

Danger close to home can start far away.



ANNUAL REPORT 2005



Working for a Safer World



The cover design depicts a departing airplane juxtaposed with a micrograph of the avian influenza virus to illustrate how danger close to home can start far away. The world has changed dramatically since the last global epidemic in 1918 that killed 50 million people. Today, the chance that a virus in one place will make it around the world is exponentially higher than before.

Whether an infectious disease outbreak is naturally occurring or caused by terrorists—major health threats are also security threats. This puts us in a race between cooperation and catastrophe.

NTI's Global Health and Security Initiative is working around the world to prevent, detect and respond to biological threats. Learn more on page 24.

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Nuclear Threat Initiative

2005 Annual Report

**NTI IS WORKING TO REDUCE THE
RISK OF USE AND PREVENT THE
SPREAD OF NUCLEAR, BIOLOGICAL
AND CHEMICAL WEAPONS.**

WWW.NTI.ORG



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LETTER FROM THE CO-CHAIRMEN 2005



NTI Board Members Fujia Yang, Charles B. Curtis, Eugene Habiger, Susan Eisenhower, Sam Nunn, Ted Turner and Pierre Lellouche stand with officials from the Ulba Metallurgical Plant in Kazakhstan, where, under an NTI-Kazakhstan project, up to two-dozen bombs' worth of highly enriched uranium was being converted into low enriched uranium fuel for power reactors that cannot be used in a nuclear weapon.

Kazakhstan's President Nazarbayev has been a global nonproliferation leader, making Kazakhstan a model for the kind of cooperation and progress essential to reducing threats from weapons of mass destruction.

In 1994, Kazakhstan returned nuclear weapons left on its soil at the breakup of the Soviet Union – more than the arsenals of China, France and the United Kingdom combined. Kazakhstan later partnered with the United States in Project Sapphire, a joint effort to blend down weapons-grade uranium. The joint NTI-Kazakhstan project at Ulba led to an announcement by President Nazarbayev that he will eliminate Kazakhstan's remaining highly enriched uranium.

When up to two dozen nuclear bombs' worth of material was left after the shutdown of a nuclear reactor, NTI acted and the government of Kazakhstan was approached with an offer of support for removing the fuel to a facility where it could be blended down into a safer form. The materials have now been safely removed and blended down, and the result is a model for dealing with Kazakhstan's remaining nuclear weapons-usable materials.

When the World Health Organization (WHO) lacked a reserve fund to rapidly dispatch teams to investigate disease outbreaks, NTI acted with a \$500,000 commitment creating a revolving fund—that has now been replenished by others many times over—so teams could deploy within 24 hours of a reported infectious disease outbreak. Rapid response can mean the difference between a locally contained outbreak and a widespread epidemic—whether a disease is naturally occurring or intentionally caused. The fund has already been used by the WHO to respond to numerous outbreaks, including avian influenza, SARS, Ebola and yellow fever.

When public attention to the threat from weapons of mass destruction began to fade after 9/11, NTI acted, and the threat was elevated on the agenda in the U.S. presidential campaign of 2004 through a targeted public education campaign in Iowa and New Hampshire so that—as *The New York Times* wrote: “Both candidates [George W. Bush and John Kerry] called nuclear proliferation the greatest threat to American security.”

When the rising threat of global epidemics gave new urgency to the need for disease surveillance, NTI acted and committed nearly \$1.5 million to engage the governments of Jordan, Israel and Egypt, and the Palestinian Authority in designing a disease surveillance system that shares real time information among these four partners about disease outbreaks. This experience has led to a new initiative to engage India, Pakistan and Bangladesh to help each country strengthen its disease surveillance capacities and work together on the creation of a regional system.

When two and a half nuclear bombs' worth of highly enriched uranium sat poorly guarded just outside Belgrade, NTI acted with a \$5 million commitment that sealed a deal among the governments of Yugoslavia, the United States and Russia and the International Atomic Energy Agency to move the material out of the reach of terrorists and begin cleanup. The operation drew fresh attention to the threat of terrorists

acquiring nuclear weapons and served as a model for a new \$450 million U.S. program to remove highly enriched uranium from research facilities around the world.

When the threat of bioterrorism began to loom large, NTI acted and sponsored a National Academy of Sciences study that outlined ways to manage the practice of “safe science”—whereby self-governance within the biological sciences community ensures that appropriate norms, guidelines and practices are established to help minimize the potential for the misuse of biotechnology. The study prompted the creation of a new U.S. government advisory board to develop guidelines for the biosecurity of life sciences research and a code of conduct for scientists and lab workers.

