

**PATHWAYS TO THE BOMB:
SECURITY OF FISSILE MATERIALS ABROAD**

HEARING

BEFORE THE

SUBCOMMITTEE ON PREVENTION OF
NUCLEAR AND BIOLOGICAL ATTACK

OF THE

COMMITTEE ON HOMELAND SECURITY
HOUSE OF REPRESENTATIVES

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PATHWAYS TO THE BOMB: SECURITY OF FISSILE MATERIALS ABROAD

Tuesday, June 28, 2005

HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
SUBCOMMITTEE ON PREVENTION OF
NUCLEAR AND BIOLOGICAL ATTACK,
Washington, DC.

The subcommittee met, pursuant to call, at 10 a.m., in Room 2128, Rayburn House Office Building, Hon. John Linder [chairman of the subcommittee] presiding.

Present: Representatives Linder, Lungren, Gibbons, Cox (ex officio), Langevin, Markey, Dicks, Harman, Norton, Christensen and Thompson (ex officio).

Mr. LINDER. The subcommittee will be in order.

I want to thank our witnesses and the members of the subcommittee for being here today.

Today's hearing constitutes the fifth hearing we have held to specifically discuss the nuclear threat, and I wanted to focus today on the location of weapons-usable nuclear material not just in the former Soviet Union countries, but around the world.

This subcommittee will soon begin to consider legislation that will provide the Department of Homeland Security the authority it needs to be a full partner in the Federal Government's mission to prevent a nuclear terrorist incident from occurring in the United States. I look forward to each of our expert witnesses today providing the important context and detail on how prolific weapons-usable nuclear material is, and presenting for us the challenges, both technological and policy, that Congress will need to overcome to truly diminish this nuclear global threat.

Some estimates indicate that approximately 2,400 metric tons of weapons-usable nuclear material is spread over two dozen countries, enough to build hundreds and thousands of nuclear weapons. Most of the weapons-usable plutonium, however, is actually held in the civilian sector.

The challenge of securing weapons-usable nuclear material around the globe is a daunting task, but establishing and funding these programs without sound policies in place for accountability and measurable progress will create nothing more than a false sense of security.

When it comes to nuclear terrorism, money does not equate to security, and a lack of accountability would be catastrophic. According to a National Journal article published last Friday, a Hiroshima-style nuclear device detonated in downtown Washington

would instantly kill 15,000 people, with 200,000 individuals potentially exposed to lethal doses of radiation within 24 hours. Property damage would total approximately \$500 billion.

The mission of this subcommittee is to ensure that such an attack never occurs. As such, I want to emphasize that we will be very focused on this critical issue and will continue to provide vigorous oversight and legislative guidance to the Department of Homeland Security in this effort.

I will now yield to my colleague, Mr. Langevin from Rhode Island, for any comments he would like to make.

[The information follows:]

PREPARED OPENING STATEMENT OF HON. JOHN LINDER

I want to thank our witnesses and the Members of this Subcommittee for being here today. Today's hearing constitutes the fifth hearing that we have held to specifically discuss the nuclear threat, and I want to focus today on the location of weapons-useable nuclear material not just in the former Soviet Union countries, but around the world.

This Subcommittee will soon begin to consider legislation that will provide the Department of Homeland Security the authority it needs to be a full partner in the Federal government's mission to prevent a nuclear terrorist incident from occurring in the United States. I look forward to each of our expert witnesses today providing the important context and detail on how prolific weapons-useable nuclear material is, and painting for us the challenges—both technical and policy-wise—that Congress will need to overcome to truly diminish this global threat.

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The challenge of securing weapons-usable nuclear material around the world is a daunting task. But establishing and funding these programs without sound policies in place for accountability and measurable progress will create nothing more than a false sense of security. When it comes to nuclear terrorism, money does not equate security, and a lack of accountability could be catastrophic.

According to a *National Journal* article published last Friday, a Hiroshima-style nuclear device detonated in downtown Washington would instantly kill 15,000 people, with another 200,000 individuals potentially exposed to lethal doses of radiation within 24 hours. Property damage would total approximately \$500 billion.

The mission of this Subcommittee is to ensure that such an attack never occurs. As such, I want to emphasize that we will be very focused on this critical issue, and will continue to provide vigorous oversight and legislative guidance to the Department of Homeland Security in this effort.

Mr. LANGEVIN. Thank you, Mr. Chairman. And I would like to thank you for holding this hearing, and I would like to welcome our witnesses; and I look forward to hearing your testimony.

After listening to witnesses at previous hearings and briefings held by this subcommittee, I feel that our government must accelerate its efforts to secure nuclear material at its source. Given what we have learned about the relative ease at which a terrorist could build a crude nuclear device, it is clear that the key to prevention is to do all we can to prevent them from obtaining the nuclear material in the first place.

Given that the majority of fissile materials are located within Russia and its former republics, I am eager to get a sense of how well we are doing in the former Soviet Union. Security of fissile materials in Russia still concerns me, especially after the National Intelligence Council reported in December of 2004 that undetected smuggling of nuclear materials has occurred at Russian weapons facilities. Last week the subcommittee held a hearing at which a

senior official from the Department of Energy stated that his Russian counterpart informed him that there were 200 cases of suspected smuggling of nuclear or radiological materials last year. I found that to be a shocking statistic. This testimony, coupled with the Intelligence Council report, does not give me great confidence in the security of fissile material abroad, and leads me to believe that if we don't move quickly, this material will eventually end up in the wrong hands.

Additionally, security experts have begun to argue that nonproliferation programs like Nunn-Lugar should be expanded beyond the former Soviet Union to nations such as Pakistan, which pose similar risks. I agree that our government must broaden its focus, but I believe that for this effort to be successful, greater funding and diplomacy will be needed to complete the important work in Russia and embark on new efforts abroad.

Finally, I would like to hear from our witnesses about how they feel our government could better coordinate its nonproliferation programs.

A GAO report issued in January of this year stated that there is no overall plan that integrates the programs carried out by the Department of Defense and the Department of Energy. Integration is important as our government looks to expand its nonproliferation programs beyond Russia. As I have said in previous hearings, we must move with a sense of urgency to prevent terrorists from executing a nuclear attack on our own shores, and that most certainly begins with securing nuclear material at its source.

Mr. Chairman, I thank you for holding this hearing today, and I look forward to hearing from our witnesses.

Mr. LINDER. Members are reminded that the policy of the subcommittee is if you elect a written statement, it will be part of the record without objection.

I now turn to our witnesses. Mr. David Albright is the president of the Institute for Science and International Security in Washington, D.C. Prior to his current position, Mr. Albright served with the IAEA Action Team from 1992 to 1997, focusing on the analysis of Iraqi documents and past procurement activities.

Ms. Rose Gottemoeller is a senior associate at the Carnegie Endowment for International Peace, specializing in defense and nuclear issues in Russia and other former Soviet states. Prior to joining the Endowment, Ms. Gottemoeller served as the Deputy Under Secretary for Defense Nuclear Nonproliferation in the United States Department of Energy.

I turn to our witnesses, Mr. Albright.

STATEMENT OF DAVID ALBRIGHT, DIRECTOR, INSTITUTE FOR SCIENCE AND INTERNATIONAL SECURITY

Mr. ALBRIGHT. Thank you, Mr. Chairman, for holding this hearing and inviting me to testify today.

Few goals are as important to U.S. National security as preventing terrorists from striking us with a nuclear weapon. I commend this committee for taking the time to try to explore the topics of nuclear terrorism in depth, focusing today on the amount, location and security of fissile material outside the former Soviet Union.

As you know, plutonium and highly enriched uranium, or HEU, are essential ingredients in nuclear weapons, making them two of the most dangerous materials in the world. Toward preventing nuclear terrorism, it is vital to know the amount and location of both plutonium and highly enriched uranium in the world.

I have provided the committee a table that lists ISIS's estimates of in-country stocks of highly enriched uranium and separated plutonium as of the end of 2003. These two categories, which contain about 24,000 tons of fissile material, represent the materials of most immediate concern in ongoing efforts to prevent nuclear terrorism.

Roughly half of the HEU and separated plutonium, or about 1,100 tons, is outside Russia. Although no country has stocks as large as Russia, about 40 countries have amounts of over 5 kilograms of highly enriched uranium and require action. The fact that nuclear weapons can be made from kilograms of fissile material make even relatively small inventories potentially dangerous. These various stocks pose a range of challenges to U.S. National security and require a multitude of responses. I would like to quickly discuss the higher-priority inventories.

One of the most challenging is Pakistan. Its inventory of roughly 1 ton of fissile material, most of which is highly enriched uranium in its nuclear weapons program has a physical security that remains in question. In addition, if the regime becomes unstable, the security of the stock can become vulnerable to theft or diversion. If the regime becomes fundamentalist, it can become anti-American, and it could possibly transfer HEU to terrorists.

While 17 countries outside of Russia have received highly enriched uranium for their civilian research and test reactors, currently about 12 of these countries have a Russian supply of HEU, and roughly 1-1/2 tons of the HEU remains in those countries. And the U.S. is working with Russia to repatriate these materials and convert remaining research reactors to low enriched uranium fuels. LEU cannot be used in nuclear weapons. Nonetheless, this effort is progressing somewhat slower than desired.

China and India's fissile material stocks are shrouded in secrecy. India has both civil and military stocks, and China has about 26 tons of military stocks. Knowledge about the vulnerability of these stocks remains uncertain.

The U.S. has been engaged for years in an effort to repatriate its U.S. supply of HEU to foreign civil research and test reactors. This effort has targeted about 5 tons of highly enriched uranium in over 30 countries. Again, this effort is making progress, although it has proven time-consuming.

The last stock I would like to mention is South Africa's, and this one poses a very special concern. It has about 500 kilograms of unirradiated HEU, or over about 600 kilograms total HEU. In the early 1990s, it resisted selling its HEU to the United States and Europeans; instead, it decided to hold onto this material for eventual use in its Safari Research Reactor. U.S. efforts to convert this reactor to LEU fuels have progressed very slowly. Parallel efforts to convince South Africa to blend down its stock of HEU have likewise encountered difficulties.

Further complicating the situation, South Africa's stock of HEU is not currently eligible for shipment to Russia or the United States; in a sense it is orphaned and requires special attention.

This concludes my initial statement. I would be happy to answer questions.

Mr. LINDER. Thank you, Mr. Albright.

[The statement of Mr. Albright follows:]

**Fissile Materials of Special Concern
In-Country Stocks of Separated Plutonium and
Total Stocks of HEU**

by David Albright and Kimberly Kramer
ISIS Estimates – June 24, 2005

Plutonium and highly enriched uranium (HEU) are both key ingredients in nuclear weapons, making them two of the most dangerous materials in existence. Table 1 estimates stocks of separated plutonium and both separated and irradiated HEU in countries that are of special concern because of the risk of diversion for use by terrorists.

Separated plutonium and HEU are directly usable in nuclear weapons. Much of the irradiated HEU stock is not very radioactive and is relatively easy to transport. Irradiated plutonium unseparated from power reactor spent fuel, while still posing a proliferation risk, is more difficult for terrorists to convert into a nuclear weapon, and is not included in the estimates.

The order of the countries in Table 1 is meant to suggest which stocks are most important to understand and secure, but this judgment is subjective. The estimates in this table represent the amount of such stocks held in a country, rather than the amount owned by that country. Countries with active reprocessing programs, most notably France and the United Kingdom, may hold a significant amount of foreign-owned separated plutonium at their reprocessing facilities.

Table 1 also includes countries, such as France, the United Kingdom and the United States, with significant quantities of separated plutonium and HEU that have implemented security measures that meet or exceed international standards. Despite these measures, theft of the material remains a possibility, making these large stocks a concern in the effort to prevent terrorist access to nuclear weapon materials.

