit into the President's four-year nuclear material security effort?

Radiological security was not included in the President's effort to secure all vulnerable nuclear material around the world within four years. However, the United States and its international partners have continued to bolster radiological materials security programs and take on new initiatives subsequent to the Seoul Summit. These measures include: the continued implementation of security enhancements at radiological sites; consideration of Radiological Security Zones; deployment of In-Device-Delay kits on devices that use radioactive materials; use of remote monitoring of alarms by local law enforcement; and the inclusion of Alarm Response Training and Table Top Exercises with international partners.

e. Now that the Seoul Summit has concluded, what new initiatives or measures do the U.S. and its international partners plan to take to secure vulnerable radiological materials worldwide?

In addition to continuing to secure high-activity radiological materials at more than 8,000 buildings domestically and abroad, the U.S. and our international partners are investigating the establishment of Radiological Security Zones worldwide. The Radiological Security Zone concept would push for the highest standards in radiological security by working with sites, cities, and states that wish to volunteer to be models and go beyond regulatory requirements and global norms to implement radiological security best practices.

5. Kenneth Luongo, President of the Partnership for Global Security, testified that Congress should consider expanding NNSA's radiological security mission both domestically and abroad to establish "Radiological Security Zones" in key regions around the world. Under this proposal, NNSA would coordinate with international partners to analyze different classes of radiological materials, review national level regulations and

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inspections, and discuss threat scenarios and security upgrade options. What are your views on this proposal and would you support such an initiative?

Answer:

NNSA appreciates Mr. Luongo's proposal for Radiological Security Zones and is currently implementing many of the elements of this proposal. For example, NNSA already works with international partners to enhance security at radiological sites, prioritizing by material attractiveness, threat, and location factors. NNSA is also working to promote strong regulatory and inspections infrastructure in partner countries as this is a vital component to sustainable security. Consistent with the Radiological Security Zone concept, NNSA is planning to further increase the security levels by holding workshops at model sites to promote best security radiological practices with international partners. For example, planning is underway with the State of Hawaii for a collaboration workshop with Asian countries so that the State of Hawaii can share its best security practices and serve as a model for Asian partners. NNSA's comprehensive security efforts will be promoted including site security enhancements, remote monitoring, In-Device-Delay, and Alarm Response Training.

6. If NNSA were to receive funding beyond the President's FY 2013 budget request to upgrade security at high-risk domestic hospitals and medical facilities that use radiological materials, how would those additional funds be used?

Answer:

NNSA's full suite of upgrades, training, and exercises costs about $350K-$450K/per building. If NNSA received an additional $20M, we could complete an additional 50-60 buildings.

7. What process does NNSA use to prioritize and select the most at-risk hospitals and medical facilities in the United States for security upgrades?

Answer:

The prioritization methodology is established in the Global Threat Reduction Initiative's Protection and Sustainability Criteria dated February 2010 and applies to those sites that have volunteered to participate in the program. It takes into consideration material attractiveness, the existing site security condition and the location of the site with regard to the Department of Homeland Security's Urban Area Security Initiative (UASI). Sites with larger quantities of the materials of concern, lesser levels of existing security and in UASI Tier 1 or 2 cities receive higher priority.

8. Is the Nuclear Regulatory Commission's current regulatory scheme adequate to protect high-risk radiological materials in U.S. hospitals and medical facilities in the United States? Please explain.

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Answer:

The NRC and state regulatory agencies have worked together to create a regulatory framework consistent with existing legislative authorities that includes licensing, inspection, and enforcement of facilities with high-activity radiological materials. This framework provides a common baseline level of security to ensure adequate protection of public health and safety and the common defense and security. NRC's security program is a multi-layered, non-prescriptive framework that allows licensees to develop security programs specifically tailored for their facilities. Key requirements of the program include:

- Background checks, including fingerprinting, to ensure that people with access to radioactive material are trustworthy and reliable.
- Personnel access controls to areas where radioactive material is stored or used.
- Security plans or procedures designed to detect, assess and respond to unauthorized access attempts.
- Coordination and response planning between licensee and local law enforcement agencies.
- Coordination and tracking of shipments of radioactive material.
- Security barriers to discourage theft of portable devices containing radioactive material.

The ultimate responsibility for securing nuclear and radioactive materials in the United States rests with the licensees who possess these materials. To assist in that effort, NNSA works with the NRC, the materials licensees, state, local and tribal governments, other federal agencies, and local law enforcement agencies, to build on the existing regulatory requirements by providing voluntary security enhancements.

In particular, NNSA's voluntary support has been focused on assisting local law enforcement agencies. This is because most domestic radiological sites do not have armed on-site responders and therefore rely on local law enforcement agencies to respond to security alarms. NRC does require their material licensees to enter into arrangements with local law enforcement agencies, however, licensees only have limited influence over local law enforcement agencies because they are outside of regulatory control. NNSA's voluntary security upgrades focus on increasing awareness of the threat to local law enforcement, getting alarms to local law enforcement, increasing delay so law enforcement has time to respond, and providing training/exercises so that law enforcement can protect themselves and their communities when responding to alarms. NNSA's voluntary upgrades complement NRC regulations to ensure the highest possible protection for U.S. locations with high-activity radiological sources. NRC cooperates with the NNSA program, communicating the benefits of the voluntary program to NRC and Agreement State licensees. The voluntary security enhancements are sound, cost-effective, and prudent best practices which further improve security above regulatory requirements. Additionally, NNSA is fully cooperating with GAO's audit of domestic radiological security efforts and is prepared to make improvements to NNSA's voluntary upgrades based on GAO's findings and recommendations.

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Post-Hearing Questions for the Record
Submitted to Hon. Kenneth B. Handelman, Principal Deputy Assistant Secretary for Global Strategic Affairs, U.S. Department of Defense
From Senator Daniel K. Akaka

"Managing Our Interagency Nuclear Nonproliferation Efforts: Are we Effectively Securing Nuclear Materials Around the World?"
March 14, 2012

1. Please explain the most significant accomplishments announced at the 2012 Seoul Nuclear Security Summit.

Answer: President Obama announced a program with Russia and Kazakhstan, which was previously kept secret, to remediate vulnerable weapons-usable nuclear material from the former Semipalatinsk Test Site. The trilateral announcement with Presidents Medvedev and Nazarbayev highlighted the most visible project supported by the Department of Defense.

The Department of Energy (DOE) was the U.S. government lead for the Summit, and my colleagues at DOE's National Nuclear Security Administration have highlighted the following:

Some of the other most significant accomplishments announced at the Summit included: the combined effort by the United States, Mexico, and Canada to remove all highly enriched uranium (HEU) from Mexico; the completion, by the United States, Russia, and Ukraine, of removal of the final HEU from Ukraine; and the removal of all plutonium from Sweden to the United States. As a result of these shipments, 21 countries have now been cleared of all HEU and Plutonium.

A key to our efforts to reduce the threat of nuclear terrorism is minimizing the civilian use of HEU. Our agreement with Belgium, France, and the Netherlands to eliminate the use of HEU in medical isotopes production, while concurrently ensuring the reliable supply of these isotopes to patients in need, makes a meaningful contribution to this effort. In addition, several key accomplishments to address illicit trafficking were identified at the Summit, including the creation of counter-nuclear smuggling teams in countries such as Jordan, and a counter-nuclear smuggling center of excellence in Lithuania. Finally, since the 2010 Washington Summit, 20 countries ratified key nuclear security and nuclear terrorism treaties: the Convention on the Physical Protection of Nuclear Materials (CPPNM) and the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT).