With 1.9 million chemical weapons—enough to kill tens of millions of people—in dilapidated buildings in Russia, NTI acted by forming a partnership with the government of Canada to build a section of railroad tracks necessary to transport the weapons to a destruction facility.

NTI became the contributor and catalyst in each of these cases because we are committed to reducing the global threats from nuclear, biological and chemical weapons.

The idea for NTI began to germinate when it became increasingly clear that the nuclear threat had not ended when the Cold War ended. In some ways, it began to get worse. We both hoped and expected that in the post–Cold War climate, the nuclear threat would diminish and governments would remove weapons from their Cold War postures and quickly secure nuclear weapons and bomb-making materials. But they did not. With increased danger from terrorists, we saw that the risk of a nuclear, biological or chemical weapon being used was growing. But we were skeptical at first that a private organization could play a significant role in reducing these dangers because governments have the responsibility and resources for the large-scale work of threat reduction. However, governments weren’t doing enough, and we believed we had to act. So we launched a six-month project to think through whether and how a charitable organization could reduce the threats from nuclear, biological and chemical weapons.

We concluded that a private organization could make an impact—under certain conditions. It should focus on reducing the risk from nuclear, biological and chemical weapons. It would have to be staffed by top experts who were widely known and respected and who had operational experience in their fields. It would have to have

Our focus is on leverage –
using our resources to
command greater action
from governments and
other organizations.

a strong communications mission, to raise the public understanding of the threats. It would have to have the financial resources not only to tell the world what must be done, but to show the world through direct action projects that could serve as models for wider action. Finally, it would have to be guided by an international board of directors with expertise in these issues, who would have the stature necessary to gain access to top government leaders throughout the world. In fact, we concluded, it would help if some of the directors were top government leaders.

Thus was born five years ago a nonprofit organization with relatively modest resources, but great range, expertise, access and a keen capacity for leveraging action and funding to reduce threats from nuclear, biological and chemical weapons.

Today, NTI's Board of Directors has members from the United States, India, Pakistan, China, Japan, Jordan, France, Sweden, the United Kingdom and Russia. It includes members of the U.S. Senate, the Russian Duma and the U.K. House of Lords, the former commander of U.S. strategic nuclear forces, the former head of the UN Special Commission on Iraq, a former U.S. Secretary of Defense and a Nobel Prize-winning economist.

Our focus then and now is on leverage—using our resources to command greater action from governments and other organizations. While our accomplishments have surpassed our expectations, we are sobered by the continued urgency of the threats and the continued lack of a proportionate response by governments working together to address it.

The response must be global, because danger close to home can start far away. Yet nations continue to downplay the threats that arise far from their borders, but can endanger their own countries:

There are inadequately secured nuclear weapons materials in more than 100 sites in dozens of countries with no comprehensive plan or timetable for securing it all.

Most nations have little capacity to detect new disease outbreaks, even though an infectious disease outbreak in one nation can quickly become a major threat to human health and security in every nation.

Both the United States and Russia still have thousands of nuclear weapons on hair-trigger alert with no evident plans to change—a situation that prompted the RAND Corporation to declare: “The risks of nuclear use between the United States and Russia are too high.”



Mark Smolinski

Participants from Jordan, Israel, Egypt and the Palestinian Authority are involved in the MECIDS Interventional Field Epidemiology Course.

These facts make it clear—there is still so much to do. But we don't have to be spectators; private organizations and private individuals can make an impact. We know we can help make the world safer, and we know how. We ask you to join the many people who have joined us and support our work to reduce risks and make a safer world.

Investor Warren Buffett has said: "NTI has shown that private resources can be leveraged to get governments around the world to do more, and I'm pleased to support its efforts."

Nobel Peace Prize winner and Director General of the International Atomic Energy Agency Mohammed ElBaradei describes NTI as embodying "the best features of public-private partnership: a worthy cause; crisply defined, practical objectives; and—in four years—a series of concrete achievements, successful steps towards making the world safer and more secure."

If you're looking for a way to make a difference, you can find it here. The NTI Safer World Action Network gives you a way to get involved so that you can help prevent catastrophic terrorism. The Safer World Action Network will help you stay informed, encourage others to learn more and donate directly to projects that reduce the threats from nuclear, biological and chemical weapons. Please visit www.nti.org to join the Safer World Action Network today. It is important and one clear and concrete way to build a safer tomorrow.