Table 1: Fissile Materials of Special Concern: In-Country Stocks of Separated Plutonium and Total Stocks of HEU (end 2003, in tonnes)

Country	Separated Plutonium			HEU			Total ^a
	Military	Civil	Subtotal ^a	Military	Civil	Subtotal ^a	
Russia	95	88 ^b	183	1070 ^c	15-30	1085-1100	1275
Pakistan	0.04	--	0.04	1.1	0.017 ^d	1.120	1.16
North Korea	0.015-0.04	--	0.015-0.04	?	0.042	0.042	0.06-0.08
India	0.4	~1-1.5	1.4-1.9	-0.5	0.005-0.01	0.505-0.51	1.9-2.4
China	4.8	--	4.8	20	1	21	26
Countries with Russian-supplied HEU ^f	--	? ^e	?	--	1.36-1.74	1.4-1.7	1.4-1.7
Kazakhstan	--	3.0	3.0	--	10.59-10.94 ^g	10.6-10.9	14
South Africa	--	--	0	--	0.5	0.5	0.5
Belgium	--	3.5	3.5	--	0.5	0.5	4.0
Canada	--	--	0	--	1.35	1.35	1.35
France	5	78.6	84	29	6.4	35.4	119
Germany	--	12.5	12.5	--	1	1	13.5
Israel	0.6	--	0.6	?	0.034	0.034	0.6
Japan	--	5.4	5.4	--	2.0	2	7.4
Netherlands	--	--	0	--	0.73-0.81	0.73-0.81	0.73-0.81
Switzerland	--	0.5-1.0	0.5-1.0	--	0.005-0.01	0.005-0.01	0.5-1.0
United Kingdom	3.2	96.2	99	21.9	1.5	23	123
United States	47	45 ^h	92	575	125 ⁱ	700	792
Smaller Stocks of HEU in Many Countries	--	--	0	--	0.57-0.73 ^j	0.6-0.7	0.6-0.7
Smaller Stocks of Plutonium in Several Countries	--	<1	<1	--	--	0	<1
Total^a	155	335	490	1720	175	1895	2400

Sources

The information presented in this table is drawn from the following ISIS reports:

- Status and Stocks of Military Plutonium in the Acknowledged Nuclear Weapon States*, June 2005.
Separated Civil Plutonium Inventories: Current Status and Future Directions, by David Albright and Kimberly Kramer, June 2005.
Military and Excess Stocks of Highly Enriched Uranium (HEU) in the Acknowledged Nuclear Weapon States, June 2005.
Civil HEU Watch, by David Albright and Kimberly Kramer, June 2005.
ISIS Estimates of Unirradiated Fissile Material in De Facto Nuclear Weapon States, Produced in Nuclear Weapons Programs, June 2005.

^a Rounded.

^b This value includes about 50 tonnes of plutonium that Russia has declared excess to military needs and committed to peaceful uses.

^c Russia has committed to blend down 500 tonnes of HEU to LEU. By the end of 2003, it had blended down 200 tonnes. The remaining 300 tonnes remain in its military stock, probably in nuclear weapons, and not isolated from its primary military stock and committed to peaceful uses. As a result, this stock is assigned to the military stock. The United States has also declared a large amount of military HEU excess to military needs but has isolated this HEU from its primary military stock and committed it to peaceful uses. For this reason, remaining US excess HEU is included in the civil HEU category (see footnote (i)).

^d The civil HEU value for Pakistan includes 16 kg of US-origin HEU and 1 kg of Chinese-origin HEU.

^e Believed to be small, but not estimated.

^f Includes former Soviet States (Belarus, Georgia, Latvia, Ukraine, Uzbekistan) and other countries with Russian-supplied research reactors (Bulgaria, Czech Republic, Hungary, Libya, Poland, Serbia, Vietnam). Kazakhstan, China, Germany, North Korea also have in-country stocks of Russian-supplied HEU, but are listed separately in this table. An estimated 0-5 kg of 36% enriched Russian-origin spent fuel may also have remained in Romania.

^g The value for Kazakhstan includes 10.5-10.8 tonnes of Russian-origin HEU used in the BN-350 breeder reactor and 0.09-0.14 tonnes Russian-origin HEU for research and development activities.

^h Plutonium declared excess to military needs and committed to peaceful uses. This value does not include about 7.5 tonnes of declared excess plutonium contained in irradiated material.

ⁱ The civil HEU value for the United States includes the remaining 123 tonnes of HEU declared excess to military purposes as of the end of 2003 and scheduled for disposition, as well as HEU in civil research reactors and about 1 tonne of HEU that has been returned from civil foreign research reactors since 1996.

^j This value includes holdings in non-nuclear weapon states that received US-origin HEU that are not listed separately in this table and countries with Chinese-supplied research reactors (Ghana, Syria, Iran, Nigeria). Pakistan also received Chinese-origin HEU, but is listed separately in this table (see footnote (d)). Within this category, the countries with civil HEU stocks larger than 5 kg are Argentina, Australia, Austria, Chile, Greece, Iran, Italy, Mexico, Pakistan, Portugal, Romania, Slovenia, Taiwan, and Turkey.



Fissile material: Stockpiles still growing

By David Albright and Kimberly Kramer

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stockpiles of fissile material--the key ingredient in nuclear weapons--remain huge. At the end of 2003 there were more than 3,700 metric tons of plutonium and highly enriched uranium (uranium enriched to 20 percent or more uranium 235), enough for hundreds of thousands of nuclear weapons, in about 60 countries. Although some fissile material is disposed of, more material is produced, causing the total to grow each year.

This is worrisome not only because the world has yet to come up with an accepted method of plutonium disposition, but also from a security standpoint--how safe is that plutonium and highly enriched uranium (HEU)? That military stocks in India, Pakistan, and Israel are continuing to grow is an important indicator of the need for an international ban on the production of fissile material for nuclear weapons.

Since its founding in 1993, the Institute for Science and International Security (ISIS) has gathered hard-to-find information about the production and stockpiling of fissile material and nuclear weapons programs, capabilities, and policies. ISIS's most current findings about global stocks of fissile material are presented below and in the accompanying tables. Considerably more information about these estimates and their uncertainties is available on the ISIS web site at www.isis-online.org.

"Global Stocks" attempts to realistically assign fissile material to civil or military stocks based on current use, intended future use, and other factors. The stocks of plutonium and HEU are roughly equal, as are stocks of civil and military fissile material. However, most plutonium is in civil stocks and most HEU is in military stocks. (Russia's declared HEU excess is included under military stocks in "Global Stocks" because of a lack of information about its location and whether it remains in active nuclear weapons.)

The world's acknowledged nuclear weapon states hold considerable stocks of military HEU and plutonium. The amounts listed in the table "Military and Excess Fissile Material" account for national military stocks as of the end of 2003. Most of the plutonium and HEU in military stocks is in nuclear weapons, reserves, dismantled weapons, and naval and production reactor programs.

Some military fissile material is being transferred to civil stocks and disposed of in civil programs. Russia, Britain, and the United States have all declared a portion of their military plutonium excess to military requirements. This excess plutonium, about 107 metric tons in all, has been dedicated to peaceful purposes, but its disposition as fuel in power reactors continues to be delayed. Russia and the United States have also declared excess HEU. This excess HEU is to be downblended into low-enriched uranium (LEU), which is less of a proliferation risk. By the end of 2003, Russia had downblended 200 metric tons of military HEU into LEU to be used as fuel in nuclear power reactors. The United States had downblended about 50 metric tons of its declared excess HEU stock of about 170 metric tons. Each year, roughly 30 to 40 metric tons of military HEU are downblended to low-enriched uranium.

Plutonium

Every year, the global stock of civil plutonium grows by 70-75 metric tons, as seen in the table "Growth of Plutonium Worldwide". The growth is in irradiated fuel discharged from nuclear power reactors. As of the end of 2003, about 1,370 metric tons of civil plutonium stocks were in irradiated fuel. About 330 metric tons of civil plutonium were in unirradiated form. The unirradiated plutonium has either been separated in civil power reactor programs or is military material that has been declared excess to defense needs.

Unirradiated plutonium, because it is less contaminated with other radioactive constituents, is more of a proliferation risk than plutonium remaining in irradiated fuel. The table "Unirradiated Plutonium from Civil Power Reactors" shows the amount of unirradiated plutonium produced in civil power reactor programs, and held and owned by 12 key countries at the end of 2002. (Some countries have declared their unirradiated civil plutonium; other amounts are estimates.) Most declarations of stocks as of the end of 2003 were not yet available from the International Atomic Energy Agency (IAEA) at publication time. However, based on an assessment of the amount of spent fuel reprocessed and the amount of plutonium used in mixed oxide (MOX) fuel, ISIS estimates that roughly 235 metric tons of plutonium from power reactors remained in unirradiated form at the end of 2003.

Roughly 15-20 metric tons of plutonium are separated from irradiated power reactor fuel each year, while only 10-15 metric tons of this unirradiated plutonium are fabricated into MOX fuel for use in light-water reactors. As the rate of fabrication and use of MOX fuel has fallen behind the rate of separation, the amount of unirradiated plutonium continues to grow.

A sobering conclusion is that under a wide variety of reasonable assumptions, total unirradiated civil plutonium stocks are not expected to decrease in the next 15 years. A positive sign is that Belgium, Sweden, Switzerland, and likely Germany will reduce their inventories to zero or near zero. Stocks in Britain, Japan, Russia, and France are projected to remain large, even though France and Japan expect to use a considerable amount of plutonium as MOX fuel.

A complete country-by-country breakdown of current and projected holdings of military and civil plutonium is available on the ISIS web site.

HEU

About 50 metric tons of HEU were in worldwide civil research and power reactor programs as of the end of 2003. The use of HEU fuel in research reactors has diminished as a result of extensive cooperative efforts between the U.S. Reduced Enrichment for Research and Test Reactor (RERTR) program and many other governments. RERTR focuses on developing suitable low-enriched uranium fuels to replace HEU fuel in research reactors.

It is difficult to estimate civil HEU stocks in many countries because few nations reveal how much they have. The IAEA publishes the total amount of HEU that it safeguards, but its totals do not include the civil stocks of the acknowledged nuclear weapon states. They are therefore incomplete. In addition, the IAEA does not reveal the size of any individual country's stocks. Only a few countries, notably Britain, France, and Germany, publicly declare their civil HEU stocks, but their declarations do not account for stocks held overseas at fuel fabrication plants, for example, or the fraction of their declared stocks owned by other countries. A country-by-country break-down of civil HEU inventories remains elusive, although ISIS is working to develop one.

Current and former de facto states

A special category includes the five countries listed in the table "Current and Former De Facto Nuclear Weapon States' Unirradiated Stocks". Israel's plutonium and HEU stocks remain difficult to estimate. India may now be producing HEU in significant quantities in a gas centrifuge plant it has been working on for many years. Pakistan's fissile material stockpile has always been difficult to assess, but its stock now appears to be large enough to rival that of India. North Korea has produced separated plutonium in unknown quantities during two periods and may now be enriching uranium. And South Africa, although it dismantled its nuclear programs in the early 1990s, still has a large stock of unirradiated HEU.

David Albright is president of the Institute for Science and International Security (ISIS). Kimberly Kramer is an ISIS research analyst.

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Sidebar: Global stocks (in metric tons)*

Global stocks (in metric tons)*

Category	Plutonium	HEU	Total
Civil stocks (rounded)	1,700	175	1,875
Power and research reactor programs	1,595	50	
Declared excess	107	125 (U.S. only)	
Military stocks	155	1,725	1,880
Primary	155	1,250	
Naval and other	--	175	
Russian HEU declared excess	--	300	
Total	1,855	1,900	3,755

*End of 2003.

Sidebar: Military and excess fissile material (in metric tons)*

Military and excess fissile material (in metric tons)*

	Military plutonium	Excess plutonium	Military HEU	Excess HEU
Britain	3.2±0.15?	4.4	21.9±?	-
China	4.8±2	-	20±5	-
France	5±1.5	-	30±7	-
Russia	95±25	50	773±300	300
United States	47±2	52.5	580±50	123
Total (rounded)	155±31	107	1,425±362	423

*End of 2003.

Sidebar: Current and former de facto nuclear weapon states' unirradiated stocks*

Current and former de facto nuclear weapon states' unirradiated stocks*

Category	Plutonium (kilograms)	HEU (kilograms)	Number of weapons
Israel de facto	510-650	?	110-190
India de facto	300-470	Production possible	55-115
Pakistan de facto	20-60	1,000-1,250	55-90
North Korea ambiguous status	15-38	?	2-9
South Africa weapons program dismantled	0	430-580	0

*End of 2003.

Mr. LINDER. Ms. Gottemoeller.

**STATEMENT OF ROSE GOTTEMOELLER, SENIOR ASSOCIATE,
CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE**

Ms. GOTTEMOELLER. Thank you, Mr. Chairman, and to the members of the committee as well, for this opportunity to testify today.

I thought I would build on the picture that David Albright laid out about the threat essentially as it is outside of the former Soviet states by talking about how we might accelerate the programs.

I have to say the Bush administration deserves praise for drawing together a number of disparate U.S. Government projects into a comprehensive program called the Global Threat Reduction Initiative, and they have engaged the Russian Federation effectively in that effort. But at the Carnegie Endowment, I recently participated in a comprehensive study of the future of the nonproliferation regime called Universal Compliance, in which we laid out the case for an accelerated Global Threat Reduction Initiative, or accelerated global clean-out, as it is sometimes called. While the administration would like to carry out this program within 10 years, our view is that we should vigorously identify, secure and remove material from all of the most vulnerable sites within 4 years, or by 2008.

We do not have the luxury of a 10-year program if we believe that terrorists will target for theft the fissile materials stored at remote locations, such as those Mr. Albright just discussed. It may be their best shot at stealing enough nuclear explosive material to immediately construct a nuclear weapon or improvised nuclear device that could be exploded in a U.S. City.

The Carnegie team agrees in Universal Compliance that the major obstacles to faster implementation of the program are inadequate staffing and financing, and a disproportionate emphasis on conversion rather than shutdown of older unnecessary facilities. And by the way, this is also an argument made in a recent Harvard study, *Securing the Bomb 2005*.

