AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

REDUCING NUCLEAR AND BIOLOGICAL THREATS AT THE SOURCE

HEARING

BEFORE THE

SUBCOMMITTEE ON PREVENTION OF NUCLEAR AND BIOLOGICAL ATTACK

OF THE

COMMITTEE ON HOMELAND SECURITY U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED NINTH CONGRESS

SECOND SESSION

JUNE 22, 2006

Serial No. 109-87

Printed for the use of the Committee on Homeland Security

Available via the World Wide Web: http://www.gpoaccess.gov/congress/index.html

U.S. GOVERNMENT PRINTING OFFICE

33-959 WASHINGTON : 2007

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2250 Mail: Stop SSOP, Washington, DC 20402–0001

COMMITTEE ON HOMELAND SECURITY

PETER T. KING, New York, *Chairman*

DON YOUNG, Alaska
LAMAR S. SMITH, Texas
CURT WELDON, Pennsylvania
CHRISTOPHER SHAYS, Connecticut
JOHN LINDER, Georgia
MARK E. SOUDER, Indiana
TOM DAVIS, Virginia
DANIEL E. LUNGREN, California
JIM GIBBONS, Nevada
ROB SIMMONS, Connecticut
MIKE ROGERS, Alabama
STEVAN PEARCE, New Mexico
KATHERINE HARRIS, Florida
BOBBY JINDAL, Louisiana
DAVE G. REICHERT, Washington
MICHAEL T. MCCAUL, Texas
CHARLIE DENT, Pennsylvania
GINNY BROWN-WAITE, Florida

BENNIE G. THOMPSON, Mississippi
LORETTA SANCHEZ, California
EDWARD J. MARKEY, Massachusetts
NORMAN D. DICKS, Washington
JANE HARMAN, California
PETER A. DEFAZIO, Oregon
NITA M. LOWEY, New York
ELEANOR HOLMES NORTON, District of Columbia
ZOE LOFGREN, California
SHEILA JACKSON-LEE, Texas
BILL PASCRELL, JR., New Jersey
DONNA M. CHRISTENSEN, U.S. Virgin Islands
BOB ETHERIDGE, North Carolina
JAMES R. LANGEVIN, Rhode Island
KENDRICK B. MEEK, Florida

SUBCOMMITTEE ON PREVENTION OF NUCLEAR AND BIOLOGICAL ATTACK

JOHN LINDER, Georgia, *Chairman*

DON YOUNG, Alaska
CHRISTOPHER SHAYS, Connecticut
DANIEL E. LUNGREN, California
JIM GIBBONS, Nevada
ROB SIMMONS, Connecticut
BOBBY JINDAL, Louisiana
CHARLIE DENT, Pennsylvania
PETER T. KING, New York *(Ex Officio)*

JAMES R. LANGEVIN, Rhode Island
EDWARD J. MARKEY, Massachusetts
NORMAN D. DICKS, Washington
JANE HARMAN, California
ELEANOR HOLMES NORTON, District of Columbia
DONNA M. CHRISTENSEN, U.S. Virgin Islands
BENNIE G. THOMPSON, Mississippi *(Ex Officio)*

CONTENTS

Page

STATEMENTS

The Honorable John Linder, a Representative in Congress For the State of Georgia, and Chairman, Subcommittee on Prevention of Nuclear and Biological Attack 1
The Honorable Charlie Dent, a Representative in Congress For the State of Pennsylvania 35
The Honorable James R. Langevin, a Representative in Congress For the State of Rhode Island 2
The Honorable Edward J. Markey, a Representative in Congress For the State of Massachusetts 40
The Honorable Norman D. Dicks, a Representative in Congress For the State of Washington 37
The Honorable Eleanor Holmes Norton, a Representative in Congress For the District of Columbia 58

WITNESSES

Jerry Paul, Princicpal Deputy Administrator, National Nuclear Security Administration, Department of Energy:
Oral Statement 4
Prepared Statement 6
Frank Record, Acting Assistant Secretary, Bureau of International Security and Nonproliferation, Department of State:
Oral Statement 12
Prepared Statement 15
Jack David, Deputy Assistant Secretary, International Security Policy, Department of Defense:
Oral Statement 22
Prepared Statement 25
Dr. Igor Khripunov, Associate Director, Center for International Trade and Security, University of Georgia:
Oral Statement 43
Prepared Statement 45
Dr. David Franz, Vice President and Chief Biological Scientist, Midwest Research Institute:
Oral Statement 50
Prepared Statement 52

REDUCING NUCLEAR AND BIOLOGICAL THREATS AT THE SOURCE

Thursday, June 22, 2006

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
SUBCOMMITTEE ON PREVENTION OF
NUCLEAR AND BIOLOGICAL ATTACK,
Washington, D.C.

The subcommittee met, pursuant to call, at 2:00 p.m., in Room 2212, Rayburn House Office Building, Hon. John Linder [chairman of the subcommittee] presiding.

Present: Representatives Linder, Gibbons, Dent, Langevin, Markey, Dicks and Norton.

Mr. LINDER. The Committee on Homeland Security Subcommittee on Prevention of Nuclear and Biological Attack will come to order.

Today, the subcommittee meets to hear testimony on reducing nuclear and biological threats at their source. I want to thank our distinguished witnesses for appearing today.

The end of the Cold War and the breakup of the former Soviet Union dramatically reduced the chances of an all-out nuclear and biological war with the United States. The legacy of its nuclear and biological weapons program, however, still has the potential of doing enormous harm. Unsecured nuclear material, unemployed biological weapons experts and the patchwork of administrative controls opens the door for a terrorist group to acquire that material or use the skills of those scientists to launch an attack on the United States.

Today, this subcommittee will hear about U.S. and multilateral efforts to secure nuclear and biological material and redirect former weapon scientists into peaceful endeavor. We have no room to fail in this mission.

The detonation of a nuclear device in the United States or the dispersal of a biological agent must be prevented, and prevention is best achieved at its source. Encouragement efforts being made through various agencies before us, bilateral projects with Russia, such as the various cooperative threat reduction programs, for example, are helping to secure nuclear warheads and biological pathogens and to stabilize employment for nuclear and biological experts.

U.S. partnering with organizations like the International Atomic Energy Agency and the nations of the G8 must continue to take the lead in keeping nuclear and biological materials out of the hands of terrorists. Recent examples demonstrate this success, including

the removal of eight nuclear weapons worth of highly enriched uranium over the last 2 years. For the past year, this effort led to the conversion of three research reactors from the use of highly enriched uranium—which can be used in a nuclear weapon—to the use of low-enriched uranium, thereby limiting the risk of theft.

On the biological side, a U.S.-Russian collaboration led to the discovery of highly pathogenic avian flu in birds in Siberia in 2005. To date, the U.S. has gained access to nearly a dozen former biological weapons facilities. Securing nuclear and biological material is only half the weapon, though. Redirecting former weapons scientists into peaceful and productive of work and discouraging them from disclosing secrets to terrorist networks not only requires a coordination between governments but also the creation of an environment of awareness among scientists around the world.

The sheer numbers of scientists with a skill set that could be used by terrorists could quickly overwhelm any state-sponsored control effort. Self-regulation and the importance of a security culture in a nuclear and biological science arena is the focus of our second panel of witnesses, and I look forward to hearing how Congress can encourage these effects.

The hope through this hearing, in the testimony of our witnesses today, is that we can continue to pressure the international community to make good on the $20 billion pledge to prevent acts of terrorism using weapons of mass destruction that was made initially at the June of 2002 G8 Summit.

With that, I now recognize my friend from Rhode Island, Mr. Langevin, the ranking member of this subcommittee, for any statement he would like to make.

Mr. LANGEVIN. Thank you, Mr. Chairman.

I would like to welcome our witnesses today, and I look forward to hearing their testimony certainly.

After listening to witnesses at hearings and briefings held by this subcommittee, I feel that our government must move quickly to accelerate our efforts to secure nuclear and biological material at the source.

Now we have learned about the relative ease with which a terrorist can build a crude nuclear device, and we must do all we can to prevent them from obtaining nuclear materials. We know that securing biological weapons and materials is much more difficult due to the dual nature of technology and the ability to grow a lot of bioweapon agent from a small amount. So I am very interested to hear how our efforts are proceeding on this front.

Given the fact that a majority of fissile materials and bioweapons labs are located in Russia and its former republics, I would like to get a sense of how well we are doing in the former Soviet Union as well. 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 November, this 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 nuclear and radiological material last year. This testimony, coupled with the National Intelligence Council report, doesn't give

me great confidence in the security of fissile materials abroad and leads me to believe that if we don't move quickly this material will end up in the wrong hands.

Now, according to the June, 2004, National Commission on Terrorist Attack report, al Qaeda continues to pursue its strategic objective of obtaining nuclear weapons. I strongly believe that nonproliferation is the best way for the U.S. to protect itself from a WMD attack. It is my hope that by holding these hearings, even though this committee does not have jurisdiction—oversight jurisdiction—we can highlight the fact that these programs are our best chance at securing these weapons.

Nonengagement and threats, the strategy our government has taken also both with North Korea and Iran until very recently, has not worked. The strategy, in fact, has put our country, I believe, in danger, highlighted by the possibility that material from North Korea could each our shores—I am sorry, a missile from North Korea could each our shores.

For our effort to be successful, greater funding and diplomacy will be needed to complete the important work in Russia and address these new situations that we now face.

Finally, I would like to hear from our witnesses on how our government could better coordinate its nonproliferation programs. A GAO report issued in January of 2005 stated there was no overall plan that integrates the programs carried out by the Department of Defense and the Department of Energy. Integration is critically important as our government looks to expand its nonproliferation programs beyond Russia.

As I have said in previous hearings, we must begin to move with a sense of urgency to prevent terrorists from executing a nuclear or biological attack on our shores, and that begins with securing weapons material at its source.

Thank you, Mr. Chairman. I look forward to hearing from our witnesses.

Mr. LINDER. Thank you, Mr. Langevin.

Mr. LINDER. We are pleased to have two panels of distinguished witnesses before us today. Our first panel, I will begin with Mr. Jerry Paul. Mr. Paul is a Principal Deputy Administrator of the U.S. National Nuclear Security Administration. He has responsibility for overseeing a variety of nuclear net reduction programs, including the Global Threat Reduction Initiative.

From the Department of State, we have Mr. Frank Record. Mr. Record is the Acting Assistant Secretary of the Bureau of International Security and Nonproliferation. He is responsible for managing a broad range of nonproliferation, counter proliferation and arms control functions.

And, finally, we will hear from Mr. Jack David, Deputy Assistant Secretary of Defense for International Security Policy, Office of the Secretary of Defense. His office provides direction to the Defense Threat Reduction Agency, which implements a Cooperative Threat Reduction program. CTR is also known as a Nunn-Lugar program and has been the flagship for U.S. threat reduction for more than a decade.

Let me remind the witnesses that your testimony will be part of the record. We would like to ask you to summarize in 5 minutes.

Mr. LINDER. Mr. Paul.

STATEMENTS OF JERRY PAUL, PRINCIPAL DEPUTY ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION, DEPARTMENT OF ENERGY

Mr. PAUL. Mr. Chairman, thank you for focusing on our Nation's nonproliferation activities and on the work of the Department of Energy and providing us with this opportunity to testify today. It is an honor to be here. It is a pleasure to be here with my colleagues from the State Department and Department of Defense.

In particular, I appreciate the opportunity to highlight the activities to date on the U.S.-Russian Senior Interagency Working Group on Nuclear Security Cooperation established by Presidents Bush and Putin, commonly referred to as the Bratislava Initiative.

In the aftermath of September 11, we have intensified our efforts to keep nuclear materials and nuclear weapons out of the hands of terrorists. The NNSA has accelerated and expanded its implementation of what we call a five-pronged strategy to deny terrorists and states of concern the materials, the technology, and the expertise that would be needed to develop nuclear weapons.

Those five prongs are: one, to account for and secure nuclear material in Russia and the former Soviet Union; two, to detect and prevent the movement or trafficking of weapons-grade, weapons-usable technologies and usable nuclear materials; three, to stop the production of new fissile material in Russia; four, to eliminate existing weapons-usable material; and, finally, number five, eliminate or consolidate the remaining weapons-usable nuclear material and radiological materials that exist throughout the remainder of the world.

I should also point out that, underpinning our policy initiatives, we maintain a vigorous nonproliferation research and development program conducting applied research, development, testing and evaluation to produce the technologies that lead to detection systems strengthening the U.S. response to current and projected threats to national security worldwide.

The R&D program is the technical base that provides our policy programs and operational agencies, including the Department of Defense, the Department of Homeland Security and the Intelligence Community, with innovative systems and technologies to meet the U.S. government's nonproliferation, counter-proliferation and counter-terrorism mission responsibilities. The NSA invests in strategic and often high-risk technical solutions to detect the proliferation of WMD.

Now, building on the above outline of our five-pronged strategy and our priorities, I now turn to the Bratislava Senior Interagency Working Group and its progress to date.

As you know, this working group came out of the February, 2005, meeting in Bratislava between President Bush and President Putin where they, together, issued a statement outlining efforts to enhance our nuclear security cooperation. They established a Bilateral Senior Interagency Working Group co-chaired by Secretary Sam Bodman at the Department of Energy and also Director Sergei Kiriyenko of the Russian Federal Atomic Energy Agency, or Rusatom, as it is more commonly known.

Our expanded nuclear security cooperation for Bratislava is in five distinct areas: emergency response cooperation, exchanging best practices, focusing on security culture, collaboration on issues related to research reactors, and nuclear security cooperation, which is largely MPC&A material protection and control accountability measures.

First, as to the emergency response, this component of the Bratislava Initiative envisions cooperation in enhancing emergency response capabilities to deal with a nuclear or radiological incident, including the training and development of additional technical methods to detect nuclear and radioactive materials involved in the incident. To address this, a U.S.-Russian expert working group on emergency response was established to review current and future activities in the areas of incident response and consequence management.

The plans for next year include further discussions on nuclear incident response and consequence management methodologies, plans and preparations for such incidents. The group plans to move on from a tabletop exercise—which we have done—to a field exercise in Russia with experts late this year. The scenario we will focus on is on search and consequence management for a terrorist radiological event.

This initiative is truly an important partnership in the global war on terror. In addition to preventing and responding to nuclear radiological incidents, both our nations really do need to be prepared to mitigate the consequences in the event of the unthinkable.

Best practices. The idea behind this task was to have high-level nuclear security practitioners from both of our countries work together on common problems and to share solutions and methodologies to those problems and how to address them.

Prior to Bratislava, the majority of our bilateral nuclear work had taken place really at the site or local level with security managers. But for this effort we enlisted the help of those in our organization outside our Russian cooperative programs, those who are actually tasked with providing and overseeing nuclear security at our facilities across the United States, for example.

The countries have agreed to continue collaborating in the area of nuclear security best practices and have begun a dialogue on topics to be discussed at the next meeting, which we are planning for this fall.

As for third-country consultations, both countries are reviewing how best to accomplish this. We think it is essential for the U.S. and Russia to have a common understanding of what those best practices are, and we have worked continually to better define those and come to agreement on what those best practices are and also share those with third countries. We are anticipating at least one more round of bilateral workshops before any kind of consensus can actually be reached, but we will certainly report that to you as it develops.

On security culture. It is important, in addition to best practices, that we focus on security culture; and the joint statement says this when it mentions calling for the fostering of disciplined, well-trained and responsible custodians and protective forces and fully utilized and well-maintained security systems. The concept of secu-

rity culture has been the topic at many international meetings. It is an issue that we provide leadership on through the IAEA, and it is one where we feel as though we are making more and more progress in Russia.

Research reactors. We are very proud of the progress that we have made on converting research reactors, as the Congressman mentioned a moment ago, three research reactors converted post Bratislava, two Russian design, one of U.S. design; and we continue to make good progress on converting the others on the list.

We have worked in this area with Russia for many years, but, as I mentioned earlier, in order to accelerate and expedite that important work that is yet to be done we consolidated several programs under the GTRI or Global Threat Reduction Initiative in 2004. We have made a lot of progress. The experts on both sides, pursuant to Bratislava, have agreed to a prioritized schedule for all of the remaining Russian-origin fresh fuel shipments and agreed that they will be completed by 2006 and, for the spent fuel shipments, by 2010. In order to meet that schedule, a joint U.S. DOE-Rosatom technical working group will be operating under a joint coordinating committee with the objective of accelerating and coordinating those preparations.

We are also working, as I mentioned earlier, on the development of high-density, low-enriched uranium fuels to convert the remaining reactors from high-enriched uranium. We will continue to leverage our assets at the national laboratories and throughout the United States complex in order to develop that work, and we feel good about the progress that we have made so far.

I would also like to note that, while in these areas the work has been preceding for several years, Bratislava really did help to accelerate the timetable and helped us set more aggressive schedules, if you will, and gain enhanced Russian commitment to this important work.

Mr. LINDER. Your time is up by about 4 and a half minutes.

Mr. PAUL. With that, Mr. Chairman, I will simply close and look forward to taking questions.

Mr. LINDER. Thank you. Thank you very much.

[The statement of Mr. Paul follows:]

PREPARED STATEMENT OF JERRY PAUL

Mr. Chairman, thank you for focusing on the nonproliferation activities of the U.S. Department of Energy's National Nuclear Security Administration (NNSA) and providing this opportunity to testify. In particular, I appreciate the opportunity to highlight our activities to date under the U.S.-Russian Senior Interagency Working Group on Nuclear Security Cooperation established by Presidents Bush and Putin at Bratislava in February of 2005 and related accomplishments.

I will begin by briefly outlining NNSA's overall strategy to place into context our work under the Senior Working Group, commonly referred to as ″The Bratislava Initiative.″

In the aftermath of 9/11, we have intensified our efforts to keep nuclear material and nuclear weapons out of the hands of terrorists. The NNSA has accelerated and expanded its implementation of a five-pronged strategy to deny terrorists and states of concern the materials, technology, and expertise needed to develop nuclear weapons.

First: To account for and secure nuclear material in Russia and the former Soviet Union.

To date, we have secured over 80 percent of the sites where these materials are stored and we are on course to finish all of our security upgrades by 2008—a full two years ahead of the schedule established prior to 2001.

With over 95 percent of the warhead and nuclear fuels sites completed, we will finish our work to secure Russian Navy warhead and nuclear fuel sites in FY 2006. We are moving rapidly to secure all remaining 12th Main Directorate and Strategic Rocket Forces warhead sites on an accelerated schedule, by the end of 2008.

Second: To detect and prevent the movement or trafficking of weapons-usable technologies and useable nuclear materials.

Through our Second Line of Defense and Core and Megaports programs, we are working with other countries to install radiation detection equipment at key transit choke points throughout the world - such as sea ports, airports, and land border crossings—to improve our ability to detect movement of nuclear and radiological materials.

Coordinated cooperation with the Department of Homeland Security and the State Department is vital to the successful implementation of this global program. Our staffs work together on a regular basis to streamline communication, eliminate overlaps in responsibility, and identify potential security gaps where added attention is necessary.

We have installed radiation detection equipment at more than 80 border crossings (rail crossings, vehicle crossings, small seaports) and we have taken responsibility for additional radiation detection equipment at approximately 50 locations originally equipped by the State Department and other agencies. We have already equipped six Megaports—Algeciras, Bahamas, Colombo, Rotterdam, Singapore (pilot) and Piraeus. We expect to complete installations at one more Megaport this year, and are installing equipment at ten additional ports. We plan to sign new agreements at five additional Megaports this fiscal year.

We are also training front-line enforcement officers worldwide, to interdict illicit technology transfers, and we are helping states strengthen nuclear safeguards needed to secure nuclear materials. It is critical that states take on responsibilities for meeting global nonproliferation responsibilities. These programs help realize that objective.

Third: To stop the production of new fissile material in Russia.

In 1997, the U.S. signed an agreement with the Russian Federation providing for the cessation of production of weapons-grade plutonium that could be used in nuclear weapons, expediting the shut down of Russia's last three plutonium-producing nuclear reactors. In March 2003, the two governments signed an amendment to the agreement under which the USG would assist in providing fossil fuel plants to supply alternative energy sources thereby allowing Russia to shut down the reactors and cease production of new plutonium.

We are making progress in this area. We began construction work at the first site, Seversk, last year and started construction at the other site, Zheleznogorsk, earlier this year, with expected completion dates of 2008 and 2011 respectively.

Fourth: To eliminate existing weapons-usable material.

More than 270 metric tons of Russian Highly Enriched Uranium (the equivalent of about 11,000 warheads) from dismantled weapons have been down-blended to low-enriched, non-weapons grade material for use in commercial power reactors pursuant to the HEU Agreement or what is often called the ″Megatons to Megawatts″ program. Altogether, 500 metric tons of Russia's HEU will be converted and used to support civilian nuclear power here in the United States at little or no cost to the American taxpayer. This down-blended material accounts for 10 percent of U.S. electricity production. In other words, in effect one in every ten light bulbs in America is powered by material that was once contained in a Soviet nuclear warhead.

Additionally, we are working with the Russians to eliminate 34 metric tons of weapons-grade plutonium in each country, enough for over 17,000 nuclear weapons, through our plutonium disposition programs.

Fifth: To eliminate or consolidate the remaining weapons-useable nuclear and radiological materials that exist throughout the remainder of the world.

In May 2004, DOE launched the Global Threat Reduction Initiative—″GTRI″—to identify, secure, recover and facilitate the disposition of vulnerable nuclear and radiological materials around the world.

Under the GTRI program, we are converting research reactors around the world from highly-enriched uranium (HEU) fuel to low enriched uranium (LEU) fuel.

We are working with the Russian Federation to develop technologies that will enable the conversion from HEU to LEU fuel of Russian-designed research and test reactors in third countries.

We signed an agreement with Russia that provides the overall legal framework for repatriating Russian HEU nuclear fuel from Russian-supplied research reactors located around the world for safe storage and disposition. To date, we have completed 12 shipments of HEU fresh and spent nuclear fuel under this program.

Last fall, we took the actions necessary to extend the period during which spent nuclear fuel containing HEU of U.S. origin could be repatriated to the United States and continue to accept shipments from around the world.

GTRI reduces the risk of radiological materials being used in a radiological dispersal device by working cooperatively with foreign counterparts to locate, recover, consolidate, and enhance the security of high-risk radioactive materials. To date, the program has completed security upgrades in more than 40 countries containing radiological sources of concern.

We are also securing weapons expertise through joint collaboration and alternate infrastructure development. Through the Department's Global Initiatives for Proliferation Prevention (″GIPP″) program we are engaging former weapons experts in nuclear, chemical and biological weapons institutes in Russia and the Former Soviet Union (FSU). We often say that the proliferation threat has three elements including technology, materials, and expertise. This program addresses the third element. By redirecting weapons scientists to peaceful, commercially viable activities, we reduce the likelihood that these individuals will want to work with proliferators and reduce the likelihood that a terrorist organization will be able to recruit them.