Sincerely,

The image shows two handwritten signatures in blue ink. The signature on the left is 'Sam Nunn' and the signature on the right is 'Ted Turner'.

Sam Nunn
Co-Chairman

Ted Turner
Co-Chairman

"The Nuclear Threat Initiative embodies the best features of public-private partnership: a worthy cause; crisply defined, practical objectives; and—in four years—a series of concrete achievements, successful steps towards making the world safer and more secure."

Mohamed ElBaradei, 2005 Nobel Peace Prize Winner and Director General of the International Atomic Energy Agency

ABOUT NTI

NTI Board Members Susan Eisenhower, Ted Turner, Sam Nunn, Pierre Lellouche and Fujia Yang being briefed on the blend-down of highly enriched uranium at the Ulba Metallurgical Plant in Kazakhstan, where, under an NTI-Kazakhstan project, up to two-dozen bombs' worth of highly enriched uranium was being converted into low enriched uranium fuel for power reactors that cannot be used in a nuclear weapon.



CATALYZING ACTION TO REDUCE URGENT GLOBAL DANGERS



NTI is a nonprofit organization working to reduce the risk of use and prevent the spread of nuclear, biological and chemical weapons.

Since governments have most of the resources and authority in the large-scale work of threat reduction, it is not only what NTI can do to directly to reduce these threats that matters; it is also what NTI can persuade others to do. NTI's focus is on leverage—combining its influential voice with direct action projects to catalyze greater, more effective action by governments and international organizations.

NTI is a place of common ground where people with dif-

ferent ideological views are working together to close the gap between the global threats from nuclear, biological and chemical weapons and the global response.

NTI is co-chaired by philanthropist and CNN founder Ted Turner

and former U.S. Senator Sam Nunn and is governed by an expert and influential Board of Directors with members from the United States, Russia, Japan, India, Pakistan, China, Jordan, Sweden, France and the United Kingdom. Board members include a former U.S. Secretary of Defense, members of the legislative branches of government from the United States, France, Russia and the United Kingdom; a member of the Jordanian royal family; a Nobel Prize-winning economist; a world-renowned nuclear physicist; the former commander of U.S. nuclear strategic forces and other top experts in international security issues. The foundation's activities are directed by Senator Nunn and NTI President Charles B. Curtis.

Advisors to the Board of Directors include leading figures from the scientific, business and national security fields. NTI is staffed by experts in nonproliferation, international affairs, communications, security and military issues, public

health and medicine who have operational and international experience in their fields.

NTI works to raise public awareness about the global threats from nuclear, biological and chemical weapons and to urge effective action to reduce those threats. In 2005, NTI released a film, *Last Best Chance*, to highlight the danger from unsecured nuclear material around the world and the need to dramatically accelerate global efforts to secure the material. The NTI-Harvard Managing the Atom Report "Securing the Bomb" provides a yearly assessment of progress in the global efforts to lock down nuclear weapons and materials and recommends specific actions to accelerate that work.

NTI's direct action projects are models for threat reduction, designed to create paths for governments and other organizations to follow. Many projects address high-risk situations involving nuclear, biological and chemical weapons and materials. In the biological arena, NTI's Global Health and Security Initiative works to prevent, detect and respond to biological threats around the world, with a focus on addressing gaps in global public health capacity for rapid detection and response to infectious disease outbreaks and strengthening efforts to prevent the development and use of biological weapons. NTI's projects range from facilitating the elimination of highly enriched uranium in Kazakhstan, to supporting Russian chemical weapons destruction, to creating a revolving fund to support rapid emergency response to infectious disease outbreaks, whether naturally occurring or intentionally caused, anywhere around the world.

NTI is a global initiative with offices in Washington, DC and Moscow. NTI activities are conducted with full transparency with the United States and other governments.

NUCLEAR

A worker sorts highly enriched uranium pellets at the Ulba Metallurgical Plant in Kazakhstan, where, under an NTI-Kazakhstan project, up to two-dozen nuclear bombs' worth of highly enriched uranium was converted into low enriched uranium fuel for power reactors that cannot be used in a nuclear weapon.