Thus we believe that more creative approaches, such as engaging a larger number of international partners, developing more innovative contracting, and undertaking multiple diplomatic operations simultaneously, are needed. Moreover, given the urgency of the mission in addressing this horrific threat, an increase of \$30—to \$40 million per year over the administration's \$98 million fiscal year 2006 request seems justified.

A key factor in the acceleration, however, will not be the funding, but will rather be judicious negotiation of incentives and achieving a more intensive and nuanced diplomacy than we have engaged in to this point. I argue in my testimony that two directions in U.S. Policy should be pursued to make this more intensive and nuanced diplomacy possible. The first has to do with a package of tools or incentives that the United States might put to work at the negotiating table. The second has simply to do with the structure of the teams involved in the negotiations. I will give you a few examples of what I mean in each case, but I want to stress that in order to succeed with a global clean-out, the United States must first and foremost pursue a comprehensive negotiating effort that responds to the national interests of its negotiating partners.

So, for example, the United States should ensure that it undertakes a thorough examination of the least cost, most efficient means and methods to achieve success in a take-back project. Perhaps Russia is the most efficient partner in some cases, but perhaps our EU partner countries who are involved in the so-called Global Partnership Against the Spread of Weapons and Materials of Mass Destruction might be engaged as well, and in certain cases might be the most efficient partners to carry out an operation. Likewise, I think full account needs to be taken of the nongovernmental organizations and commercial companies that are engaged in these issues and the services that they are able to offer.

I know a few weeks ago you heard from Ms. Laura Holgate of the Nuclear Threat Initiative. NTI has really done a very positive job in recent years in partnering with our government to try to speed up these programs, and that kind of partnership, public/private partnership, needs to be further developed.

Another issue for the negotiators, which is a key one, I believe, for the Congress, has been the limited flexibility that they have had with regard to the use of funds. It is clear that in order for the United States to succeed at this effort on an accelerated basis, its negotiators will need additional flexibility in offering to expend funds to address spent fuel conversion and possibly cleanup of facilities. This is a key area, as I mentioned, where Congress can be helpful to the negotiating process.

But another issue simply has to do with the structure of the teams; and this is a very simple point, but it is one that I do think is important. The effort to accelerate GTRI will require more intensive diplomacy, and I believe that the Global Threat Reduction Initiative should be permitted to recruit additional personnel in order to be able to intensify the pace of diplomacy activity, and I mean experienced former diplomats, experienced technical specialists who have been working, perhaps, with our U.S. weapons lab or the International Atomic Energy Agency. They need not be hired on a full-time or long-term basis, but could be brought on board on a time-limited contract basis. And then they should be organized in a particular way to be most effective in carrying out simultaneous negotiations with a number of countries at once. At the present time we carry out these negotiations seriatim, and it does take a very long time; and the example of South Africa is one, again, that Mr. Albright raised.

I talk about the experience of so-called Project Sapphire in 1994, where within 6 months we removed enough highly enriched uranium for 25 nuclear bombs from Kazakhstan, making use of a structure that we call the Tiger Team structure, which was a particular way of organizing the work inside the executive branch, but it gave the players a great deal of independence and flexibility and authority to move issues quickly through the negotiating and bureaucratic process.

So, again, it is a somewhat simple point, Mr. Chairman, but I do believe that in this way there can be some quick progress, and it doesn't require new money or a whole lot of heavy lifting, but it does require our agencies or government to be thinking in a different way.

So in conclusion, I would like to stress that the Global Threat Reduction Initiative, in my view, is a program of great promise, but just over a year after its launch, it needs attention and a firm hand if it is to fulfill that promise. It is my view that such a funding base, if it could be established at a level of approximately \$30—or \$40 million per year over the administration’s current request of \$98 million, would provide for an accelerated removal of HEU from the most vulnerable sites in 4 years rather than 10.

And then I would like to underscore that in the end we need additional partners, both government and nongovernment; and we should be thinking of additional steps that are simple and don’t cost money, but can make a difference to this effort.

Again, thank you, Mr. Chairman and members of the committee, and I look forward to your questions.

Mr. LINDER. Thank you, Ms. Gottemoeller.

[The statement of Ms. Gottemoeller follows:]

PREPARED STATEMENT OF HON. ROSE GOTTEMOELLER

Thank you, Mr. Chairman and distinguished Members of the Committee, for this opportunity to appear before the House of Representatives Committee on Homeland Security, Subcommittee on Prevention of Nuclear and Biological Attack. Today we are discussing with you the vital issue of fissile material that is located in as many as 46 countries around the world. According to the General Accounting Office, 128 research reactors or associated facilities worldwide have 20 kg or more of highly enriched uranium (HEU), which would likely be the material of choice for illicit bomb-makers, because it is easier to fashion into a simple device than its sister material, plutonium.¹ Many of the facilities where HEU is found are devoted to scientific research and development, or they are engaged in the production of isotopes for cancer and other medical treatments. Therefore, they frequently serve an important role in the scientific endeavor of the state where they are located, or in the health and welfare of its public.

Against this positive picture must be balanced the threat that fissile materials pose when they are located at far-flung facilities, some of them in politically troubled or even unstable countries. In a recent study, a RAND Corporation research team highlighted how Aum Shinrikyo and Al-Qa’ida, two notorious, widely dispersed terrorist groups, had worked hard throughout the 1990s to acquire nuclear materials for weapons. Although they ultimately appeared to have failed in that period, the ambition of terrorist groups to do so no doubt remains strong. Indeed, the third case study that the RAND team describes is one involving a research reactor in Kinshasha, Zaire, from which two nuclear fuel rods were stolen in the 1970s, one of which eventually ended up being offered for sale to the Italian Mafia. Thus, the supply and demand sides both remain active.²

It is this intersection between known terrorist interest in acquiring bomb-making materials and small caches of these materials in widely dispersed facilities around the world that led to the creation of the Global Threat Reduction Initiative (GTRI) in the Department of Energy. While states can be deterred from using nuclear weapons by fear of retaliation, terrorists, who have neither land, people nor national futures to protect, may not be deterrable. Terrorist acquisition of nuclear weapons therefore poses the greatest single nuclear threat. And the gravest danger arises from terrorists gaining access to stockpiles of fissile materials, because acquiring a supply of nuclear material remains the most difficult challenge for a terrorist group.

So-called outlaw states are not the most likely source. Their stockpiles are small and precious, and hence well-guarded. They are not likely to give away what they see as the crown jewels in their security crowns. Rather, the most likely sources of nuclear materials for terrorists are storage areas in the states of the former Soviet

¹ General Accounting Office, “Nuclear Nonproliferation: DOE Needs to Take Action to Further Reduce the Use of Weapons-Usable Uranium in Civilian Research Reactors,” July 30, 2004, p. 28, found at <http://www.gao.gov/new.items/d04807.pdf>, accessed June 26, 2005.

² Sara Daly, John Parachini, William Rosenau, “Aum Shinrikyo, Al-Qa’ida, and the Kinshasha Reactor: Implications of Three Case Studies for Combating Nuclear Terrorism,” Documented Briefing, RAND Project Air Force, 2005. Zaire is now called the Democratic Republic of Congo.

Union and in Pakistan, and fissile material kept at these dozens of civilian sites around the world.³

GTRI concerns itself with fissile materials stored at sites that were built both with U.S. and Soviet assistance. During the Cold War, these two nuclear arch-rivals competed for influence by providing “peaceful nuclear assistance,” supplying research reactors to countries around the world in the interest of drawing them closer. In the U.S. case, this was done under President Eisenhower’s Atoms for Peace program. The Soviet program was very similar in its rationale. In fact, as the RAND study puts it, “the competition between the United States and the USSR. . . in many ways led to creation of the International Atomic Energy Agency (IAEA). . . to monitor and inspect these facilities, and to prevent the proliferation of nuclear weapons.”⁴

It is thus to be applauded that a decade and a half after the break-up of the Soviet Union, the United States and Russian Federation have joined together to try to address this dangerous Cold War legacy. This effort began in the 1990s, with efforts to establish priority projects to return highly enriched uranium from former Soviet facilities to safe-keeping. The earliest was the very successful 1994 Sapphire Project, in which the United States, working together with Kazakhstan and Russia, removed 581 kgs of HEU from Kazakhstan to storage and eventual disposition in the United States. This material had been apparently been scouted by Iranian agents, and empty canisters marked with Tehran addresses were found in the room next to where the material was stored.⁵ A similar project, “Auburn Endeavor,” was carried out in Georgia in 1998, although it involved less than 5 kgs of highly enriched uranium.⁶ This material was taken for safe storage to the United Kingdom.

The difficulty with expanding beyond these early cases was that the effort fell prey to an uncertain legal environment in the Russian Federation as well as the necessity of arduous and lengthy negotiations to set down procedures and arrangements for the material to be moved. Only after 2001 did the legal situation improve, when the Russian Duma passed a package of laws permitting the return of spent fuel to Russia. However, implementation of these laws in Russia has continued to be very difficult, with public protests and uncertainty about the purview of the legal regime playing a strong role.⁷

As for the United States, it had long had a program to return HEU fresh and spent fuel from research reactors that it had built under the Atoms for Peace program. It also had a program, the “Reduced Enrichment for Research and Test Reactors” or RERTR program, to develop low enriched uranium (LEU) fuel for such reactors and provide for their conversion. The difficulty was that these programs were at a low level of priority, visibility and funding—not at all commensurate with the serious threat that they were trying to confront.

A nongovernmental organization, the Nuclear Threat Initiative, undertook an important initiative to raise the profile of this effort after 2000, providing some significant funding to supplement and assist the U.S. and Russian government programs. The first success of this public-private partnership was the removal of HEU fuel from the Vinca research reactor in Belgrade in August 2002.⁸ The NTI involvement served as an important catalyst to accelerate the government effort, but it still labored in an environment of disparate bureaucratic actors and agencies and uncertain budgets.

Therefore, it is to the great credit of the Bush Administration that in May 2004, they established a coherent program, the Global Threat Reduction Initiative or GTRI. The Administration drew together offices and activities that had existed in various parts of the Department of Energy, and began the work needed to establish a stable budget at higher levels of funding. The budget request for fiscal year 2006 was a net increase of \$4.3 million over fiscal year 2005, to \$98 million.⁹

³This “Global Nuclear Threat Assessment” is further discussed in George Perkovich, Jessica T. Mathews, Joseph Cirincione, Rose Gottemoeller, and Jon B. Wolfsthal, *Universal Compliance: A Strategy for Nuclear Security*, Carnegie Endowment for International Peace, March 2005, pp. 26–32.

⁴“Aum Shinrikyo, Al-Qa’ida, and the Kinshasa Reactor,” p. 54.

⁵For more on Project Sapphire, see <http://www.nti.org/db/nisprofs/kazakst/fissmat/sapphire.htm>, accessed July 18, 2005.

⁶For more on Auburn Endeavor, see <http://www.nti.org/db/nisprofs/georgia/auburn.htm>, accessed July 18, 2005.

⁷For more on the Russian legal scene, see <http://www.nti.org/db/nisprofs/russia/reactor/waste/snf.htm>, accessed June 26, 2005.

⁸For more on the Vinca operation, see <http://www.nti.org/e—research/profiles/Yugoslavia/index—3977.html>, accessed July 18, 2005.

⁹William Hoehn, “Preliminary Analysis of the U.S. Department of Energy’s Fiscal Year 2006 Nonproliferation Budget Request,” RANSAC Policy Update, February 9, 2005, found at <http://>

Difference with Administration Approach

The Bush Administration deserves praise both for drawing together a number of disparate U.S. government projects into a comprehensive program, the Global Threat Reduction Initiative, and for involving the Russian Federation effectively in the effort. Where we differ with the Administration, however, is in their sense of the speed with which GTRI can be carried out. At the Carnegie Endowment, I recently participated in a comprehensive study on the future of the nonproliferation regime, Universal Compliance, in which we laid out the case for an accelerated GTRI, or as many in the expert community call it, an “accelerated global clean-out.” We argue that the United States, Russia and other partner countries should vigorously identify, secure, and remove nuclear material from all of the most vulnerable sites within four years, or by 2008.¹⁰

By contrast, current Administration plans call for implementing GTRI goals within ten years. In our view, this is perilously slow: civilian research reactor facilities are the most vulnerable sources of nuclear materials worldwide, especially to terrorists who are bent on acquiring the bomb. Forty-six countries are known to possess weapon-usable uranium, and an estimated 50 metric tons are currently being held as stocks for power and research reactors.¹¹

We simply do not have the luxury of a ten-year program, if we believe that terrorists will target for theft such fissile materials stored at remote locations. It may be their best shot at stealing enough nuclear explosive material to immediately construct a nuclear weapon or improvised nuclear device that could be exploded in a U.S. city.