Underpinning these policy initiatives, we maintain a vigorous Nonproliferation Research and Development (R&D) Program conducting applied research, development, testing, and evaluation to produce technologies that lead to detection systems strengthening the U.S. response to current and projected threats to national security worldwide posed by the proliferation of weapons of mass destruction and the diversion of special nuclear material. The R&D program is the technical base that provides our policy programs and operational agencies (including the Department of Defense, the Department of Homeland Security, and the Intelligence community) with innovative systems and technologies to meet the U.S. Government's nonproliferation, counter-proliferation, and counter-terrorism mission responsibilities. NNSA invests in strategic and often high-risk technical solutions to detect the proliferation of WMD.

Building on the above outline of our strategy and priorities, I now focus on the Senior Interagency Working Group and its progress to date.

As you know, this working group came out of the February 2005 summit in Bratislava between President Bush and President Putin. Together they issued a joint statement outlining efforts to enhance our nuclear security cooperation. They established a bilateral Senior Interagency Working Group co-chaired by Secretary Bodman of the Department of Energy and by Director Kiriyenko of the Russian Federal Atomic Energy Agency, or Rosatom, as it is more commonly known.

Our expanded nuclear security cooperation has five distinct areas:

1. Emergency Response Cooperation
2. Exchanging ″Best Practices″
3. Focus on ″Security Culture″
4. Collaboration on issues related to Research Reactors
5. Nuclear Security Cooperation (MPC&A efforts)

Before I go into more detail on each of these areas of cooperation and what has been accomplished to date, I want to describe a little of the history behind the joint statement made in Bratislava, Slovak Republic.

Some of the areas of cooperation that we talk about as ″efforts under Bratislava″ you will recognize as work we have been conducting with our Russian partners for several years. This includes our research reactor conversion program, our spent and fresh fuel repatriation program, and our nuclear security cooperation, all of which I noted earlier in my remarks as part of our ongoing strategy. We have also been collaborating with Russia for over 5 years to improve their emergency management infrastructure. So why announce a need to further enhance cooperation?

Because it was important to raise our collaboration to the highest levels of Government in order to accelerate our efforts across a spectrum of activities in a well coordinated fashion. The President has stated that the gravest threat to the United States is the possibility of terrorists acquiring weapons of mass destruction, including nuclear weapons. At Bratislava, Presidents Bush and Putin committed to working to enhance cooperation to counter this threat by building upon our earlier work and to expand, accelerate, and deepen this cooperation.

The NNSA works directly with many agencies within the Russian Federation, most notably Rosatom, but also the Ministry of Defense, Rostechnadzor (which is analogous to our Nuclear Regulatory Commission), the Ministry of Transportation, the Ministry of Foreign Affairs and other organizations. For the most part, we can accomplish much at the program staff level. In order to expedite cooperation in some areas, however, we must engage the most senior levels of Government. Bratislava has given our programs more momentum - more visibility - and has enabled us to

accelerate our programs in a way that allows us to work more quickly to solve some of these nuclear security problems.

Additionally, we elevated the dialogue to a national level because we felt that would encourage Russian decision-makers to devote more of their own resources to nuclear security. As a result of our joint commitment to accelerate and expand cooperation, our material protection control and accounting upgrades in Russia are now scheduled to be complete by 2008. However, we cannot walk away and expect those systems will be maintained without financial support from the Government of Russia. It is important that the Russian Government - that is the President, the Presidential Administration and the Duma - appreciate the gravity of nuclear security issues and be willing to commit resources to those issues as a top priority.

Finally, we all need to recognize that today's Russia is not the same Russia we encountered in the early days of the Nunn-Lugar initiatives. This is a new Russia with a stronger economy, stronger leadership, and a desire to play a larger role on the world stage. We recognize these changes and interact with Russia as a partner: a partner in the war against terrorism, a partner in nonproliferation and a partner in nuclear security.

Our national security demands that we continue our engagement with Russia in the area of nuclear security and that we continue to support programs to eliminate excess fissile material, convert research reactors to LEU fuel, and assist in the security of nuclear material, even as we also acknowledge Russia's need to sustain its own security after we leave. Bratislava provides the opportunity to maintain our long-standing partnership with Russia at the same time that it provides a vehicle for encouraging Russian self-sustainability.

Emergency Response

The emergency response component of the Bratislava Initiative envisioned cooperation in enhancing emergency-response capability to deal with a nuclear or radiological incident, including training and development of additional technical methods to detect nuclear and radioactive materials involved in the incident. To address this, a U.S. - Russian expert working group on emergency response was established to review current and future activities in the areas of incident response and consequence management.

Under the Emergency Response Initiative, U.S. experts visited a Russian training and emergency management center in St. Petersburg. On October 18-19, 2005, Russian specialists observed a U.S. tabletop exercise in Nevada. These experts discussed approaches to responding to incidents such as the detonation of a radiological dispersion device, and cooperation on nuclear emergency response.

Plans for next year include further discussions on nuclear incident response and consequence management methodologies, plans, and preparations for such incidents. The group plans to move on from the tabletop exercise to a field exercise in Russia with U.S. experts in late 2006. The scenario will focus on search and consequence management for a terrorist radiological event.

Russia also seeks U.S. participation in training and research activities involving both the Rosatom Emergency Response Center in St. Petersburg, and the Ministry of Defense's Emergency Response Center. The first phase of this work will be completed next year.

This initiative is truly an important partnership in the global war on terror. In addition to preventing and responding to nuclear and radiological incidents, both our nations need to be prepared to mitigate the consequences of any such event.

It is important to note, in addition to work under the Bratislava Initiative, we have also made progress with Russia to develop technical methods to detect nuclear and radiological materials under the Warhead Safety and Security Exchange Agreement (WSSX). WSSX provides for unclassified technical exchanges in safety and security of nuclear warheads, technologies for potential future nonproliferation and arms control initiatives and technologies to combat nuclear related terrorism. Several underlying detection technologies can be applied for both nonproliferation and counter-terrorism objectives. The collaborative projects under WSSX can leverage the work in nuclear weapons detection (including nuclear materials and high explosives) to support advanced technology development to combat nuclear-related terrorism.

Best Practices

In the Bratislava Joint Statement and corresponding ″check list,″ the Interagency Working Group was charged with sharing ″best practices″ for the sake of improving nuclear security at facilities and to jointly initiate security ″best practices″ consultations with other countries.

The idea behind this task was to have high-level nuclear security practitioners from both countries work together on common problems, and to discuss solutions

and methodologies for addressing those problems. Prior to Bratislava, the majority of our bilateral nuclear work had taken place at the site level with local security managers. For this effort, we enlisted the help of those in our organization outside our Russian cooperative programs: those actually tasked with providing and overseeing nuclear security at our facilities across the United States. In May of last year, several high-ranking Russian officials came and observed the annual meeting of the U.S. Senior Security Managers of Hazardous Facilities.

Additionally, a number of meetings were held at a high-level nuclear workshop that took place September 14-15, 2005, in Moscow. There were some 80 participants from both countries. From Russia, the participants included specialists from several Russian sites, the Ministry of Defense and Rosatom officials. The U.S. sent more than 20 security specialists to discuss issues ranging from protective force training, to oversight procedures, to technology. The U.S. presentations were well received and initiated good discussions.

The countries have agreed to continue collaborating in the area of Nuclear Security Best Practices and have begun a dialogue on the topics to be discussed at the next meeting that should take place this fall.

As for third-country consultations, both countries are reviewing how best to accomplish this. We believe that it is essential for the United States and Russia to have a common understanding of what ″best practices″ we would jointly share with third countries. We are anticipating at least one more round of bilateral workshops before any kind of consensus could be reached in that area.

Security Culture

In addition to proposing a workshop on ″best practices,″ the Joint Statement also called for a workshop on Nuclear Security Culture. The statement calls for ″fostering disciplined, well-trained, and responsible custodians and protective forces, and fully utilized and well-maintained security systems.″ The concept of ″security culture″ has been the topic of many international meetings, and the International Atomic Energy Agency is working to put together a paper on defining ″security culture″ and explaining the concept in depth. To fulfill this Bratislava mandate, the U.S. and Russia conducted a workshop in conjunction with the ″best practices″ workshop on September 12-13, 2005.

The workshop used experts from the Department's cadre of nuclear security experts. The group discussed the meaning of ″security culture″ and presentations were given on norms, regulations and documents that influence the formation of a security culture, education and training of personnel, and topics related to the ″human factors″ of nuclear security.

After the workshop, both sides concluded that exploring the concept of ″security culture″ was a useful endeavor. We agreed to continue the dialogue under the auspices of the Joint Coordinating Committee, established under the 1999 Government-to-Government Agreement regarding Cooperation in the Area of Nuclear Material, Physical Protection, Control and Accounting (or the MPC&A Agreement), and that the progress would be reported back to the Senior Working Group. So far, the sides have agreed to a definition of Security Culture as ″the assembly of characteristics, principles, attitudes, and behavior of individuals, organizations and institutions, which serves as a means to support and enhance nuclear security″ and U.S. and Russian Co-chairs agreed to develop principles and evaluation criteria relating to Security Culture by the end of 2006.

Research Reactors

We have worked with Russia in the area of research reactors for many years. As mentioned earlier, in order to accentuate and expedite the important work yet to be done in this area, the Department consolidated several programs under the Global Threat Reduction Initiative in 2004. In particular, we have two related programs with Russia that became part of the Bratislava Nuclear Security initiative: the Russian Research Reactor Fuel Return Program (RRRFR) and the Reduced Enrichment for Research and Test Reactors (RERTR) program. The RRRFR program is designed to repatriate Russian-origin fresh and spent nuclear fuel from research reactors located in third countries. The U.S. has an analogous program to repatriate fresh and spent US fuel from reactors in third countries. The RERTR program designs and develops LEU fuel for use in reactors originally designed for HEU fuel. The Bratislava initiative commits both sides to continue to work together to achieve the goals of HEU minimization and repatriation of fuel from third countries.

So far, a good deal of progress has been made. The experts on both sides agreed on a prioritized schedule for all remaining Russian-origin fresh fuel shipments and agreed that they would be completed in 2006, and that spent fuel would be completed by 2010. In order to meet that schedule, a joint U.S. DOE-Rosatom technical working group will operate under the Joint Coordination Committee with the objec-

tive of accelerating and coordinating preparations for irradiated nuclear fuel shipments.

We're making real progress: 2.4 kilograms of Russian-origin fuel from a research reactor in Salaspils, Latvia were repatriated in May 2005, and 14 kilograms of Russian-origin HEU fresh fuel from the VR-1 reactor at the Czech Technical University were repatriated in September 2005. Another milestone was reached this year when the first shipment of Russian-origin HEU spent fuel from Uzbekistan was returned to Russia. And, in accordance with the schedule to return U.S.-origin spent fuel from U.S.-designed research reactors in third countries, 210 U.S.-origin spent fuel assemblies from the Netherlands and 128 U.S.-origin spent fuel assemblies from Sweden were returned to the United States in June 2005, and 46 U.S.-origin spent fuel assemblies from Greece and 22 U.S. origin spent fuel assemblies from Austria were returned to the U.S. in December 2005.

As I have stated, experts from the United States and Russia are working on development of high density uranium fuels that will enable conversion of the remaining reactors that cannot convert with currently qualified LEU fuels. This work will continue using mechanisms to allow continued collaboration, such as contracts between U.S. National Laboratories and Russian institutes, information exchange through the International Group of Independent Experts on Fuel Development, and delivery of LEU replacement fuel to third countries.

Milestones in this program include:

The first Russian-designed research reactor located in a third country and supplied with Russian-origin HEU fuel, the VR-1 reactor at the Czech Technical University, was successfully converted to low enriched fuel (LEU fuel) in October 2005. This is a significant achievement and will facilitate conversion of other Russian-designed research reactors in third countries to operate on LEU fuel.

LEU fuel was delivered to the Tajura research reactor in Libya to replace repatriated HEU fuel and support reactor conversion in summer 2006.

Again, I would like to reiterate that while work in these areas has been proceeding for several years, Bratislava has encouraged us to set more aggressive schedules and achieve Russian commitment to this important work.

Nuclear Security

As you may know, we have a longstanding record of cooperation in material protection control and accounting, or MPC&A, programs with the Russian Federation. We began these programs in collaboration with the Department of Defense in 1993 under the CTR program. It is a robust and broad program that addresses Russian civilian and military facilities containing both nuclear warheads and material with physical protection upgrades, material control and accounting upgrades, protective force equipment and training, and upgrades to nuclear transportation system. Additionally, the program has numerous national-level programs aimed at larger issues involved in nuclear security, such as developing laws and regulations, codifying standards for training and employment, developing a national-level accountancy system, as well as developing and training oversight bodies.

This is a mature program. We are committed to finish the upgrades portion of our work at Rosatom's material sites on which we have agreement by 2008 under Bratislava.

When the Presidents committed to Bratislava, we were able, for the first time, to establish a ″master plan″ for completing our security work with the Russian Federation. Working under the auspices of established agreements, Rosatom, the Russian Ministry of Defense, the U.S. Department of Energy and U.S. Department of Defense developed a Joint Action Plan that outlines the agreed-upon scope of work on upgrades to the security systems at nuclear sites in Russia (as well as for transportation of nuclear warheads slated for disposals). The detailed portions of this plan identify new buildings and the status of on-going cooperation for specific buildings at specific cooperation sites. The plan also includes cooperation in the areas of nuclear regulatory development, sustainability, secure transport, material protection, control and accounting expertise training, protective force equipment and other such crosscutting issues. The Joint Action Plan for Rosatom and the Russian Ministry of Defense sites includes evaluations of joint projects, specific implementation timeframes, and detailed milestones. These plans will be augmented with detailed schedules as Rosatom and the Russian Ministry of Defense nominate new areas for cooperative work.

Because of the sensitive nature of the information that the U.S. side receives during the course of performing upgrades at Rosatom sites, U.S. and Russian experts signed a Memorandum on Procedures for the Exchange of Sensitive Information between Rosatom and the U.S. Department of Energy's (NNSA) Office of International Material Protection and Cooperation in August of 2004.

As I mentioned, we are in the process of completing some of the upgrades work at Rosatom sites and commissioned two sites last August, the Scientific Research Institute of Atomic Reactors (NIIAR) in Dimitrovgrad and the Research Institute of Scientific Instruments (NIIP) in Lytkarino. And by fall of 2006, upgrades will be completed at the Bochvar All-Russian Scientific Research Institute of Inorganic Materials (VNIINM) and the Institute of Physics and Power Engineering (IPPE).

Working with the Ministry of Defense, we have enjoyed a good relationship. We have completed significant work with the Russian Navy. In the past few years we have also worked to secure some Strategic Rocket Force sites. Perhaps the most significant breakthrough resulting from Bratislava was that the Russian Ministry of Defense, the 12th Main Directorate, offered to the U.S. Departments of Energy and Defense, a list of sites for cooperative security upgrades. The sites in question are large nuclear warhead storage sites. The U.S. has reviewed those proposed sites and has agreed to upgrade security at fifteen of the newly proposed sites. The Department of Defense, the Department of Energy and the Ministry of Defense are all working together to determine what other assistance the U.S. can provide.

In the sphere of nuclear security, both Presidents also committed in the Joint Statement to work together to amend the Convention on the Physical Protection of Nuclear Material (CPPNM). I am pleased to report that through the efforts of the U.S., the Russian Federation and other States Parties, the CPPNM was amended last July. This amendment is a significant step forward for international nuclear security. It expands the scope of the Convention to cover not only nuclear material used for peaceful purposes in domestic use, transport and storage, but also nuclear facilities used for peaceful purposes. This amendment also includes new counter-terrorism provisions requiring each State Party bound by the amendment to make sabotage of a nuclear facility used for peaceful purposes, or threats to do so in order to compel a person or State to do or refrain from doing any act, a punishable offence under its national law. We will continue to work closely with Russia and other key partners to ensure its timely ratification, and to revise international physical protection guidance to address these new obligations.

We will also continue to work with Russia in the Nuclear Suppliers Group to strengthen controls on especially dangerous nuclear technologies. As proposed by President Bush in 2004, we seek broad restrictions on transfers of enrichment or reprocessing technologies - the very technologies sought by Iran and DPRK to pursue nuclear weapons programs.

Conclusion

The Bratislava Nuclear Security initiative allows us to expand and accelerate the work we have been doing in the area of nuclear security, explore some new avenues of cooperation, and begin a new era in our relationship with the Russian Federation. Bringing the issue of nuclear security to the attention of the highest levels of both the U.S. and Russian governments provides an immeasurable increase in focus to our own security.

Just this past month, members of my staff and our colleagues in other parts of the U.S. Government met with our Russian counterparts here in Washington to discuss next steps in cooperation. Secretary Bodman was briefed on our activities by the entire delegation and is fully engaged. Prior to the working meeting, Secretary Bodman and Director Kiriyenko (Rosatom) spent a considerable amount of time together discussing a number of topics, most of which highlight Bratislava.

We are moving toward the time when Russia assumes full responsibility for protecting its own warheads and material, for reducing the quantity of fissile material and the numbers of sites at which it is located, and invests in measures to prevent, respond to and mitigate nuclear or radiological incidents. This is a necessary condition of both countries' security. Thus far, progress under the Bratislava initiative indicates that Russia is willing to take on that challenge, and we are proud of our success in helping Russia prepare to do so. Of course, we recognize there is much work still to be done.

Again, Mr. Chairman, I thank you for the opportunity to highlight this important Initiative. I look forward to answering your questions.

Mr. LINDER. Mr. Record.

STATEMENT OF FRANK RECORD, ACTING ASSISTANT SECRETARY, INTERNATIONAL SECURITY AND NONPROFLIFERATION, U.S. DEPARTMENT OF STATE

Mr. RECORD. Mr. Chairman, Ranking Member Langevin, and other distinguished members of the committee, I thank you for the

opportunity to discuss the Department of State's ongoing efforts to reduce the nuclear and biological threat at the source.

Recently, I spoke to you about our initiatives to deter, interdict and prevent acquisition of nuclear and radiological material. Today's hearing I think points at the fact that one of the best investments we can make overall as a nation is to reduce the nuclear and biological threat, to keep terrorists and states seeking WMD capabilities from ever acquiring those WMD and WMD-related materials, technologies and expertise in the first place.

Meeting this challenge requires a targeted U.S. government effort; and in my detailed written statement before you, you will see outlined the important role played by the State Department through programs designed to deny terrorists and states from acquiring WMD nuclear and biological materials, technologies and expertise.

Broadly, our efforts involve programs that address three targeted nuclear and biological elements of this source. They include facilities and equipment that can produce or store WMD, poorly housed WMD or WMD-related materials, and people with WMD expertise.

The State Department implements programs and diplomatic initiatives to address all of these sources, but based on limited time, I would like to focus on just four at the moment. They include global programs to combat proliferation of WMD expertise, programs to engage and reconfigure former biological weapons production facilities, capacity to rapidly respond to secure or destroy WMD sources, and a newly launched State Department program to increase security for facilities housing dangerous pathogens outside of the former Soviet Union.

As part of the State's Cooperative Threat Reduction efforts, we implement the Nonproliferation of Weapons of Mass Destruction Expertise program, NWMDE. Through this program, we seek to impede the proliferation of WMD expertise to terrorists and states of concern.

Included within the program are three specific initiatives in the countries of the former Soviet Union, two which were created specifically to address biological threats.

They include the Science Centers Program, supporting financial self-reliance for former Soviet WMD personnel through two centers, the International Science and Technology Center in Moscow and the Science and Technology Center in Kiev in the Ukraine.

Second, the Bio-Chem Redirect Program, which engages former Soviet biological and chemical weapons personnel in collaborative research with U.S. experts from HHS and USDA.

And finally, third, the Bio Industry Initiative, BII, which was launched after September 11th and the Anthrax attacks of 2001 and focuses exclusively on the biological threat.

For a minute then I want to focus on the BII Initiative. It is the only U.S. program dedicated to transforming former Soviet large-scale biological production facilities for peaceful commercial use. Through this program, we also facilitate collaborations between global public health experts and industry to redirect former weapons personnel to sustainable, peaceful commercial work, including accelerating drug and vaccine development for global infectious diseases and increasing surveillance for diseases like Avian Influenza.

And, Mr. Chairman, as you noted in your remarks, a BII-funded U.S.-Russia collaboration led to the discovery of a highly pathogenic avian flu in birds in Siberia in 2005. And I would note our 2007 funding will allow us to build a Russian avian flu surveillance network as well as to reconfigure the production plans in the former Soviet Union.

Our authority to engage and redirect former weapons experts is now global, and since 2003 we have expanded our programs to include targeted initiatives to engage former WMD scientists in Iraq and Libya. Our engagement efforts in Iraq and Libya are critical components of our work to reduce threats in the region, and we plan to continue to ensure integration of former WMD personnel in Iraq and Libya into the international peaceful community.

I would also like to mention a word or two about the unique capabilities we have to rapidly respond to proliferation threats of this source through our Nonproliferation and Disarmament Fund, the NDF. The NDF reduces the WMD and WMD-terrorist threat by detecting, interdicting, destroying or securing existing weapons and related materials. NDF projects are designed to address unanticipated opportunities to reduce proliferation threats, including threats of this source, but it is an extremely important part of our nonproliferation toolbox, and I would be glad to give you more details.

Also, I would like to mention briefly a newly launched program at State, our Biosecurity Engagement Program. I want to emphasize in this context the immense challenge posed specifically by the biological threat and note that dual-use biological materials, technologies and expertise that could be used to enhance WMD capabilities are widespread and readily available.

Dangerous pathogens exist not only in freezers in the labs of the former Soviet Union but are naturally occurring in many parts of the world. Therefore, engaging in global activities to promote biological security not only involves securing repositories but involves programs to train laboratory and public health workers in appropriate practices for handling and transporting these dangerous pathogens.

The State Department's Biosecurity Engagement Program will address this important aspect of the threat at the source by engaging these biological facilities and infectious disease personnel in activities to promote biosecurity. The program will also focus on working with countries where terrorists are known to operate and which maintain growing biotechnology sectors and unsecured dangerous pathogen collections.

In conclusion, Mr. Chairman, through my remarks, my written statement and my previous testimony, I think I have outlined in a comprehensive way our efforts to address the threat posed by terrorists and states seeking nuclear and biological WMD capability. Our efforts to meet this challenge require that we look for opportunities to develop new partnerships, both public and private, and that we extend the efforts across the globe to defend against a threat.

Looking to the future, we will continue to combine diplomacy with strongly created programs to build support for these international nuclear and biological security efforts.

Thank you very much.

Mr. LINDER. Thank you, Mr. Record.

[The statement of Mr. Record follows:]

PREPARED STATEMENT OF FRANCIS C. RECORD

Opening Remarks

Mr. Chairman, Ranking Member Langevin, and other distinguished members of the committee, I would like to thank you for the opportunity to discuss the Administration's accomplishments and ongoing efforts to reduce the nuclear and biological threat at the source. The proliferation of weapons of mass destruction is one of the United States' most urgent national security challenges, and meeting this challenge requires targeted efforts to ensure that materials, technologies and expertise that can be used to obtain or further WMD capabilities do not fall into the hands of terrorists or rogue States seeking WMD.