2. While progress has been made in removing highly enriched uranium (HEU) from many countries worldwide, some key countries are still not fully cooperating with U.S.-led efforts. What are the greatest challenges that the U.S. and international community face in meeting the goal to secure all vulnerable nuclear material within four years? Please specifically address the challenges of removal of HEU from the South African weapons

program and research reactor stocks, as well as the HEU at Belarussian research facilities.

Answer: This answer has been furnished by the National Nuclear Security Administration (NNSA), as the lead agency for global highly enriched uranium (HEU) removals. The NNSA worked to translate lock-down momentum into quick implementation of final security upgrades abroad. International partners, to their credit, have responded with understanding and shared urgency in many cases. However, U.S. teams faced delays that are common when implementing bi-lateral construction, equipment and training projects with transparency – NNSA cannot always make up for delays in contract competition and placement abroad. Although they have largely succeeded, our international partners have not always met contract deadlines.

The primary challenge facing the Global Threat Reduction Initiative (GTRI) is obtaining a high-level political decision to participate in GTRI's removal program.

Although GTRI has had some challenges with both South Africa and Belarus, we remain hopeful that we can complete the removal of all HEU from both countries by the end of 2013.

Some individuals in South Africa are opposed to removing HEU from their country because the material is currently under International Atomic Energy Agency (IAEA) safeguards and is not, in their opinion, vulnerable to theft. However, positive momentum was established in June 2011 when all of the U.S.-origin HEU was removed from South Africa. In addition, we have received initial feedback that South Africa may be willing to send its spent HEU to France under a commercial arrangement, whereby the HEU would be processed and down-blended into low enriched uranium (LEU) fuel for South Africa's nuclear power plants. In addition, GTRI has provided assistance to convert South Africa's Mo-99 production from HEU targets to LEU targets, which is expected to be complete by the end of 2013 and would minimize the need for South Africa to keep its fresh HEU. We continue to discuss the possibility of down-blending South Africa's fresh HEU in-country, since it is no longer required for Mo-99 production.

GTRI has already completed two shipments of HEU from Belarus -- 41 kilograms of spent HEU in October 2010 and 47 kilograms of fresh HEU in November 2010. In addition, Secretary of State Clinton, and Belarusian Foreign Minister, Sergei Martynov, said in a December 1, 2010 joint statement that the United States and Belarus would work together to remove the remaining HEU by the end of 2012. However, these plans were postponed by the Belarusian Government due to sanctions placed on Belarus by the U.S. Government. We continue to work closely and actively with Belarus on a technical level, and we remain hopeful that an agreement can be reached this year to allow for the removal of this material before the end of 2013.

3. In public remarks at a Hudson Institute seminar in September 2011, Laura Holgate, National Security Council Senior Director for Weapons of Mass Destruction Terrorism and Threat Reduction, said that the U.S. had initially opposed adding radiological material security to the agenda at the Seoul Summit.

a. Why did the Administration first object to the inclusion of radiological material security both at the 2010 Washington Nuclear Security Summit and in the run-up to the 2012 Seoul Summit?

The 2010 Washington Nuclear Security Summit (NSS) was an unprecedented gathering of 50 world leaders, and was just one year removed from President Obama's historic Prague speech, in which he called for securing the most vulnerable nuclear material within four years. Given the catastrophic effects of an improvised nuclear device (IND), and given the Administration's objective to achieve concrete commitments, tangible results, and practical dialog, the Administration chose to focus the discussion at the Summit on the critical efforts related to ensuring the security of vulnerable fissile materials.

b. Has this view changed? If so, please explain.

The Administration, as well as more than 50 world leaders who attended the NSS, recognize the importance of radiological security and, therefore, included it as a prominent part of the Summit discussions, communiqué, and action plans. Radiological security will continue to be a critical part of our global efforts over the coming years and leading up to the 2014 Summit in the Netherlands.

c. Does radiological material security warrant the same level of presidential leadership and U.S. focus that has been devoted to nuclear material security?

Given the large quantities of radiological material in commercial use around the world, and the possibility for significant economic impacts as a result of its malicious use, radiological material security warrants U.S. and international focus and leadership. The United States has demonstrated its commitment to radiological material security through the Nuclear Regulatory Commission's (NRC) Increased Controls Security Orders and National Source Tracking System. This commitment has been further demonstrated through increased funding for NNSA programs, which aim to enhance further the security of high-priority radiological material above and beyond regulatory requirements in the United States and around the world.

d. How does radiological security fit into the President's four-year nuclear material security effort?

Radiological material was not included in the President's initial four-year nuclear material security effort; however, the United States and its international partners have continued to improve radiological material security programs and to take on new initiatives following the Seoul Summit. These measures include: the continued implementation of security enhancements at radiological sites; consideration of Radiological Security Zones; deployment of In Device Delay kits on devices that use radioactive material; use of remote monitoring of alarms by local law enforcement; and the inclusion of Alarm Response Training and Table Top Exercises with international partners.

e. Now that the Seoul Summit has concluded, what new initiatives or measures do the U.S. and its international partners plan to take to secure vulnerable radiological materials worldwide?

In addition to continuing to secure high-activity radiological material at more than 8,000 buildings domestically and abroad, the United States and our international partners are investigating the establishment of Radiological Security Zones worldwide. The Radiological Security Zone concept would push for the highest standards in radiological security by seeking sites, cities, and states that wish to volunteer to be models and to go beyond regulatory requirements and global norms to implement radiological security best practices.

4. The Seoul Summit document that addresses building national capacities to counter nuclear and radiological smuggling was signed by only 19 of the 53 participating countries.
   a. What factors contributed to the reluctance of most participating countries to agree to this document?

We view the participation of 19 governments in the "Statement of Activity and Cooperation to Counter Nuclear Smuggling" as a positive step toward effectively countering these activities. Efforts to strengthen internal operational capabilities to counter nuclear smuggling represent a new area of multilateral cooperation relative to other nuclear security sub-disciplines, such as material protection, control, and accounting (MPC&A) and border security, although they complement and extend these disciplines. The important role of intelligence collection and analysis in effectively strengthening national capacities to counter nuclear smuggling can make this a challenging topic to address in a multilateral forum. In addition, the Statement of Activity was circulated to Summit states only weeks before the Seoul Summit, and some states were not able to respond in such a short timeframe. Although more work remains to be done in the area of counter-nuclear smuggling cooperation between now and 2014, the participation by one-third of the 2012 Summit participants in this Statement of Activity represents a significant step toward strengthening international capabilities to locate and secure nuclear materials available on the "black market."

b. What efforts are being made to have more states commit to take steps to thwart the illicit trafficking of nuclear or other radioactive materials?