The Carnegie team argues in *Universal Compliance* that the major obstacles to faster implementation of the program are inadequate staffing and financing, and a disproportionate emphasis on conversion—rather than shutdown—of older, unnecessary facilities. A recent Harvard study, *Securing the Bomb 2005*, also argues that most of the world’s research reactors are aging and unneeded. It notes that 56 HEU-fueled research reactors are currently considered too difficult to convert to LEU. A carefully developed package of incentives could provide the needed impetus to increase the number of reactor shut-down projects, as long as it is crafted in such a way that it will not be considered anti-science or anti-nuclear by the world nuclear community.¹²

Thus, more creative approaches, such as engaging a larger number of international partners, developing more innovative contracting, and undertaking multiple operations simultaneously, are needed. With the necessary resources and emphasis, the ten-year goal can—and should—be met in four years.¹³

It is worth emphasizing that the cost of removing fissile material from vulnerable sites around the world need not be large, but it is still subject to a number of uncertainties.¹⁴ The current GTRI program provides funding for the security of radiological sources, and for security upgrades at the sites. Thus, the budget required for removing fissile materials from vulnerable sites must be distinguished from those programs. In addition, the total cost of removing materials must take account of what tools or incentives will be required to overcome the natural reluctance of decision-makers, scientists and facility managers to give up their HEU. They are likely to be concerned about whether they will be able to achieve the same research or isotope production results without it.

¹⁰ [/www.ransac.org/Publications/Congress%20and%20Budget/index.asp](http://www.ransac.org/Publications/Congress%20and%20Budget/index.asp), accessed June 26, 2005. It should be noted that GTRI was forced to absorb some programs with no additional funding.

¹¹ *Universal Compliance*, p. 89. It must be emphasized that we are not arguing that HEU can be removed from all HEU-fueled research reactors in four years. Some will require a process of conversion to LEU fuels that will take longer. However, HEU can be removed from the most vulnerable sites, and security upgrades can be completed at sites that are not possible to convert to LEU in that time.

¹² See Tables 4.1 and 4.2, *Universal Compliance*, pp. 86–87.

¹³ Matthew Bunn, Anthony Wier, *Securing the Bomb 2005: The New Global Imperatives*, Nuclear Threat Initiative and the Project on Managing the Atom, Harvard University, May 2005, available at <http://www.nti.org/e-research/report-cnwmupdate2005.pdf> (accessed June 27, 2005).

¹⁴ *Universal Compliance*, p. 89–90. See also Matthew Bunn, Anthony Wier, and John P. Holdren, *Controlling Nuclear Warheads and Materials: A Report Card and Action Plan*, Nuclear Threat Initiative and the Project on Managing the Atom, Harvard University, March 2003, available at www.nti.org/e-research/cnwm/overview/report.asp (accessed April 27, 2004).

¹⁵ In the fiscal year 2005 authorization for the programs, Congress required a report that is to include a plan for removal of vulnerable nuclear material around the world, and an estimate of the costs of implementing such a plan. Since this report would be based on the full range of information available to the U.S. government, it will be important for confirming any estimate of the total budget required for the removal of fissile material from vulnerable sites.

However, given the urgency of the mission in addressing this horrific threat, *an increase of \$30–40 million per year over the Administration's \$98 million fiscal year 2006 request seems justified*. A stable and reliable funding base at this level would permit accelerated work to be accomplished in four years.

A key factor in this acceleration will be judicious negotiation of incentives. We believe that the success of an accelerated global clean-out depends to a great extent on achieving more intensive and nuanced diplomacy than we have engaged in to this point. The countries that should be contemplating a quick removal of HEU from their nuclear research programs will have to be assured that their national interests will continue to be served if they agree to this course. Indeed, they should perceive that their interests will be accomplished even more effectively than before.

Two directions in U.S. policy should be pursued to make this more intensive and nuanced diplomacy possible. The first has to do with the package of tools that the United States puts to work at the negotiating table. The second has to do with the structure of the teams involved in the negotiations. Let us examine these in turn.

Negotiating Tools

Although GTRI has achieved some successes in the 13 months since its creation—small quantities of HEU have been removed from Libya, Uzbekistan, the Czech Republic and Latvia—the program in some cases has left the job half done. In Libya, for example, once the highly enriched uranium was taken to the United States, the U.S. promised to convert the Libyan research reactor, providing it with an LEU core. This promise thus far has not been fulfilled.

In other cases, the deal has been structured in a way to make it more expensive or complicated to carry out. The highly enriched uranium from the reactor in Latvia, for example, was sent to the United States on a special transport plane. It could have been transported to France, like Latvia an EU member state, on a commercial basis, thus achieving cost savings and speeding up the process.

In yet other cases, the U.S. negotiators did not have the resources readily available to offer a clear path forward to the negotiating partner. For example, although the HEU was removed from the Vinca reactor in Belgrade in 2002, no conversion of the reactor has taken place, nor has the spent fuel been removed, nor have cooperative research activities materialized with the scientific staff at the facility. The United States has simply not had the flexibility with its existing funding to move forward in these promised areas.

Of course, one might say that the main goal at Vinca has been achieved, the removal of the HEU, and in Libya as well, and the United States need not bother with these lesser activities. If the U.S. proceeds in this way, however, it will have a very negative impact on the willingness of other countries to part with their HEU. In order to succeed with a global clean-out, the United States must first and foremost pursue a comprehensive effort that responds to the national interests of its negotiating partners.

These examples suggest some tools that the U.S. should put in place to succeed with a comprehensive effort:

1. The United States should ensure that it undertakes a thorough examination of the least-cost, most efficient means and methods to achieve success in a take-back project. In doing so, the U.S. should take into account the views of its negotiating partner. In some cases, other countries beyond Russia (e.g., in the EU) might be capable of moving the material more quickly and efficiently, and for less cost. A larger international circle involved in the GTRI is entirely consistent with the goals and rationale of the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, which was begun as a G-8 effort in 2002, but has now spread to a wider community of countries.¹⁵

2. Likewise, full account should be taken of the non-governmental organizations and commercial companies that are engaged in these issues, and the services that they are able to offer. In many cases, they will have well-established relationships that might help to achieve greater efficiencies, or provide good contacts to speed the negotiations. It is often said that the time taken to achieve mutual confidence at the negotiating table is time well-spent, but if another entity, including a non-governmental one, can provide good entrée to a country's decision-makers and reactor operators, then that entrée should certainly be tapped to accelerate the process. This point has already been borne out by the positive impact that the Nuclear Threat Initiative, a non-profit entity, has had on implementation of HEU take-back projects.

¹⁵ Information about the reach of the Global Partnership beyond the G-8 may be found at www.state.gov/t/np/rls/fs/34967.htm (accessed January 10, 2005).

3. In either the government or non-government case, close attention should be paid to means and methods to speed up the contracting process, for delays in that arena can easily turn into a source of frustration for the negotiating partner. Ample experience in contracting and subcontracting has been gained in recent years in the material protection, control and accounting; the plutonium reactor shutdown; the launcher elimination; and other bilateral programs with Russia. This experience should be tapped for ways to ease the delays in contracting that have dogged the GTRI program, which in turn will translate into greater flexibility and progress at the negotiating table.

4. Another issue for negotiators has been the limited flexibility that they have had with regard to the use of funds. For example, a deal might be struck to purchase HEU fuel from a country, as long as it was part of a comprehensive package to also remove spent fuel and convert and clean-up the facility site. This was the preferred course for the Yugoslav team at the Vinca reactor in Belgrade. However, as mentioned above, only the HEU part of the equation has been fully solved at this point. With this glaring example hanging over new negotiations that are undertaken, it is clear that in order for the United States to succeed, its negotiators will need additional flexibility in offering to expend funds, to address spent fuel, conversion, and possibly clean-up of facilities. This is a key area where the Congress could help, by providing more flexibility in the authorities available to the GTRI program.

5. Often, a key factor slowing the negotiations has been the availability of funds for a goal of paramount importance to the partner country, ensuring that its nuclear scientists will continue to have interesting work to do, despite the removal of HEU from their territory. This was a very important issue in one of the earliest negotiations, Auburn Endeavor, in which fresh and spent HEU fuel was removed from a reactor site in Georgia. Afterwards, Georgian scientists came to the United States to establish research contacts with U.S. counterparts, and some joint projects were undertaken. Thus, as a result of cooperation with the United States to remove HEU from Georgian territory, Georgian scientists benefited. Ideally, such measures should be agreed in the course of negotiating a take-back program. They should be designed to give the partner country an active program of cooperation that would strengthen its science and technology base.

Although some of these tools might require additional funding, others could be funded from existing programs or draw on existing funding sources. For example, up to \$50 million was made available in the fiscal year 2004 Defense Authorization bill for cooperative threat reduction work outside the former Soviet Union.¹⁶ Funds of this type could be used for exchanges involving scientists at research reactor facilities participating in the GTRI program. This is a good example of a situation where it will be important to ensure that the Administration has adequate flexibility to use existing funds for the purpose of speeding up the GTRI program.

In some cases, making use of these tools will simply require more flexibility in U.S. government procedures and operations. For example, the recent difficulties that scientists have had in gaining visas to study and conduct research in the United States are well-documented, most recently in a report by the American Civil Liberties Union (ACLU). This report showed a 28% drop in applications to U.S. universities from foreign graduate students in 2003, and an 18% drop in admissions.¹⁷

Although it would be most beneficial for this issue to be resolved in a comprehensive manner, in the interest of progress in U.S. science and technology overall, a special visa program might have to be devised for purposes of speeding up the GTRI program. Undoubtedly, such a program would be in the overall national security interest of this country, if it contributes to an accelerated return of highly enriched uranium to safe storage and disposition in the United States.

The United States, it is important to stress, should not be the only country deploying these tools. The Russian Federation, as a key player in the Global Threat Reduction Initiative, should also be willing to provide research opportunities, including smoothing the way for visas and other administrative arrangements in Russia. In addition, countries in Europe and Asia that are members of the Global Partnership might be involved in providing research facilities for scientists from GTRI partner countries, as part of their contributions to the Global Partnership. Thus, the responsibility for implementing GTRI would expand, as it should, to additional countries. Given the dire threat that dispersed HEU poses, such an approach would provide a way for these countries to take low-cost action in the interest of all.

¹⁶See Section 1308 of the National Defense Authorization Act of Fiscal Year 2004 (PL 108-136; 117stat.1662; 22USC 5963).

¹⁷This report of the American Civil Liberties Union, *Science under Siege*, may be found at <http://www.aclu.org/Privacy/Privacy.cfm?ID=18534&c=39>, accessed June 26, 2005.

Team Structure

In addition to these tools for the negotiating table, the effort to accelerate GTRI will require more intensive diplomacy than has been conducted up to this point. Currently a rather small group of individuals in the Departments of State and Energy is responsible for the diplomacy required to move HEU back to the United States. As effective as those individuals might be in engaging any country, they can only negotiate in a single capital at a time. This “one at a time” approach contributes not only to the slowing of the overall process, but also contributes to fatigue, sometimes severe, among those involved, as they have to prepare for negotiations in one country after another.

For that reason, I recommend that Global Threat Reduction Initiative be permitted to recruit additional personnel, in order to be able to intensify the pace of the diplomatic activity. They need not be hired on a full-time basis, but could be brought on board on time-limited contracts. Experienced individuals should be sought—for example, retired diplomats who have dealt with nuclear nonproliferation issues, as well as technical personnel who have perhaps served with the International Atomic Energy Agency (IAEA) or with the U.S. nuclear laboratories. In that way, GTRI could acquire a considerable amount of additional expertise quickly, both in terms of the technical matters involved, and in terms of negotiating experience.

This expanded group of diplomats and experts should then be structured in an effective manner. Based on the experience of Project Sapphire, I recommend the formation of “*tiger teams*.”

The tiger team concept emerged out of necessity, in the summer of 1994, when the U.S. government first discovered the Sapphire material—as mentioned above, 581 kgs of highly enriched uranium, material that could produce 20–25 bombs. This material had been abandoned at a remote facility in Kazakhstan and had already been scouted by Iranian agents. Kazakhstan’s leaders, to their credit, urgently asked for U.S. assistance in removing the material to safekeeping. Winter would soon close in. They feared that if the HEU was not removed before snow fell, it would be gone—stolen or illicitly sold—by the time spring arrived. The United States, working together with Kazakhstan and the Russian Federation, had three months to get the job done.

Because of this urgency, the United States formed a group of mid-level government officials and laboratory personnel, who collectively had significant experience in solving problems and overcoming bureaucratic barriers in their agencies. They were given a clear deadline and task: all of the HEU had to be flown out of Kazakhstan by the end of November 1994. They were also given authority to pledge resources on behalf of their agencies, and direct lines of communication to a high-level interagency group that was based in the National Security Council and could help them to quickly solve roadblocks.

This Sapphire tiger team was able to solve a myriad of problems quickly, from technical details on the ground in Kazakhstan—what types of transport containers should be used, and how would transport aircraft land?—to domestic legal questions in the United States. They also were involved in multilevel diplomacy, which involved Kazakhstani technical experts on the ground at the site, senior decision-makers in Almaty, and also senior decision-makers in Moscow and Washington. Their ability to take responsible decisions, or move them quickly up the chain if they could not, was a vital factor in enabling the Sapphire operation to be completed on time.