Recently, I spoke to you about our initiatives to deter, interdict and prevent acquisition of nuclear and radiological material through export controls and border assistance, the Proliferation Security Initiative, and our efforts to combat nuclear smuggling. These initiatives are largely designed to interdict WMD material after it has been procured. Today, I would like to speak more specifically about U.S. Department of State (DOS) efforts to address the nuclear and biological threat through programs and diplomatic initiatives designed to deny terrorists and states from acquiring WMD capability-enhancing nuclear and biological materials, technologies, and expertise at their source. These include DOS programs and diplomatic efforts designed to address the threat of nuclear and biological terrorism at the source, including efforts to sustainably employ former weapons personnel, right-size and reconfigure former WMD facilities, secure nuclear and biological material and eliminate excess weapon materials, improve U.S.-Russia bilateral cooperation, and vigorously support relevant multilateral mechanisms that seek to secure material at the source such as the International Atomic Energy Agency (IAEA) Additional Protocol, and G-8 Global Partnership activities.

Although much of the critical work I will speak about today focuses on Eurasia, where the Soviet legacy has left behind a vast architecture of poorly secured nuclear and biological facilities and a large cadre of unemployed weapons experts, DOS is focusing enormous effort to work globally as we address potential sources of WMD materials, technologies and expertise where they are housed, including those countries and regions where terrorists are active and could more easily procure them.

I will begin with DOS programs to engage and redirect former weapons experts, secure dangerous pathogens, and destroy WMD infrastructure, emphasizing areas where our work fills gaps and complements that of other USG agencies, primarily DOE and DoD. I will then address the critical diplomatic multilateral and bilateral efforts led by DOS to enhance success for USG programs designed to reduce threat at the source.

I would also like to make you aware of the immense challenge posed by the biological threat, and to compare our efforts to secure dangerous biological material and prevent proliferation of biological expertise with our efforts to do the same in the nuclear arena. Dual-use biological materials, technologies and expertise that could be used to enhance WMD capabilities are widespread and readily available. Dangerous pathogens exist not only in freezers in labs of the former Soviet Union but are naturally occurring in most parts of the world. Therefore, engaging in biological security activities not only involves traditional efforts to secure repositories, but also involves a broader effort to train laboratory and public health workers in appropriate practices for handling, storing, and transporting dangerous pathogens and should bring together the public health and law enforcement communities. The USG has placed an emphasis on combating this threat at the source through programs to secure dangerous pathogens and employ weapons experts in former Soviet countries, where pathogens were weaponized and expertise abounds.

This remains a critically important task, however, we are also now addressing the global threat posed by the expansion of dangerous pathogen collections and high containment facilities to work with them, particularly in regions of the world where terrorists are active.

Cooperative Threat Reduction

The former Soviet states are still littered with reminders of the massive architecture of the former Soviet WMD program, including a large number of facilities that could serve as potential sources for terrorists and states seeking WMD. Since the inauguration of the Cooperative Threat Reduction program in 1992,—or as it is often referred to the Nunn-Lugar program—the U.S. has worked with the Russian

Federation and other former Soviet states to eliminate WMD threats posed by the legacy of the Cold War. The U.S. has invested in efforts to reduce the proliferation threat posed by acquisition of materials and know-how from the vast source of poorly secured nuclear and biological materials and underemployed former WMD personnel in the former Soviet Union. Funding for these programs from FY1992 through today has totaled more than $10 billion.

The Department of State leads diplomatic and negotiating efforts necessary to conduct these programs and to provide the robust legal frameworks for their continuation, and we also implement specific programs, which complement and work hand-in-glove with Department of Defense (DoD) and Department of Energy (DOE) Cooperative Threat Reduction activities. On June 16, 2006, the United States and the Russia Federation signed a new protocol extending the CTR umbrella agreement for another 7 years, and the two countries are also now finalizing a protocol for the plutonium disposition agreement that will resolve the long-standing issue on liability protections. The formulations in the liability protocol are also expected to facilitate a number of other nonproliferation and cooperative programs. DOS cooperative threat reduction programs initially focused on Eurasia, but are now addressing the worldwide threat.

Nonproliferation of WMD Expertise (NWMDE)

To effectively develop WMD capability, terrorists and States seeking WMD must first have access to know-how and expertise. Therefore, it is critical that the USG engage WMD personnel in States with WMD programs and deter them from sharing that expertise or using it to promote proliferation. The Nonproliferation of Weapons of Mass Destruction Expertise (NWMDE) program is specifically designed to prevent the proliferation of WMD expertise to terrorists and states of concern, addressing a key objective of the National Strategy to Combat Weapons of Mass Destruction and the U.S. National Security Strategy. This program has redirected $52.074 million in FY 2006, and we requested $56.2 million for FY 2007. Since its inception, the program has engaged more than 60,000 former weapons experts.

Included under NWMDE are three specific programs focused in the countries of the former Soviet Union, two of which were created by the Congress to specifically address the biological threat. These efforts aim to combat the nuclear and biological threat at the source while also providing critical diplomatic support and policy guidance for DOE and DoD efforts.

The three DOS NWMDE programs operating in Eurasia are the Science Centers Program, Bio-Chem Redirect Program, and BioIndustry Initiative. While the core Science Centers program provides funding for the International Science and Technology Center (ISTC) based in Moscow and the Science and Technology Center in Ukraine (STCU) and engages nuclear, chemical, biological and missile scientists, the other DOS redirection programs are more narrowly focused to address the biological and chemical proliferation threats.

Science Centers Program

The Science Centers Program supports financial self-reliance for former Soviet WMD personnel through two centers - the ISTC in Moscow and the STCU in Kiev. In addition to funding collaborative research, the Program now also provides critical training for scientists to compete in the global research and development community in competitive grant writing, intellectual property protections, matchmaking with U.S. collaborators, and meeting international standards in areas such as Good Laboratory and Manufacturing Practice. The current focus area for this program provides avenues to reduce the proliferation threat over the long-term by enhancing self-sustainability for former weapons personnel and institutes. This includes increasing U.S. private industry participation and attracting recipient-country agencies and industry to invest their R&D funds in Science Center-managed research in their countries. DOS provides policy guidance and oversight for ISTC and STCU, through which most redirection assistance in Russia and the FSU is funded, and DOS also coordinates policy guidance and strategy for engagement, particularly with respect to biological and chemical engagement activities. DOS chairs an NSC-mandated interagency roundtable, which brings together DoD, DOE and other agencies funding biological and chemical redirection activities in the former Soviet Union to discuss program activities and provide policy guidance.

Bio-Chem Redirect Program

The U.S. Bio-Chem Redirect Program (BCR) has allocated more than $80 million since 1997 to engage scientists, engineers and technicians of the former Soviet Union with biological or chemical weapons expertise in collaborative research with U.S. experts from the U.S. Department of Health and Human Services (HHS), U.S. Department of Agriculture (USDA), and Environmental Protection Agency (EPA), including funding for disease surveillance initiatives and drug and vaccine research

and development in global public health priority areas (Influenza, HIV/AIDS, Tuberculosis, Hepatitis, etc.). BCR also supports key components in U.S. global efforts to combat biological and chemical terrorism through research on countermeasures, early detection & response, antidotes, decontamination, and other critical areas. The current focus of this program is to prepare former Soviet biological and chemical weapons personnel for self-sustainability and eventual independence from USG support through capacity building; expanding engagement in Ukraine, Central Asia, and the Caucasus; and continuing to expand engagement of former Soviet CW personnel, some of whom receive little or no salary. Through BCR, DOS is also working to reduce the biological threat in countries not yet engaged by the DoD Biological Threat Reduction program, including regional priorities such as Tajikistan and Kyrgyzstan. BCR is also building on DoD's critical effort that has destroyed the biological weapons (BW) infrastructure at Stepnogorsk, through redirection of former Stepnogorsk weapons personnel, including development of sustainable employment options.

BioIndustry Initiative

The U.S. BioIndustry Initiative (BII) is another DOS program created specifically to address the biological threat at the source. BII is a unique program, through which DOS addresses the biological threat at its source in two major ways: first by redirecting weapons experts and reconfiguring former WMD facilities for peaceful purposes and second by engaging WMD personnel in work to accelerate drug and vaccine development to combat bioterrorism and other critical global public health threats, including avian influenza. It is important to note that BII is the only U.S. program dedicated to the targeted transformation of former Soviet large-scale biological production facilities for peaceful commercial use. Through BII, for the very first time, we are now able to address the threat posed by huge biological weapons production facilities, which could be a source for equipment, expertise, and materials necessary to make tons of weaponized disease agents. Many former BW production and research and development facilities throughout Russia and the FSU are now being reconfigured for peaceful use, and BII has forged collaborative partnerships with industry partnerships to aid in this effort.

In its efforts to reconfigure former biological production facilities, BII also works closely with State Nonproliferation and Disarmament Fund (NDF) and DoD to eliminate WMD infrastructure. In a striking example of how DOS is reducing the biological threat at the source, BII has worked to reconfigure critical biological production facilities and redirect their personnel, including the Berdsk Biologics Facility, which is the largest dual-use biological production facility in Russia. Through these efforts we will now enable removal and destruction of BW capacity at Berdsk and will facilitate reconfiguration to support peaceful employment for WMD experts there. BII is also providing for reconfiguration and redirection of personnel at additional biological production facilities in Russia and at production facilities in Georgia and Kazakhstan, including those where DoD has engaged in enhancing biosecurity and destroying WMD infrastructure.

BII is designed to provide former WMD experts with sustainable employment, and BII focuses resources on providing training to bring scientists and facilities up to international standards. This has included success in aiding facilities to meet international standards for Good Laboratory Practice (GLP), Good Manufacturing Practice (GMP) and Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) standards. BII has forged critical partnerships with international accreditation and standards groups, including AAALAC, the Regulatory Affairs Professional Society (RAPS) and others, and BII also targets significant resources toward intellectual property protection and training to further ensure sustainability for engaged scientists.

NWMDE-Eurasia Program Efficacy

The importance and efficacy of these three Eurasian NWMDE initiatives is evidenced by the sobering results of a 2003 survey of Russian scientists with weapons expertise, which revealed that 20 percent of the respondents would consider working in rogue states (including North Korea, Syria, and Iran). However, the study also revealed that participation in western grant programs, such as the ISTC, reduced the likelihood that surveyed participants would consider working for such states.

Engagement of WMD expertise in Iraq and Libya

Since 2003, we have expanded our NWMDE program to include WMD scientists from Iraq and Libya. In FY 2004, we developed a targeted program to redirect former Iraqi WMD scientists. Despite serious security constraints, we have made progress in funding approximately 200 key former WMD personnel in Iraq, and have worked closely with the UK in these efforts.

In conjunction with its decision to dismantle its WMD programs in 2004, Libya explicitly requested Western assistance to engage its former weapons scientists and identified four priority areas for engagement activities: nuclear medicine, water management, precision manufacturing, and environmental monitoring. These two efforts are critical components of our work to reduce threat in the region, and we plan to continue to ensure integration of former WMD personnel in Iraq and Libya into the international peaceful scientific community.

DOS Efforts to Increase Pathogen Security

In addition to our efforts to engage former WMD personnel, the U.S. is also leading global efforts to combat the threat posed by potential terrorist acquisition of dangerous biological materials from poorly-secured laboratories that possess biological agents for legitimate public health and research activities. In addition to the work described in states of the former Soviet Union, the U.S. is working within the international community to raise awareness of the risks, to establish global standards, to assist in developing national legislation and regulations, and to assist individual facilities with upgrading security practices.

At the initiative of the U.S., the Parties to the Biological Weapons Convention focused on this issue in 2004, highlighting national responsibilities under the Convention and United Nations (UN) Security Council Resolution 1540 for ensuring that pathogens are secured. For its part, DOS is funding a project at the World Health Organization to develop pathogen security guidelines with global applicability. We are also a key player in work on pathogen security guidelines that is underway at the Organization for Economic Cooperation and Development. Once these guidelines are ready, our intention is to urge states, relevant international organizations, and professional scientific groups to adopt them as the norm. In addition, we are working with the International Criminal Police Organization, INTERPOL, - and with individual nations - to ensure that countries have necessary legislation to prevent and punish biological weapons-related activity, including efforts by non-State actors to obtain dangerous pathogens.

Important as global standards are, we are not waiting until standards are available before we begin working with states to strengthen pathogen security on a national level and at individual facilities. We are already working with several countries in Asia to raise awareness, to establish national regulations, and to upgrade pathogen security at individual high-priority facilities.

To intensify these efforts, DOS is launching a new program to engage biological facilities and infectious disease personnel in regions where terrorists are known to operate. This program is called the Biosecurity Engagement Program and is designed to engage countries that maintain rapidly growing biotechnology sectors and unsecured dangerous pathogen collections. Through this program, we seek to work with countries and specific facilities to improve biosecurity and biosafety conditions and to improve accounting for dangerous pathogens to combat the insider threat.

Rapid Response to Reduce the WMD Threat at the Source

Nonproliferation and Disarmament Fund (NDF)

As a key complement to DOS, DoD and DOE efforts to reduce the biological and nuclear threat at the source through rapid response to critical needs to destroy WMD and WMD infrastructure worldwide, the Nonproliferation and Disarmament Fund (NDF) is able to address critical, immediate opportunities to reduce the WMD threat at the source.

The NDF reduces the WMD and WMD-terrorist threat by detecting, interdicting, destroying or securing existing weapons, related materials and associated infrastructure. Congress has provided the NDF with a clear mandate to develop and execute projects to stop the proliferation of WMD, missiles and advanced conventional weapons. To execute this mandate, NDF maintains readiness for rapid, agile and flexible responses to a wide variety of situations and conditions—from removing WMD and associated infrastructure in Libya, right-sizing biological weapons facilities in Russia, removing fissile material in Kazakhstan, and destroying SA-3 surface-to-air missiles in Southeast Asia.

NDF proposals span the globe, and the NDF is designed to allow for rapid responses to a wide variety of situations. Many of its projects are developed to take advantage of unanticipated opportunities or circumstances that might arise. For this reason, NDF resources are not committed to any project or region in advance. NDF plays an important and growing role in the war on terror, and has funded efforts to destroy fermentors that could be used to make large amounts of pathogens for biological weapons, as well as non-WMD programs for the elimination of MANPADS, and the destruction of heavy munitions that could be used to make Improvised Explosive Devices (IEDs).

In some instances, NDF may provide resources to others agencies or offices it deems best suited to carry out the activity (e.g. MANPADS elimination). In other cases, the technical complexity of many projects requires the project management experience of NDF staff. In cases where an international agreement, MOU or implementing agreement is required, NDF must first negotiate agreement from foreign governments to support the activity. NDF staff then implements the project, putting contracts in place, personnel on the ground, and equipment on location to accomplish the project goals within the budget approved.

Combating the Nuclear Threat at the Source through Efforts to Combat Nuclear Smuggling

In addition to our efforts to secure nuclear and biological material, technology and expertise or destroy WMD infrastructure, DOS also coordinates the U.S. response to nuclear smuggling incidents, a responsibility that can lead to identification of and further security for unsecured nuclear or radiological sources. Since 9/11 we have strengthened this effort not only to ensure that smuggling attempts are thwarted and that smugglers are arrested and prosecuted, but also to make certain that the fissile or radioactive material involved is secured and source attribution is obtained when possible. Attribution through nuclear forensics can help us understand how and where illicitly trafficked material is diverted from and how we can secure those at-risk facilities. In this effort we work very closely with other agencies in the law enforcement and intelligence communities.

DOS also coordinates interagency efforts to address the threat of nuclear materials smuggling at the source through a Nuclear Smuggling Outreach Initiative. This initiative includes activities aimed at identifying and addressing shortcomings and gaps of at-risk states, including gaps in physical security and regulatory capability to enhance the security of nuclear materials that may not be covered by USG programs. Under this initiative, an interagency team assesses the needs of states identified as high risk. Then DOS engages with foreign officials to determine specific gaps and works with the state and other international partners to help fulfill identified needs.

DOS Diplomatic Initiatives Aimed at Improving International Efforts to Reduce the Nuclear and Biological Threat at the Source

In parallel to the programmatic efforts implemented by DOS and by our partners at DoD, DOE and elsewhere in the USG, DOS also focuses several key bilateral and multilateral initiatives on reducing the nuclear and biological threat at the source.

The Department's diplomatic efforts to combat the WMD threat at the source extend to strengthening appropriate multilateral frameworks and international regimes to enforce the global obligation to ensure that materials, technologies, and expertise are not procured by terrorists or states seeking them. Stemming the proliferation of WMD requires a global effort, and we have actively sought to: support G-8 initiatives aimed at increasing international efforts to combat the WMD threat at the source, bolster the IAEA, involve and obligate more states to improve nuclear and biological security, combat nuclear and biological terrorism, and increase international financing of nonproliferation assistance programs designed to employ weapons experts and secure WMD materials.

G-8 Global Partnership

The Department has led efforts for increased participation by other governments to meet nonproliferation and threat reduction program needs worldwide, since success is critical not only to U.S. security, but to international security. Under the G-8 Global Partnership launched in 2002, G-8 leaders pledged to raise $20 billion over ten years to prevent terrorists from acquiring WMD, with an initial focus on Russia. The President pledged $10 billion for assistance principally in Russia and Eurasia over ten years, and asked other G-7 leaders to match the U.S. contribution. So far the G-7, European Commission and thirteen other donor countries that have joined the Partnership have pledged about $7 billion for programs in Russia and Ukraine, and the Russian Federation has pledged about $2 billion of its own funds.

Among our Global Partnership priorities are efforts specifically focused on reducing the nuclear and biological threats at the source, including construction of 17 facilities for dismantling nuclear submarines to secure the safe storage of reactor compartments, the safe disposition of excess weapons plutonium and other fissile materials, chemical weapons destruction, and enhancing the physical protection of active facilities with nuclear materials. We have also placed a strong emphasis on biological threat reduction activities through the Global Partnership and, in conjunction with Canada, the UK and other G-8 nations, the U.S. supports funding for Global Partnership initiatives to increase biological security and improve infectious disease surveillance. We continue to work with our partners to ensure that our pledges are

turned into concrete results and that the Partnership meets its ambitious goals of securing weapons and materials and reducing weapons stockpiles.

G-8 Bioterrorism Experts Group (BTEX)

To emphasize the importance of multilateral and multisectoral cooperation to combat the threat of bioterrorism, the U.S. established and hosted the initial meeting of the G-8 Bioterrorism Experts Group (BTEX) under the U.S. G-8 Presidency in 2004. BTEX is an international exchange involving foreign policy, homeland security, agriculture, health, and defense experts and was designed to strengthen G-8 actions to prevent and respond to bioterrorism, including diplomatic initiatives to strengthen global expert-to-expert contacts across all of the sectors of the G-8 governments responsible for responding to the bioterrorism threat.

As a result of the G-8 BTEX work initiated in 2004 and the workplan developed in 2005, G-8 nations are continuing and expanding work to: identify gaps and best practices in protecting the food supply from deliberate contamination; strengthen national and international biosurveillance capabilities; share national emergency response plans; and share methodologies for training of law enforcement and public health experts in forensic epidemiology. G-8 nations have also shared reviews of national legal and licensing issues that could affect the possible international sharing of medical countermeasures (vaccines, drugs) and have begun to identify emergency preparedness and response events which G-8 observers can attend.

All of these initiatives represent important, productive steps towards harmonizing and coordinating G-8 and broader international efforts to defend against bioterrorism.

Materials, Protection, Control & Accounting (MPC&A) Program

Outside the G-8 context, DOS is also engaged in other wide-ranging bilateral and multilateral diplomatic initiatives, which aim to control the nuclear and biological threat at the source. Particularly critical are diplomatic efforts that support the ability of the USG to provide upgrades and improvements to the physical protection of nuclear weapons and materials in Russia through DOE's Materials, Protection, Control & Accounting (MPC&A) Program. This program provides physical security and accounting procedures to reduce the threat of theft of nuclear material at facilities where it is housed. Cooperation is a key component for the continued success of such USG nonproliferation programs, and our MPC&A efforts were challenged by a lack of access to some sensitive Russian sites. However, in recent years progress has been made in the area of access, with only a couple of highly sensitive sites remaining at which the U.S. government has not been able to work. We continue to work with our Russian colleagues to secure greater access to facilities and materials where nuclear warheads and nuclear material are vulnerable to potential nuclear terrorism.

In fact, I am pleased to report that we made significant progress with Russia, including agreement at Bratislava last year, to develop a plan of work through 2008 for cooperation on security upgrades of nuclear facilities and for transportation of nuclear warheads slated for disposal. The detailed portions of this plan identify specific buildings for cooperation and upgrades, and will also be adjusted as the Russian Ministry of Defense (MOD) nominates additional sites for cooperative activities. The Departments of Defense and Energy have already begun work to upgrade these sites.

In addition, the Bratislava meeting yielded two important developments in our efforts to secure high-enriched uranium (HEU) from U.S. and Russian-designed research reactors in third countries: a plan to jointly develop low-enriched uranium (LEU) fuel for use in these research reactors instead of HEU and a prioritized timeline to return all U.S. and Russian-origin fresh and spent fuel. The agreed timeline calls for all remaining Russian-origin fresh fuel shipments to be completed by 2006 and spent HEU fuel shipments to be completed by 2010.

U.S. Support for IAEA and IAEA Additional Protocol

The U.S. is also strongly supporting multilateral initiatives to decrease the threat posed by sources of nuclear and biological materials, technologies and expertise worldwide.DOS's budget includes financial support to the IAEA. Since September 11, 2001, the USG has contributed over $25 million to assist states in bolstering their nuclear and radiological security capabilities for civilian facilities and activities.

Through our support for the IAEA, the U.S. works toward ensuring that States are held accountable for their use to prevent proliferation of nuclear weapons material and technology. To that end, we are supporting universal acceptance of the IAEA Additional Protocol. The Additional Protocol plays an important role in reducing the risk of nuclear proliferation, and promotes our goal of verifying other states' compliance with their nonproliferation obligations. The greater verification role of

the IAEA provided by the Additional Protocol will facilitate detection of undeclared nuclear activity at an earlier stage. Our global nonproliferation efforts are much more effective when undeclared nuclear activity and nuclear weapons programs are thwarted in their infancy.

Convention on the Physical Protection of Nuclear Material (CPPNM)

While greater oversight by the IAEA contributes to our nuclear nonproliferation efforts to ensure that State sources of nuclear materials, technology and expertise do not pursue clandestine nuclear WMD programs, it is also critical that individual states share responsibility for combating nuclear terrorism by securing their nuclear materials at the source. Accordingly, the Department has sought the broadest possible participation in international agreements that obligate States to be proactive against proliferation and nuclear terrorism. These agreements and commitments strengthen nuclear security worldwide and spread the cost of improving physical nuclear security among many states, all of whom benefit from these efforts.