NTI IN ACTION

Up to two dozen nuclear bombs' worth of highly enriched uranium was at a civilian nuclear power reactor slated for shut-down in Aktau, Kazakhstan, on the Caspian Sea near Iran. This highly enriched uranium had fallen through the cracks of international efforts to secure and dispose of other nuclear weapons materials in Kazakhstan, so NTI joined with the government of Kazakhstan to take action.

Highly enriched uranium is the raw material of nuclear terrorism, but today, because of NTI's cooperative work with the government of Kazakhstan, the material from the reactor in Aktau will never be used in weapons. Instead, it has been transformed into low enriched uranium that can be used only for commercial or scientific activities.

There were several steps in the project. Nuclear workers in Aktau loaded the fresh highly enriched uranium fuel assemblies designed, but never used, for the BN-350 reactor onto rail cars. The fuel assemblies were transported to the Ulba Metallurgical Plant in Ust-Kamenogorsk, Kazakhstan, where security upgrades were installed to permit highly enriched uranium storage. A blend-down line and additional security upgrades to allow the conversion of highly enriched uranium to a safer, non-weapons-usable form were designed, licensed and installed to carry out the operations. These facilities will remain available to transform other nuclear weapons-usable uranium into material that cannot be made into a nuclear weapon.

The project was carried out in coordination with the International Atomic Energy Agency (IAEA), the U.S. Department of Energy and the Ministry of Energy and Mineral Resources of Kazakhstan.

In October, NTI Board members traveled to Kazakhstan to join with Kazakhstan's President Nursultan Nazarbayev to announce the success of our joint work. President Naz-

arbayev said, "It's important that we do everything possible to secure and eliminate bomb-making materials so terrorists cannot use them to build a nuclear weapon. All of us in Kazakhstan are proud of what we have done with NTI to advance that goal." U.S. President George Bush and Mohammed ElBaradei, Director General of the IAEA, sent statements of support for the project that were read at the ceremony.

Eliminating up to two dozen nuclear bombs' worth of material is progress, but the message this project sends is just as important—there are steps we can take to dramatically reduce the threat of nuclear terror-

ism by securing and eliminating nuclear weapons materials around the world. As Dr. Graham Allison, Director of Harvard University's Belfer Center for Science and International Affairs and author of *Nuclear Terrorism: The Ultimate Preventable Catastrophe*, has said, "No nuclear material. No nuclear weapon. No nuclear terrorism."

"It's important that we do everything possible to secure and eliminate bomb-making materials so terrorists cannot use them to build a nuclear weapon. All of us in Kazakhstan are proud of what we have done with NTI to advance that goal."

**President Nursultan Nazarbayev,
Kazakhstan**

THE NATURE OF THE THREAT

Sometimes when your enemies say that they are going to do something, you need to take them seriously.

TERRORIST ACQUISITION AND USE OF NUCLEAR WEAPONS

In 1998, Osama bin Laden called acquiring nuclear weapons a “religious duty”. Al Qaeda operatives have made repeated attempts to buy stolen nuclear material to make a bomb. Intercepted al Qaeda communications reported a member boasting Osama bin Laden planned to carry out a “Hiroshima” on America. Extensive materials on nuclear weapons found in al Qaeda camps in Afghanistan make clear the group’s continuing desire for nuclear capability. In 2003, Bin Laden sought and received a religious ruling, or fatwa, from an extreme Saudi cleric authorizing the use of weapons of mass destruction to kill American civilians.

The hardest part of making a nuclear weapon is getting plutonium or highly enriched uranium (HEU), the essential ingredients of a nuclear bomb. Since these materials are difficult to make, the most likely way a terrorist will get them is through illicit purchase or theft. In Russia alone, the Cold War legacy of the Soviet Union left vast quantities of weapons, HEU and plutonium, as well as tens of thousands of people with weapons or materials knowledge whose jobs were no longer assured. In dozens of countries around the world, there are more than 100 research facilities with HEU that is inadequately secured and vulnerable to theft.

Over the past decade, U.S. and Russian activities carried out under the Nunn-Lugar Cooperative Threat Reduction Program, the

Nunn-Lugar-Domenici Domestic Preparedness Program and related programs have made significant progress in securing and eliminating vulnerable weapons and materials in Russia and the new independent states. However, by 2005, less than 50 percent of the nuclear materials and warheads in Russia have had basic cooperative security upgrades. And governments are only in the initial stages of the task of securing and eliminating vulnerable materials from the more than 100 HEU research facilities around the globe. U.S. and Russian officials have pledged to increase the pace substantially both for vulnerable materials in Russia and around the world, but the pace is still not commensurate with the threat.