I would like to emphasize the role of on-going links to high-level decision-makers, because that is the factor that contributed most strongly to the success of the tiger team in Project Sapphire. It is unrealistic for top officials to be routinely engaged in implementing a program—they simply have too many responsibilities to pay attention on a day-in, day-out basis to the myriad of details at play. However, those who are charged with implementing the program need to know that they can refer issues to their top leaders on a timely basis, if they cannot be resolved otherwise. Having a program established as a top government priority, with agreed deadlines, helps to establish that link. However, having a coherent interagency group, established in the National Security Council and meeting on a regular basis, cements it.

We do not know how many remote sites storing HEU are being scouted today by agents of terrorist organizations or countries seeking to acquire the bomb. However, we cannot and should not take any chances. We should have the same urgency today that we had in 1994, and model the structure of GTRI negotiating teams on the tiger team concept that was so successful in Project Sapphire.

Conclusion

In conclusion, I would like to stress that the Global Threat Reduction Initiative is a program of great promise, but just over a year after its launch, it needs atten-

tion and firm hands if it is to fulfill that promise. The first and most important step is for the program to achieve a stable and reliable funding base, which the Bush Administration has been working to accomplish. It is my view that such a funding base, if it were stable at \$30–40 million per year over the Administration's current request of \$98 million, would provide for an accelerated removal of HEU from the most vulnerable sites in four years rather than ten.

But additional steps beyond money will be needed to achieve that acceleration. I have emphasized in this testimony the need for more intensive and nuanced diplomacy. Probably the most important factor in achieving this goal would be for the Administration to take full account of the other actors who would be available to contribute to the acceleration. Other countries might be willing to take responsibility for storing or disposing of the material, and private companies or non-governmental organizations might have a more efficient way of achieving success in the various take-back projects. Although it is difficult to manage a large group of players, making use of this wider community is the only way in which, in my view, the Administration will be able to accelerate the program. In order to do so, of course, complications and delays in organizing contracting will have to be decisively addressed.

In contracting as in other areas, however, the Administration has plenty of experience on which to draw. The experience of over a decade of threat reduction cooperation with the Russian Federation and other countries in the former Soviet Union and the G-8 has provided ample opportunity to work through difficult contracting and sub-contracting mechanisms. Some of this experience can no doubt be turned to the Global Threat Reduction Initiative.

Indeed, to structure the acceleration, the Administration need only turn to the example of the most successfully implemented "global clean-out" activity so far, which was also the first—Project Sapphire. The responsible use of experienced government and laboratory personnel, empowered to make key decisions under the oversight of a high-level interagency group, was the most important factor ensuring that 581 kgs of highly enriched uranium left Kazakhstan within six months of the start of the project. If multiple tiger teams of this type could be formed, and could operate on a carefully coordinated basis in several countries at once, then removal of HEU from the most vulnerable sites could be completed in four years.

Thank you for this opportunity to testify. I look forward to your questions.

Mr. LINDER. The Chair recognizes himself for 5 minutes for questions.

A 4-year completion of the global clean-out seems very optimistic. Does that anticipate cooperation from Pakistan, China, South Africa?

Ms. GOTTEMOELLER. Yes, sir. I want to underscore that we do not believe that highly enriched uranium can be removed from every research reactor around the world in 4 years' time, and that we can achieve an entire conversion of reactors during this period to low enriched uranium fuel. That is the goal overall of the program, but I think we need to emphasize the most vulnerable sites where we have a great deal of concern that they might—

Mr. LINDER. Where are they?

Ms. GOTTEMOELLER. The list that I have—and it is very similar, I think, to the list that David Albright has—I concentrate on reactors in the former Soviet Union, in Belarus; in Kharkiv, Ukraine; in Tashkent, Uzbekistan; but also the materials in Serbia, in Belgrade, the Vinca reactors, those that remain there, and in Libya as well—we have promised the Libyans we will move that material, and we have not done so up to this point—South Africa and Pakistan.

You asked about the cooperation of Pakistan. Indeed, we will, I think, have to engage in some very intensive diplomacy with them, but I think that working in cooperation with them to first upgrade the physical protection of the material that they have and then to move the material is possible, and that we should be applying ourselves to that effort.

Mr. LINDER. Mr. Albright, do we actually know how much Russia has? Does Russia know how much it has?

Mr. ALBRIGHT. I guess the answer is no to both. Russia certainly has an increasing knowledge of how much it has, and I think on the plutonium side, from what I understand, it has made a stronger effort. But the way they created their highly enriched uranium has made it so it is not so easy to know. I mean, they certainly know better than the United States would know, but it is still not good enough. And the United States should encourage Russia to try to understand its highly enriched uranium stock.

The United States had to do that itself. I mean, there was a sort of a taking stock in the 1990s to try to go back and look at all the highly enriched uranium produced here and what happened to it, and then try to—in fact, they produced a report that was intended to be public, although is still not public to this day.

Mr. LINDER. Do we have any idea how much China has?

Mr. ALBRIGHT. China is very tough. I don't know what the United States knows about China. I know in our own work, their facilities, major plutonium and uranium enrichment facilities, that are part of their military production complex, they still do not admit to having it publicly. It is the only weapons state that hasn't revealed its production complex. And so we have a lot of concerns about how much material China has and the adequacy of its protection.

Mr. LINDER. How many locations around the world do you suspect that there is cesium 137 in? Ms. Gottemoeller.

Ms. GOTTEMOELLER. I do not know the answer to that question.

Mr. ALBRIGHT. I don't either. I don't know. It is a lot, but I don't know.

Mr. LINDER. And none of it is very carefully contained?

Mr. ALBRIGHT. That I don't know.

Mr. LINDER. Do you think we should know that?

Mr. ALBRIGHT. Certainly. And I think there is efforts to understand that both within the U.S. Government and at the International Atomic Energy Agency. And there has been, as you know, a major accident in Brazil many years ago that exposed the vulnerability of cesium.

Ms. GOTTEMOELLER. Mr. Chairman, may I make one point? There is an effort afoot, and I have recently seen a very excellent small book produced by the Sandia National Laboratory in cooperation with the Department of Energy, to lay out some clear priorities as to which of the radiological materials are the most dangerous, and to give some information, some general idea of where those materials can be found, how many locations around the world. So I commend that to you. I just don't have that under my brain, so to speak.

Mr. LINDER. It is something we should be concerned about?

Ms. GOTTEMOELLER. Definitely, definitely.

Mr. LINDER. And where would you start? With the hospital associations? Where would you start something like that?

Ms. GOTTEMOELLER. I think really the most important effort is the one that we have already begun, to engage countries to talk about the issue, and to raise their awareness of the problem, and to begin to take some steps to enhance the physical protection of

radiological materials, but it is, in the first instance, an educational effort. And there is always the balance. You want to be able, of course, to be able to provide cancer treatments to patients and so forth, so you don't want to undertake steps that would sharply constrain medical treatment or the industrial uses of these radiological devices. So there has to be a balance struck. And I think we have begun, effectively, to talk with countries about the dangers, and also to take steps to enhance physical protection.

And it does involve, as you note, reaching out also to professional organizations, but in the first instance they are going to be very concerned about ensuring that the efficiency of the services they provide can continue.

Mr. LINDER. Thank you both.

The Chair recognizes the gentleman from Rhode Island for 5 minutes.

Mr. LANGEVIN. Thank you for your testimony today.

Let me begin by asking this question: As I mentioned in my opening statement, security in Russia still concerns me, and after the testimony we heard last week from Mr. David Huizenga at the Department of Energy, Mr. Huizenga revealed that his Russian counterpart had informed him that there were 200 potential nuclear or radiological smuggling incidents in the last year alone. This testimony confirms the key judgment from the National Intelligence Council's report to Congress on the safety and security of Russian nuclear facilities and military forces published in 2004, which states that undetected smuggling has occurred since the end of the Cold War.

Now, I find this information deeply troubling, and I would like to hear your opinions about what improvements of our non-proliferation programs are needed to reduce the number of smuggling incidents. And is this an issue of funding, or does the problem lie in the political and bureaucratic roles that have hindered our efforts with the Russians since the end of the Cold War?

Ms. GOTTEMOELLER. In my view, sir, it is a combination of both factors. And again, I think that this is a problem that, although perhaps enhanced financing could help, in some ways it is just taking advantage of resources already entrained. For example, one of the issues with the potential cases of nuclear smuggling has to do with inadequate monitoring and sensing technology that is available really to any airport authority or any port authority.

So there is a lot of work that is currently going on in the context of joint U.S.-Russian cooperation under the Warhead Safety and Security Exchange Agreement, for example, in which we are working on monitoring and sensing technologies for counterterrorism purposes, but getting enough focus on those technology programs and then getting those technology programs deployed in the field takes some attention, takes some policy attention, and might take a little bit more financing as well.

But I think the technology question is an important one. Can we improve those monitoring and sensing systems? I would like to know how much of those potential cases turned out to be false alarms, for example. Since I was not here, I am not sure exactly what the overall quality of the cases was in the testimony. But nevertheless, I think that we have, you know, now cooperation going

on with the Russians, so we get this kind of information through our Second Line of Defense Program and other government programs.

But in a sense I agree with you, there is a lot that we don't know, particularly about what has happened over the years since the breakup of the Soviet Union. So we need, I think, to continue this effort and to intensify this effort, particularly with regard to technology development and deployment.

Mr. ALBRIGHT. I think the United States should redouble its efforts to try to remove some of the bottlenecks in the cooperation with Russia on dealing with some of the fissile materials; namely, trying to find a solution to the problem of access to additional sites and the liability. And I think there probably needs to be some compromise even on the U.S. side, maybe some new offers to Russia, in order to try to facilitate that, because I think in the end it is in our interest to have our people in as many places as possible, and in a sense get our eyes on the ground or boots on the ground inside these facilities so we can get a better sense of the vulnerabilities and the priorities.

Mr. LANGEVIN. In your testimony you were talking about our interaction with the Russians and their, really, lack of full understanding and knowledge of what they have and what is not be accounted for. And one can clearly understand how on the one hand they would want to be forthcoming, and on the other hand if some of the other stuff is unaccounted for and it is loose out there, they don't want to be forthcoming because they don't want their fingerprints on it.

Do they clearly get it and understand that it is really in our mutual best interest to be as forthcoming as possible? I mean, they have to understand that, you know, were a nuclear device to be detonated, there is a signature that very likely can be traced. But do you feel that—what are the hurdles we need to overcome to get them to be more forthcoming about what they have or what is unaccounted for?

Ms. GOTTEMOELLER. Frankly, sir, it is a mixed picture with the Russians. On the one hand, we have statements from President Putin, very direct and serious statements, recognizing that this is a threat, recognizing that they need to take care of the problem; but we also have statements from the Minister of Defense saying, well, we don't have a problem, we perfectly guard all out material and warheads, this is not a difficulty.

So there is a contradiction in Russian policy that I think, in my view, flows out of the legacy of the Soviet Union. We found, when we first began the material protection control and accounting programs, that they had had a somewhat cavalier attitude toward accounting for nuclear material. In typical Soviet economic style, if they had a little time at the end of the month, they might produce a little extra material and stash it away so they could use it to fulfill the plan in another month, and maybe they didn't quite keep the books as well as they should have in those cases.

So I think we are seeing a kind of a legacy from the Cold War based not the only on their looseness in accounting in those years, but just good, old-fashioned Russian xenophobia, that they don't like to admit they have a problem.

That said, I would say that in the last almost decade and a half of joint work with the Russian Federation, there is a great realization that has begun to occur; it extends to the President, as I mentioned a moment ago, but also down into the Russian Atomic Energy Agency, where I have many counterparts. I continue to work with them quite intensively. They recognize they have a problem, and they want to ensure that their warheads, their nuclear materials are accounted for and safely protected.

It also goes with the Russian Navy. They have been, in my view, a kind of very positive example of the kind of cooperation we can have when they recognize they have a problem and they recognize that we can help them quickly to solve that problem.

So I hate to say it, but it is a mixed picture; and we have to continue pushing and pushing to get a full realization through that political elite of the kind of problem that they are dealing with.

Mr. LINDER. The time of the gentleman has expired.

The gentleman from Nevada is recognized for 5 minutes.

Mr. GIBBONS. Thank you, Mr. Chairman. And to our witnesses, welcome to the committee. We are happy to have you. And your testimony certainly has been enlightening for many of us.

We talk about tons of either highly enriched uranium or plutonium spread around the country in various areas, yet you never mention how much of each it takes to make one bomb. How much does it take? I presume, Mr. Albright, as a physicist you know that number. How much enriched uranium does it take to make one bomb; how much plutonium does it take to make one bomb?

Mr. ALBRIGHT. For a crude version weapon, if it is weapons-grade uranium, sort of the upper—better HEU, 15 to 20 kilograms would make a crude implosion weapon. There is an enough for a—

Mr. GIBBONS. What kind of yield would we be talking about?

Mr. ALBRIGHT. It depends on the scale, but in the kilotons is quite possible. I mean, in a country like Iraq, we are shooting toward 15, and it wasn't that sophisticated of a device. With plutonium, you know, 4 or 5 is enough.