To that end, the U.S. strongly supports recent progress under the 1979 Convention on the Physical Protection of Nuclear Material (CPPNM). On July 8, 2005, in a culmination of eight years of USG efforts, a diplomatic conference of more than eighty-five States Parties to the CPPNM, meeting at the IAEA in Vienna, adopted by consensus an Amendment that significantly broadens the scope of the original Convention. The Convention was of limited scope, with physical protection obligations covering only nuclear material used for peaceful purposes while in international transport and storage incidental to such transport. The Amendment to the Convention will provide a treaty-based anchor for an international regime for the physical protection worldwide of nuclear material and nuclear facilities used for peaceful purposes.

Reducing Nuclear Threat at the Source through the Nuclear Terrorism Convention

Concurrent with our efforts to amend the CPPNM, we have made other diplomatic strides to further combat the threat of nuclear terrorism by providing a framework for preventing terrorists from gaining access to nuclear weapons and material from State sources. In February, 2005, President Bush and Russian President Putin called for early adoption of the International Convention for the Suppression of Acts of Nuclear Terrorism (Nuclear Terrorism Convention), as well as the Amendment to the CPPNM. On April 13, 2005, the Nuclear Terrorism Convention was unanimously adopted by consensus by the United Nations (UN) General Assembly. The Russian Federation was the first signatory when the Convention opened for signatures on September 14, 2005, and the United States, the second. Our support for the Nuclear Terrorism Convention continues our policy of international cooperation among states, which is characterized by parallel, multilateral or joint action towards common nonproliferation goals.

Radiological Security

The United States has developed and pursued a proactive strategy to strengthen the control of radioactive sources and materials globally, particularly those sources that could be used to build a radioactive dispersal device or ″dirty bomb″. The U.S. strategy seeks to (1) broaden international adherence to the IAEA Code of Conduct on the Safety and Security of Radioactive Sources (Code of Conduct), a voluntary set of national guidelines for cradle-to-grave control of sources; (2) promote global implementation of the IAEA Guidance on the Import and Export of Radioactive Sources (Guidance) that is supplementary to the Code of Conduct, to ensure that high-risk radioactive sources are supplied only to authorized end-users in countries that can control them; and (3) enhance the provision of technical and regulatory assistance to developing countries.

After the September 11, 2001, attacks, the U.S. was a key player in revising the Code of Conduct, to enhance its security elements and effectiveness in preventing terrorists from obtaining radioactive material for use in a radiological dispersal device. In addition, the U.S. took the lead in developing and gaining political momentum for the import/export Guidance, the first international import and export framework for radioactive sources. The revised Code of Conduct and Guidance were approved by the IAEA Board of Governors in 2003 and 2004, respectively, solidifying their role as global standards. The U.S. has been successful in gaining high-level political commitments to the Code of Conduct and import/export controls in forums such as the 2003, 2004, and 2005 G-8 Summits; the U.S.-EU Shannon Summit; the Asia-Pacific Economic Cooperation (APEC); and the Organization on Security Cooperation in Europe (OSCE); as well as in gaining national commitments to the Code of Conduct by more than 80 countries.

Conclusion

The programs and initiatives outlined above provide excellent opportunities for DOS to introduce new the technologies and ideas to combat states and terrorists attempting to achieve a biological or radiological capability. Our efforts also require that we look for opportunities to develop new partnerships, both public and private, that extend efforts across the globe to defense against this threat.

DOS is, in particular, interested in strengthening security at WMD facilities by emphasizing to countries and businesses within radiological and biological industries to improve access controls by using advanced biometric technologies, improved cybersecurity measures to protect such facilities from hacker sabotage, and improved background checks and screening procedures to protect against the insider threat.

To improve our efforts to prevent States and terrorists from acquiring WMD materials, technologies and expertise at the source, I should note that we are actively seeking to work in partnership with States, nongovernmental organizations, and industry in close coordination with our interagency partners. This approach allows us the flexibility to tailor our efforts to ensure sustainability and success for the programs we put in place, a concept emphasized by Secretary Rice in her vision of Transformational Diplomacy.

Looking to the future, the Department will continue to make implementation of efforts to secure sources of nuclear and biological WMD materials, technologies, and expertise among our highest priorities. This will require improvisation and innovation to keep one step ahead of proliferators. Working with DOE , DoD, other government agencies, the private sector, relevant international organizations and other like-minded states, we will continue to invest heavily in keeping the world's most dangerous weapons out of the hands of the world's most dangerous people.

Mr. LINDER. Mr. David.

STATEMENT OF JACK DAVID, DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR COMBATING WEAPONS OF MASS DESTRUCTION AND NEGOTIATIONS POLICY

Mr. DAVID. Chairman Linder, Congressman Langevin, members of the subcommittee, it is an honor and privilege to appear before you today; and I thank you for it.

I come here today to describe the current status and recent developments in the Defense Department's Cooperative Threat Reduction, or CTR, program.

CTR fits within a broad strategic and organizational context for DOD known as combating WMD. In order to provide the subcommittee with insight to the broader context, I have used my prepared statement to describe it. I will focus my oral remarks more narrowly to address the challenges presented by fissile material security and biological weapons proliferation prevention.

Mr. Chairman, the first point I will make about fissile material security is that this is principally not a responsibility assigned to the Department of Defense. Of course, we secure our own material working with the Department of Energy, which manages our nuclear stockpile. However, with respect to assistance to contributing to security of fissile material in other countries, DOD's focus is on fissile material in weaponized form. This predominantly means security of nuclear warheads.

I mention this because the Departments of Defense and Energy tend to define our different mission areas based on the threat of fissile material at large, which is DOE, and nuclear warheads specifically, which is DOE and DOD. The distinction is not absolute, as in the case of WMD border security, where both departments manage separate but coordinated programs to address smuggling of nuclear materials. However, broadly speaking, it is important to

think of DOD's CTR efforts supporting nuclear material security as focused primarily on warheads.

With respect to warheads, DOD, through the CTR program, began addressing warhead security over a decade ago when it helped Kyrgyzstan, Belarus and Ukraine securely repatriate their warheads to Russia. The issue of warhead security continues to be of great concern to us, given the magnitude of the crisis that would be posed by a warhead gone missing.

With the Bratislava Nuclear Security Cooperation Initiative (referred to by Mr. Paul) that Presidents Bush and Putin announced in February, 2005, we now are poised to complete this important security work at Russian nuclear warhead storage sites by 2008; and I might add that this is a perfect illustration of the cooperation and the coordination between the Department of Energy and the Department of Defense in dividing the work and getting it done right.

This accelerated work was already under way through CTR and the related Department of Energy program. The work to secure Russia's nuclear weapons storage site was not programmed for completion before 2011. What was achieved by Bratislava was Russian agreement to supply information promptly on all warhead sites where Moscow concluded that it needed U.S. assistance. This, in turn, allowed us to agree to accelerate the work.

Russia met its commitment to provide information about warhead sites for which it could use security assistance by providing detailed information in June, 2005. This allowed U.S. agencies and the Russian government to agree on an accelerated schedule to upgrade certain of the sites by 2008, 3 years early.

In addition to securing warhead sites, CTR also supports safe and secure transport of Russian warheads from areas where they are detached from delivery systems to long-term storage or dismantling sites.

I need to be very clear about CTR's warhead security work. We are not enhancing security of warheads attached to operational nuclear delivery systems. Rather, we are supporting Russia in its responsibility to secure its extensive warhead inventory across its vast and often remote array of storage facilities.

The U.S. will be able to say by 2008 that we have done all we can to bring the security of Russia's nuclear weapons up to safer standards. That will be a significant achievement.

CTR activities also seek to address the threat of biological weapons. The CTR Threat Agent Detection and Response project, or TADR—I don't like acronyms much—the Threat Agent Detection and Response project addresses the threat of poorly secured dangerous pathogens in former Soviet Union countries at the same time as it strengthens our ability to deal with these pathogens from wherever they may come.

TADR is being implemented in Central Asian and Caucasus states. It is a web-based disease surveillance network that replaces the Soviet system of maintaining libraries of dangerous pathogens in numerous unsecured locations. It will be a vast improvement when it is fully implemented, and it is being implemented day by day.

Through the TADR Program, we consolidate dangerous pathogen strains currently dispersed at various locations within a country in a central laboratory located in the capital city. The central laboratory that we help to construct and to design is designed to have the ability to characterize and securely store samples of the pathogen strains brought to it.

A very important feature of this program is that the U.S. receives samples of each strain. This helps to enable us to determine in the future whether a disease outbreak is naturally occurring or a potential bioterror event.

In 2005, we signed agreements on the Threat Assistance Detection and Reduction program with Azerbaijan and with Ukraine. These TADR program agreements follow others already in place with Georgia, with Uzbekistan and with Kazakhstan.

The TADR project has been a key initiative for this Administration. We believe it helps meet a significant, unfilled requirement for the U.S. to stay abreast of and combat the global bioterror threat. TADR-supplied equipment and training already in place have been used to identify Avian Influenza in Ukraine.

Mr. Chairman, I also would like to describe what DOD is doing to address the biological threat that is facing U.S. forces. Policy aspects of this issue are not dealt with by my CTR policy office, but by another office under my purview, my counter proliferation policy office.

An important conclusion of the QDR was that the Department should focus on new defensive capabilities in the anticipation of a continued evolution of WMD threats. In response, DOD has decided to reallocate funding within the Chem-Bio Defense program to invest over $1.5 billion over the next 5 years to develop broad-spectrum countermeasures against advanced biological threats. Rather than continuing the traditional approach to developing countermeasures, which in effect resulted in one drug for one bug, DOD will conduct research to develop drugs that each can counter several pathogens.

One example is the research we will be conducting to develop a single pharmaceutical to counter all types of viral hemorrhagic fevers, like Ebola and Marburg. Another is the effort we will make to develop a single pharmaceutical for all intercellular pathogens, like Plague. In both cases, we will be attempting to build on molecular biotechnology cutting edge technologies currently available.

These initiatives will support combating WMD efforts in general but will be of particular benefit to our forces that may well be ordered to deploy to places where these fevers pose a risk. Having one drug that can counter many bugs will improve military effectiveness by getting forces into the theater more quickly, by protecting our forces more effectively, and complicating an adversary's military calculus on the effect of his potential use of lethal pathogens against our forces.

In conclusion, Mr. Chairman, DOD understands that combating the spread of weapons of mass destruction requires thoughtful planning, adaptability to changing circumstances, and unwavering determination. These, we believe, are reflected in our new strategic guidance, realigned organizational structure, and in changes we are making to our day-to-day activities.

Our commitment to success in this endeavor is absolute. Failure is not an option. Congress is an essential partner in this fight, and we look forward to continuing our work together. Thank you again for inviting me to testify.

Mr. LINDER. Thank you, Mr. David.

[The statement of Mr. David follows:]

PREPARED STATEMENT OF JACK DAVID

Chairman Linder, Congressman Langevin, Members of the Subcommittee, it is an honor to appear today to describe the current status and recent developments in the Defense Department's Cooperative Threat Reduction (CTR) program, with particular attention to security of fissile materials and biological weapons proliferation prevention. The portions of the CTR program related to these issues are important in and of themselves. However, they also fit within an important broader context of DoD's efforts to combat the proliferation of weapons of mass destruction (WMD). In order to illuminate the broader context for the subcommittee, I will use my prepared statement to describe the full range of DoD's efforts to combat the proliferation of WMD and our plans to implement recommendations outlined in the Quadrennial Defense Review (QDR) regarding WMD.

The missions of preventing proliferation of WMD, preventing the use of WMD and enabling our warfighters to continue operations in a WMD environment are not new. Since December 2002, when the President set forth the National Strategy to Combat Weapons of Mass Destruction, the Department has taken a number of measures to enable us better to implement the Strategy. At the same time, while adapting at the strategic level, we have been carrying out the day-to-day activities—some ongoing, some new, such as the Proliferation Security Initiative (PSI)—to implement policies dictated by the Strategy.

Strategic Guidance

At the strategic level, preventing hostile states and non-state actors from acquiring or using WMD is one of the four priorities the Department identified in the Quadrennial Defense Review just issued by Secretary Rumsfeld on February 6, 2006. This is the first QDR that has devoted such attention to the threat of WMD. Also at the strategic level, Joint Chiefs Chairman General Peter Pace issued the first-ever National Military Strategy to Combat Weapons of Mass Destruction on February 13, 2006. Secretary Rumsfeld also endorsed the National Military Strategy to Combat WMD. The strategic approach of the QDR and of the National Military Strategy to Combat WMD is built on the "three pillars" of combating WMD identified in the 2002 National Strategy to Combat WMD: nonproliferation, counterproliferation and consequence management. We define these terms as follows:

Nonproliferation—Actions to prevent the proliferation of weapons of mass destruction by dissuading or impeding access to, or distribution of, sensitive technologies, material, and expertise.

Counterproliferation—Actions to defeat the threat and/or use of weapons of mass destruction against the United States, U.S. Armed Forces, its allies, and partners.

WMD Consequence Management—Actions taken to mitigate the effects of a WMD attack, or event, and to restore essential operations and services at home and abroad.

The National Military Strategy to Combat WMD identifies eight military mission areas that support the pillars in the National Strategy: offensive operations, elimination operations, interdiction operations, active defense, passive defense, WMD consequence management, security cooperation and partner activities, and threat reduction cooperation.

This strategic framework is the Department's way of dividing the broad "combating WMD" mission into specific, definable, manageable activities. By dividing the mission in this way, we can address it with greater focus in the budget, training, doctrine and policy processes.

Organizing for the Combating WMD Mission

In addition to better defining the strategic framework to address WMD, the Department of Defense has transformed its organizational structure to better combat WMD. On January 6, 2005, the Secretary of Defense designated the United States Strategic Command (STRATCOM) as the Department's lead for synchronizing and integrating combating WMD operational efforts in support of our Combatant Commanders. In this new role, STRATCOM supports other Combatant Commanders as they execute combating WMD operations. On January 31, 2006, the Secretary of De-

fense gave the Director of the Defense Threat Reduction Agency (DTRA) an additional duty by appointing him Director of STRATCOM's Combating WMD Center (SCC). This appointment was recommended by the QDR. It is intended to enhance STRATCOM's ability to synchronize and integrate the Department's combating WMD operational efforts. STRATCOM, through the SCC, is charged with identifying combating WMD requirements and advocating for them throughout the budget process. Secretary Rumsfeld, in his January 6, 2005 letter designating STRATCOM as the DoD lead for synchronizing and integrating DoD's combating WMD efforts, specifically directed STRATCOM to address WMD elimination and interdiction as its first two missions and, in regard to each, to substantially increase our capabilities.

Complementing the WMD assignment to STRATCOM, all DoD components have been directed to realign themselves to improve execution of the combating WMD mission. Within the Office of the Under Secretary of Defense for Policy, for example, my own office realigned to create a near-single point of contact for policy support of the combating WMD mission. My office is now responsible for six of eight mission areas identified in the National Military Strategy to Combat WMD: elimination operations, interdiction operations, active defense, passive defense, security cooperation and partner activities and threat reduction cooperation. My sister office, Forces Policy, is responsible for the ″offensive operations″ mission area. The Policy Organization's oversight of the ″consequence management″ mission is still being addressed.

The goal of DoD's recent elaborations of strategy and rearrangement of components is summed up by quoting the following words from President Bush's January 20, 2004, State of the Union address: ″America is committed to keeping the world's most dangerous weapons out of the hands of the most dangerous regimes.″ To fulfill this commitment, the QDR directs that ″national efforts to counter the threat posed by weapons of mass destruction must incorporate both preventive and responsive dimensions.″ Preventive activities include those that: build and expand global partnerships aimed at preventing proliferation; stop WMD-related trafficking; help friendly governments improve controls over existing WMD; and discredit WMD as an instrument of national power. When preventive activities fail, DoD must be prepared to respond. DoD must be prepared to locate, secure and destroy WMD.

Preventive Dimension of Combating WMD

The Toolkit for Preventive Activities

With respect to the preventive dimension, we have long viewed nonproliferation treaties and export control regimes as integral elements of our strategy for combating WMD. These treaties and regimes include the Nuclear Non-Proliferation Treaty, the Chemical Weapons Convention, the Biological Weapons Convention, the Nuclear Suppliers Group, the Australia Group, the Wassenaar Arrangement and the Missile Technology Control Regime. DoD brings significant policy and technical expertise to bear on enforcement of these regimes through my office, Combating WMD & Negotiations Policy and through the Defense Technology Security Administration.

Interdiction

While these regimes are important to preventing proliferation of WMD, not all countries are members of all regimes and many countries that are members cheat. WMD-related programs of countries like Iran and North Korea show the importance of additional measures such as interdiction. Interdiction is an essential component of our effort to prevent proliferation activities of both suppliers and customers. The threat of interdiction increases the costs for proliferators. It may even deter some suppliers from getting into the business of proliferation. DoD is taking steps to strengthen U.S. military capabilities to support interdiction. In October 2005, the Naval War College organized the first government-wide, classified gaming exercise for all U.S. agencies involved in interdiction. The U.S. Navy has improved shipboarding and cargo assessment by validating its new Visit Board Search and Seizure team capability. The Defense Intelligence Agency has established a new division for interdiction support to DoD policy makers. These steps and others being taken will give us an ever-improving interdiction capability.

The Proliferation Security Initiative (PSI)

Since President Bush launched the PSI in May 2003, we have worked more closely with other governments on interdiction. The PSI has encouraged the United States and other countries to collaborate to interdict WMD-related shipments bound to and from states of concern. It also has encouraged and enabled them to improve national capabilities supporting interdiction of WMD-related shipments. As a result, like-minded nations are developing a more robust arsenal of WMD interdiction tools.

PSI participants define interdiction broadly to include military, law enforcement, intelligence, and diplomatic efforts to impede and stop proliferation≥-related shipments. The PSI concerns shipments by sea, air or land, as well as trans-modal ship-

ments. Today more than 75 countries from all regions of the world have indicated support for the PSI. We continue to discuss the initiative with key states in the areas where proliferators may operate.

Cooperative Threat Reduction (CTR)

Mr. Chairman, Congress already is familiar with the history and details of the Cooperative Threat Reduction program. The Under Secretary of Defense for Policy, through my office, provides policy guidance and oversight for the Cooperative Threat Reduction program. The Defense Threat Reduction Agency implements that guidance.

The CTR program supports two of the mission areas identified by the National Military Strategy to Combat WMD: threat reduction cooperation and security cooperation/partner activities. The program continues to help eliminate WMD material and enhance security for permissible stocks of WMD, particularly WMD left over in the former Soviet Union. As the subcommittee requested, I will focus my testimony on recent developments in CTR, as well as on priorities for the year ahead. I also will highlight the nuclear security and biodefense areas in which the subcommittee has expressed interest.

DoD has accomplished a great deal by means of the CTR program in fiscal years 2005 and 2006-to-date. In this timeframe, CTR continued its WMD infrastructure elimination work in Russia: CTR projects destroyed 42 intercontinental missiles and continued work to destroy SS-24/25 mobile missiles as well as their rail- or road-mobile launchers. CTR has also continued work on the Chemical Weapons Destruction Facility at Shchuch'ye. The Shchuch'ye facility will provide Russia a capability to eliminate some 2.1 million artillery shells and rockets loaded with nerve agent. The shells and rockets to be destroyed are very proliferable as they easily can be transported. At Shchuch'ye, both the Russian-built and CTR-built main chemical weapons elimination buildings stand near completion. They are ready to be outfitted internally with chemical handling and neutralization equipment.

Also in Russia, CTR has continued its assistance to improve the security of nuclear warheads in storage. With the President's Bratislava Nuclear Security Cooperation Initiative of February 2005, we accelerated work that was already under way through CTR and a related Department of Energy program. This work was not programmed for completion before 2011. We now are poised to complete our security work at Russian nuclear warhead storage sites by 2008.

What was achieved at Bratislava was Russian agreement to supply information promptly on all warhead sites where Moscow viewed U.S. assistance to be necessary. Russia met that commitment by providing detailed information in June 2005, which allowed U.S. agencies and the Russian government to agree on an accelerated schedule to upgrade security at select sites by 2008.

Let me be clear: the U.S. is not enhancing security of warheads attached to operational nuclear delivery systems; rather, we are supporting Russia in its responsibility to secure its extensive warhead inventory across its vast and often remote array of storage facilities. The U.S. will be able to say by 2008 that we have done all we can to bring security of Russia's nuclear weapons up to credible standards. That will be a significant achievement. We needed Congressional help with this endeavor, and Congress delivered: the accelerated schedule required an additional $44.5 million in Fiscal Year 2006 funds, which were included in the recently enacted Supplemental Appropriations measure. We appreciate this support very much and look forward to keeping Congress updated on the progress we make implementing the Bratislava Initiative.

DoD implementation of CTR programs in the past year also has addressed the threat of biological weapons. The CTR "Threat Agent Detection and Response" (TADR) project addresses the threat of loose dangerous pathogens in former Soviet Union countries at the same time as it strengthens our ability to deal with these pathogens should they come from another source.

TADR is being implemented in Central Asian and Caucasus states. It is a web-based disease surveillance network that replaces the Soviet system of maintaining libraries of dangerous pathogens in unsecured locations. In the TADR program, we consolidate dangerous pathogen strains currently dispersed at numerous locations within a country in to a few central locations. We help to construct Central Reference Laboratories typically in the capital cities of partner countries. These are designed to have the ability to characterize and securely store collected samples of dangerous pathogens. A very important feature of the TADR program is that the U.S. receives samples of each of the collected pathogen strains. This will better enable us to determine whether a disease outbreak is naturally occurring or a potential bio-terror event.

In 2005, we signed agreements on TADR assistance with Azerbaijan and with Ukraine. These TADR program agreements follow others already in place with

Georgia, Uzbekistan and Kazakhstan. The TADR project has been a key initiative for this Administration. We believe it helps meet a significant, unfilled requirement for the U.S. to stay abreast of and combat the global bio-terror threat. TADR-supplied equipment and training already in place have been used to identify Avian Influenza.

During the past year, DoD also made advances in combating WMD as a result of its CTR WMD border security project. This project is known as the WMD-Proliferation Prevention Initiative (PPI). The PPI was conceived early in the present Administration and influenced heavily by the September 11 attacks. DoD took the CTR program in a fundamentally new direction when it introduced PPI. Before PPI was introduced, the CTR program dealt with WMD only at its source.

9/11 highlighted the need to address the threat of ″WMD-on-the-move.″ PPI focuses on countries that are willing to try to stop WMD on the move but lack resources to do so. In initiating PPI, DoD expanded the CTR program from simply helping countries to destroy WMD and related items in place to helping countries to build detection/interdiction capabilities. PPI is now working in Ukraine, Uzbekistan, and Azerbaijan. We recently expanded activities in Ukraine, and signed key legal agreements with Kazakhstan to allow us to begin PPI projects with that country as well. We are focusing on Central Asian countries because of their proximity to Russia in order to create a WMD ″safety net.″ As successful as we hope the CTR PPI projects are, DoD is not limiting these combating WMD projects to merely supplying equipment through PPI. We are working with the Combatant Commands to provide training, doctrine and tactics for the equipment we help bring to CTR PPI partners.