The United States is working through a number of channels to strengthen commitments made by international partners to thwart illicit trafficking of nuclear or other radioactive material. We are working at the most senior levels through the Nuclear Security Summit and related Sherpa and sous-Sherpa processes to secure relevant commitments. In addition, the U.S. Government is engaging governments bilaterally to encourage them to strengthen operational capabilities in this area through the Counter Nuclear Smuggling (CNS) Teams dialogues. The United States is focusing on CNS Teams as an effective mechanism to recover material that remains outside government control, since most nuclear material seizures have been the result of law enforcement and security service operations. CNS Teams can enhance the capacity to detect and respond to smuggling activities taking place within a country's borders, and they complement fixed radiation detection equipment along a country's perimeter. As part of this effort, the

Department of Energy's Second Line of Defense program, working closely with the Federal Bureau of Investigation, is increasing its mobile detection program in collaboration with partner country law enforcement organizations. More broadly, the Nuclear Smuggling Outreach Initiative (NSOI) is a bilateral U.S. effort to negotiate joint action plans with partner states to improve the full range of capabilities to prevent, detect, and respond to nuclear smuggling. Thus far, ten partner states have signed joint action plans on countering nuclear smuggling, and most have made significant progress implementing at least 90 percent of the specific commitments in these plans. In addition to bilateral engagement, the United States also works with INTERPOL to strengthen international law enforcement investigative capabilities to identify and arrest nuclear smugglers.

5. What is the Department of Defense doing to effectively support and to coordinate with the International Atomic Energy Agency, and how could these efforts be improved? Please provide specific examples.

Answer: The Department of Defense (DoD) actively supports the International Atomic Energy Agency's (IAEA) global non-proliferation efforts by providing laboratory analyses through the U.S. Air Force Technical Applications Center (AFTAC). AFTAC's support for the IAEA is currently budgeted at $800,000 per year. This relationship has been built over the years and illustrates DoD's ongoing commitment to strengthening the IAEA's safeguards system.

The United States provides extra-budgetary assistance to the IAEA in support of the Agency's mandate to verify that nuclear material placed under IAEA safeguards is not diverted for non-peaceful purposes. The U.S. Support Program (USSP) is primarily funded through the Department of State's U.S. Program of Technical Assistance to IAEA Safeguards (POTAS), but additional funding to IAEA safeguards is also provided from other elements of the State Department's Non-Proliferation, Anti-Terrorism, Demining, and Related Programs (NADR) account; the Department of Energy's (DOE) Next Generation Safeguards Initiative; and the DoD.

The USSP is coordinated through the DOE-chaired Subgroup on Safeguards Technical Support (SSTS) – composed of representatives from the Departments of Defense, Energy, and State, as well as the Nuclear Regulatory Commission. The SSTS coordinates U.S. support for the IAEA, including financial, technical, and personnel support. The USSP is administered by the International Safeguards Project Office (ISPO), located at Brookhaven National Laboratory, with policy oversight from the SSTS.

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Post-Hearing Questions for the Record
Submitted to Mr. Kenneth Luongo, President, Partnership for Global Security
From Senator Daniel K. Akaka

"Managing Our Interagency Nuclear Nonproliferation Efforts: Are we Effectively Securing Nuclear Materials Around the World?"
March 14, 2012

1. *Please provide your assessment of the accomplishments announced at the 2012 Seoul Nuclear Security Summit.*

The achievements announced at the Seoul Nuclear Security Summit (NSS) are important, concrete actions that strengthen global nuclear security. They have produced steady progress in the global effort to secure vulnerable nuclear materials and prevent nuclear terrorism. Notable accomplishments include:

- Cleaning out all highly-enriched uranium (HEU) from Ukraine and Chile and eliminating plutonium from Sweden
- Removing approximately 480 kg of HEU from eight countries
- Downblending thousands of weapons worth of material
- Growing the number of countries ratifying key international treaties and conventions
- Creating new nuclear security centers of excellence and other training opportunities
- Increasing contributions to the International Atomic Energy Agency (IAEA)

In the tradition of the first summit, the Seoul Communiqué contained political promises to improve global nuclear material security by enhancing compliance with the current regime. However, it did not address the end state that countries are trying to achieve or how progress achieved at the summits will be sustained over the long-term. These are important questions that need to be answered if this NSS process is to be durable and successful.

The Seoul Communiqué incorporated two specific objectives with deadlines to drive their implementation. First, states committed to working toward bringing the amended Convention on the Physical Protection of Nuclear Materials (CPPNM) into force by 2014. Twenty new countries have ratified the 2005 CPPNM amendment since the first summit, and several more countries made national commitments in Seoul to ratify it before the third summit in the Netherlands in 2014. Second, the Seoul Communiqué encouraged countries to announce specific actions that each will take to minimize the use of HEU by the end of 2013. A number of countries have made national commitments related to converting HEU-fueled research reactors and medical isotope production facilities and conducting low-enriched uranium research and development activities in support of this aim.

Some of the most important accomplishments of the summit process have resulted from states fulfilling their national commitments, so-called "house gifts." The 2012 summit built on the implementation success of these national pledges from the first summit and expanded the concept to multinational commitments in the form of "joint statements," or gift baskets. Every nation made at least one national commitment in Seoul, and 12 joint statements were issued.

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Joint statements on the Global Partnership against the Spread of Weapons and Materials of Mass Destruction (Global Partnership), counter-nuclear smuggling, radiological source security, and nuclear information security received the broadest support from participants. Notably, 18 countries also endorsed Indonesia's efforts to create a national legislation implementation kit to help states develop more comprehensive national legislation on nuclear security. In a non-paper associated with the implementation kit joint statement, Indonesia described the problem with the nuclear security regime it is attempting to address:

> The main challenge in developing such comprehensive model legislation is the fact that there are many international legal instruments and frameworks in nuclear security that exist under the aegis of the UN, IAEA, and other international organizations. Some of them are internationally legally binding in nature, while the rest are voluntary or non-legally binding.

Indonesia's description of the current nuclear security regime acknowledges the disorganized nature of today's system and the need to improve its governance to make it more effective. The set of tools available to policymakers today does not offer the transparency, cohesion, and international confidence necessary to address 21st century nuclear challenges.

2. *Based on the announcements in Seoul, what are the greatest remaining challenges that the U.S. and international community face in securing nuclear materials worldwide?*

The NSS process has proven adept at producing important incremental actions, but it has not begun to resolve the nuclear and radiological security regime's essential and long-term governance issues that hinder its efficacy in the face of 21st century nuclear threats and challenges. The nuclear security regime is underdeveloped in comparison to nuclear safety, nonproliferation, and arms control regimes. The list of initiatives that address aspects of the nuclear terrorism threat are long, and in many ways impressive, but they do not add up to a comprehensive and cohesive structure. This problem is largely a result of the voluntary, sovereign, and non-transparent nature of the nuclear security regime. The NSS process has not attempted to innovate new governance strategies and policies, and this underutilizes the power and potential that a heads of state gathering holds. There needs to be a more permanent, cohesive and comprehensive international instrument that can harmonize and supplement the existing nuclear security regime to create more robust 21st century architecture that effectively protects fissile and radiological materials.

The new nuclear security governance architecture needs to be built on three objectives:

1. Promoting regime transparency
2. Improving regime cohesion and shared standards
3. Building international confidence and responsibilities

Promoting transparency is the easiest short-term opportunity. The Nuclear Safety Convention contains several key elements that are transferable to the nuclear material security area (e.g. information sharing, regularized assessment, and peer-reviews). Promoting regime transparency

also means creating a culture of continuous improvement, incentivizing information sharing while protecting sensitive data, and demonstrating key concepts and principles with cooperation from supportive nations.