Mr. GIBBONS. Kilograms?

Mr. ALBRIGHT. Yes. If you want to make a simpler bomb, use a gun type, and you would use weapon-grade uranium, then it is about 50 kilograms; and that is less sophisticated and easier to make.

Mr. GIBBONS. You know, research reactors have been around for decades. Material used for research reactors has been available for decades; terrorists have been attempting to acquire these materials for many, many years. I guess the issue that I would ask, between the countries that have research reactors, the black market, countries like Iran and North Korea—North Korea would sell anything to anybody for the right price, technology, weapons, sensors, et cetera, that has been proven over the years—how do we know, or how do we have any assurances today that access by some of these groups to this material has not already occurred?

Mr. ALBRIGHT. You can't exclude it. I mean, you would—and there are—I think particularly because of the problems in the Soviet countries, you do worry that some has been taken, but we haven't seen any evidence that that has happened. And so—but you do worry about it, and that adds to the need to move forward

on this to try to protect the material that is there, and then try to increase our knowledge about what was produced originally, and then answer this very difficult question, has any gone missing?

Mr. GIBBONS. Well, it seems to me that we talk about tons in the overall picture of things, and we talk about small amounts, kilograms, when we are talking about weapon capability. So we are talking macropicture on availability and a micropicture on terms of requirements.

Mr. ALBRIGHT. That is right. And that is why you have to worry about so many locations, because you don't need that much to make a bomb. And again, it adds to the urgency of the problem, that this cannot be set aside. And it does require the United States Government in particular to take the lead because we care the most, and we recognize the danger the most, and so we have to make sure that we maintain our leadership and get the cooperation of key countries to push this forward.

Mr. GIBBONS. Ms. Gottemoeller, all of the countries of the former Soviet Union that were nuclear capable or had stocks of highly enriched uranium or weapons-grade munitions of plutonium or uranium, how many of those countries are actively working with us to solve this problem? Do we know which countries are voluntarily coming forward, which are reluctant, which ones have questions that should be highlighted at this point in time? And how do we bridge the gap with the more reluctant countries?

Ms. GOTTEMOELLER. That is an excellent question, because in each of the cases there are difficulties. Belarus, for example, has 400 kilograms of fresh highly enriched uranium at the Slovene reactor. I think it is a very serious situation, but our diplomacy has been constrained for good reasons in Belarus because we are very concerned about President Lukashenko and his antidemocratic, antireform tendencies. So I think we have had to kind of work around overall U.S. policy in Belarus in order to try to engage and work with them.

But I would nevertheless urge again, because of the horrific nature of this threat—and historically we have continued to work in countries of the former Soviet Union even when we have had other problems with them, because we believe that this threat is so significant that we really need to concentrate on it.

In Kharkiv, in Ukraine, again, over the past several years, because we have had differences with President Kuchma, we have had difficulties, I think that issue has been pushed onto the back burner. But there you have 75 to 100 KGs again of fresh HEU enriched to 90 percent; very, very good material for a bomb maker.

So we need to, again, redouble our efforts in Ukraine. And in my view, Ukraine is a country that can take a lead on nonproliferation issues because it made the important decision back in 1994 to give up almost 2,000 nuclear warheads and become a nonnuclear weapon state under the NTP. It has shown itself capable of leadership in this arena, so I think we need to reach out to them.

One final example is Uzbekistan, and here just in the past month we have had severe instability, challenges to the government, difficulties with, again, a very difficult regime in some ways. Again, I think despite all the problems, we need to redouble our ef-

forts and figure out ways to work for diplomacy nevertheless, because it is such an urgent issue.

Mr. GIBBONS. Thank you, Mr. Chairman.

Mr. LINDER. The Chairman now recognizes the gentleman from the State of Washington Mr. Dicks for 5 minutes.

Mr. DICKS. Thank you, Mr. Chairman. And I am delighted to see both of the witnesses here today and appreciate their testimony.

Ms. Gottemoeller, in your testimony you make a powerful assertion that for only \$40 million a year, over the administration's current request of \$98 million—this is for the Department of Energy program—we could cut this 10-year schedule to just 4 years. Could you elaborate on that?

Ms. GOTTEMOELLER. Yes, sir. That figure is associated, again, with a rough estimate, I have to say. I think it would be required to have further discussions with the U.S. Government, with the Department of Energy about firming up the estimate. But my view is that the additional funding essentially is required in order to be able to offer additional incentives to countries, to be able to go in and say to them, we have the flexibility to work with you to purchase your HEU, to help you with the cleanup and decommissioning of the facility if necessary, if it is going to be shut down. If it is going to be converted, we have the flexibility to move quickly on the conversion effort.

Furthermore, I think another area where incentives need to be offered is to the scientists, the technicians and the reactor operators who see their jobs, perhaps, going out the window if the HEU is removed from their country. And a lot of the resistance at the negotiating tables comes from those who are interested in a personal and professional way. So we need to understand that and be able to work with them on transition programs, on engaging them in scientific research collaboration perhaps in the United States at our facilities. And for that reason I believe that that figure is justified. It is really to give the administration the additional flexibility it needs to move quickly, again on multiple fronts. That is the final point I will make, Mr. Dicks, to be able to have multiple negotiating teams operating at once.

Mr. DICKS. How well does the Department of Energy and the Department of Defense—they have separate efforts, right; separate efforts in the Global Threat Reduction Initiative, and then Nunn-Lugar for the Department of Defense? How well do they work together, or do they?

Ms. GOTTEMOELLER. In my view—the Global Threat Reduction Initiative, as I understand it, is wholly owned by the Department of Energy, so to speak. But you are quite right. There are a multiplicity of so-called cooperative threat reduction, nonproliferation cooperative projects, some of them located in the Department of Defense and some of them in the Department of Energy.

To be very honest with you, sir, during my time at the Department of Energy in the late 1990s through 2000, there were many bureaucratic battles, many difficulties in the two agencies working together. But it has been my perception and my understanding, staying in close touch particularly with the Department of Energy, that those bureaucratic difficulties have been eased in recent years,

and that the two agencies work together rather well at the present time.

Mr. DICKS. Do you think there is strong Presidential leadership behind these programs? In other words, if you are going to make these things work, get the DOE and the Department of Defense to cooperate, you have got to hear from the White House, I would assume. Does that kind of leadership exist?

Ms. GOTTEMOELLER. President Bush has the right talking points, sir; he says the right thing. Like President Putin, he believes this is a very serious threat, and he expresses a clear desire to work on it.

My view is that that kind of Presidential direction, however, does not filter down adequately to some of the top leadership of the Bush administration, and that there have been barriers placed in the way of implementing these programs.

Mr. Albright raised the question of liability a few moments ago. That, in my view, is, again, a kind of bureaucratic roadblock and an excuse for stopping the program more than a real legal problem that has to be dealt with. There are many ways to solve a liability question, but it has been used as a way to stop implementation of these vital—

Mr. DICKS. Explain the liability issue to me again, would you? Just to make sure I understand what we are talking about here.

Ms. GOTTEMOELLER. The liability issue has to do with protection for contractors who are working on major projects, particularly construction projects, in the former Soviet Union. We have been concerned about it, as we look at the plutonium disposition program. If we start up some major construction and there is an accident of some kind, will the liability essentially be pushed off onto the U.S. contractor?

So there are some good reasons to examine this question, but I would just like to point out that there are successful means of dealing with it. In the nuclear energy, the civilian nuclear energy arena, for example, we have for many years had a very good system of liability protection.

So there are ways to look at solving this problem. It does not need to be—

Mr. DICKS. Have there been proposals—and, Mr. Albright, you can jump in here any time you want.

Mr. ALBRIGHT. I can report on a recent article in the Washington Post. It was posited in the article that John Bolton was one of the obstacles—

Mr. DICKS. I am shocked.

Mr. ALBRIGHT. I can't verify whether it is true or not, but there has been a sense that some of the resistance on the U.S. side has been unnecessary, and that it could have been solved quicker.

Mr. DICKS. Thank you, Mr. Chairman. My time has expired.

Mr. LINDER. The Chair now recognizes the gentleman from California Chairman Cox.

Mr. COX. Thank you, Mr. Chairman.

My colleague from Nevada earlier asked how much nuclear material it takes to make a nuclear weapon of a certain yield, and, of course, in our classified setting we have gone rather deeply into this. I think we can begin from the premise that there is enough

extant fissile material in the world, by several estimates, to produce 100,000 bombs, so it is a big number. And there is plenty of room for differences in estimates without escaping the conclusion that this is an enormous problem.

And so setting out as we have done with the Global Threat Reduction Initiative is the most recent effort, and other international arrangements to try to reduce and ultimately secure or eliminate global inventories of fissile material is exactly the right thing to do.

But we are focused on, in this subcommittee, something even more specific, and that is the prevention of nuclear or biological terrorism in the United States. And, Mr. Albright, you have helped us at previous hearings with that flowchart to sort of drill down to that question, if you are trying to arrest the action of terrorists in time, well before a weapon is smuggled onto our soil or constructed here, what can we focus on; what are the key items that we can be looking for that, the telltale signs of terrorist activity in this area? And, of course, the putting together of a nuclear weapon, its fissile material, is probably the most difficult aspect of this. Both of you have pointed this out in your formal testimony.

What I would like to see if we can do a little bit of this morning is link the testimony that you have provided in the subjects that we have discussed thus far; that is, how we achieve our goal of reducing global inventories, how we reduce to a minimum or zero, wherever possible, cleanup, if you will, in those countries that are willing, link that to our separate work in intelligence. Because what we are finding is that, for example, with venue-specific analysis of terrorism, we quickly run up the costs. If every counterterrorism analysis is viewed as airport security or port security or shopping mall security or stadium security or nuclear power plant security or what have you, we are missing an opportunity, because the common threat, of course, is the terrorists themselves.

What can we do, given all that you know about this problem of fissile material, to link the work that is ongoing and that you are both involved with, with the separate work that we know is going on in the Intelligence Community, to track the activity of specific known terrorists and their associates? How can we put these two pieces together?

And I would ask that question of both of you. And, Mr. Albright, since I last left off with you at this very point in a different hearing, I will start with you.

Mr. ALBRIGHT. Yeah. I think there is a clear linkage. And although there is a lot of fissile material in the world, it is still pretty much viewed as a valuable material by everybody who holds it. And so they do try to protect it to a certain level. They try to know roughly what is there, if not precisely what is there. And so in a way it is a manageable number of sites.

And I think that the United States, through all its various programs, GTRI, there is reduced enrichment for research and test reactor programs to convert reactors from HEU to LEU fuels. There is the MCC efforts in the former Soviet Union, and there are many more.

We know a lot about these stocks and these locations; it is not perfect knowledge, but we know a lot. And I think it is in our interest to try to make sure that that information is known by the Intel-

ligence Community. And I am not suggesting espionage, but I am suggesting more coordination, and that the people at the Department of Energy who have tremendous knowledge I do not believe are fully probed to what they know by our Intelligence Community, and that they could help provide a much greater sense of what are the problems at these foreign sites and not only perhaps provide some early warning of theft, but also provide a way to increase their security, and taking other steps that could perhaps be motivated by what is learned from the intelligence side and conveyed to the Department of Energy.

So I think that cooperation between intelligence and the people on the ground is vital in this effort, and it should be improved. I know there is efforts to do that, but from what I understand in talking to some Department of Energy officials, for example, they are not being asked about what they know, some of whom have tremendous experience in many, many facilities.

Mr. COX. Ms. Gottemoeller, do you think that we are sufficiently connecting the dots here? Is the new Director of National Intelligence, is the National Counterterrorism Center fully plugged into the work that is ongoing in the area of nonproliferation, and specifically securing fissile material?

Ms. GOTTEMOELLER. As always, sir, there has to be a balance between having a good cooperative relationship with our partners, but also then understanding what the overall threat is and what the overall problem is. So I actually agree with Mr. Albright, that there should be some judicious communication of what is understood from working together with the Russians and with others.

But I would like to take the point a little bit further, actually, because the Russians themselves now are acutely aware, particularly in their security services, about the terrorist threats they face. The Beslan attack this past year, another terrorist attack, very serious in Russia, in my view, have changed the attitude of many. I spoke a while ago about sometimes they don't seem to take this problem very seriously, but in my view, within the intelligence services, within the security services, because they have the counterterrorism mission, they are very serious, indeed, about the effort to counter these terrorist efforts to get nuclear materials.

And we have begun to have some effective cooperation with them, I am only aware of it at an unclassified level, but that I think that is an area that we should be building up in order to enhance our understanding of the terrorist threats overall, and I think that it is quite feasible to do so.

Again, I spoke a few moments ago about the need to develop additional cooperation on monitoring and sensor systems and that type of thing, with very knowledgeable and skilled Russian experts. That is the kind of hardware side of things. But in terms of developing increasing cooperation on the intelligence side with the FSB, with the Russian security services, I think that could also help us with this program.

Mr. COX. Thank you very much. My time has expired.