Finally, I can report that in May 2005, DoD took the initiative to extend the CTR program's legal framework with Russia - over one-year ahead of expiration. We took this step to avoid a disruption of CTR's important work such as occurred seven years ago, the last time the framework required extension. We are pleased to report that the extension protocol was finally signed on June 17, with acceptable terms for the U.S. This will allow CTR's important work to secure and eliminate WMD and related infrastructure in Russia to continue uninterrupted.

International Counterproliferation Program (ICP)

Mr. Chairman, I want to take a moment to describe DoD's International Counterproliferation Program, which is a small but important element of our ″toolkit″ for combating proliferation of WMD, particularly radiological material. As in the case of the CTR program, the ICP program is implemented by the Defense Threat Reduction Agency. Also like the CTR program, policy matters for ICP are handled by my office. The March 2006 transfer of ICP from its previous home in the Eurasia regional office to be in my office is another example of how we are consolidating and aligning DoD policy responsibilities related to combating WMD.

The ICP attempts to build capabilities to secure borders of participating nations against illicit trafficking among partner nations. The ICP works with the US Customs and Border Protection Service, the FBI, and other U.S. agencies to provide training that is focused specifically at the law enforcement and regulatory level. It is intended to make proliferation of WMD across borders much more difficult. At first glance, the ICP looks a lot like the new CTR border security initiative I described above. However, there are key differences in programmatics, authorities, and policy objectives.

Programmatically, the ICP has always been a ″niche″ activity, with funding at $12-$15 million annually. The ICP also has not provided participating countries with heavy infrastructure or extensive procurement, as CTR often has and does. The ICP's authorities are also more geographically flexible than those of CTR: with approval of the Secretary of Defense, the ICP can be implemented in any country in the world. As you know, absent Presidential approval to work elsewhere, the CTR program may be implemented only in countries of the Former Soviet Union. In addition, the ICP has regional objectives not present with CTR. ICP training sessions and other activities are conducted, to the extent possible, on a multilateral basis in order that partner countries can be encouraged to think about WMD border security as a regional challenge, not merely a national one.

ICP is still new to my office and we are conducting a top-to-bottom review and revalidation of past practices. We will ensure that ICP activities are supportive of national strategies, coordinated with other agencies' activities, and leveraged with other programs to achieve the best results possible.

Responsive Dimension of Combating WMD

Investing for the Future

Developing our strategies, restructuring our organizations and changing our daily activities will be of no avail without adequate funding for corresponding capabilities,

technologies and mission areas. The autumn 2005 program/budget review undertook a comprehensive analysis of combating WMD funding. This analytical process was carried through the QDR. Beginning with the FY2006 budget submission, we added $2 billion to the previous $7.6 billion Fiscal Year 2006-2011 allocation for the Chemical Biological Defense Program and related infrastructure (an increase of almost 20%). The increase in chem-bio defense funding represents a down payment toward elevating the policy and programmatic attention we must give this area.

Joint Task Force for Elimination

One of the earliest lessons learned from our military operations in Iraq was that DoD needed a well organized, well trained force to be able to quickly and systematically locate, seize, secure, disable and safeguard an adversary's WMD program, including sites, laboratories, materials, and associated scientists and other personnel.

The Army's 20th Support Command, located north of Baltimore at the Edgewood Area of Aberdeen Proving Ground, was stood up as an Army headquarters. It is tasked to provide technically qualified chemical, biological, radiological, nuclear and high-yield Explosives (CBRNE) response forces to support geographic Combatant Commanders. This unique organization includes the Army's Technical Escort Battalions as well as an Army Explosive Ordnance Disposal (EOD) Group. While the 20th was not established until after Operation Iraqi Freedom, many of its units participated in the search for WMD in Iraq.

The 20th Headquarters was activated in 2004. However, while the military units assigned to this headquarters are deployable, the headquarters itself cannot deploy today since nearly two-thirds of the staff is composed of government civilians or contractors. In the QDR process, DoD leadership approved a proposal to assign 20th Support Command the task of becoming a deployable headquarters that could command and control these types of operations. Establishing a joint task force for elimination is a key element of the Department's vision, as articulated by the QDR, to deal with all aspects of the threat posed by weapons of mass destruction. The 20th gives us a base on which to build.

Biodefense Initiative

Another key conclusion of the QDR was that the Department should focus on new defensive capabilities in anticipation of the continued evolution of WMD threats. In response, DoD has decided to reallocate funding within the Chem-Bio Defense program to invest over $1.5B over the next five years to develop broad-spectrum countermeasures against advanced biological threats. Rather than continuing the traditional approach to developing countermeasures—which in effect results in ″one drug, one bug″—DoD will conduct research to develop drugs that each can counter several pathogens. Another example is the research we will be conducting to develop a single pharmaceutical to counter all types of viral hemorrhagic fevers (like Ebola and Marburg). Another is the effort we will make to develop a single pharmaceutical for all ″intracellular″ pathogens, like Plague. In both cases, we will be leveraging molecular biotechnology cutting edge technologies currently available. These initiatives will support combating WMD efforts in general but will be of particular benefit to our forces that may well be ordered to deploy to places where these fevers pose a risk. Having one drug that can counter many bugs will improve military effectiveness by getting forces into the theater more quickly, protecting our forces more effectively and complicating an adversary's military calculus on the effect of his potential use of lethal pathogens against them.

Building Partner Capacity

More than ever before, we need partners be to be prepared for operations with us in a CBRN world. In 2002, the Department proposed creation of a CBRN Defense Battalion for NATO. This U.S. concept was endorsed by NATO defense ministers during the 2002 Prague Summit. Elements of a fully operational NATO CBRN Defense Battalion supported the 2004 Summer Olympics just over one year later. The NATO Battalion includes a CBRN joint assessment team and mobile chemical, biological and radiological laboratories; it has received personnel and capability support from seventeen NATO nations to date. The concept for the Battalion and the way it was quickly institutionalized were unprecedented at NATO. We continue to encourage strengthening of the Battalion's capabilities and also encourage member nations to improve their own combating WMD capabilities. The Battalion will be a model for future collaboration as we expand counterproliferation discussions with other nations.

We are aggressively pursuing the establishment of formal, regular bilateral discussions with international partners outside NATO on counterproliferation issues ranging from policy and operational support to detailed technical cooperation. We have or are establishing such bilateral working groups with countries from Europe, the Middle East, and Asia to respond to the use of WMD against us. Our partners

in the working groups share our desire to prepare to defend against the WMD threat. A central goal of the bilateral working groups is to ensure that U.S. and potential coalition partners can execute combined operations in a WMD environment.

The challenge of interoperability is significant in a conventional warfighting environment. The challenge in a WMD situation is even greater as it raises many complicating issues. For example, if our combat or transport aircraft are returning from an area where WMD has been employed, we need to know in advance what decontamination our allies will require in order to ensure ready access to important way stations and forward depots. Similar problems relate to the decontamination of forces—including potentially wounded personnel—who will require immediate evacuation and attention. We have launched discussions with our NATO allies as well with several key potential coalition partners on these and other issues we believe need to be resolved for combined operations in a WMD environment.

Building partner capacity takes many forms and can include building legal capacities. In 2005, Navy, Joint Staff, General Counsel and OSD-Policy representatives completed three years of activity to expand legal authorities against maritime trafficking in WMD-related materials. We helped secure adoption of amendments to the Convention on Suppression of Unlawful Acts at Sea Against the Safety of Maritime Navigation, establishing the first international standard for criminalizing maritime activities related to WMD as well as a comprehensive boarding regime for WMD-related maritime shipments. Once the Amendment enters into force, after ratification by 12 member-states, we will have a new law to prosecute violators and press for greater vigilance against trafficking in WMD.

Conclusion

Mr. Chairman, DoD understands that combating the spread of weapons of mass destruction requires thoughtful planning, adaptability to changing circumstances and unwavering determination. These, we believe, are reflected in our new strategic guidance, realigned organizational structure, and in changes we are making to our day-to-day activities. Our commitment to success in this endeavor is absolute. Failure is not an option. Congress is an essential partner in this fight, and we look forward to continuing our work together. Thank you again for inviting me to testify.

Mr. LINDER. Mr. David, can President Putin deliver on behalf of Ukraine or Kazakhstan?

Mr. DAVID. Deliver on behalf of Ukraine?

Mr. LINDER. Access, for example, to sites. Clearly, all the sites weren't in Russia.

Mr. DAVID. I think that we are working closely with Kazakhstan and Ukraine and the governments in those places, but I don't know that, at this point in time, President Putin has very much influence or information to support our efforts in those two countries that we don't otherwise have.

Mr. LINDER. So the Bratislava agreement does not affect any of the other—

Mr. DAVID. No.

Mr. LINDER. Since we have asked Russia for access to their sites, it is because are we giving them access to ours? Fort Detrick, for example?

Mr. DAVID. No. In fact, we have access to their sites—when we have access to their sites, it is because we are in a position to provide assistance. It is for the assistance that we can provide that is in their interest and in our interest that they will give us access. This is not a program or this is not a situation like the START Agreement where there are mutual inspections.

Mr. LINDER. We have more access to their nuclear sites than their biological sites; is that correct?

Mr. DAVID. Yes, that is true.

Mr. LINDER. What are we doing about the biology side of the equation?

Mr. DAVID. There are five places where we assist Russia in biological sites for security. There are some limited joint research

projects that we have with Russia. But, other than that, further U.S. support for collaborating with Russia in this way, as we do in Kazakhstan or we do in Azerbaijan, for example, under the CTR program, is prevented because Russia doesn't want us to have access and because we don't have an agreement in place. We can't reach an agreement which will be satisfactory.

Mr. LINDER. You said in 2008 we will be able to say we have done all we can. Is that because we have decided all of the sites are up to credible standards, or is that because the Russians have decided that is the end of the road?

Mr. DAVID. The emphasis on my answer is on the word "we" have done all we can because we have done all that they have allowed to us do.

Mr. LINDER. Mr. Record, what are we doing about Russia's store of smallpox?

Mr. RECORD. Well, we are engaged with them on a broad dialogue on these kind of issues through some of the programs I mentioned, and—

Mr. LINDER. Apparently, I wasn't very clear. What are we doing with Russia with respect to their store of smallpox?

Mr. RECORD. Well, sir, as I said, that is something that we have talked to them through our newly created programs, including the BII and the biological programs I mentioned.

Mr. LINDER. And where are we?

Mr. RECORD. Well, at this point. I can't give you a status report. I would be glad to give you that for the record.

Mr. LINDER. I would like you to do that.

Mr. LINDER. Do we have a sense of how much they are storing?

Mr. RECORD. I don't—I will give that to you.

Mr. LINDER. Do we have a sense of whether they have more today than they had 30 years ago or less? Because some has disappeared.

Mr. RECORD. I will have to get that for you for the record, sir.

Mr. LINDER. Which countries have not held up to their portion of the $20 billion G8 pledge?

Mr. RECORD. Well, the pledging—as you know, I gave general numbers for pledging. Unfortunately, we weren't able to get specific numbers for other countries in terms of their overall pledges.

We have committed about, as I understand it, $3.3 billion of our $10 billion pledge as of fiscal year 2005; and my understanding is the global partnership has not formally exchanged data on actual obligations, so we don't right now have numbers for the other countries, but I can go back and get more information on that.

Mr. LINDER. Do we think it is important?

Mr. RECORD. Yes, we do, absolutely.

Mr. LINDER. Then why aren't we tracking this?

Mr. RECORD. Well, as I say, there is certain data exchange protocols you have in those countries, and it is difficult to get those information, but we can certainly go back and try and get it from you.

Mr. LINDER. Didn't the Republic make a pledge?

Mr. RECORD. Yes, they have.

Mr. LINDER. Did the Republic make a pledge with respect to amounts?

Mr. RECORD. Yes, they have.

Mr. LINDER. And we don't know if they have done anything?

Mr. RECORD. Well, it is hard for us to track information this way.

Mr. LINDER. Why?

Mr. RECORD. Because it is hard to get that information from them. But, as I say, I can try and go back and do that. We did check, sir, before the hearing, so we made those efforts, and we will keep trying to make those efforts.

Mr. LINDER. Mr. Paul, you mentioned in your testimony the program to eliminate 34 metric tons of plutonium in Russia and the U.S. How far along are we?

Mr. PAUL. That is right. It is 34 metric tons in the U.S., 34 metric tons in Russia. Each country has agreed to develop a facility to dispose of that material—

Mr. LINDER. Dispose of it or degrade it?

Mr. PAUL. To ultimately dispose of it, first, by converting it into a mixed oxide and then irradiating it in a light water reactor, a regular commercial reactor.

On the U.S. side, the MOX plant in the Savannah River site in South Carolina, 85 percent finished with design. We started the site preparation back in August, and we intend to—our schedule is to begin construction by the end of this year.

On the Russian side, they are not quite as far along. There have been some hold-ups, more than a 2-year delay due to a dispute over liability issues. There is a liability protocol, an agreement that has been verbally agreed to, but the Russians have not yet signed. We are currently waiting for that signature.

Mr. LINDER. Thank you.

Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman; and thank you again for your testimony, gentlemen.

As I mentioned in my opening statement, security in Russia still concerns me. I think it should concern all of us.

In a previous hearing, Davis Heisinger from the Department of Energy had revealed that his Russian counterpart had informed him that there were some 200 potential nuclear or radiological smuggling incidents last year. Mr. Heisinger's testimony confirms the key judgment of the National Intelligence Council's report at the Congress on the safety and security of Russian nuclear facilities and military forces published in 2004. This report states that undetected smuggling has occurred since the end of the Cold War, and this committee finds this information obviously very disturbing.

Can you tell me what improvements in our nonproliferation programs are needed to reduce the number of smuggling incidents? And is this an issue of funding, or does the problem lie with the political and bureaucratic hurdles that have hindered our efforts with the Russians since the end of the Cold War?

Mr. PAUL. Yes, sir. It is indeed troubling—

Mr. LANGEVIN. The question is for the panel, but we will start with you.

Mr. PAUL. It is indeed troubling to us as well; and it is, of course, why we spend so much time and why you appropriate so many resources to help us secure those facilities. Congress and this com-

mittee has been very supportive of trying to secure those facilities by putting in place the security upgrades and the material protection control and accounting, shifting over from the systems that the Russians previously had that was really human centered to one now that is complemented by having materials accountability, physical protection, control.

As to the Russian customs open reporting that there had been a certain number of smuggling incidents, I don't have a lot of information about what the split is between nuclear or radiological. It is believed to be largely radiological. Both are troubling, of course. But that is why we put so much time and effort and energy into these programs. And even though at times we talk about how proud we are of our success, we also recognize that there is still a tremendous amount of work to be done.

In Russia, in terms of upgrading sites, we have completed 80 percent of the material sites, 64 percent of the warhead sites, and that is really accelerating now in part because of Bratislava but in part because it took quite a while to get the access. We are finally getting the type of access that we need, and we believe that we will be able to complete those security upgrades by 2008.

We, too, are constantly looking for creative ways to accomplish this as fast as we possibly can, but, of course, there are limitations in as much as we are dependent upon cooperation from them. So the cooperation has improved in some areas, in part because of President Bush and President Putin's leadership on this, but I still have to state great caution, that there is still much work to be done.

Mr. LANGEVIN. Given the report of the National Intelligence Council and the detailed smuggling that they have reported on nuclear types of materials or components and given Mr. Heisinger's comments and some information that he related to us from his counterpart, should we and can we have a much higher degree of confidence that that level of smuggling is not occurring anymore?

Mr. PAUL. I think that every day that we secure another site our confidence in preventing those events goes up.

Sure, we hear your concern. That is why we focus so much energy and attention on it—and have in the last 5 years and prior to then as well. Each time we secure a site, each time we secure material, each time we have some success, some progress, get more access, put in more protection and equipment and increase their training and work on sustainability, we improve or increase our confidence by trying to close that gap that you are referring to, that gap that troubles you, and it troubles me.

Mr. LANGEVIN. Isn't it true that that work would be exponentially accelerated if adequate resources were funding these programs?

Mr. PAUL. Certainly. To accomplish more work certainly requires more resources. That is why, since 2001, we have more than doubled the amount of funding placed in nuclear nonproliferation, including securing of material sites in Russia, an extraordinary, really historic increase in resources that have been dedicated to that.

So let me just answer your question by saying yes.

Mr. LANGEVIN. I, for one, don't think we are doing nearly enough with respect to funding these nonproliferation programs; and until

the administration, the Congress gets serious about the value of resources, we are putting our citizens and our country and indeed other nations of the world at great risk.

Mr. RECORD. Let me just say a couple of words. In addition to the funding issues that you are highlighting, I would just like to say a couple of words about the process, and then maybe there is a feedback loop you can see in how we would approach.

There is a Nuclear Trafficking Response Group that is in place. It is a state-led inter-agency body that follows up on individual smuggling cases and reports of these; and we have representatives of a wide number of agencies, law enforcement, Intelligence Community, to ensure that smuggled material is secure and, where possible, to identify the facility or country from which it was smuggled or diverted. And to the extent this group, this NTRG, is able to develop this actionable information, then we would share that with those responsible for carrying out and implementing U.S. assistance programs that are capable of addressing material protection and control. So those would be a loop in that so we can address the problem at the source from a number of cases that we are looking at.

I also draw your attention to the Nuclear Smuggling Outreach Initiative, which conducts very comprehensive reviews of security concerns in priority countries. That is an ongoing effort both in nuclear and radioactive materials, and that is with DOE and other relevant agencies. So where we find gaps existing in this effort, what we do at State is to engage other agencies and to try to close those gaps in cooperation with other agencies and international donors.

Also, the Nuclear Smuggling Outreach conducts comprehensive assessments of other countries' nuclear regulatory capabilities to look at how they can upgrade their own efforts as well.

Mr. DAVID. One of the problems in a cooperative program is that one side—in this case, our side, the United States—sometimes comes to feel that we haven't gotten as much cooperation as we would have liked, as much responsiveness as we would have liked, the kind of action that we would have liked. So, a couple of years ago we instituted a program—I shouldn't say a program—we instituted a method of addressing that, which was the executive review method.

We have executive reviews multiple times a year in each of the countries in which we operate, including Russia. We sit down with the Russians who are in charge of their program, and we can assert our complaints, and we can find ways of resolving matters and moving things forward.

Sometimes the difficulty that they have in being responsive has to do with their capability of advancing quickly enough. They may have budgetary concerns because we require them to contribute their own resources because it is for them, too. It is for them and for us, so we don't pay the whole freight. And we want them to do that, and that is the right thing. So we have these discussions with them, and there are actions that come from those discussions, and we reach compromises on small things to move things forward.

This last year I was in Russia, and we had a problem of an explosion at a particular burn facility for strategic missiles that were

being destroyed. They didn't have the funding because their budget cycle was different than allowed them to do it. So we worked things around so we provided money for a short time, and they paid us back later, but these things do slow up the process to a degree that all of us don't like.

Mr. LINDER. Does the gentleman from Pennsylvania wish to inquire?

Mr. DENT. Yes, thank you, Mr. Chairman.

I just want to get back to the funding issue that Congressman Langevin just raised. Do you believe that the funding for nonproliferation activities is adequate at this current time? Do you feel that you are underfunded? Do you think you need more resources?

Mr. David, do you want to take a crack at that?

Mr. DAVID. I am not sure I—when you asked the question, I thought you were referring to the nonproliferation fund at the State Department—

Mr. DENT. I am sorry, I meant Mr. Record.

Mr. RECORD. You are referring to the NDF program?

Mr. DENT. Correct.

Mr. RECORD. Well, at present, it has certainly been adequate. It is a very versatile program, as I alluded to earlier in my testimony; and it is able to go the full range, from disposing of manpads in one country to servicing their missiles in Southeast Asia. So it has proven to be adequate, including the new challenges.

Mr. DENT. Earlier this week, Congress was notified by the President that insecure fissile material in Russia remains a, quote, national emergency. I assume this relates to the annual certification requirements to maintain the executive branch authority for implementing the various threat reductions productions, is that correct?

Mr. RECORD. That is correct.

Mr. DENT. And which project does this apply to specifically?

Mr. RECORD. Well, it is a broad range. I think it is covered pretty well in my testimony regarding some of the key priorities that we have under the CTR, the dismantlement of fissile material and related efforts.

Mr. DENT. Thank you.

Mr. Paul, can you tell us anything about what is going on in Pakistan these days? There was a problem with Dr. Khan all those years and his proliferation activities. What is the state of affairs in Pakistan with respect to the proliferation issues these days?

Mr. RECORD. Well, we are cooperating with Pakistan, with the IAEA to fully investigate the Kahn network. I think that is what you are looking at, right?

Mr. DENT. Correct.

Mr. RECORD. And we welcome—the foreign ministry just indicated to us that that assistance is going to continue. We look forward to working with them.

We understand that they released Mohammed Farouk from prison. We have withheld comment until we have a better understanding of the conditions of his release in terms of that issue.

But it is important that all countries take steps to ensure that the key members of the network can no longer participate in nonproliferation-related activities. So we look to other countries to deal with that issue.

Mr. DENT. And I guess, finally, I am encouraged to hear that 80 percent of the sites—I think you referred to it, Mr. Paul—have been secured. I guess what worries me is what I don't know and what material may have escaped, unknown to you or any of us. Could you just comment on that? All the material that has been secured is very important, of course, but do you have any idea of what is unsecured or lost or just simply unaccounted for?

Mr. PAUL. It is a great question. Thank you, Congressman. We have concerns, too, about what we don't know, but we also maintain close coordination and cooperation with the Intelligence Community to close that gap in knowledge and try to close the gap that the Congressman referred to between having that sense of confidence that everything is secured. I can assure you and assure the American people that we are doing absolutely everything we can to close both of those gaps.

We do have a level of confidence about the progress that we are making. There is much more work to be done.

To refer back to the question about funding—and your question about funding as well, sir—although the point can be made that by appropriating more funds you can accomplish more work, that is not always the case. Obviously, in a cooperative program there are limitations based on access and based on cooperating with another country whose facility we don't control. Obviously, everyone on this committee recognizes that.

What I can tell you is that, in the area of nonproliferation, in the last 3 years and 5 years, going all the way back to—going back to 2005, we have had historic increases by this Congress and this administration in funding and resources dedicated to nonproliferation, more than doubling the total amount that was being spent in 2001. And none of the programs that I referred to—the securing of the remainder of those sites, for example—is limited by a lack of funds. We are moving as fast as we can.

At some point, more money won't always necessarily get you a quicker rate. That really is the whole point of Bratislava, was to help us have something to manage to accelerate the timetables, which we have done. For example, accelerating the time frame for completing all of those upgrades a full 2 years, to 2008. And we are on schedule, on task and going to meet that deadline, a deadline that all of the experts who have looked at this have said is the soonest you could legitimately hope to get those things accomplished if properly funded, and this Congress and this administration has funded them.