STATE ACQUISITION OF NUCLEAR WEAPONS CAPABILITY

State nuclear weapons programs pose a growing danger.

The spread of nuclear technology and related know-how is cause for increasing concern. The exposure of an illicit nuclear trading network centered in Pakistan revealed a stunning operation to bypass international controls on the dissemination of nuclear weapons technology. These transfers were made through multiple countries and individuals operating outside of global export control mechanisms and were undetected as cargoes entered ports

and crossed borders. This network is believed to have transferred Pakistani nuclear technology to Libya, Iran and North Korea.

In the case of Libya and apparently Iran, the transfers included sensitive nuclear weapons design information. Since that time, Libya has admitted to pursuing a covert nuclear weapons program and has committed to dismantling the program.

In South Asia, the risk of nuclear use between Pakistan and India remains high. These two countries have a history of strained relations, wars and cross-border terrorism. Both sides continue to expand their warhead stockpiles and delivery systems. However, it is encouraging that both governments have begun a comprehensive dialogue that can help reduce nuclear tensions and are beginning to identify risk reduction measures for implementation, such as a “hotline” between the foreign secretaries of the two countries and an agreement to notify each other prior to any missile launches.

In 2005, U.S. President George W. Bush and Indian Prime Minister Manmohan Singh announced a nuclear technology sharing agreement between their two countries that would provide a one-country exception to longstanding prohibitions on the sharing of nuclear technology with nations outside of the Nuclear Non-Proliferation Treaty. Under the agreement, which would need to be enabled with changes in U.S. law by the U.S. Congress, India would be allowed access to U.S. nuclear fuel and technology



Containers holding highly enriched uranium powder that was blended-down in Kazakhstan.

to meet civil energy needs. And if the Nuclear Suppliers Group were to alter its rules, the agreement would permit India to trade nuclear technology with other nations. In exchange, India would agree to declare 14 of 22 nuclear reactors as designated for civil use and agree to IAEA inspections.

North Korea has withdrawn from the Nuclear Non-Proliferation Treaty, lifted the freeze on its plutonium-based nuclear weapons program and expelled IAEA inspectors who had been monitoring the freeze under the Agreed Framework of 1994. North Korea claims to have engineered a number of plutonium-based nuclear weapons and is believed to have a parallel program for enriching uranium for nuclear weapons. The six-party talks (involving the United States, South Korea, North Korea, Russia, China and Japan), which were set up to mitigate this diplomatic crisis, resumed in 2005. On September 19, the six parties reached agreement on a joint statement, including a commitment by North Korea to abandon its nuclear weapons program and return to



Alexander Bittk



Shearon Glover



NTI

[CLOCKWISE FROM ABOVE]

Bob Berls explains details of the display of Sarov Open Technopark in Russia to NTI Co-Chairman Sam Nunn.

NTI Board Members observe highly enriched uranium blend-down in Kazakhstan.

Map of countries with nuclear weapons material.

the Nuclear Non-Proliferation Treaty, along with economic and security guarantees. Subsequent efforts to work out the details, including North Korea's demand for a civilian nuclear reactor, have stalled, and the prospects for the six-party talks remains uncertain.

Another cause for increasing concern is that the Nuclear Non-Proliferation Treaty does not prevent nonnuclear weapons states from developing the infrastructure to produce nuclear weapons materials under the guise of a peaceful civilian program. The result is that

civilian nuclear capabilities used for energy production can be easily converted to a nuclear weapons program.

After an 18-year history of conducting a clandestine program to develop nuclear weapons, Iranian leaders have a declared policy of developing a domestic nuclear fuel cycle, and they have made considerable progress in developing uranium-enrichment capabilities that could be used to manufacture nuclear weapons materials. Although Iran is a signatory of the Nuclear Non-Proliferation Treaty and has the right to enrich uranium for energy production if its facilities are placed under international safeguards, it has not convinced the IAEA that its nuclear program is for peaceful civilian use. In fact, evidence presented to the IAEA suggests that Iran may have acquired a nuclear weapons design and is actively pursuing a nuclear weapons program.