Improving regime cohesion and shared standards will require harmonizing the elements of today's regime, such as creating a nuclear material security framework agreement and uniform standards across borders. Universalizing and confirming the implementation of IAEA nuclear security guidance may be a key step to unlocking further action in this area.

Building international confidence and responsibilities in nuclear security worldwide will require balancing sovereignty with international accountability, addressing the transnational implications of a nuclear incident (intentional or accidental), and ensuring that weak links in the system have been eliminated.

A two-track approach – governmental and nongovernmental – should be used to evolve nuclear security governance in two phases: 2012-2016 and 2017-2020. In the first phase, governments could continue to work through the NSS process to universalize international conventions and evaluate elements of the safety regime for use in the security area. More far reaching nuclear security governance concepts could be introduced and tested at this time with a coalition of nations demonstrating new concepts and principles. Parallel to the official process, a geographically diverse, nongovernmental group of experts should develop new governance recommendations in the three key areas identified above. Experts could develop recommendations for governance improvements that fill gaps and strengthen the regime, and draft text to a nuclear security framework agreement and follow-on actionable protocols for governments to review. The long-term goal is to codify a new nuclear governance performance-based architecture in a Nuclear Material Security Framework Convention. Legally, framework agreements are designed to unify a "special regime" that consists of elements that are binding but fragmentary. They also give international obligations a rooting in international law. Models for this convention include the Vienna Convention and Montreal Protocol, the UN Framework Convention on Climate Change, and the Convention on Nuclear Safety.

Additionally, adequate funding to support nuclear and radiological security activities continues to pose a significant challenge. United States funding is declining for these initiatives at the same time that the $20 billion commitment period of the international community to address weapons of mass destruction challenges through the Global Partnership is coming to an end. While the Global Partnership's mandate has been extended beyond 2012, there are no new funding targets for participating nations. Among the most troubling reductions contained in the Obama administration's fiscal year 2013 budget request are cuts to the National Nuclear Security Administration's Second Line of Defense program and Global Threat Reduction Initiative. These globally-focused programs are vital to providing the training, equipment, and expert support to countries committed to removing or securing their radioactive materials and protecting their land and border crossings from illicit trafficking.

Finally, the security of high-intensity radioactive sources is inadequately prioritized by the international community. With attention focused on achieving the four year goal to secure all vulnerable nuclear materials, a related and more probable threat has been largely sidelined in

countries' planning, including by the United States. High-intensity radiological sources are present in open environments, such as hospitals, around the world. Too often, facility staff and local law enforcement officials are not adequately prepared to respond to an attempted theft or radiological incident that could result in a "dirty bomb" constructed from stolen source material. Countries can get a better handle on the radiological threat by ensuring that sources used in publicly-owned buildings are secure. They should begin by focusing on enhancing security at major metropolitan hospitals and also consider working with neighboring countries to establish regional "Radiological Security Zones." Such zones could help address the threats, build confidence among neighbors, and involve new national and international policy measures and cooperation.

Post-Hearing Questions for the Record
Submitted to Dr. Page O. Stoutland, Vice President, Nuclear Materials Security Program, Nuclear Threat Initiative
From Senator Daniel K. Akaka

"Managing Our Interagency Nuclear Nonproliferation Efforts: Are we Effectively Securing Nuclear Materials Around the World?"
March 14, 2012

1. **Please provide your assessment of the accomplishments announced at the 2012 Seoul Nuclear Security Summit.**

The Nuclear Security Summit was important because it maintained heads-of-state attention on this key issue, provided an opportunity for countries to report on progress since the Washington Summit and make new commitments to strengthen materials security. As detailed in the Communiqué and country statements, a number of countries reported progress in repatriating materials, signing on to international conventions and other areas. While some of these actions would have occurred without the Seoul Summit, it's clear that at least in some cases that it accelerated the pace of implementation. For example, Ukraine repatriated all of its highly-enriched uranium to Russia just hours before the Summit began. In addition, a new feature of the Summit was countries coming together to make collective commitments (so-called *gift baskets*). This is an important and interesting approach in that these small coalitions may represent the start of country groups that take responsibility for address particular aspects of materials security.

Despite these successes, as we look to 2014, it will be important to move beyond voluntary actions to discussion of an integrated framework for materials security. Without such a framework (that among other things, would identify the range of needed actions), there is no way to determine whether commitments and actions are meaningful and there is no way to measure progress.

2. **Based on the announcements in Seoul, what are the greatest remaining challenges that the U.S. and international community face in securing nuclear materials worldwide?**

Despite high-level attention and progress on securing nuclear materials, challenges remain. There continue to be large quantities of weapons-useable nuclear materials in many countries. For example, the Index identified that 14 countries currently have over 500 kilograms of these materials. The planned expansion of nuclear energy and the potential for large quantities of separated plutonium resulting from reprocessing of spent fuel will continue to present challenges for materials security into the future.

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In addition, because of the importance of these materials and the belief that materials security is a national responsibility, many countries are not as transparent as they could be about their approach to security. Without appropriate transparency (e.g., that would identify general approaches to security and make use of peer review, but not provide information that could be used by potential adversaries), identification of needed improvements is difficult.

Finally, while there has been progress towards a shared consensus on the nuclear threat and more governments are taking action, there is no global agreement on what matters most for securing materials and no global system for tracking, managing and securing vulnerable nuclear materials. The 2014 Summit will present an opportunity to initiate a dialogue on priorities, a critical first step in building a global nuclear materials security governance system.

3. To what extent did participants in the Seoul Summit make use of the NTI's Nuclear Materials Security Index, and what recommendations do you have for extending use of the Index?

Over the last year, NTI actively briefed governments on the Index and participated in both the Nuclear Industry Summit and the Nuclear Security Symposium in Seoul. Our understanding is that the Index was actively discussed unofficially at meetings leading up to the summit. Before the summit, several countries (e.g., Australia, Russia and China) issued statements referring to the NTI Index. In addition, we are aware that several countries have directly used the Index to identify specific actions that they will take to strengthen their materials security.

Looking forward, we hope that countries continue to use the index as a tool to identify steps they can take to strengthen their materials security. Over the next year, we will also initiate a series of Global Dialogue meetings on nuclear materials security. The objective of these meetings, which will include government officials, industry officials and non-government experts, is to help governments move towards a consensus on materials security priorities and to lay the groundwork for an integrating framework for global materials security needed for continued progress. Finally, we will create a second edition of the Index before the 2014 Summit in the Netherlands so that progress can be assessed.