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

Does the gentleman wish to inquire?

Mr. DICKS. Yes. Let me ask you just a couple questions.

We talked a lot about the Cooperative Threat Reduction and the reduction of nuclear weapons. How have we done on chemical and biological weapons? Particularly with Russia, the former Soviet Union, how have we done in that area?

Mr. DAVID. One of the major elements of the CTR program policy aspects of which my office directs for the Secretary is the destruction of chemical weapons in Russia. In that area we have built a chemical destruction facility—we have built part of a chemical destruction facility in Schuchye which will have the capability of de-

stroying tens of thousands of rounds of the most lethal nerve agent known to man in recent years—

Mr. DICKS. Where again was that?

Mr. DAVID. Schuchye—that is my word for the spelling bee, Schuchye—and the total cost is capped at $1.032 billion.

There are two buildings. The Russians are building one. We are building the other. And many of the support facilities are even more cooperative than Russia and the United States, because some of the other support facilities in the vicinity are being paid for with the support from a variety of other countries.

The status of the project right now is that the guts of the factory—the factories are there, but the machinery and the lines and so forth are not ready, are not installed yet.

Mr. DICKS. When do you think the bill—when will you have your initial operating capability?

Mr. DAVID. I believe it could be 2008, but it is probably more likely 2009.

Mr. DICKS. 2009, is that the—

Mr. DAVID. That is more realistic.

Mr. DICKS. Your team is saying 2009.

Mr. DAVID. Yes, 2009.

Mr. DICKS. So we haven't done anything at all in terms of disposing of chemical?

Mr. DAVID. Actual destruction?

Mr. DICKS. Yes.

Mr. DAVID. Russia has disposed of almost none of its chemical weapons. I think Russia is up to 2 percent of its chemical weapons that it is obliged to destroy by 2012. Whereas the United States, for our own chemical weapons, have destroyed 37 percent.

Mr. DICKS. And how much are we funding here?

Mr. DAVID. Schuchye is $1.032 billion, I think.

Mr. DICKS. And we are putting up all of that?

Mr. DAVID. Russia is putting up one of the two destruction buildings; we are putting up the other one.

Mr. DICKS. Why don't you give us, for the record, what our piece is.

Mr. DAVID. I believe it is 1.032—

Mr. DICKS. So that is our piece, all right; and then the Russians are separate.

Mr. DAVID. It is part of one facility, and it is going to all work together.

Mr. DICKS. What about biological weapons? I am talking about Russia now.

Mr. DAVID. Biological weapons in Russia, there is very little we have been able to do in Russia.

Mr. DICKS. Is that because they haven't admitted that they have such weapons?

Mr. DAVID. That is because we suspect that they may continue to have offensive biological programs and because we cannot reach agreement on the terms by which we would help secure more than the five facilities in Russia—biological research facilities in Russia that we do help to now secure.

Mr. DAVID. That's because we suspect that they may continue to have offensive biological programs, and because we cannot reach

agreement on the terms by which we would help secure more than the five facilities in Russia—that we do help to now secure.

Mr. DICKS. So these are two ongoing areas of concern?

Mr. DAVID. Yes.

Mr. DICKS. We've done a lot with nuclear material and nuclear warheads. But we're just really basically getting started here on these other two issues?

Mr. DAVID. We're not even getting started on biological. We're basically—we have done a little bit. And ti doesn't look like, in the near future, we're doing very more much more. There doesn't seem to be disposition on Russia's part to want to do something cooperatively as they do with nuclear.

Mr. DICKS. In the testimony, you talked about helping Russian scientists. How succesful have we been in that—of the people who have been involved with these programs?

Mr. PAUL. Sir, I want to get to that question, but I wanted to go back to Mr. David's—as you know, as I think I mentioned in my testimony, I alluded to it—we've, through our Biochem Redirect Program, I mentioned we've spent more than $80 million since '97 to engage scientists, engineers, technicians in collaborative research. So we're trying to redirect those activities. Now, I know you're trying to get a more specific weapons of concern. In the biological area, I just want to note that, in the program I also mention the BII. We're working closely with our other NDF program—that was mentioned—and with DOD. We're working to reduce the threat at the source to try and reconfigure some of the biological production facilities, including the Berdsk biological facility. We're beginning to get access now to some of these centers. We have still a big problem that Mr. David has alluded to. But with this program, with DOD support and others, we're beginning to get access. And we're trying to reconfigure these facilities, put them over to civilian use, and work with the scientists. So we should—

Mr. DICKS. So these are two ongoing areas of concerns. We have got a lot with nuclear materials and nuclear warheads, but we are just really basically getting started here on these other two issues. We have done a little bit [and] it doesn't look like into the near future we are doing very much more. There doesn't seem to be a disposition on Russia's part to want to do something cooperatively.

In the testimony you talked about helping Russian scientists. How successful have we been in that of the people that have been involved in these programs?

Mr. RECORD. Sir, I would just like to—I want to get to that question, but I want to go back to Mr. David, that as you know, I think I mentioned in the testimony, I alluded to it. We have through our Bio-Chem Redirect Program, we spent more than 50 million since 1997 to engage bioengineers, technicians in collaborative efforts. Now I know you are trying to get to more specific weapons of concern. In the biological area I want to note that in the program I also mentioned the DII, where we are working closely with other NDF programs. We are working to reduce the threat at the source to try and reconfigure some of the biological production facilities, including the Berdsk Biologics Facility. We are beginning to get access now to some of these centers. We still have now a big problem that Mr. David alluded to. But with this program with the DOD

we are beginning to get access [and] we are trying to reconfigure these facilities, put them over to surveillance use and work with the scientists.

Mr. DICKS. This is in Russia?

Mr. RECORD. Yes. We can get you more information about that if you want.

Mr. DICKS. That would be great.

What about this—the scientists now. How many in all of these areas, relocating them. I know we have brought some of them to the United States.

Mr. RECORD. I can't give you the figures on the relocation, but we have worked with I think over 60,000 scientists and technicians that have gotten this training and we spent I think over $269 million total in these efforts across the board.

Mr. DICKS. This is the last point.

Mr. DAVID. Let me add one footnote to that. It is in part because of the difficulty we have had with biological programs in Russia that we have focused local programs and the DOD DTR program, the CTR part that DOD does, in some of the other countries in the former Soviet Union.

Mr. DICKS. You say you have worked with 60,000. How many are out there? How many would be possible recruits for a program like this?

Mr. RECORD. I don't think I have the number for you on that. I can give you the numbers. We have, as I say, two ongoing centers, [and] [over all] Project 1 Center in Moscow and a center in the Ukraine, as I mentioned, and has been in operation since the early 1990s. And those centers are also regional houses in other countries for the former Soviet Union as well. So I think we are coming up to 11 countries as well. I will be glad to give that to you.

Mr. DICKS. Thank you.

Mr. LINDER. The gentleman from Massachusetts.

Mr. MARKEY. Pakistan continues to be a real concern about nuclear nonproliferation, about the securing of nuclear materials inside of their country, the threat that al Qaeda could gain access to them. There is [and] agreement that the President wants the Congress to approve to have a nuclear cooperation agreement with India even though it is a nonsignatory on the Nonproliferation Treaty, even though it does not agree to ban the production of fissile material inside of their country and this, even though according to the yesterday's Indian newspapers, it will, according to their intelligence people, give them the capacity to make 50 nuclear warheads a year because it will free up their indigenous nuclear material for a bomb making program.

What is your concern about the Pakistani response to this, the Pakistani response to us today? If this goes through, they are going to be forced once again to go back into the open market to obtain more fissile materials so they can match the Indian nuclear weapon expansion.

Mr. RECORD. As you know, sir, we are going to start in the very near future a negotiation process with India, Pakistan and other countries in the conference's arm in Geneva to address the fissile material and the Fissile Material Treaty and that is animportant priority for the administration. I know the Indians are expressing

their support for the investigations, and that is going to be animportant element in our process.

I think, as you are probably familiar, the U.S. addressed this issue in the process of the discussions. The Indians were not willing to cease production of the fissile material but we are hopeful that we can, through this treaty process, come up with a treaty that would stop the production limit in this way.

Mr. MARKEY. I understand what you are saying, but since the Indians are clearly not willing to accept that as a condition for this transfer of nuclear material to them anit will free up 50 bombs worth of nuclear material to make more bombs in their country. Aren't you afraid that this will put A.Q. Khan—type scientists back on the road so there is not a gap that develops between the Pakistanis and the Indians? Isn't that really a real threat to our security because obviously it will have to be a clandestine program?

Mr. RECORD. We have worked with both Pakistan and India to improve their nuclear export controls. We feel that—

Mr. MARKEY. I am saying that since we are going to allow India to keep this dual program without full scope safeguards, why would the Pakistanis not empower A.Q. Khan?

Mr. RECORD. As I alluded to earlier, we are fully working with Pakistan to do everything possible to take steps to deal with the A.Q. Khan network. That is anongoing network and we have got good cooperation right now with Pakistan.

Mr. MARKEY. What I am saying is that the Pakistanis are saying you won't have cooperation if the India deal goes through and in my perspective it is kind of reckless to create a dual standard. Since neither country is a signatory to the nonproliferation treaty, one way that frees up 50 bombs worth of material a year, knowing that the other country has for 30 years responded to whatever the other one does, why would we think it wouldn't happen again?

Mr. RECORD. All I can say on your first point, sir, regarding Pakistan, we have had consultations with Pakistan and I have not heard that. I don't think any of my colleagues have heard that.

Mr. MARKEY. That is very dangerous to me, since they have told me that, and I don't know why the experts inside of our government aren't hearing something that the Pakistani officials at the highest level are telling me. I can't believe you haven't heard that. So none of you have heard that from any Pakistani that you have spoken to?

Mr. RECORD. We had consultations with Pakistan recently.

Mr. MARKEY. But none of you have heard that they will respond and ensure that there is not a nuclear bomb gap that develops between India and Pakistan if this agreement goes through? Have any of you heard that from them? They are talking to me but not to you?

Mr. DAVID. I haven't spoken to Pakistanis and I have—

Mr. MARKEY. You have not?

Mr. DAVID. No. But it seems logical, in that context, if India increased its nuclear warheads, Pakistan would want to do the same thing, it is probably logical. The advantage of the deal we are trying to forge with India is great. It brings India into the nonproliferation world.

Mr. MARKEY. The problem is, Mr. David, that the President then flew to Pakistan the next day. Musharraf asked him will you give us the same deal. Bush, the President, said no, we won't give you the same deal. So the issue isn't India. The issue is Pakistan. Talk to me about Pakistan.

Mr. DAVID. Well, one thing that I can say about Pakistan that differentiates India from Pakistan is that Pakistan will not allow anyone, including the IAEA, which by the way through Director ElBaradei, supports the India—

Mr. MARKEY. As you know, that is false though, Mr. David. As you know, the Indians are not going to allow any inspections of their nuclear military program.

Mr. DAVID. Of course.

Mr. MARKEY. Only of their civilian program anneither will the Pakistanis.

Mr. DAVID. And the Pakistanis will not produce A.Q. Khan to speak to [anyone] about the proliferation that it has been a part of. That is a very good sign of Pakistan's attitude toward coming into a nonproliferation world and there is much to be gained by India coming into a nonproliferation world. There is much to be gained by India coming into a nonproliferation world and supporting us and working with us—

Mr. MARKEY. The issue is not India. The issue is Pakistan. If Pakistan is saying that they cannot allow this gap to develop, that puts them back into the open market again. I mean, what is the consequence? Have you thought about the next step?

Mr. DAVID. As Mr. Record has said, we have hopes and some expectations that India will not produce, be producing many, many weapons to—

Mr. MARKEY. Their own experts in yesterday's Indian newspapers say this will give them the capacity to build 50 additional nuclear weapons a year.

Mr. DAVID. I haven't read that paper and I read a lot of newspapers and read a lot of things.

Mr. MARKEY. Obviously the reason they are putting the nuclear reactor and these other reactors aside is they want to continue to maintain a nuclear weapons construction program. Otherwise, they would have put them all under inspection, and they won't agree to a fissile material ban.

Mr. RECORD. They have indicated they want to maintain the credible minimum strategic deterrent. Exactly how many weapons, I don't know. We would have to get into a different discussion on that. But yes, they have indicated—

Mr. MARKEY. They already have 40 to 50 nuclear weapons. So if they want to go to 200 or 300, is there any reason to believe that the Pakistanis won't as well, Mr. Record?

Mr. RECORD. I have no idea.

Mr. MARKEY. I mean from your own personal experience over the last 30 years, do you believe there is a reason to believe that Pakistan won't respond?

Mr. RECORD. Pakistan is also very desirous of keeping a minimal strategic deterrent. They have told us—

Mr. MARKEY. So minimal today.

Mr. RECORD. I don't know how this translates into numbers.

Mr. MARKEY. They are going to be looking for parity with India, don't you think, Since that is what we are talking about, in terms of the weapons?

Mr. RECORD. Mr. Congressman, I have no idea. I don't know what the basis of that article is, what the basis of that information is in that article. I see your article but I don't really have any idea about how many weapons that India is thinking of.

Mr. MARKEY. The point is, Mr. Record, if we are going to supply all of the uranium that they will need for their civilian program, that will free up all of their indigenous uranium and plutonium for their weapons program. That is the advantage for the—if you are A.Q. Khan, you are sitting there and you have been tasked since 1974 since the Indian explosion to have a clandestine nuclear program anwe haven't arrested him, we haven't brought him before the World Court, we haven't put any pressure on Musharraf to the World Court to really bring this guy to justice, what makes you believe that anything is going to change and he is not or his weapons aren't going to escalate once again?

Mr. RECORD. To reiterate on that last point, we have extensive knowledge of that network anwe continue to learn more all the time.

Mr. MARKEY. I am afraid you are going to have to learn a lot more about it if this Indian program goes through because the Pakistanis are not going to stand still and allow the Indians to stand still and gain an exponential advantage over them.

Mr. RECORD. In terms of your India-Pakistan focus of your questions is that India and Pakistan have continued to make progress in their bilateral relationship.

Mr. MARKEY. This is going to destabilize it. One country is signing an agreement that is going to give them American and European nuclear materials that frees up its weapons site and the Pakistanis are going to be frozen. They won't stay frozen. Their whole history for 30 years, as you remember when the nuclear explosion went off in 1974, the coded cable that went back to the Indian presidential headquarters was the Buddha is smiling, but the next day the leader of Pakistan said if our people have to eat grass and leaves for a generation we too will have a nuclear weapon. And I don't know why you think this agreement—

Mr. RECORD. There is a lot that has happened since that time.

Mr. LINDER. We have votes, two or three votes. I want to thank this panel. Appreciate, thank you for being here to help us. anwe will recess upon the call of the Chair.

The next panel we will take up as soon as the votes are completed.

[Recess.]

Mr. LINDER. The hearing will be back in order. Our second panel, thank you for your patience. From time to time we have to vote here, and we should be all right for the next hour, hour and a half.

The second panel consists of Dr. Igor Khripunov, the Associate Director for the Center for International Trade and Security at the University of Georgia. Dr. Khripunov is an expert on Russian nuclear and biological security and is well known for his work on the human factor of implementation.

Dr. David Franz is Vice President and Chief Biological Scientist at the Midwest Research Institute. Dr. Franz served in the U.S. Army in the Medical Research and Material Command for 23 years. He is currently a member of the National Academy of Sciences Committee on International Security, and Mr. Franz will testify on the role in reducing biological threats.

Let me remind the witnesses that we would like to keep your summary to 5 minutes. Your written statement will be made part of the record without objection.

Dr. Khripunov, you may go.

STATEMENTS OF DR. IGOR KHRIPUNOV, ASSOCIATE DIRECTOR, CENTER FOR INTERNATIONAL TRADE AND SECURITY, UNIVERSITY OF GEORGIA

Mr. KHRIPUNOV. Thank you, Mr. Chairman. I have been with the University of Georgia for 14 years and as a fellow Georgian, I would like to extend warm greetings to you as another Georgian here before me. Yes, it was very warm yesterday. As I was leaving Atlanta it was 89 degrees Fahrenheit.

It is a great honor and privilege to share my thoughts and findings of my research, and the theme of my presentation is mostly about people. The message to the distinguished members of the subcommittee is that a security conscious work force should be the first line of defense against catastrophic terrorism. Indeed, the new challengers and threats in the wake of the September 11th tragic event have dramatically enhanced the role of the human factor in protecting sensitive facilities, associated infrastructure and materials at the source.

Why? The problem is that in the asymmetric warfare that has become the buzzword as our adversaries move are increasingly characterized as highly unpredictable, nontraditional, indiscriminate in the use of any weapons and technologies, disregarding the value of their own human lives and relying on the support of a certain portion of the population and insider collaboration.

This is why this new challenge requires a qualitatively different response from us. On our side of the asymmetric warfare we are developing dangerous gaps and vulnerabilities. There is a need to come up with a state of the art, multi-disciplinary methodology to prepare the workforce for actual and potential threats.

The bottom line is in the new circumstances more than ever security equipment regulations and procedures are as good as operators, the people involved.

What can we do? If we hope to improve the human factor, the so-called security culture, a cause that encompasses a set of managerial, organizational, motivational and other arrangements. Security culture can be defined as a work environment where anethic of security permeates the entire organization and not only guards. People's behavior focuses on preventing malicious acts through critical self-assessment and aggressive efforts to identify management security, safety and other problems before they became dangerous vulnerabilities.

One important advantage of security culture is that it enables a person to respond to known and unknown security risks out of

careful and nurtured proactive habit rather than improvised effort that can deal with security culture within our organization. And they are facility leadership without the interest on the part of the leaders in enhancing security, security culture can not be achieved.

Second, proactive policies and procedures generated by top managers.

Three, personal performance, and one important trait of this personal performance is questioning attitude and whistleblowing.

And four, learning and professional improvement. You cannot impose security culture. You can train people to be security conscious, and as they improve their qualities, you know, the progress is achieved.

The basics of security culture as a uniform and overarching strategy can and must be applied to a number of sensitive industries. In turn, these industries will build upon them what will be specifically required by their unique features and characteristics. For example, being less physically and technologically protected in the nuclear industry. Bio, pharmaceutical and chemical facilities and associated infrastructures are much more dependent on the quality of their human factor; in other words, skills, motivation, values and performance of the work force.

On the other hand, security culture must be promoted internationally because given the global scale of terrorism, we in the need are as strong as the weakest link in facility and material protection elsewhere.

International security culture is important for corporation assistance and comparison. A valuable pioneering effort to develop a concept of nuclear security culture is on the way at the counsel of a doting agency. This concept has a good chance to be finalized and released before the end of this year, and I have been involved in this process from the very beginning.

Another important landmark is a Bratislava statement on nuclear security culture that has been referred to by previous speakers. It has the whole paragraph about nuclear security culture, and I am very happy to say that our report regarding nuclear security culture in Russia was released 3 months before the Bratislava statement, and I want to believe that it provided a clue to those who worked on the Bratislava statement, and I will be happy to leave this report with the secretary of the subcommittee.

What is important about security culture is that security culture is a prerequisite for sustainability. As we provide more equipment, fences and detectors you know to countries like Russia, Ukraine and others, without people having security culture it is very difficult to sustain this momentum, you know, after we phase out our active involvement and assistance.

But several proposals that I would like to make, and I hope you bear with me in order to promote security culture across the board.

First of all, establish a multi-disciplinary partnership between main stakeholders, regulators, industry anacademia. And I think problem countries should be involved in this international endeavor. My center is developing a dialogue with the American Society For Industrial Security hoping that we may contribute jointly in this interdisciplinary effort.

Two, encourage technical universities to introduce elements of security culture in current and future courses.

Three, accelerate ratification and coming into force of the amendments of the convention of physical protection of nuclear material. Raising the concept to the level of the international obligation would pressure some countries anmake them more responsive and accountable.

Four, explore options for expanding the mandate of the World Health Organization, to include the development and promotion of biosecurity culture, drawing as much as reasonably possible on the experience of the IAEA.

And finally, five, include in the agenda of the second review conference of the Chemical Weapons Convention an item that would authorize the organization for the prohibition for chemical weapons for—to initiate work that was and will be done by the IAEA.

Talking about Russia, you know, we need to continue our work bilaterally, but international agreements, multilateral agreements will be a powerful vehicle to force Russia to embrace security culture.

And one final observation. We cannot build a water tight wall to prevent some deadly materials from falling into the hands of terrorists. For example, weapon grade material is more controllable than components of radiological terrorism; in other words, dirty bombs and some pathogens. Hence, we need to be candid with the public and condition it to a higher probability of attack from the sources.

Any new effort to prevent the proliferation at the source must be combined with efforts to prepare ordinary citizens for acts of WMD terrorism that are preventable. This human factor-based, balanced formula must include a strategy to build up a culture of resilience among the public as a counterpart to the security culture at the source.

Resilient people bend rather than break under stressful condition and they return to the acceptable level of their normal psychological and social routine following misfortune. These combined efforts focusing on the people and their mindset help us fortify ourselves for the long war that confronts us.

Thank you very much.

[The statement of Mr. Khripunov follows:]

PREPARED STATEMENT OF DR. IGOR KHRIPUNOV

Thank you, Mr. Chairman and other distinguished members of the Subcommittee. I am pleased to have this opportunity to describe my work in the area of the ″human factor,″ which is becoming increasingly important as we attempt to implement effective threat-reduction programs. Simply put, the human factor emphasizes that the skill of security personnel are the critical element in security. Equipment is not enough.

In the new strategic environment of the 21st century, ″asymmetric warfare″ has become a common buzzword. For those entrusted with protecting critical infrastructure and materials at the source, asymmetric threats imply attempts by adversaries to circumvent or undermine our strengths while exploiting our weaknesses using methods that differ significantly from traditional methods of operation. Asymmetric attacks employ innovative, nontraditional tactics, weapons, and technologies; thus they demand a spectrum of protective strategies on our part.

But no strategy, however well-conceived, can prepare the staffs of sensitive sites for every contingency. More than ever before, the protective force will depend on such professional skills and traits as situational awareness, strength of mind, men-

tal readiness, boldness, self-reliance, intuition, and a willingness to take risks. In the kind of confrontations we envision, these characteristics are imperative. They will help security forces at sites housing lethal materials expect the unexpected and react adequately under conditions of extreme stress and uncertainty.

Security Culture

The concept of the human factor originated with a simple insight: that the best equipment in the world is no better than its operator. Nor can the best written directives in the world compensate for apathy or technical incompetence in the workforce. These material arrangements have little effect without trained, motivated human beings to make use of them. A vehicle to improve the human factor is ″security culture,″ a concept that encompasses a set of managerial, organizational, and other arrangements. When we set out to improve security culture within an organization active in the nuclear or biotechnology complex, we set out to cultivate habits, attitudes, and traditions that favor security over lesser concerns. Security becomes second nature for personnel within such organizations.

This type of organizational culture is tightly based on the concept of nuclear security which is defined by the International Atomic Energy Agency (IAEA) as the prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities. This definition has important and extensive overlaps with chemical and bio security.