Mr. LINDER. The gentlelady from Washington, D.C., is recognized for 5 minutes.

Ms. NORTON. Thank you very much, Mr. Chairman. And I certainly appreciate very much the testimony of these witnesses.

I have a couple of questions. Particularly given the testimony, your testimony, Ms. Gottemoeller, about the relatively small amount of money it would take to reduce the 10-year year period, I am interested in the Russian contribution, whether or not some version of burden-sharing is going on here. The reason I ask is, you know, with Chechnya right there in your face, the incentive, it seems to me, for the Russians would be awesome.

Would you tell me something about the Russian contribution to the threat reduction effort?

Ms. GOTTEMOELLER. Again, that is a very important point, Ms. Norton, because in the past the Russians were really engaged in an assistance kind of relationship with us, and they were willing to work on the programs and only too happy to take our money. But in the recent period—and really I would say in the last year and a half—they had begun to be much more aware of the necessity of playing a fuller partnership role, and that includes putting their own resources on the table.

Now, are we—you know, are we there yet? Not completely, because they continue to be only too happy to take, you know, assistance from us for certain of these programs. And I do think that it is important to note that their economy, although it is growing, continues to have a wealth of problems that they have to wrestle with.

And I think it is important for our national security to be working closely with them, so it is a good investment, the money we put into these programs. But I think they have got the right mindset now, that they need to begin paying more for these programs. And we have actually seen evidence that they are taking more responsibility for providing resources, for providing money for contracts and that type of thing. So I think we are on the right track with them, but we need to keep pushing in that direction.

Ms. NORTON. You have no idea about the amount of resources of their own that go into threat reduction in their own country, for example?

Ms. GOTTEMOELLER. It is a difficult question. I recently was involved in a National Academy of Sciences study with the Russian Academy of Sciences, and I pushed them on this very question. They provide a lot of in-kind services. For example, they will provide the soldiers who come and dig the foundation points for a fence to go around a facility. So how do you account for the salaries of those young soldiers? It is very difficult—

Ms. NORTON. We got into this—I only have 5 minutes—we got into this in the first place, of course, because of the state of the Russian economy. It couldn't be a better investment. I just think as time goes on, we are going to have to expect more contribution from them.

I have a question—especially as we see a surprisingly new regime in Iran where everyone thinks we are kind of back where we were—I have a question about the way countries look at us. We have seen administration initiatives, nuclear initiatives here of our own. Of course, there has been some reduction in our own nuclear arsenal, our cooperation with the Russians on our missiles, of course, but I wonder whether or not our credibility is at all hurt by our own pressing for some greater nuclear initiatives of our

own, and perhaps by the extent to which we ourselves are not further reducing our own nuclear arsenal.

Mr. ALBRIGHT. Let me—on Iran, I wouldn't give up hope on Iran. The President of Iran typically doesn't have a lot of influence on Iranian national security, so I think he even admitted that the negotiations on the nuclear issue, particularly with the Europeans, is done elsewhere. So I think it is not a good development. And I think people were hopeful about Rafsanjani perhaps wanting to reach out to the West. I wouldn't—just—I wouldn't give up hope. I mean, there is still—the negotiations will continue, and they were expected to be extremely difficult in any case.

In terms of the example—I think the example set by the United States, I mean, under the Nonproliferation Treaty, article 6, the United States is committed to work toward nuclear disarmament. It doesn't give a time frame, it doesn't provide a formula, but there has been disappointment around the world that the United States hasn't been willing to take more steps. And the Bush administration disagrees, but the last Nonproliferation Treaty Review Conference a couple months ago didn't go very well partly because of this issue.

And so I think if—to the extent the United States negotiates treaties or agreements to reduce its nuclear arsenal, that that helps in general. I mean, I don't think it is going to convince Iran to give up its nuclear—particularly its uranium enrichment program, but it does help and make it is easier for our allies to participate in nonproliferation efforts and remove some of the tensions that currently exist.

Ms. NORTON. Ms. Gottemoeller—

Mr. LINDER. The gentlelady's time has expired.

The gentleman from California Mr. Lungren is recognized for 5 minutes.

Mr. LUNGREN. Thank you very much, Mr. Chairman.

Ms. Gottemoeller, I would like to go back to the question of the liability issue. I serve on the Judiciary Committee, and we deal with that often. This is the first I have heard it come up in this context, and I would like a little more information on that.

What precisely is the problem? And you suggested there were some easy ways to fix it. I would really like to know.

Ms. GOTTEMOELLER. We could spend a good couple hours on this question, but—

Mr. LUNGREN. They only give me 5 minutes.

Ms. GOTTEMOELLER. I know. I will say a few things.

The difference arose because of the different language that appears in the so-called Cooperative Threat Reduction Umbrella Agreement and language that has appeared in certain other agreements, most recently in the so-called MNEPR agreement, which is a multilateral nuclear environmental cooperation agreement that the European Union, other members of the G-8 have negotiated.

So the position of the current administration has been that only the CTR umbrella agreement language is adequate to provide liability protection for contractors working in this arena. My view of this, sir, is that, in fact, neither the CTR agreement nor the MNEPR agreement, nor the original plutonium disposition agreement provides the adequate protection, and that there are addi-

tional steps the United States Government would have to take in any event, such as the CSC agreement that is coming up; it is the Convention on Supplemental Compensation that is coming up for ratification before the Senate. It has currently, as I understand, been sent to the Senate for review and discussion.

So there—in a way, it has been a bit of a red herring, in my view, because there have been certain protections provided in these umbrella agreements negotiated, they have allowed the programs to be implemented; but if we are going to have a comprehensive solution of this problem, additional steps will have to be taken in any regard. And is the fact that we don't have a perfect system for liability protection at the present time a reason to stop implementation of these programs?

Ms. GOTTMOELLER. In my view, the answer to that is no. So I think we have to continue to work in order to provide interim liability protections and work on a fuller solution over a longer-term period such as the CSC, ratification of the CSC.

Mr. LUNGREN. My question is whether you find the problem right now with contractors who do not believe that they have proper liability protection, or some in government who prior to getting to the contractors don't believe it is sufficient.

Ms. GOTTMOELLER. Well, it has been my understanding, talking to the contracting industry, that, again, they think there needs to be a longer-term solution to this problem. Up to this point they have been willing, with certain protections provided by the Department of Energy, for example, to continue work, but they do believe that there needs to be a longer-term solution to the problem. And, in the interim, they are interested in seeing the contracts of programs go forward.

Mr. LUNGREN. You state in your testimony, both in your oral testimony and your written testimony, that the Global Threat Reduction Initiative is a program of great promise but it needs more money. And you suggested that \$30 to \$40 million per year over the administration's request of 98 million would be in the right ballpark. How do you arrive at that figure? What would that give us that we don't have now?

Ms. GOTTMOELLER. At the present time, in my view, there is not adequate flexibility at the negotiating table for our negotiators. And this figure was arrived at considering the possibility of multiple negotiations going on at once and being able to offer to the countries at the negotiating table the ability to both buy their HEU on a rather quick turn-around basis, to be able to provide LEU cores to contract for the conversion of the reactors, or to contract for the shutdown and cleanup of the reactor sites. So it is based on the notion that we should have more flexibility, more resources available at the negotiating table to work with countries and to be able to carry out the programs on a quicker basis. And, not only one country at a time, but to have multiple negotiations going on at once.

So it is, I have to stress, sir, a kind of seat-of-the-pants calculation, but I do believe that that order of magnitude is what it would take to provide that kind of flexibility at the negotiating table.

Mr. LUNGREN. You also mentioned that the—to stretch the acceleration, the administration need only to turn to the example of the

most successful implemented global cleanout activity thus far, Project Sapphire.

Ms. GOTTMOELLER. Yes.

Mr. LUNGREN. Is your point that the administration is not following that? That even though it has been successful, that it has not been used as a model? Or is it more to the point where you have spoken of multiple negotiations going on at once? That is, that we could have several of these projects going on at the same time?

Ms. GOTTMOELLER. The point with regard to Project Sapphire was associated with the particular mechanism that was put in place in order to implement it, this tiger team mechanism which involves having midlevel officials who are fully vested with authority by their agencies in order to be able to make decisions quickly, and having a high-level interagency team in place to which problems can be referred. So it is really a mechanism to move decisions through the bureaucratic process very quickly. And in that way it is a kind of mechanistic approach, I recognize, and a bureaucratic approach.

But it was extraordinarily effective against a very tight timeline in Project Sapphire. We had to get that HEU out of Kazakhstan before the winter closed in. So I think that it is the kind of thing that doesn't cost any—that doesn't cost any extra money, but it does mean a different kind of mindset in terms of organizing the work and government.

Mr. ALBRIGHT. Could I add one thing? I mean, one of the things putting out by the Sapphire example is that the United States does need the ability to bring back non-U.S.-origin highly enriched uranium or plutonium. And that is a tough one, and there has been a lot of debate and a lot of confrontations between the environmental movement and the arms control and the Department of Energy over the ability of the Department of Energy to bring back this non-U.S.-origin material. And there is a need for the Department of Energy to try to expand the envelope of material that it can bring back without starting an entire NEPA process again which could inflame all kinds of controversies.

And if you look around at some of the problems, I mean, even in some of the former Soviet states or in the states with Russian HEU, certainly if you look at South Africa, it would be nice if the United States could take some of that material directly and have the authority to do so, in essence, to step in when there is a problem and offer an alternative that could both be realized. And I mention South Africa; it may be very useful in negotiation with them.

Mr. LUNGREN. Would that require additional authorization from the Congress in order to do that?

Mr. ALBRIGHT. I don't know the legal details. I think it would certainly need congressional support, but I think it can be done without opening the NEPA process. But it is always difficult. And one of the biggest reasons you see delays in these programs is dealing with irradiated material is difficult, and it always generates concern and opposition, and overcoming that opposition requires tremendous resources and commitment. And I think the Department of Energy is willing to do that, and I think they have for many years, have shown leadership in trying to gain the right to

bring this material here. And additional support from Congress I am sure would be welcomed.

Mr. LINDER. The time of the gentleman has expired. The Chair recognizes the gentleman from Mississippi for 5 minutes.

Mr. THOMPSON. Thank you very much, Mr. Chairman.

Taking off from the gentleman from California's comment about liability, are the present liability agreements that you just recently spoke of sufficient to cover the question of liability? Do you see us having to adopt some additional liability standards?

Ms. GOTTMOELLER. In my view, they have to this point been sufficient for the implementation of the programs, particularly when they have not involved major construction projects. When there is planning going on, research work going on, cooperative activities going on that do not require major moving of the earth and construction of big buildings and so forth, the protection has been adequate. So that is one point to make.

But as I mentioned a moment ago, in a very large strategic sense I do not believe that the protections provided in any of the liability clauses in the current agreements, whether it is the CTR Umbrella Agreement or the plutonium disposition agreement, I do not believe that those liability protections are adequate. And that is why I am arguing that we need to look to a broader solution to this overall problem such as the convention on supplemental compensation.

Mr. THOMPSON. Thank you.

Ms. Holmes Norton raised the issue about the notion of the double standard of the U.S. asking other countries to reduce their arsenals, while in some instances we are moving in the opposite direction. Have either of you found that to be a conflict in negotiations with other countries, or just what?

Ms. GOTTMOELLER. When I have been meeting with countries, it has been very useful. And I will just refer to my experience when I was still a government official in 2000 at the last review conference of the Nonproliferation Treaty. I was invited up to New York as a senior U.S. Government official, along with a senior DOD official, and reported on the very extensive work that the United States has been doing to reduce the size of its nuclear weapons complex by closing down facilities like the Rocky Flats Plant in Colorado. That had a very strong impact on the delegates to the review conference in 2000. I really believe, based on that experience, that the United States needs to adequately communicate what it has been doing to reduce and eliminate its nuclear capabilities, its nuclear arsenal.

In my view, the Bush administration simply failed in the latest review conference to carry out an adequate communication of our very real progress in this area. And I count that as one of the reasons while the review conference failed this time. It is not the only reason, but I do count it as a serious reason.

Mr. THOMPSON. And we will get to you on that. Did you see that failure to highlight the positives as something potentially that will come back to haunt us in further negotiations? Or how do you propose to correct it?

Ms. GOTTMOELLER. Well, in my view, the Nonproliferation Treaty is in trouble. And part of the reason for that is this very strong, now, division between those who believe that the United States

and the other nuclear weapons states are not fulfilling their obligations under article 6 to eventually eliminate their nuclear weapons. And there is such a strong, I would say, conflict and division between countries who believe the United States is inadequately carrying forward its obligations and the United States and the other nuclear weapons states that, at the current time, in my view, it is difficult to see how we move forward on this question.

But I will say that the Bush administration has made some sound decisions in this arena. They have sent up to this Congress a stockpile plan to reduce nuclear warheads by 50 percent by 2012. Why they cannot get the story out about that stockpile plan, I do not understand. I do believe, as I said, that communicating that kind of information has a very positive effect on the world community.

Mr. THOMPSON. Mr. Albright.