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BACKGROUND
MANAGING OUT INTERAGENCY NUCLEAR NONPROLIFERATION EFFORTS: ARE WE EFFECTIVELY SECURING NUCLEAR MATERIALS AROUND THE WORLD?
MARCH 14, 2012

Background

The United States has historically had an interest in preventing nuclear and radiological materials from falling into the wrong hands, a concern that increased following the breakup of the Soviet Union in 1991 and the terrorist attacks of September 11, 2001. Nuclear weapons-usable materials include both highly enriched uranium (HEU) and plutonium. The International Panel of Fissile Materials reported in 2011 that there are approximately 1,565 tons of HEU and 505 tons of plutonium in the world, which is enough to produce over 60,000 nuclear weapons.[1] Additionally, there are 16 varieties of radiological materials, which are commonly found in medical, research, and industrial devices worldwide, that could pose a threat.[2]

Given the large quantities of nuclear and radiological materials worldwide, there are four types of terrorism threats that are a challenge to counter: an attack using a stolen nuclear weapon, fissile material in an improvised nuclear device, or a radiological dispersal devise, and sabotage against a nuclear power plant.[3] According to the 2008 Commission on the Prevention of Weapons of Mass Destruction, "terrorist organizations are intent on acquiring nuclear weapons or the material, technology, and expertise needed to build them," and the "crucial task is to secure that material before the terrorists can steal it or buy it on the black market."[4] In fact, the International Atomic Energy Agency (IAEA) reported that from January 1993 to December 2011, there were 2,164 confirmed incidents involving unauthorized activities and events involving nuclear and other radioactive material, such as the illegal trade and movement of nuclear or other radioactive material across national borders,[5] highlighting the very real possibility of terrorist acquiring this material. The Government Accountability Office (GAO) noted that if terrorists were to use a nuclear weapon, there would be "long-lasting social, financial, and health impacts that are difficult to contemplate."[6] Likewise, the Congressional Research Service found that a radiological terrorist attack could "contaminate some square miles, disrupt the economy, cost tens of billions of dollars to remediate, increase the long-term cancer rate, and cause panic in the target area and beyond."[7]

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[1] INT'L PANEL OF FISSILE MATERIALS, GLOBAL FISSILE MATERIAL REPORT 2011: NUCLEAR WEAPON AND FISSILE MATERIAL STOCKPILES AND PRODUCTION 2-3 (2011).
[2] JONATHAN MEDALIA, CONG. RESEARCH SERV., R41891, "DIRTY BOMBS": BACKGROUND IN BRIEF 2 (2011).
[3] MARY BETH NIKITIN, CONG. RESEARCH SERV., R41169, SECURING NUCLEAR MATERIALS: THE 2010 SUMMIT AND ISSUES FOR CONGRESS 1 (2011).
[4] COMM'N ON THE PREVENTION OF WEAPONS OF MASS DESTRUCTION PROLIFERATION & TERRORISM, WORLD AT RISK: THE REPORT OF THE COMM'N ON THE PREVENTION OF WMD PROLIFERATION AND TERRORISM 43–44 (2008).
[5] *Illicit Trafficking Database*, INT'L ATOMIC ENERGY AGENCY, http://www-ns.iaea.org/security/itdb.asp (last visited Mar. 6, 2012).
[6] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-71, NUCLEAR NONPROLIFERATION: ACTION NEEDED TO ADDRESS NNSA'S PROGRAM MANAGEMENT AND COORDINATION CHALLENGES 48 (2011).
[7] JONATHAN MEDALIA, CONG. RESEARCH SERV., *supra* note 2.

Multiple U.S. agencies work to ensure that nuclear and radiological materials around the world are secure from theft and diversion. The Department of State (State) assists foreign governments and international organizations in preventing nuclear proliferation and smuggling; coordinates policy development for nonproliferation initiatives; and establishes diplomatic agreements for nuclear cooperation.[8] The Department of Energy's (DOE) National Nuclear Security Administration (NNSA) secures radiological and nuclear materials domestically and internationally; returns sensitive nuclear materials to the U.S.; and helps countries establish nuclear material detection capabilities.[9] The Department of Defense (DOD) helps foreign governments dismantle and destroy infrastructure associated with nuclear weapons and other weapons of mass destruction; enhances the security and safety of fissile material storage and transportation; and establishes regional centers of excellence for nuclear security around the world.[10]

The Department of Homeland Security (DHS) has various initiatives aimed at detecting nuclear materials smuggled into the U.S., and DHS's Domestic Nuclear Detection Office (DNDO) is responsible for coordinating federal agencies' activities into a global nuclear detection system.[11] The Nuclear Regulatory Commission (NRC) is primarily responsible for the safety and security of civilian domestic nuclear and radiological materials. Additionally, the NRC serves as the U.S. licensing authority for nuclear material exports and provides technical and policy expertise to U.S. and international nonproliferation efforts.[12] The Department of Justice and the Intelligence Community also support U.S. nuclear nonproliferation efforts.[13]

In order to formulate and coordinate a comprehensive strategy for preventing Weapons of Mass Destruction (WMD) proliferation, Congress established the Office of the U.S. Coordinator for the Prevention of WMD Proliferation and Terrorism within the Executive Office of the President.[14] While President George W. Bush declined to appoint a coordinator during his presidency, President Obama appointed the first WMD Coordinator in 2009.[15]

U.S. efforts to secure nuclear and radiological materials around the world also rely heavily on cooperation from the international community. In 2009, President Obama announced a new international effort to secure all vulnerable nuclear materials worldwide within four years. In order to further this initiative, President Obama hosted a Nuclear Security Summit in Washington, DC, in April 2010 with leaders of 47 countries and several international

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[8] MARY BETH NIKITIN, CONG. RESEARCH SERV., *supra* note 3.
[9] *Id.* at 24.
[10] *Id.*
[11] *Id.* at 9, 26.
[12] *About NRC*, U.S. NUCLEAR REGULATORY COMM'N, http://www.nrc.gov/about-nrc.html, (last updated Jan. 19, 2012).
[13] *Principal U.S. Government Agencies Combating* Nuclear *Proliferation*, JAMES MARTIN CENTER FOR NONPROLIFERATION STUDIES (Feb. 18, 2009), http://cns.miis.edu/stories/pdf_support/090213_wmd_chart.pdf.
[14] Implementing Recommendations of the 9/11 Commission Act of 2007, Pub. L. No. 110-53, § 1841, 121 Stat. 266, 498; 50 U.S.C. § 2931 (2007).
[15] Anya Loukianova & Leonard Spector, *New WMD Coordinator Has the Right Stuff, But Will He Have the Right Staff?*, JAMES MARTIN CENTER FOR NONPROLIFERATION STUDIES (Feb. 13, 2009), http://cns.miis.edu/stories/090213_wmd_coordinator.htm.

organizations, including the United Nations, European Union, and the IAEA.[16] President Obama emphasized in his opening remarks at the 2010 summit that the international community has "the opportunity, as partners, to ensure that our progress is not a fleeting moment, but part of a serious and sustained effort."[17]

The 2010 summit resulted in a joint communiqué regarding international cooperation, improved nuclear security standards, and the sharing of best practices to prevent nuclear terrorism. In addition to the 2010 communiqué, many of the participating countries made national pledges to take specific measures to improve global nuclear security.[18] According to the Partnership for Global Security, "approximately 80 percent of the Washington Summit's national commitments had been completed by February 2012 and represent some of the most concrete results of the summit."[19] However, a significant U.S. commitment that has yet to be completed is the enactment of legislation to implement the International Convention for the Suppression of Acts of Nuclear Terrorism, which among other provisions requires party nations to criminalize acts of terrorism involving radioactive material and to cooperate to prevent and counter nuclear terrorism, the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material, which creates new requirements for the use and storage of nuclear materials used for domestic purposes, and the 2005 Suppression of Unlawful Acts Protocols, which address the potential use of maritime vessels as a means of enabling terrorist activity and the unlawful transport of WMD.[20] The Senate approved resolutions of advice and consent to ratification for these agreements in September 2008.