On our side of the asymmetrical-warfare equation, where dangerous gaps and vulnerabilities have become apparent, we can come up with a state-of-the-art multidisciplinary methodology to prepare the workforce for both actual and potential threats. Hence, security culture connotes not only the technical proficiency of the people assigned security-related duties, but also their willingness and motivation to follow established procedures, comply with regulations, and take the initiative when unforeseen circumstances arise-as they will, given the limits on human foresight and the inventiveness of the adversaries we face today.

In this sense, then, a good security culture can be defined as a work environment where an ethic of security permeates the organization. People's behavior focuses on preventing malicious acts through critical self-assessment, aggressive efforts to identify management and tactical problems, and appropriate, timely, and effective resolution of problems before they become crises. Security culture enables a person to respond to known and unknown security risks out of carefully nurtured and proactive habit rather than improvised effort.

There are two categories of unexpected events of which we need to be aware and for which security culture may be an effective tool. First, a known danger whose timing or magnitude cannot be predicted has been dubbed a ″known unknown.″ Second, there are other dangers called ″unknown unknowns.″ Nobody is aware of these. Nobody will foresee them or take countermeasures until they transpire. Crashing fuel-filled passenger jets into the World Trade Center towers on September 11, 2001 represented a striking example of an unknown unknown.

Every organization has a security culture. (Incidentally, the same could be said of safety, quality, and other fields of endeavor.) The really important question is: Is the security culture healthy? Is it what management needs it to be, and is it improving, decaying, or remaining static? How effectively does it counteract security breaches and insider threats? How can it be improved?

As we survey the world, we find numerous examples showing that a group of unscrupulous employees-typically managers colluding with lower-ranking technicians-can divert and steal valuable, sensitive, and dangerous materials from the workplace despite seemingly airtight security and anti-theft precautions. One representative case involved a criminal operation at Elektrokhimpribor, a top-secret nuclear-weapons facility in Russia's closed city of Lesnoy. Thefts of rare and expensive radioactive isotopes went on unchecked for several years because employees from all levels at the facility-ranging from rank-and-file workers to top management-connived among themselves, abetted by senior officials from the Ministry of Atomic Energy (the federal agency charged with overseeing security at such sites).

Under a different set of circumstances in Pakistan, had there been a chance to promote security culture values throughout its national nuclear sector, some members of the workforce might have found A.Q. Khan's shady nuclear transactions with proliferant entities objectionable and inconsistent with world standards, prompting them to blow a whistle. Ambassador Linton Brooks, administrator of the National Nuclear Security Administration, delivered a presentation at the Congressional Breakfast Club on May 19, 2006 in which he acknowledged that ″every security system ultimately depends on the people operating it-the so-called 'human factor.' Motivated by greed, coercion, or debt, facility insiders may successfully divert nuclear materials.″

Nor is the United States immune to faults in security culture that can render nuclear facilities vulnerable to terrorist and other malicious acts. On August 29, 2004, CBS News reported that officials from the U.S. Department of Energy had conducted an surprise inspection of security guards at a nuclear-weapons plant in Colorado, finding the facility virtually unprotected because the vast majority of the guards were watching the Super Bowl. The Department of Energy admitted that guard forces had recently left the front gates at other nuclear facilities wide open, and that they had failed repeatedly to respond to emergency alarms in maximum-security areas. Some were actually caught sleeping on the job.

Sectoral Diversity

A concept of security culture originated within the IAEA and the nuclear sector. Twelve ″fundamental principles″ of nuclear security were developed immediately after the 9/11 attacks and are now codified in a series of (as-yet unratified) amendments to the 1980 Convention on the Physical Protection of Nuclear Material. The basic concept and methodology of security culture continues to undergo refinement by the IAEA Secretariat, but it can be usefully applied to other sensitive areas, such as the biological and chemical sectors, in which breaches of security may hand deadly materials to terrorists, posing a threat to the public.

Nuclear. Emerging security challenges have made it obvious that the scope of nuclear security and the associated culture need to extend beyond the traditional task of protecting weapons-usable material. This new, more comprehensive security culture must cover radioactive sources and spent nuclear fuel, among other hazardous radiological substances, while encompassing a wide variety of installations and activities. It must account not only for power and research reactors and related fuel-cycle facilities, but also for waste storage sites that serve research, academic, agricultural, and industrial installations.

Of special significance is nuclear power infrastructure. An attack on a nuclear power site would likely lead to serious consequences, even if little or no damage were done to the plant itself or to related structures. Public fears of radiation, combined with a possible massive blackout and other aggravating factors, could give rise to significant distress and panic. In other words, even a marginally successful terrorist attack on nuclear plant infrastructure could easily bring about a systemic disaster, characterized by a series of interconnected and disruptive events affecting vital societal institutions.

In July 2005, the parties to the Convention on the Physical Protection of Nuclear Material approved a series of amendments to the Convention. Among other things, the amendments raise the 12 fundamental principles of nuclear security to the level of binding obligations under international law. Although security culture is listed alongside principles such as threat evaluation, a graded approach, defense-in-depth, and quality assurance-implying coequal status-it is clear that culture stands above them all. It is an overarching and integrating concept without which none of the other fundamental principles can be successfully implemented.

The amendments make the fundamental principles of nuclear security universal and binding, and they give the international community a way to hold individual governments accountable for their performance in this critical area. In this light, it is disturbing that only three countries (the Seychelles, Turkmenistan, and Bulgaria) have ratified the amendments almost a year after they were signed. It is clearly in the interest of the United States to invest time and resources in efforts to accelerate the ratification process, both in Congress and abroad, helping the amendments to the Convention enter into force at an early date.

Chemical. Among the threats to the chemical industry and to chemical-weapons storage/destruction facilities are deliberate attempts to release toxic materials while they are in transit to or from points of storage or use; theft or diversion of chemical weapons or toxic materials for terrorist acts elsewhere; and sabotage that releases toxic contaminants, in effect using chemical installations as weapons prepositioned in urban areas. A multitude of industrial chemicals, though not as deadly as chemical-warfare agents, could be released in massive quantities, inflicting lethal effects despite their lower toxicity.

A classified study conducted by the U.S. Army Surgeon General, dated October 29, 2001, projected that a terrorist attack dispersing toxic chemicals in a densely populated area could injure or kill as many as 2.4 million people. (The Army later clarified its findings, noting that the estimate of 2.4 million casualties referred to the number of people who might request medical treatment following a large-scale release from a chemical manufacturing plant, in a densely populated area, under ideal weather conditions that lent themselves to maximum exposure.) If nothing else, however, this attests to the psychological impact of chemical incidents, which would exacerbate the actual, measurable damage to infrastructure and human health.

What kind of substances might be released? Chlorine and phosgene are two industrial chemicals commonly transported by road and rail. They are also chemical-warfare agents, having seen widespread use in World War I. Rupturing the containers in which they are transported could disseminate these gases in incapacitating or lethal amounts. Organophosphate pesticides such as parathion fall into the same class as nerve agents. Although these pesticides are far less toxic than military-grade nerve agents, their effects and medical treatments are the same. In April 2005, Dr. Richard Falkenrath, President Bush's deputy homeland security advisor, told the Senate Committee on Homeland Security and Governmental Affairs that, of all the capabilities available to terrorists in the United States today, one stands alone as uniquely deadly, pervasive, and susceptible to terrorist use: industrial chemicals such as chlorine, ammonia, phosgene, methyl bromide, hydrochloric acid, and various other acids.

In contrast to the nuclear sector, which is made up of relatively few facilities equipped with costly and sophisticated protective systems, sensitive chemical plants number in the thousands and, generally speaking, are only lightly protected. To an even greater degree than in the nuclear industry, accordingly, physical protection in the chemical industry depends not so much on the design and condition of installed security equipment as on the attitudes, behavior, and motivation of the entire workforce. In the long run, human performance, influenced by prevailing standards of security culture, determines whether a chemical security regime succeeds or fails. The sheer scale of the chemical industry increasingly makes security culture, including the vigilance of the workforce, a key element in protecting hazardous facilities and chemicals.

A recently released report from UN Secretary General Kofi Annan, titled *Uniting Against Terrorism: Recommendations for a Global Counter-Terrorism Strategy* (A/60/825, April 27, 2006) appropriately emphasizes that:

> To prevent terrorists from acquiring chemical materials, States should ensure that security at chemical plants is kept to the highest standard, and I urge the relevant United Nations entities to provide assistance where needed. A mechanism should also be developed to allow the Organization for the Prohibition of Chemical Weapons (OPCW), in cooperation with other relevant United Nations actors, to provide necessary assistance and coordinate the response and relief operations in case of a chemical weapon attack or the release of chemical agents.

Indeed, the OPCW, a worldwide authority on chemical weapons, is best equipped to become a clearinghouse and coordinating center for chemical security culture. Its expertise, knowledge, and equipment can be put to use preventing, combating, and responding to chemical terrorism. The Chemical Weapons Convention, the document under which the OPCW operates, clearly provides the organization with a mandate not only to deal with chemical weapons narrowly construed, but also to foster security in the chemical sectors of member states.

Biological. At biotechnology labs and pharmaceutical plants, the role of the human factor is even greater than in the nuclear and chemical complexes because of the ease with which an unscrupulous staff member could divert pathogen samples from their proper uses. Preventing bioterrorism requires innovative solutions specific to the nature of the threat. Biotechnology is not like nuclear technology. Soon, tens of thousands of laboratories worldwide will be operating in this multi-billion-dollar industry. Even students working in small laboratories will be able to carry out gene manipulation. A minute amount of pathogens can be used to create a sizable stock of weapons-usable material. The approach to fighting the abuse of biotechnology for terrorist purposes will have more in common with measures against cyber-crime than with our work to control nuclear proliferation. As a result, biosecurity culture is substantively and structurally different from security culture in the nuclear and chemical complexes.

There is a compelling need to forge a voluntary code of conduct for the biotech industry, governed by the principles of risk management, ethical values, and strict compliance. Personnel accountability is a major trait to be nurtured at these institutions. Members of the workforce must always bear in mind the potential consequences of the firm's research, recognizing the repercussions that would accrue were their scientific endeavors misused. Because biosecurity depends so heavily on vigilance and on expecting the unexpected, top leaders must encourage their workforces to be observant and to question small discrepancies as a matter of routine. Effective biosecurity would include an oversight system for (a) the physical protection of dangerous pathogens and dual-use technologies from theft, illicit sale or transfer, or accidental release; (b) the implementation of security regulations; (c) safety training; (d) facility licensing; and (e) personnel vetting.

Here again, the human factor is the key to success in biosecurity culture, even though it may require more effort and time to nurture. Since the dividing line between biological weapons and naturally occurring infectious diseases is blurry, the United States may wish to turn to the World Health Organization (WHO), encouraging that body to strengthen and diversify its involvement in this area. This would make the WHO the biosecurity counterpart to the IAEA and the OPCW. It would also enhance preparations for natural outbreaks such as bird flu. It will be necessary to focus on raising standards of biosecurity culture, both to protect the general public from naturally occurring disease and to shield our citizens against malicious acts.

Building Security Culture

Cultures are based on a set of shared, underlying assumptions about reality. Practically speaking, this means that an organization instills tangible behaviors in the workforce that derive from what the organization's leaders assume should be most important. Even if the leadership makes the right assumptions and sets the right goals, however, culture will atrophy unless the leadership works actively and continuously to promote them throughout the organization. Without proactive leadership, the staff will simply form other assumptions based on individual staff members' personal experiences, or even on their whims. Top managers need to lead the way in forging the appropriate pattern of ideas. Often underlying assumptions are unconsciously held and never discussed in the daily course of business. They simply become ″the way we do things.″ But a culture needs conscious attention if it is to thrive.

A good security culture is founded on a healthy respect for the threat. From the most senior leader down to the lowliest technician, the staff needs to understand that security measures truly matter. This underlying conviction then permeates the way people work, and it drives their behavior under normal and abnormal conditions. In a facility that enjoys a healthy security culture, personnel typically display a deep-rooted belief that there are credible insider and outsider threats, including theft, sabotage, unauthorized access, illegal transfer, and other malicious acts, and that it is their duty to counteract those threats. A sense of mission goes a long way toward fissile-material security, as well as the security of pathogens and toxic chemicals.

The next level in implanting healthy assumptions is to determine basic principles and values conducive to the behaviors and physical arrangements that make up a vibrant security culture. The necessary principles and values include honesty, integrity, and a sense of responsibility; a commitment to keeping equipment in good working order; obedience to procedure; a commitment to learning and process improvement; and effective leadership throughout the organizational hierarchy. These traits contribute to the core of security culture.

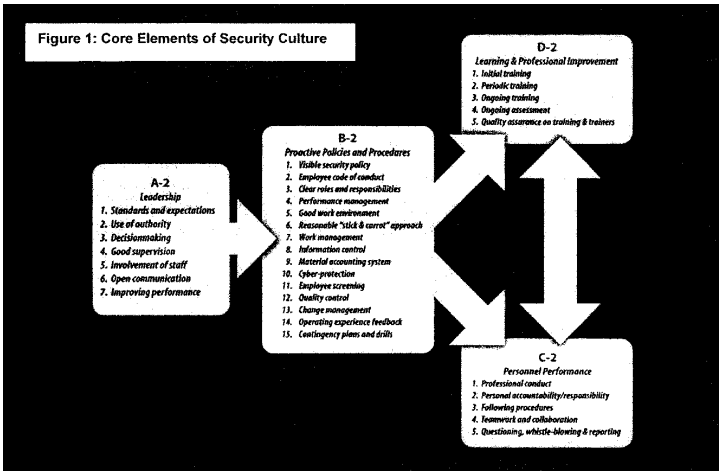
The core consists of four major elements: (1) facility leadership, (2) proactive policies and procedures, (3) personnel performance, and (4) learning and professional improvement. (See Figure 1, next page.) But the main element within the facility is the performance of leaders. Top managers are responsible for developing and implementing a specific set of policies and procedures that bias the behavior of their subordinates in favor of security. Of particular importance to the core is a manager's emphasis on clear roles and responsibilities, visible security policies, cyber-protection, contingency plans and drills, and personal accountability. Continuous training is the primary tool to get the required results.

These desired traits are not, of course, confined to security; they are mainstays of healthy management practices. Conversely, a poorly managed work environment in which these attributes are lacking will be indifferent to efforts to achieve a high standard of security culture. Accordingly, any campaign to promote nuclear security culture-whether nationally sponsored or funded primarily through international assistance-should seek to better the overall professional culture.

It is in U.S. national interest to take the lead in supporting and promoting security culture not only domestically but also internationally, making its basic standards universally understood, regardless of differing socioeconomic and political conditions from country to country. A uniform understanding of clearly defined standards is important for international exchanges, evaluation, and comparison. A good example of such highly beneficial outreach is the U.S.-Russian program on security culture currently implemented under the bilateral Statement on Nuclear Security Cooperation signed by Presidents George W. Bush and Vladimir Putin at their summit meeting in Bratislava, Slovak Republic, in February 2005. Ideally, this must serve as a powerful tool for shaping the mindset of nuclear workforce in Russia and pave the way for similar efforts in other countries.

Indeed, there is an urgent need to engage, either bilaterally or through the IAEA, a specific group of countries whose history, traditions, ongoing economic develop-

ments, and other traits complicate their ability to meet high standards of security culture. This group includes transitional societies, countries whose nuclear programs lacked or still lack transparency, countries instituting nuclear power and research programs from scratch, or where nuclear industry is undergoing ownership reform. For example, countries professing a desire to benefit from nuclear power generation, such as Turkey, Vietnam, Indonesia and Nigeria, need to start training a security-conscious workforce even before they design and build appropriate physical infrastructure.



Beyond the Source

Security culture is no panacea. It cannot credibly prevent the whole spectrum of terrorist attacks involving weapons of mass destruction (WMD). Though we stand a reasonably good chance of denying terrorists access to nuclear weapons and to the material and technologies they would need to build an improvised nuclear device (IND), most components for radiological terrorism or bioterrorist attacks are easily available and technologically simple to use. They stand out among the WMD tools available to terrorists both because of their ready availability and because of their unique capacity to inflict far-reaching physiological and psychological damage.

Compared to nuclear weapons and INDs, radiological weapons require little technical sophistication. The probability that such weapons will be used is on the rise: Conventional terrorism seems to be gradually losing its attractiveness to perpetrators as public authorities take defensive precautions and ordinary citizens demonstrate more resilience in the face of its disruptive effects. From a symbolic standpoint, moreover, al Qaeda and its ilk would be tempted to use radiological weapons because they resemble nuclear weapons, thus conferring prestige and an image of prowess on their efforts and heightening anxieties among the populace targeted for attack. Similarly, acts of bioterrorism can be prevented and mitigated only in a limited way, but they could have long-lasting and indiscriminate effects, raising the specter of a global pandemic.

Any new efforts to prevent the proliferation of weapons-usable materials at the source must be combined with efforts to prepare ordinary citizens for acts of WMD terrorism that are less preventable. This balanced formula must include a strategy to build up a culture of resilience among the public, which after all is a primary target for terrorists. Resilience refers to the ability to handle disruptive challenges, characterized as emergencies that can result in crisis. Accordingly, resilience culture is an amalgam of beliefs, attitudes, approaches, behaviors, and psychology that helps people fare better during adversity. Resilient people bend rather than break under stressful conditions, and they return to some semblance of their normal psychological and social routine following misfortune.

The challenge of terrorism demands a global response, as compassionate to victims as it is resolute in seeking out and defeating perpetrators. Security culture at the source, complemented by public resilience, offers a foundation for a partnership and strategy that will help deny terrorists their goals. Our efforts in this area will help us fortify ourselves for the long war that confronts us.

Mr. LINDER. Thank you, Dr. Khripunov.

Mr. Franz.

STATEMENT OF DR. DAVID FRANZ, VICE PRESIDENT AND CHIEF BIOLOGICAL SCIENTIST, MIDWEST RESEARCH INSTITUTE

Mr. FRANZ. Mr. Chairman, Congressman Langevin, it is anon honor to appear before you today to address the threats at the source.

I believe there are no perfect technical solutions or combination of solutions to the threat of bioterrorism to our Nation. The microbes needed are too readily available in nature and the tools needed to transform microbes into weapons are also too accessible to allow us to control their illicit use. The technologies, the facilities and the humans involved are too widespread and of dual use for our intelligence community to discover their malevolent use. As the technical barriers to the abuse of biology continue to fall, intent to harm becomes more important in the calculous.

At this time in our history, as was just mentioned, we face three trends that synergize to make protecting our citizens from biological terrorism extremely difficult: One, it is a smaller world; two, we are in a biotechnological revolution; and three, we see a prevalence of asymmetry in warfare. Vast oceans and friendly neighbors are not enough to protect us today. Until we address intent to harm with biology and the factors which motivate it, we have not done enough for our citizens.

The language of science is common and powerful. I believe that working directly with scientists internationally is integral to defense of the homeland. Doing this has numerous benefits. First, it builds understanding in the very community that has the tools to do harm. Second, it provides some transparency, not total transparency but some and a frame of reference regarding legitimate activities that are going on in biotechnology around the world. And three, it offers the opportunity to build some trust between and among scientific collaborators worldwide.

All of these outcomes reduce the likelihood of proliferation. Although we, the U.S. government, as we heard in the previous hearing, have been engaging foreign biological scientists, particularly in Russia and Eurasia, since the early 1990s, I don't believe we always grasp the importance and the value of the process that we are involved in. My personal experiences as a scientist-soldier and my active involvement in biological counterproliferation and nonproliferation programs have allowed me to make the observations listed more fully in my written statement.

To summarize, however, just a few points regarding the biological threat.

History has demonstrated that adequate transparency cannot be legislated, forced or enforced, or compliance assured.

Secondly, although not always possible, a most useful approach in engagement has been to work in true collaborative relationships on mutually beneficial projects. Difficult technical problems related to biological safety, biological security and public health, such as the avian flu threat that we face today, are excellent targets for such collaboration.

I believe that the process is often as important as the product that we look for in these programs. Working together on a scientific project and failing is at times more beneficial than succeeding alone.

In the end success I believe will not be related to dollars spent on fences and locks and alarm systems to protect our microbes. It will be related to communication and trust built between humans.

The metrics are very difficult to apply, but we must stay engaged. We must trust and where we can, we must verify as well.

And the fourth point, this is a dangerous world. What I am talking about are soft programs. They can't replace military strength and intelligence and other components of our hard power. But I believe these soft programs are complementary and actually make our hard power more effective. It is very important, I believe, that we find balance between this hard and soft power.

As just one example in closing, I have had the opportunity to travel to Russia two or three times per year since 1993, first under the trilateral negotiations. When we started those visits and the negotiation to establish mill to mill agreements working across conference tables and taking part in rigid inspections, which we called visits but they were more like inspections, the tone was contentious and the progress was slow. Next under the Nunn-Lugar program we got American scientists involved as collaborators and saw the power of science as a common language.

Earlier this month, actually just 2 weeks ago, in Moscow our National Academy Committee on International Security anArms Control met with our biological counterparts from the Russian Academy of Sciences. For the first time in all these years I saw a glimpse of a tipping point in the way our collaborative work is approached. At least I saw both a willingness and now I believe a capability, a financial capability as well, on the Russian side to transform our relationship from one of patronage, which is what it has been, to partnership, and I think this is critically important.

The Russian example that I give is dated somewhat in this age of bioterrorism, and actually I think the Russian example I think may be the easy one. I think we are going to face more difficult ones. But I believe it demonstrates the importance of using our scientific soft power at the source of terror along with the hard power. Finding balance is always difficult, but it is so necessary.

Again, I appreciate the opportunity to present this information before the committee, and I shall be happy to answer your questions.

[The statement of Dr. Franz follows:]

PREPARED STATEMENT OF DR. DAVID FRANZ

Mr. Chairman, distinguished Members, it is an honor to appear before you today to address issues related to reducing proliferation of biological weapons. I am currently Vice President & Chief Biological Scientist at the Midwest Research Institute of Kansas City, based in Frederick, MD; Director of the National Agriculture Biosecurity Center at Kansas State University and Senior Fellow for Bioterrorism at the Combating Terrorism Center at the U.S. Military Academy in West Point. I served on active duty in the U.S. Army from 1971 to 1998, 24 of those years in the U.S. Army Medical Research and Materiel Command. I served for 11 years at the U.S. Army Medical Research Institute of Infectious Disease, which I commanded before my retirement. During my tour of duty at USAMRIID, I served as Chief Inspector on three UN Special Commission biological warfare missions to Iraq and as tech-

nical expert on the Trilateral (US-UK-Russia) Agreement visits and negotiations with Russia. I have worked under the auspices of the ″Nunn-Lugar″ Cooperative Threat Reduction (CTR) Program in the Former Soviet Union (FSU) since 1994 and chaired the National Academies of Science, National Research Council committee which provides technical review to the CTR-supported research conducted there since 1998. I am also a current member of the National Academies of Science standing Committee on International Security and Arms Control (CISAC), the Threat Reduction Advisory Committee (TRAC) of the Defense Threat Reduction Agency (DTRA) and I chair the International Panel of the National Science Advisory Board for Biosecurity (NSABB) at the Department of Health and Human Services. The myriad opportunities given to me throughout my career in military medical research have led me to better understand and value the use of science as a common language to build relationships, understanding and transparency internationally.