Mr. ALBRIGHT. If you are looking at tough problems like Iran and North Korea, I don't think U.S. action on its own nuclear arsenal is going to change anything. I mean, even in the case of Iran, even if Israel took certain steps to reduce its nuclear arsenal, I don't think that would change the situation with Iran. I think we can solve the problem with Iran, but it is going to have to do with dealing with Iran's own perceptions of its security and being able to offer it incentives so that it feels that if it gives up something, it has gotten something in return.

That being said, I mean, there is—internationally there is a lot of disappointment that the United States gave up on the comprehensive test ban treaty; it more or less has given up on trying to negotiate a fissile material cutoff treaty to ban the production of plutonium or highly enriched uranium for nuclear weapons. There is concern that the rate of reductions isn't going as fast as it could. There is concern that the administration isn't paying enough attention, ironically, to verification of arms control treaties in Russia. There is worries that the United States could—you know, why doesn't it declare more material excess to military needs? It has huge inventories. And the world knows that if the U.S. doesn't do it, no one else will do it. I mean, that is partly why you want to set an example. It is not just to look good; it is to do two things: put pressure on the others to do the same, and the U.S. has the power to do that; and to try to create a barrier so that the other countries don't do something opposite to that.

So I think that internationally there have been disappointments, and I would hope that the Bush administration would come back and revisit some of these issues.

Mr. THOMPSON. Thank you, Mr. Chairman.

Mr. LINDER. The Chair recognizes the gentlelady from California for 5 minutes.

Ms. HARMAN. Thank you, Mr. Chairman. And thanks to our witnesses for what you contribute to our body of information about this incredibly important subject. It is a challenge to do the right thing, and it obviously helps to have good facts and good advisers as we try to figure it out.

I want to build on the questions asked by Chairman Cox basically about intelligence. In your testimony, Ms. Gottmoeller, you say that quantities of HEU have been removed from Libya,

Uzbekistan, the Czech Republic, and Latvia. The program in some cases has left the job half done. So I think we should assume that some amount of HEU and probably other dangerous fissile and other materials are moving around the globe.

It is my view that we are not good at WMD intelligence. This is not just based on our failures in Iraq, which were clear failures, but based on my review of the intelligence about WMD in other parts of the world. I think we are not good at it for lots of reasons. One is we are not good at penetrating terrorist cells. This is a very hard thing to do, and we are not good at it. Another reason is that sensors that we have developed, like radiation portal monitors, as this committee has learned, don't pick up quantities of HEU that are just modestly concealed. Another reason we are not good is that technology that flies around in space can't know what is going on in buildings. It can see buildings, but, as we learned in Iraq, not necessarily know what is being done in those buildings or in the trucks that are moving around or whatever it is. And another reason we are not good at it is that, what you called for, which is intensive and nuanced diplomacy, is not something we have been practicing well lately. And maybe not just lately.

So my question to you is, how do we fix our clear intelligence gap on picking up the movement of fissile materials?

Ms. GOTTMOELLER. Perhaps I will start. I see the necessity of action on three fronts. I mentioned earlier in my remarks, I believe it is important to continue to develop the working relationship that we have with the Russian security services. That has so far paid off in terms of our counterterrorism efforts, and I believe it has paid off for the Russian Federation as well. So I believe we need to continue to develop those kinds of relationships and see what we can do to expand the cooperation. It is difficult, of course, for reasons that all of us can understand.

The second area, you mentioned of course that aircraft flying around with sensors do not see things inside buildings. But I have actually been shocked that the technology work on our national technical means of verification has really fallen off in the years since the Cold War. And I do believe that we need to continue to have a foundation of good technical means, national technical means for remote sensing that will allow us to continue the verification of arms reduction agreements and also that will give us some basic knowledge about what is going on in these countries. Big facilities like centrifuge facilities, you can see, and it gives you understanding even from high in space.

The third area that I think we need to develop in addition to the technology developments—and I did talk earlier also about improving our monitoring and sensing capabilities again by working with scientists and technicians in Russia; that is an important direction. But we have really fallen off the wagon with regard to human intelligence. And I find again and again and again in talking to people at our agencies of intelligence, particularly at the CIA, that they feel that has been a severe gap that has developed in recent years. We are not paying attention in that area. So it is a slow rebuilding process, but that is the third front where I think we really need to open up an intensive effort.

Mr. ALBRIGHT. Let me come at it a little differently. From an intelligence point of view, you want access and you want transparency. And if I can go off on a little bit of a tangent. I mean, one of the reasons some of us support international inspections so much and in strengthening inspections is because it gives you both of those. And in many cases our U.S. intelligence won't learn the results of those inspections, but they learn about many of the details and they learn it in general.

In terms of the fissile material we have been talking about, the Department of Energy personnel have access to a huge number of these sites, and they know a lot of the people. I mean, we were working on a country recently, a country that is very black, and who do we go to for some help? We went to a DOE person who knows people in that country and we relayed the question through the DOE person. And in this case it didn't turn out, we didn't get as much as we wanted; we got something, but again it was a tremendous amount of knowledge within the DOE complex about the sites that we are most concerned about. And I don't think the intelligence communities are doing enough to coordinate with them. And I think they could learn a lot, and the interaction between the two I think would help us all and I think it would also strengthen the DOE effort.

Ms. HARMAN. Well, I agree with everything that has been said, Mr. Chairman. My time is up. But I would observe that, if it is true—and I believe it is—that HEU and other materials are moving around the globe which have come from inadequately secured sites in many nations, our challenge is not just to inspect facilities, but our challenge is to find the terrorists, assuming that those are the folks who possess these materials, before they harm us.

And I just agree totally with Ms. Gottmoeller's comments about the need to do better HUMINT. That is something, obviously, all of us care about. The Intelligence Committee, of which I am Ranking Member, is investing in HUMINT, but we have an enormous amount of work to do, not just to hire more people, but to hire the right people who can penetrate the inner circle of these terrorist groups and find out their plans and intentions. That is the way we are going to find which terrorists are carrying what. I don't think our technical means are going to get there from here. I agree that it is basically a HUMINT enterprise, and I surely hope it will be successful.

Thank you very much, Mr. Chairman.

Mr. LINDER. The time of the gentlelady has expired. The Chairman apologizes to the gentleman from Massachusetts for skipping over his name, and recognizes him for such time as he needs.

Mr. MARKEY. Thank you, Mr. Chairman.

Last week the subcommittee heard expert testimony on technological feasibility of detecting radioactive materials at our borders, using radiation portal monitors deployed by the Department of Homeland Security. We heard that there are real technological limitations to detecting highly enriched uranium smuggled in through our borders. In short, we cannot detect HEU and therefore cannot rely on our border screening to protect us.

Do you agree with that? Either of you.

Ms. GOTTMOELLER. Yes.

Mr. MARKEY. You agree with that?

Ms. GOTTMOELLER. Yes.

Mr. MARKEY. You agree with that, too?

Mr. ALBRIGHT. Yes. We may get lucky, but—

Mr. MARKEY. But right now, today, the technology don't work. The portal monitors don't detect. Is that correct? Do both of you agree with that?

Mr. ALBRIGHT. I don't want to make that absolute of a statement. But, generally, yes.

Mr. MARKEY. How important is it for our national security people to have at least some interim technology which is deployed that can accomplish that goal? Is that an important objective we should have?

Ms. GOTTMOELLER. Mr. Markey, I was making the point throughout the testimony this morning that I think there is a lot of work that is going on, I am aware of, particularly with Russian counterparts where there are developments to really try to address some of these more active rather than passive sensing, for example. And I think we need to support and try to get some of those developments deployed in the field. That is not an interim solution to your problem; it is a longer-term solution to your problem, but in my view that is an important direction to proceed.

Mr. MARKEY. Let me move on to the HEU origin, U.S.-origin HEU, having the ban lifted on its transfer overseas. The Senate has now cut back the other way. The provision is still in the House bill, it is in the NRC authorization as well. Under the House provision, isn't it true that these foreign reactors would never have to convert to use of LEU as a reactor target; they can use HEU forever with no obligation to ever have to convert to LEU?

Mr. ALBRIGHT. I haven't seen the bill.

Mr. MARKEY. The House bill.

Mr. ALBRIGHT. I haven't seen this version. I saw the one a couple years ago.

Mr. MARKEY. Have you seen the House bill?

Ms. GOTTMOELLER. I have not. No.

Mr. MARKEY. Neither of you have seen it?

Mr. ALBRIGHT. Not in detail. But let me just add one thing. I do think that it is not a good idea to limit the Schumer amendment; that the U.S. to try to pressure countries to convert to LEU targets is very important—

Mr. MARKEY. Do you agree with that?

Ms. GOTTMOELLER. Yes, I agree with that.

Mr. ALBRIGHT. And I would hope that the Congress wouldn't pass a law that would undermine those efforts. And—

Mr. MARKEY. So you would oppose the House language? You think that would be a bad—

Mr. ALBRIGHT. It is hard to know for sure. But if it is—

Mr. MARKEY. Okay. You haven't seen it either?

Ms. GOTTMOELLER. I haven't seen it either. If the language has been in effect—

Mr. MARKEY. It has been in the New York Times and the Washington Post editorials. You haven't seen that yet?

Mr. ALBRIGHT. I have seen the stories.

Ms. GOTTMOELLER. I have read the stories, but I haven't seen the bill itself. But the view is, if it has the effect of undermining the Schumer amendment, then I would oppose it.

Mr. MARKEY. Let me move on. President Bush has called on the nuclear suppliers group to limit access to reprocessing technology because reprocessing results in the separation of plutonium 239 which could be used to make a nuclear weapon. In fact, it was in 1976, after India detonated a nuclear device made from plutonium separated at its civil reprocessing facility, that President Gerald Ford declared a moratorium on reprocessing here in the United States, despite the clear proliferation risk presented by this technology in the House-passed energy and water appropriations bills, including money to develop reprocessing technology after a 30-year moratorium.

Given that the President is calling on other nations to forego reprocessing because of the proliferation risk, how will this new U.S. initiative to reprocess affect our policies abroad?

Mr. ALBRIGHT. That one, I don't know. Is this pyro processing or—

Mr. MARKEY. This is another version of pyro processing.

Mr. ALBRIGHT. Certainly the idea of pyro processing is to try to make it—

Mr. MARKEY. The pyro processing is a very high-tech way of burning up large amounts of money for a technology which is going to destroy our—but this is just another variation on it.

Mr. ALBRIGHT. I just don't know.

Mr. MARKEY. You don't know.

Do you know? Are you familiar with this?

Ms. GOTTMOELLER. I am familiar with it slightly. But let me just underscore that my understanding is the effort is to consider proliferation-resistant technologies. I do agree that there is a danger there in undermining the strength of our longstanding moratorium on reprocessing.

Mr. MARKEY. Do you think it is possible for us to sell proliferation-proof plutonium reprocessing technology to the North Koreans and the Iranians? Do you think such a technology exists?

Ms. GOTTMOELLER. I think that the intent is an exploration of whether it is possible to have fully proliferation-resistant technology.

Mr. MARKEY. In your opinion, is such a technology possible? Would you trust such a technology at this point in time? Is this the right time, given what Iran and North Korea are trying to do, for us to be arguing that there is such a thing as proliferation-proof reprocessing?

Ms. GOTTMOELLER. I simply do not know, Mr. Markey.

Mr. MARKEY. You do not know. Do you know?

Mr. ALBRIGHT. No. I think part of it is to convince the French and some other countries not to proceed with—it is called partitioning, the transmutation programs that actually are much more dangerous and more sort of just a slight evolution from traditional reprocessing, where you separate not only your plutonium in this case but also neptunium and possibly americium, both of which are nuclear explosive materials.

Mr. MARKEY. Can you comment on the assessment last fall by a DOE security assessor that the vulnerabilities of transport security for separated plutonium in France are far beyond what would be considered high risk and therefore prohibited within the Department of Energy? The security assessor came up with a new category of extreme risk to describe this particular area.

Mr. ALBRIGHT. I don't know the details. I would be actually very interested in learning more, because certainly there is a lot of plutonium, separated plutonium moving around France and other countries in Europe because they have pretty developed commercial reprocessing programs to separate plutonium and then to turn that plutonium into MOX fuel which is then sent out to reactors.

So it is tons of material in transport, and it is an issue of how well the protection is because—and then, as much of this was dealt with, as you know, 20 years ago under some of your leadership and increased the security of—on separated plutonium in Europe. But you always worry, is it being maintained? Are countries becoming complacent. Are they really meeting the new standards?

Mr. MARKEY. Are you familiar with this French situation and what the security assessor—

Ms. GOTTMOELLER. No, sir, I am not.

Mr. MARKEY. Thank you, Mr. Chairman.

Mr. LINDER. The Chair would like to thank our witnesses for your helpfulness. The hearing is adjourned.

I would like to point out to the members that our closed briefing is going to be at 1:00 in the SCIF over at the Adams Building. We are expecting votes at about 11:45.

[Whereupon, at 11:26 a.m., the subcommittee was adjourned.]