To build on the progress from the Washington Summit, a second summit will be held in Seoul, South Korea on March 26-27, 2012, with leaders of 53 nations[21] and four international organizations.[22] The scope of the upcoming summit has been broadened to include radiological material security, the role of the IAEA in facilitating states' implementation of nuclear security measures, and the interrelationship of nuclear security and nuclear safety in the wake of the Fukushima nuclear accident in Japan last year.[23] A third Nuclear Security Summit is slated to be

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[16] *2010 Washington Nuclear Security Summit*, 2012 SEOUL NUCLEAR SECURITY SUMMIT, http://www.thenuclearsecuritysummit.org/eng_main/main.jsp (last visited Mar. 2, 2012).
[17] *Obama's Opening Remarks*, N.Y. TIMES, Apr. 13, 2010, http://www.nytimes.com/2010/04/14/world/14summit-text.html?_r=1.
[18] Michelle Cann, *2010 Nuclear Security Summit National Commitment Implementation: Steps in the Fight Against Nuclear Terrorism*, US-KOREA INSTITUTE 3 (March 2012).
[19] *Id.*
[20] *Id.* at 6-7. The International Convention for the Suppression of Acts of Nuclear Terrorism is available at http://www.un.org/en/sc/ctc/docs/conventions/Conv13.pdf and the Convention on the Physical Protection of Nuclear Material and the 2005 amendment are available at http://www.iaea.org/Publications/Documents/Conventions/cppnm.html.
[21] Republic of Korea, Algeria, Argentina, Armenia, Australia, Azerbaijan, Belgium, Brazil, Canada, Chile, Canada, Czech Republic, Denmark, Egypt, Finland, France, Gabon, Georgia, Germany, Hungary, India, Indonesia, Israel, Italy, Japan, Jordan, Kazakhstan, Lithuania, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Romania, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand , Turkey, United Arab Emirates, United Kingdom, Ukraine, United States, and Vietnam. *Overview*, 2012 SEOUL NUCLEAR SECURITY SUMMIT, http://www.thenuclearsecuritysummit.org/eng_info/overview.jsp (last visited Mar. 2, 2012).
[22] United Nations, International Atomic Energy Agency, European Union, and INTERPOL. *Id.*
[23] *Id.*

held in the Netherlands in 2014, where leaders will be able to assess achievements during the four-year period.[24]

U.S.- led initiatives to secure nuclear and radiological materials have borne significant fruit. Results include the dismantling of Libya's nuclear weapons program; improving security at more than 70 Russian nuclear warhead sites;[25] securing more than 775 bombs worth of nuclear materials in Kazakhstan;[26] the removal of all HEU from Chile;[27] securing more than 900 vulnerable radiological sites around the world, which contain enough radiological material for approximately 10,000 dirty bombs;[28] and securing 26,000 radioactive sources in the U.S.[29]

KEY CHALLENGES

Defining and Implementing a Plan to Secure the Highest Priority Threats

Pursuant to President Obama's goal to secure all vulnerable nuclear materials worldwide within four years, the National Security Council (NSC) and newly-appointed WMD Coordinator were tasked with coordinating efforts among the federal agencies that contribute to the four-year nuclear security initiative.[30] In a December 2010 report, GAO raised concerns about the lack of comprehensive planning for this effort. GAO found that the interagency strategy lacks specific details, including details about vulnerable foreign nuclear sites and facilities, planned activities at each location and who is responsible for carrying them out, potential challenges and strategies for overcoming them, and cost and timeline estimates.[31] GAO recommended that "NSC lead and coordinate through NNSA, DOD, State, and other relevant agencies, including members of the intelligence community, the development of a comprehensive plan for implementing" the President's initiative.[32] NSC officials countered that "developing such a single, integrated cross-agency plan could take years" and that estimating the initiative's costs and timelines was impossible because the effort is predicated on the unpredictable cooperation of many countries.[33]

GAO has previously raised concerns about interagency coordination of nuclear nonproliferation activities. For example, GAO concluded in 2007 that coordination between DOE, State, NRC, and other agencies in securing foreign radiological sources remained inconsistent and there existed "no comprehensive government wide approach to securing

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[24] *Netherlands asked to host Nuclear Security Summit 2014*, NEW EUROPE ONLINE, Feb. 5, 2012, http://www.neurope.eu/article/netherlands-asked-host-nuclear-security-summit-2014.
[25] *NNSA: Working To Prevent Nuclear Terrorism*, NAT'L NUCLEAR SEC. ADMIN. (Sept. 9, 2009), http://nnsa.energy.gov/mediaroom/factsheets/preventingnuclearterrorism.
[26] *GTRI: Reducing Nuclear Threats*, NAT'L NUCLEAR SEC. ADMIN. (Feb. 1, 2011), http://nnsa.energy.gov/mediaroom/factsheets/reducingthreats.
[27] US-KOREA INSTITUTE., *supra* note 18, at 3.
[28] NAT'L NUCLEAR SEC. ADMIN., *supra* note 25.
[29] *Id.*
[30] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-11-227, NUCLEAR NONPROLIFERATION: COMPREHENSIVE U.S. PLANNING AND BETTER FOREIGN COOPERATION NEEDED TO SECURE VULNERABLE NUCLEAR MATERIALS WORLDWIDE 3 (2010).
[31] *Id.* at 10.
[32] *Id.* at 31.
[33] *Id.* at 12-13.

radiological sources overseas."[34] GAO noted that several DOE and national laboratory officials questioned the benefit of upgrading lower threat facilities while higher priority sites remained unsecured.[35] GAO also found that, within DOE, programs to secure radiological materials and programs to secure nuclear materials were not always well coordinated and sometimes worked at cross-purposes.[36] Additionally, in 2009, GAO reported that unclear roles and responsibilities within State led to overlaps in missions.[37] Most recently, in 2011, GAO concluded that "federal government efforts to prevent and detect nuclear smuggling overseas are limited by shortcomings in strategic plans, potential fragmentation and overlap among some programs, and divided responsibilities among several agencies."[38] Furthermore, GAO found that no single agency or program has lead responsibility to direct federal efforts in countering nuclear smuggling or to conduct a strategic restructuring across the government to address these concerns.[39]

Ensuring that U.S. Supplied Sources Do Not Become a Threat

The U.S. currently holds nuclear cooperation agreements with 24 nations and two multinational organizations, which permit the trade of nuclear materials and specifically allow the export of nuclear fuel, reactors, and related components. These agreements can promote nonproliferation cooperation with agreement holders and support the U.S. nuclear industry.[40] However, if not adequately secured, U.S. supplied nuclear materials could become a threat to the U.S. and other countries.