This committee has asked that I provide thoughts on reducing biological threats at the source. Below are my views on a number of related issues.

There are no perfect technical solutions-or combination of solutions---to the threat of bioterrorism in our nation. The microbes needed are too readily available in nature and the tools needed to transform microbes into weapons also are too accessible to allow us to control their illicit use. The technologies, the facilities and the humans involved are too widespread and of ″dual-use″ for our intelligence community to discover their malevolent use. As the technical barriers to the abuse of biology fall, 'intent' to harm becomes more important in the calculus. At this time in our history, we face three trends which synergize to make protecting our citizens from biological terrorism extremely difficult: 1) a 'smaller world', 2) a biotechnological revolution and 3) a prevalence of asymmetry in warfare. Vast oceans and friendly neighbors are not enough to protect us today; until we address 'intent' to harm with biology and the factors which motivate it, we have not done enough.

The language of science is common and powerful. I believe that working directly with scientists internationally is integral to defense of the homeland. Doing this has numerous benefits: 1) It builds understanding in the very community that has the tools to do harm; 2) it provides some transparency and a frame of reference regarding legitimate activities around the world and 3) it offers the opportunity to build trust between and among scientific collaborators worldwide. All of these outcomes reduce the likelihood of proliferation. Although we---the U.S. government---have been engaging foreign biological scientists [particularly from Russia and Eurasia] aggressively since the early 90s, we don't always grasp the importance and value of the process. My personal experiences as a scientist-solider and my active involvement in biological counter-proliferation and non-proliferation programs have allowed me to make the following observations.

Regarding the biological threat:

1. History has demonstrated that adequate transparency cannot be legislated, forced or enforced.or compliance assured; its development can be facilitated, however, through frankness, honesty and efficiently administered joint science, technology and public health programs with clear goals.
2. Human relationships among scientists and clinicians are more effective than technological tools or regulatory regimes in providing transparency; such relationships provide the added benefit of building understanding and even, sometimes, trust.
3. Although not always possible, the most useful approach in engagement has been to work in true collaborative relationships on mutually beneficial projects. Difficult technical problems related to public health, such as the avian flu threat, are excellent targets of collaboration. These useful and necessary public health relationships engage, generally, the same people, the same technologies and the same facilities that could be used to develop biological weapons.
4. Historically, the greatest value in our CTR programs has come from personal relationships, facilitated by mutual respect and the common language of science. Intellect, personal integrity and a sense of humor among colleagues are appreciated and respected by scientists worldwide; unfortunately, governments are often not trusted.
5. The greatest harm in government supported, collaborative undertakings often results from unprofessional communications, disconnects between policy and implementation, empty promises, reward systems with moving 'goal posts' and delays in follow-through by either party.
6. The 'process' is often more important than the 'product'. In biological programs, human factors are more important in providing security than locks, fences or signatures on paper. Working together on a scientific project and failing is more beneficial than succeeding alone. In the end, success will not

be related to dollars spent on fences, locks and alarm systems to protect microbes; it will be related to communication and trust built between humans. Metrics will be difficult to apply, but we must stay engaged.

7. Traditional technical, bureaucratic and regulatory means of providing biological security to the U.S. will ultimately not be enough. Because of the unique characteristics of biology and biotechnology.and the importance of intent in the equation.long-term human relationships leading to whatever transparency we can obtain will remain a key means of reducing the threat to the homeland.

8. The long-term goal of engagement should be to get the U.S. government out of the process of 'supporting' patronage programs, and to get U.S. scientists and public health personnel engaged in true collaborations with international colleagues on tough problems. Finding tough, common, health, biosafety and educational challenges is ever easier as the world shrinks.

9. This is a dangerous world. Soft programs cannot replace military strength, intelligence and other components of hard power, but are complementary and actually make our hard power more effective. We must find 'balance' between hard and soft power.

10. And finally, we must ″Trust, but verify,″ recognizing that we must find new and innovative approaches to this when dealing with biology and biotechnology.

I have had the opportunity to travel to Russia two or three times per year since 1993. When we started, during the Trilateral negotiations and visits, working across conference tables and taking part in rigid inspections termed 'visits', the tone was contentious and the progress slow. I sensed we were building walls, not tearing them down.and we learned little about thoughts or activities on the other side of the table. Under the auspices of the Nunn-Lugar legislation of 1992, we slowly established scientific collaborations. First, it was a scientific welfare program designed to keep former weaponeers at home in Russia. Next we got American scientists involved as collaborators, and saw the power of science as a common language. Earlier this month in Moscow, our NAS CISAC committee met with our biological counterparts from the Russian Academy of Sciences. For the first time, I saw a glimpse of a 'tipping point' in the way our collaborative work is approached. At last, I saw both willingness and a capability on the Russian side to transform our relationship from one of patronage to partnership. (See ″Biological Science and Biotechnology in Russia: Controlling Disease and Enhancing Security″ @ www.nap.edu). The Russian example is dated—and maybe the easy one—but I believe it demonstrates the importance of using our scientific soft power at the source of terror along with the hard. Finding balance is always difficult, but so necessary. We have had some limited additional opportunities in Iraq and Libya and, if given the opportunity, could use lessons learned and best practices in other countries as well.

Again, I appreciate the opportunity to present this information before the Committee. I shall be happy to answer your questions.

Mr. LINDER. Thank you, Dr. Franz. We have heard today about efforts to secure pathogens abroad. Are we doing enough to secure the facilities that hold pathogens in our own country?

Mr. FRANZ. I believe we are. I think the Select Agent Rule of 1997 and its subsequent beefing up after 9/11 were significant efforts. It is still, just as in other countries, it comes down to humans, as was mentioned in the first comments, and we have now in this country implemented surety programs or are implementing surety programs as well as security programs, personal liability programs for biology. When I was in this lab and running labs for the DOD, we didn't have surety programs like you do in nuclear and like we did in chemical. We have those as well. So I think we are making a significant effort.

Again, we need balance there. If we go too far in this country we are going to limit the capabilities of our biotechnology industry and put us behind in the world market in this area.

Mr. LINDER. When you were at Ft. Dietrich, were there any reports of any missing pathogens or do you keep close enough account of them you so you could know that?

Mr. FRANZ. We didn't. In the old days, the rules were a lot different than they are post-9/11, but after the incident in which a gentleman attempted to acquire some plague from the American type culture collection in 1995, I believe his name was Larry Wayne Harris, the CDC was mandated to develop this Select Agent Program, and after that the rules were tightened significantly. There have been, as came out in the press after 10/04, after the anthrax letters, there have been—there were some false reports of materials missing from Ft. Dietrich. Most of those were killed samples and in almost every case I believe they were eventually recovered and found.

Mr. LINDER. Would you care to take a shot at my question about Russian smallpox.

Mr. FRANZ. Yes, sir. That is really under the auspices of the World Health Assembly and it is the WHO that works on that problem. We have been negotiating since the mid-1990s probably, with regard to destruction, to destroy the last of the smallpox.

Mr. LINDER. What is your take on that?

Mr. FRANZ. My opinion has been all along that we should not. Initially, primarily we were working on vaccines, drugs and diagnostics. We found that we had adequate models for vaccines and diagnostics. We found that there were cases in which there would be drugs that would not work against our surrogates, but they would work against variola, smallpox itself, so we would have been in a position to miss drugs.

At this point I believe we know enough about rebuilding those bugs that it probably doesn't make any difference. And if we destroy, I believe it takes away our capabilities to work with variola, and yet someone else in the world could rebuild the bug either from another orthopox virus or from scratch eventually and have it.

Mr. LINDER. Does it startle you—I may have asked you this the last time you were here—to know that significant numbers of Iranian children are being vaccinated for smallpox today?

Mr. FRANZ. I don't have any information on that. I really don't know that.

Mr. LINDER. Dr. Khripunov, we know that the managers of these facilities in the past under the old Soviet Union lied on the reports to their supervisors as to reaching certain quotas. They over produce in one quarter, they would underscore their numbers so they could—if they under produce they would have to overscore their numbers and this entire culture was one of lying to superiors.

If that was the culture, how do you change it so that they are living under different rules?

Mr. KHRIPUNOV. You know, Russia is a country yet in transition, you know. Certainly it is a shift from one set of values and cultural elements to another. What is alarming is that this new set of cultural values are yet to be put into place. So while this process is in transition, I think this is the most difficult period to find ways to keep people motivated, complying with rules and regulations, staying away from diversion and selling, and this is why I believe this Blatislava statement is very, very important. I think in my view there is no single more important document than this Blatislava statement. Because it opens up ways for us to move ahead and think a little bit with the mindset of ordinary Russians,

you know, who are custodians. Let me reveal you something that you may not know.

The Blatislava statement in English has two words: Security culture should apply to custodians and protective forces. And it is clear because you don't have to impose, you know, culture on military personnel. They have their own rules to operate. In the Russian text on the web site of President Putin the word "custodians" is missing. Whether it is anintentional, you know, omission or whether interpreters or translators didn't know how to translate, you know, this word into Russian, I have no way of knowing. But this document, very important document, with the word "custodians" missing is becoming really meaningless. And this is a reflection of the overall status of the mindset that it is none of our business. We have guards. We have soldiers. And we are just small people, you know, who are not very significant. So the Blatislava statement gives us a chance to talk about security culture. But what is important is that I think the United States should move forcefully in order to ratify the amendments to the Physical Protection Convention because by elevating, you know, security culture to the level of international obligation we may ask, you know, the Russian officials you know how you comply with that. Can we cooperate? Can we compare standards how we evaluate security culture in your country compared to other countries? So security culture is very, very important as the—I would say the first line of defense at this source because very much depends on the people.

Mr. LINDER. Is there a biological equivalent to the IAEA?

Mr. KHRIPUNOV. Unfortunately, World Health Organization is very cautious about assuming any security functions. But it is natural because you cannot divide—you cannot draw a very distinct dividing line between infectious diseases and what may be regarded as biological agents. So WHO is a natural organization, but it doesn't have any security related record really to draw upon.

Another option would be to establish, you know, a new organization that would be doing it full time concerning security, security culture and fighting biological terrorism. But that would undercut the prestige of the WHO. My choice would be to expand the mandate of the World Health Organization.

Mr. LINDER. Your comment, Dr. Franz.

Mr. FRANZ. There is actually a small group there run by a Dr. Kanisova who call these problems intentional endemics. As is mentioned, WHO doesn't like to get involved in security anthey have stayed out. They prepare some reports and they have been working at the seven regions, WHO regions, on some joint meetings to look at biosafety, biosecurity, dual use issues, sort of the soft side of these biological terrorism issues.

Mr. LINDER. Is there any agents on the bio side that is not dual use?

Mr. FRANZ. I am sorry?

Mr. LINDER. Is there any agent on the biological side that is not dual use?

Mr. FRANZ. I think some are certainly more dual use than others. It is hard to abuse certain biological agents so you can sort of rank order them in groups or classes.

Mr. LINDER. Mr. Langevin.

Mr. LANGEVIN. Thank you, gentlemen, for being here today. I appreciate them for what they have had to say. Earlier in the first panel I raised the issue of National Intelligence Council report that has detailed a number of smuggling incidents of weapons grade material or nuclear material or nuclear weapon components that have been smuggled out of Russia and the former Soviet Union. And in addition to that, Mr. Heisinger from the Department of Energy has also revealed that his counterpart in Russia has informed him that there were over 200 potential radiological smuggling incidents last year alone. Clearly the issue of proliferation is still a problem, that this nuclear material and components have not been totally secured, and it appears we have a lot to do before we say we are at a point where we are at security at all of these sites where material could be smuggled from or components could be smuggled from.

My question I guess to you is, is this a function of just money and would it move us further on the path of securing the material if there were abundant resources into programs like Nunn-Lugar and the other programs, whether it is at State or DOE or DOD? And is it a problem on the other end, on the Russian side? They are not putting enough of their own resources or is this a just anissue of will and more of a political problem?

Mr. KHRIPUNOV. You know, it should be multi-thronged approach, more funding, more transparency, severe punishment for people who commit such acts. But I think the most important thing is to promote public awareness of the threats because the public is becoming more and more indifferent to threats of terrorism. According to the most latest public opinion poll, the threat or concern of terrorism is number 8. It is preceded by unemployment, you know, by high cost of medical care, many other things. But ironically enough, in a country where terrific acts of terrorism were committed, it is number 8 because the threat perception is misplaced, mostly due to official propaganda, mostly due to lingering Cold War perception that threats come from NATO, that threats come from the United States, from the ABM system to be deployed in the United States.

So what we need to do in addition to any other things, you know, is to help, you know, Russian NGOs promote better awareness of nuclear security and existing threats. No one is doing that. No one is briefing journalists about that. No one is working with the public opinion trying to share concerns and real risk perceptions. And as a result, there are difficulties. People are not deterred from committing horrendous acts of diversion, stealing, because they don't understand and they are not under the pressure of risk perception.

Mr. LANGEVIN. Do you have any comment?

Mr. KHRIPUNOV. I would add the rules are absolutely different for biology than they are for nuclear and radiological. On the one hand, it is probably easier especially if you know what you are doing to take out material like biological agents because you only need that much, and you can't count what you have got there. But on the other hand, it is less necessary to smuggle with the exception of smallpox, which is locked up in Atlanta and Kosovo. It is less necessary to smuggle biological agents because they are available in so many places.

Mr. LANGEVIN. Is that securing the biological agents, is that just a function of money or are there other issues, political issues in terms of hammering out agreements and security?

Mr. FRANZ. I think there was mention in the earlier hearing of consolidating agents in Russia. For example, what has happened over the years is these agents in some of these small laboratories have almost become currency. They realize that we would like to take them away, and it is like knowledge is power here. In some cases biological agents are power and people don't want to give them up. And it is pretty hard—even though you say you consolidate them all in one laboratory from, let us say, five laboratories, it is hard to know you really do because all you need to do is keep back that much. It is—you can't take a counter there or a measuring device and say yes we have got it all. So it is a little—biological is a little different than these other sciences.

Mr. KHRIPUNOV. With your permission, in this nuclear field it is the same perception, you know. As long as you have uranium and plutonium in the view of the top manager you are ranked very high in terms of priority for funding, for other benefits. If there is a campaign to consolidate and move your stockpiles of highly enriched, refined plutonium away you might be marginalized as a result. So there is resistance to a similar move to consolidate weapon grade materials in Russia.

Mr. LANGEVIN. And that raises a good point and for both securing nuclear material and biological material, the various programs that we have in place. How do the Russians, whether it is the government or the individuals at these particular facilities, how do they view our involvement there? Do they look at it as interference and/or do they look at it as working cooperatively with them that we are looking to help both them and us at the same time?

Mr. KHRIPUNOV. I would say the overall reaction by the people involved in this process is positive. I think what we have not yet evaluated accurately is the impact of the CTR on the good will of people because CTR projects are often implemented by Russians. They get money, you know, from American contractors. They learn how to deal with foreign counterparts. They earn money, and they realize that, you know, Westerners are not that dangerous, you know. And their intentions are beneficial, you know. And they can drink vodka as much as Russians if there is anoccasion to do it.

So there is a core group of Russians with very positively, you know, reacting for these programs. They realize this is a window, a door to the West that may help them, you know, to prosper.

But there are also nationalistic, you know, minded people who regard that as a threat to their own interests. Let me give you one example. A couple of months prior to the Blatislava statement, a group of retired Russians made a statement saying that Americans want to take all Russian nuclear weapons and nuclear material way out of the country. And they asked people to volunteer in patrolling the periphery of some sites to prevent Americans from going there and taking material out of those sites. So it was ridiculous but it was credible to some nationalistic minded people there.

Mr. FRANZ. I think generally the same principles apply to biology. The thing I would add is it has changed and I have sort of watched it change over time. Early on in the 1994 and 1998 time

frame it was we are happy to cooperate in any way because we need your money, and then they went through a phase where they needed our money much less and maybe didn't cooperate as much. And I really believe that now we are going through a phase where we are working together, as I mentioned in my statement. It is looking more—at least in the areas I am working—a little more like a partnership and there is more willingness to work together anto share some of the financial burden, which is great if it continues.

Mr. LANGEVIN. Thank you.

Mr. LINDER. The gentlelady from the District wishes to inquire?

Ms. NORTON. Yes, Mr. Chairman, and I am sorry I wasn't here before. I am very interested in the subject matter of this hearing and I find the testimony in its own way reassuring. It is because of the sophistication of the understanding that it imparts about the nature of the threats, how to deal. We live in a country where people expect to lock it up anthrow away a key and that will take care of it, and one of the things that is hard to prepare Americans to understand is that you have to—that the government and nobody else can protect you against every threat and to condition people to understand that we are dealing with something that is not totally in our control. And yet not to fear that, that means that you shouldn't go about living your life as you always have.

I hear you saying that essentially we are talking about weapons at least of the magnitude that could initially do some harm as being fairly easily accessible. Dr. Franz speaks about biological weapons being put easily into nature for use, malevolent or beneficial.

Dr. Khripunov, your testimony essentially offers an analysis you both just talked about, the small quantities of these materials, how easy it is for them to transport it from one place to another.

I am interested. I mean it—and here is my question. It seems to come down to delivery systems if one is interested in prevention. I want to know if that is true but I particularly want to know if it is true because of this recent report about the New York subways where we are told that was it al Qaeda, or whoever, called off a planned attack of cyanide or some other agent that is not exactly esoteric in the New York subways. We don't know why.

Ms. NORTON. It caught my attention because I represent the District of Columbia, because most of the people who use our subways, 200,000 Federal workers, actually, are located in this region; that is who really use the subways. There has been very little done about the tunnels that these subways travel through, a great concern on the part of those who run this system, about that matter.

So my question is, one, what hypothesis would you offer, assuming all this to be true about the New York subways, about why perhaps it was called off? Because the theories are rampant about that. And I would just like, from a scientific point of view, to know what theories you might have. And particularly, I am interested in whether one of the reasons might have been the delivery system for truly doing some harm, because the one thing we know about the MO, at least of al Qaeda, is they want to do great harm. I would be interested in anything you have to say about this recent so-called revelation about the New York subway.

Mr. KHRIPUNOV. I am afraid I will have to give you a longer rather than shorter answer on that, and one important issue is, where is the threshold? Because there was not a single meaningful, you know, case of using weapons of mass destruction on a larger scale, except Tokyo, Japan. Why they haven't done so, I think the main objective is to impact the public, to cause panic, to get to the front pages of the world media. And as they are successful in doing that using conventional ways of terrorism, I think they may be happy to stay with the conventional ways of terrorism

As soon as people start building resilience, as soon as the media does not cover that on the first pages, the reaction will be, how we can go on to escalate and disintegrate societal institutions and impact the public?

Here comes unconventional ways of committing acts of terrorism. And out of the old acts of terrorism, I would put aside as something long-term nuclear weapons or improvised nuclear devices. It will take some time for terrorists to acquire weapons or develop technological skills.

What is more simple is what we call a dirty bomb; to acquire radioactive material, strap conventional explosives and explode it in a densely populated area. Why it is, I believe, more attractive to the minds of terrorists, you know, radiological records are intrinsically associated with nuclear weapons; it is something nuclear. It is associated with radiation. And we all understand that the population has what we call radio-phobia. You know, it is something that was built throughout the Cold War period with the bombing of Nagasaki, all the movies on the beach with radiation, people, you know, dying.

So terrorists may be gravitating to that type of act of terrorism, which is simple technologically; you can acquire radiological material or sources of radiation quite easily. You can acquire explosives. What is needed is two persons ready to sacrifice their lives because of the radiation and the exposure to radiation before they explode that device. And the recent report of the Department of State about world terrorism, April 2006, saying that many expatriates who live in western countries declare themselves as ready to sacrifice their lives. So we even have people who are prepared to commit these acts.

If you compare that with chemical terrorism, it is a little bit, you know, it is a little bit less aggressive. You know, we live in a world of toxic materials, and we will not be scared as much as we realize an act of radiological terrorism has been committed and you know, part of the big city is contaminated with radiation. There will be panic. We panic when we face the unknown, and radiation is odorless, senseless and very much misunderstood by others.

Let me refer you to the movie, The War of the Worlds. Steven Spielberg, who is the director of that movie, said in an interview, I made this movie to show that under stressful situations and facing the unknown, that society may tend to disintegrate. And this is what terrorists may be after.

Let's take biological weapons—I understand you will not agree with me because this is your field—but I think biological weapons—we live with diseases, you know. We fight bird flu. We try to

prevent epidemics, so they are less stressful than us facing radiation and dirty bombs.

And then, for terrorists, you know, any pathogen, you know, any contamination by agents may get out of control and kill people that are not intended to die. With radiological weapons, it is more or less focused. Sorry for the long answer.

Ms. NORTON. Thank you.

Dr. FRANZ.

Mr. FRANZ. With regard to your first point about the availability of biological agents, I mentioned agents. And you make a good point about dissemination systems; that is often the hard part. Bugs are everywhere. Developing it into a weapon is not technically a trivial issue, so that is a good technical barrier to those who would harm us with them, and that is good news.

With regard to cyanide, and all I know is what I heard briefly in the media, cyanide is not a biological agent, and it is not radiological. It is a chemical. We weaponized it in our old offensive chemical program. And it doesn't suffer from the problems of dissemination that some of the biological agents do. A biological agent is a particulate; you have got to put it up in the air so people breathe it. It needs to be in a small particle, or it will fall out and not be of any danger.

Cyanide is a vapor, so really all you would need is tanks of cyanide or chemicals that in combination would produce cyanide in some way in a subway system.

Ms. NORTON. Would you smell it?

Mr. FRANZ. Some people can smell cyanide, and some can't. I happen to be able to smell cyanide. I used to work in a chemical plant, and I can smell it.

Ms. NORTON. Do you have to have a Ph.D. to smell it?

Mr. FRANZ. No, it is genetic. It is the way you are wired; some people can, and some can't.

But I would think a barrier to using cyanide in a subway system, for example, would be getting it into the area, you might need some large tanks, not real large, but you would need some tanks. And it would depend on the quantity that you could get down there as to how much area you could cover with those tubes.

Ms. NORTON. So you doubt that that is what was in the New York subway system?

Mr. FRANZ. Well, it is a reasonable one to pick.

Ms. NORTON. Yeah, but you have to get some tanks down there.

Mr. FRANZ. Well, they don't have to be too large. It would be possible if you had roller bags, like people that you see travelling on subways all the time. So it is not a matter of getting it into the air within a system; it is a matter of just releasing it from a tank.

Mr. LINDER. Thank you, both.

You have been very helpful. We appreciate you sharing your afternoon with us, and the hearing is adjourned.

[Whereupon, at 4:55 p.m., the subcommittee was adjourned.]

○