In 2010, GAO examined the process by which the Executive Branch assessed the risks posed by potential nuclear cooperation in the context of a proposed U.S.-Russia agreement. GAO found that State, which is statutorily responsible for negotiating any proposed agreements in consultation with other agencies,[41] did not establish procedures or clarify how interagency participants would implement their roles, which contributed to problems with the 2010 U.S.-Russia review process.[42] More specifically, problems included short and inconsistent deadlines that precluded input from some stakeholders; the lack of a formal mechanism to deal with interagency conflicts during the review; and a lack of clarity regarding the role of the Intelligence Community in the process.[43] Although GAO's findings were specific to the 2010

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[34] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-07-282, NUCLEAR NONPROLIFERATION: DOE'S INTERNATIONAL RADIOLOGICAL THREAT REDUCTION PROGRAM NEEDS TO FOCUS FUTURE EFFORTS ON SECURING THE HIGHEST PRIORITY RADIOLOGICAL SOURCES 45 (2007).
[35] *Id.* at 6.
[36] *Id.* at 50.
[37] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-738, STATE DEPARTMENT: KEY TRANSFORMATION PRACTICES COULD HAVE HELPED IN RESTRUCTURING ARMS CONTROL AND NONPROLIFERATION BUREAUS 4 (2009).
[38] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-71, NUCLEAR NONPROLIFERATION: ACTION NEEDED TO ADDRESS NNSA'S PROGRAM MANAGEMENT AND COORDINATION CHALLENGES 50 (2011).
[39] *Id.* at 45-46.
[40] PAUL K. KERR, MARK HOLT & MARY BETH NIKITIN, CONGR. RESEARCH SERV., R41910, NUCLEAR ENERGY COOPERATION WITH FOREIGN COUNTRIES: ISSUES FOR CONGRESS 2, 25 (2011).
[41] 42 U.S.C. § 2153(a)(9) (2006).
[42] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-10-1039R, 2010 RESUBMISSION OF THE U.S.-RUSSIA NUCLEAR COOPERATION AGREEMENT: FURTHER ACTIONS NEEDED BY STATE AND OTHER AGENCIES TO IMPROVE THE REVIEW OF THE CLASSIFIED NUCLEAR PROLIFERATION ASSESSMENT 4 (2010).
[43] *Id.* at 4–5.

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U.S.-Russia agreement, others have questioned the nuclear cooperation agreement process generally. For example, in 2011 testimony before the House Committee on Foreign Affairs, Henry Sokolski, Executive Director of the Nonproliferation Policy Education, called for more robust congressional oversight of negotiations of U.S. nuclear cooperation agreements and recommended that such agreements require majority approval in both Houses of Congress. He also argued that GAO should assist Congress in evaluating Nuclear Proliferation Assessment Statements, a key element of the agreement process.[44] Legislation introduced in the 112th Congress would require congressional approval of all nuclear cooperation agreements.[45]

GAO has also raised concerns about the security of U.S. sourced materials supplied to foreign countries under nuclear cooperation agreements. In a 2011 report, GAO concluded that DOE, NRC, and State are not able to fully account for U.S. nuclear material overseas, including weapons-usable material, in part because existing nuclear cooperation agreements limit U.S. agencies' ability to monitor and evaluate the physical security of U.S. nuclear material overseas.[46] GAO found that the last comprehensive effort to verify the location of U.S. HEU occurred at the request of Congress in 1993, and NRC concluded at that time that it could verify the location of less than ten percent of U.S. HEU overseas.[47] GAO also found that these agencies had not systematically collected data from or visited countries believed to have the highest-risk quantities of U.S. nuclear material, or that previously failed to meet international physical security guidelines, and there was no formal process for prioritizing such visits.[48] On the 55 visits that did occur between 1994 and 2010, U.S. teams found that countries met international security guidelines approximately half of the time.[49]

GAO made several recommendations, including establishing a process to annually inventory nuclear material, facilitating site visits to high-risk locations, adding measures to provide for site visits in new or renewed nuclear cooperation agreements, developing formal goals and systematic process to determine which foreign facilities to visit, and periodically reviewing performance in meeting key programmatic goals for the physical protection program. DOE, NRC, and State disagreed with several of the recommendations on the basis that such measures were unnecessary or impractical.[50] These agencies also argued that neither U.S. law nor U.S. policy explicitly requires the U.S. to track U.S. sourced nuclear material overseas.[51]

Questions also have been raised about whether radiological sources in the U.S. could, in the wrong hands, threaten public safety and inflict economic damage. According to William Tobey, a Senior Fellow at Belfer Center for Science and International Affairs, "the U.S. system

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[44] *The Global Nuclear Revival and U.S. Nonproliferation Policy: Hearing Before H. Comm. on Foreign Affairs*, 112th Cong. 25 (2011) (statement of Henry Sokoloski, Executive Director, Nonproliferation Policy Education Center).
[45] S. 109 (112th Cong.); H.R. 1280 (112th Cong.).
[46] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-11-920, NUCLEAR NONPROLIFERATION: U.S. AGENCIES HAVE LIMITED ABILITY TO ACCOUNT FOR, MONITOR, AND EVALUATE THE SECURITY OF U.S. NUCLEAR MATERIAL OVERSEAS 8, 17 (2011).
[47] *Id.* at 12.
[48] *Id.* at 9, 25.
[49] *Id.* at Highlights page.
[50] *Id.* at 37.
[51] *Id.* at 15.

for regulating the security and disposition of radiological sources is flawed," and the NRC, which regulates the use of such sources, should significantly increase scrutiny over purchasers and owners of these materials.[52] GAO is currently reviewing the security of radiological sources contained in thousands of medical facilities across the country,[53] and will testify about its initial findings at this hearing.

Coordinating with the International Atomic Energy Agency

The IAEA, a United Nations agency that works with its Member States to promote nuclear safety, nonproliferation, and peaceful uses of nuclear technologies, is generally considered an integral part of international nuclear nonproliferation efforts.

In a 2005 report, GAO concluded that IAEA had strengthened its nuclear safeguards and increased efforts to prevent nuclear terrorism by helping countries secure nuclear and radioactive materials and facilities, but that IAEA faced a number of challenges that significantly hampered its progress.[54] GAO recommended that State encourage IAEA to reduce the number of Member State agreements that limit IAEA's authority to strengthen safeguards; develop performance measures; address human capital practices that hurt IAEA's ability to recruit and retain critical staff; improve budgetary planning; and encourage more Member States to fund IAEA's safeguards activities.[55] GAO is currently conducting a follow-up review regarding the extent to which these challenges have been addressed.[56]

GAO has also reported on areas for improvement in U.S.-IAEA cooperation. In 2007, GAO found that "critical information gaps exist between DOE and IAEA that impede DOE's ability to target the most vulnerable sites and countries for security improvements."[57] These gaps stem primarily from barriers to information sharing. In particular, the IAEA refused to share information with the U.S. that it considers country-sensitive, such as the list of countries IAEA assesses to be in greatest need of security assistance.[58] This makes DOE unable to effectively prioritize its international threat reduction work.

Additionally, GAO raised concerns in 2009 about U.S. funding of IAEA's Technical Cooperation (TC) program, which helps IAEA Member States achieve their sustainable development priorities by providing expert assistance, training, fellowships and equipment

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[52] William H. Tobey, *U.S. Needs Better System for Securing Radioactive Material*, BELFER CENTER FOR SCIENCE AND INTERNATIONAL AFFAIRS (Apr. 13, 2009), http://belfercenter.ksg.harvard.edu/publication/18961/us_needs_better_system_for_securing_radioactive_material.html.

[53] Letter from Daniel K. Akaka, Chairman, S. Subcomm. on Oversight of Gov't Mgmt., the Fed. Workforce, and D.C., to Eugene L. Dodaro, Acting Comptroller General, Gov't Accountability Office (Dec. 1, 2010) (on file with the Subcommittee).

[54] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-06-93, NUCLEAR NONPROLIFERATION: IAEA HAS STRENGTHENED ITS SAFEGUARDS AND NUCLEAR SECURITY PROGRAMS, BUT WEAKNESSES NEED TO BE ADDRESSED 56 (2005).

[55] *Id.* at 58–59.

[56] Letter from Daniel K. Akaka, Chairman, S. Subcomm. on Oversight of Gov't Mgmt., the Fed. Workforce, and D.C., to Gene Dodaro, Acting Comptroller General, Gov't Accountability Office (Nov. 6, 2009) (on file with the Subcommittee).

[57] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-07-282, *supra* note 34, at 54.

[58] *Id.* at 54–55.

purchases.[59] Specifically, GAO found that the TC program could benefit countries that have been identified as sponsors of terrorism, are not parties to the Treaty on the Non-Proliferation of Nuclear Weapons, or have not completed comprehensive safeguards or additional protocol agreements with IAEA.[60] For example, the TC program provided more than $55 million to Cuba, Iran, Sudan, and Syria between 1997 and 2007.[61] Although State and DOE attempt to assess the proliferation risks of proposed TC projects, GAO concluded that IAEA did not provide the U.S. with timely or adequate information necessary to make meaningful assessments. For example, GAO noted that between 1998 and 2006, 97 percent of all project proposals received by the U.S. consisted of only a project title.[62] Furthermore, GAO found that IAEA failed to systematically review whether TC projects met stated goals or whether projects were sustained following TC funding.[63]

Among other recommendations, GAO suggested that Congress consider requiring State to withhold a proportionate share of its TC program contribution equivalent to amount of funding that would otherwise be made available to state sponsors of terrorism.[64] State strongly objected to this recommendation on the basis that it would discourage other Member States from financially supporting the TC program; funding to targeted countries would not stop because TC funding is fungible; Congress has exempted IAEA contributions from this type of proportionate withholding; none of the TC projects in state sponsors of terrorism have been shown to have contributed to a WMD program; there are adequate safeguards within IAEA to prevent TC projects from contributing to a WMD program; and the U.S.'s ability to achieve other critical objectives within IAEA would be hampered.[65]

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[59] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-275, NUCLEAR NONPROLIFERATION: STRENGTHENED OVERSIGHT NEEDED TO ADDRESS PROLIFERATION AND MANAGEMENT CHALLENGES IN IAEA'S TECHNICAL COOPERATION PROGRAM 6 (2009).

[60] *Id.* at Highlights page. The Treaty on the Non-Proliferation of Nuclear Weapons is more commonly known as the Nuclear Nonproliferation Treaty, or NPT. The 1970 NPT established that all states without nuclear weapons at that time agreed not to acquire nuclear weapons in exchange for assistance in the peaceful uses of nuclear energy. MARY BETH NIKITIN, PAUL K. KERR & STEVEN A. HILDRETH, CONG. RESEARCH SERV., RL31559, PROLIFERATION CONTROL REGIMES: BACKGROUND AND STATUS (2010).

[61] *Id.*

[62] *Id.* at 7.

[63] *Id.* at 7–8.

[64] *Id.* at 37.

[65] *Id.* at 39.

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Prioritization of Shipments Supporting the President's 4-Year Plan					
Shipments since 2009 Obama Prague Speech					
April 2012					
Country	Site	Amount (in kilograms)	Type	Removal Date	Program
Romania*	**Magurele**	**23.7**	**Spent HEU**	**June 2009**	**Russian**
Romania*	**SSR Pitesti**	**30.1**	**Fresh HEU**	**June 2009**	**Russian**
Hungary	BRR	18	Fresh HEU	July 2009	Russian
Taiwan*	**ZPRL**	**4.8**	**Spent HEU**	**September 2009**	**U.S.**
Poland	Maria	187	Spent HEU	October 2009	Russian
Libya*	**IRT-1**	**5.2**	**Spent HEU**	**December 2009**	**Russian**
Turkey*	**TR-2**	**5.3**	**Spent HEU**	**January 2010**	**U.S.**
Poland	Maria	137.4	Spent HEU	March 2010	Russian
Chile*	**Rech-2**	**0.3**	**Fresh HEU**	**March 2010**	**Gap**
Chile*	**Rech-2**	**4.3**	**Spent HEU**	**March 2010**	**Gap**
Chile*	**Rech-1**	**13.6**	**Spent HEU**	**March 2010**	**Gap**
Ukraine	Kiev	55.9	Spent HEU	May 2010	Russian
Poland	Maria	43.5	Spent HEU	May 2010	Russian
Czech Republic	REZ	12	Fresh HEU	June 2010	Russian
Poland	Maria	43.5	Spent HEU	August 2010	Russian
Belarus	Pamir	41	Spent HEU	October 2010	Russian
Poland	Maria	43.5	Spent HEU	October 2010	Russian
Belarus	Pamir	47	Fresh HEU	November 2010	Russian
Ukraine	Kharkiv	16	Fresh HEU	December 2010	Russian
Ukraine	Sevastopol	25	Fresh HEU	December 2010	Russian
Ukraine	Kiev	9.7	Fresh HEU	December 2010	Russian
Serbia*	**Vinca**	**13.1**	**Spent HEU**	**December 2010**	**Russian**
South Africa	SAFARI	5.8	Spent HEU	August 2011	U.S.
Kazakhstan	Alatau	33	Fresh HEU	September 2011	Russian
Mexico*	**Salazar**	**5.3**	**Fresh HEU**	**February 2012**	**U.S.**
Ukraine*	**Kharkiv**	**108.6**	**Fresh HEU**	**March 2012**	**Russian**
Ukraine*	**Kiev**	**19.4**	**Spent HEU**	**March 2012**	**Russian**
Mexico*	**Salazar**	**5.4**	**Spent HEU**	**March 2012**	**U.S.**
Sweden*	**Studsvik**	**3.3**	**Plutonium**	**March 2012**	**Various**
Uzbekistan	INP	36.4	Spent HEU	August 2012	Russian
Poland	Maria	61.9	Spent HEU	September 2012	Russian
Poland	Maria	27	Fresh HEU	September 2012	Russian
Uzbekistan	INP	36.4	Spent HEU	October 2012	Russian
Czech Republic	Rez	76.6	Spent HEU	March 2013	Russian
Vietnam	Dalat	11.6	Spent HEU	July 2013	Russian
Belarus	Pamir	282	Fresh HEU	December 2013	Russian
Uzbekistan	Photon	5	Spent HEU	December 2013	Russian
Hungary	BRR	52	Spent HEU	December 2013	Russian
South Africa	SAFARI	130	Spent HEU	December 2013	South African
South Africa	SAFARI	365	Fresh HEU	December 2013	South African
Italy	Various	15	Fresh HEU	March 2014	Various
Italy	Various	9	Plutonium	March 2014	Various
Belgium	Various	8	Fresh HEU	March 2014	Various
Belgium	Various	13	Plutonium	March 2014	Various
Canada	AECL	540	Spent HEU	July 2018	U.S.

***Countries cleaned out of all HEU since President Obama's April 2009 speech (also in CAPS below) To date, all HEU has been removed from a total of 21 countries: Brazil, Bulgaria, CHILE, Colombia, Denmark, Greece, Latvia, LIBYA, MEXICO, Philippines, Portugal, ROMANIA, SERBIA, Slovenia, South Korea, Spain, SWEDEN, TAIWAN, Thailand, TURKEY, and UKRAINE.**

Blue = Completed since Prague Speech
Green = Completed since 2010 Summit
Yellow = New commitments
White = Will be completed as part of the 4 year plan

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