The Brazilian government's past refusal to allow unrestricted IAEA inspections of its nuclear energy facilities has raised concerns. In April 2004, Brazil argued that a new gas centrifuge enrichment plant under construction in Resende was intended solely for commercial purposes and that access restrictions were necessary to protect proprietary information about indigenously developed centrifuge technology. Eventually, the IAEA and the Brazilian government reached an agreement on a safeguards approach to verify the enrichment facilities at the Resende facility that shielded some aspects of

it for “proprietary” reasons. The Resende complex is now considered operational. Concerns about this country’s nuclear energy program were underscored in August 2005 when Brazil confirmed that it once had a secret nuclear weapons program. Brazil has yet to sign the Additional Protocol to its safeguards agreement permitting more intrusive inspections of its facilities under the Nuclear Non-Proliferation Treaty.

UNITED STATES AND RUSSIA REMAIN IN COLD WAR NUCLEAR POSTURES

The risk of nuclear exchange between the United States and Russia did not disappear with the end of the Cold War, and in some ways it has grown more dangerous. The United States and Russia continue to maintain thousands of nuclear warheads on land and at sea, ready to fire at a moment’s notice—a posture essentially the same as during the Cold War. Russia’s degraded early warning systems coupled with the large nuclear rapid and accurate strike potential of the United States provide a continuing incentive for Russia to rely on a “launch-on-warning” capability that is inherently vulnerable to mistakes, accidents and miscalculations. These large missile forces pose a significant security risk to both nations of mistaken, accidental or unauthorized nuclear launch. U.S. and Russian nuclear force size and readiness levels fail to reflect the fundamentally changed political relations between the two countries.



U.S. State Department

Project Vinca: Inspection of highly enriched uranium before transport from Vinca, Serbia to Russia where it was secured and transformed to nonweapons-usable material.

STRATEGIES FOR NUCLEAR THREAT REDUCTION



U.S. State Department

Container seals in
Vinca, Serbia.

Reducing the risk of nuclear use by terrorists and nation-states requires a broad set of complementary strategies targeted at reducing state reliance on nuclear weapons, stemming the demand for nuclear weapons and denying organizations or states access to the essential nuclear materials, technologies and know-how. Ultimately, success in reducing global nuclear threats can be achieved only through unprecedented cooperation among states. No state acting alone has sufficient authority, resources or influence to assuredly protect itself, especially from nuclear terrorism. Moreover, if the United States and Russia were to take steps to deemphasize their reliance on nuclear weapons, it would give both nations more standing to encourage other nations to dismiss the nuclear option.

NTI is working in four strategic areas designed to address the most urgent, near-term risks, and to take advantage of opportunities where a private organization can leverage greater action from governments on a larger scale. These four areas of activity are:

- » Securing, consolidating and reducing fissile material;
- » Leveraging resources to address nuclear infrastructure and human capital;
- » Building global cooperation on security goals; and
- » Generating new thinking on reducing nuclear risks.

SECURING, CONSOLIDATING AND REDUCING FISSILE MATERIAL

The relative ease of obtaining weapons designs and engineering nonnuclear components makes control over nuclear materials the first line of defense for preventing states or terrorist groups from developing or obtaining nuclear weapons. A global approach to removing and securing nuclear materials is essential because the chain of security is only as strong as its weakest link.

NTI is working to advance this “Global Cleanout and Secure” agenda through a number of projects to secure fissile materials around the world. NTI’s actions to support the removal of vulnerable highly enriched uranium (HEU) have increased awareness about the threats posed by these materials and have renewed interest in reducing them. NTI is helping nations move away from routine use of the raw material of nuclear terrorism through a range of projects including the removal of two and a half bombs’ worth of weapons-usable HEU from a research reactor near Belgrade; the creation of a comprehensive U.S.-Russia-IAEA plan to remove HEU from Soviet-origin research reactors worldwide; the elimination of HEU stocks in Kazakhstan; and conversion of Russian nuclear-powered icebreakers to low-enriched uranium (LEU) fuel. These types of projects helped spur the creation of the U.S. Global Threat Reduction Initiative, announced in May 2004. This initiative is also working to repatriate U.S.-origin HEU from around the globe.

NTI is also working with Russian experts to consider options for accelerating the elimination of dangerous stocks of excess Russian HEU. NTI's study will lay the groundwork that could help governments ensure rapid conversion of these materials to LEU, which cannot be used to make a nuclear weapon.

LEVERAGING RESOURCES TO ADDRESS NUCLEAR INFRASTRUCTURE AND HUMAN CAPITAL

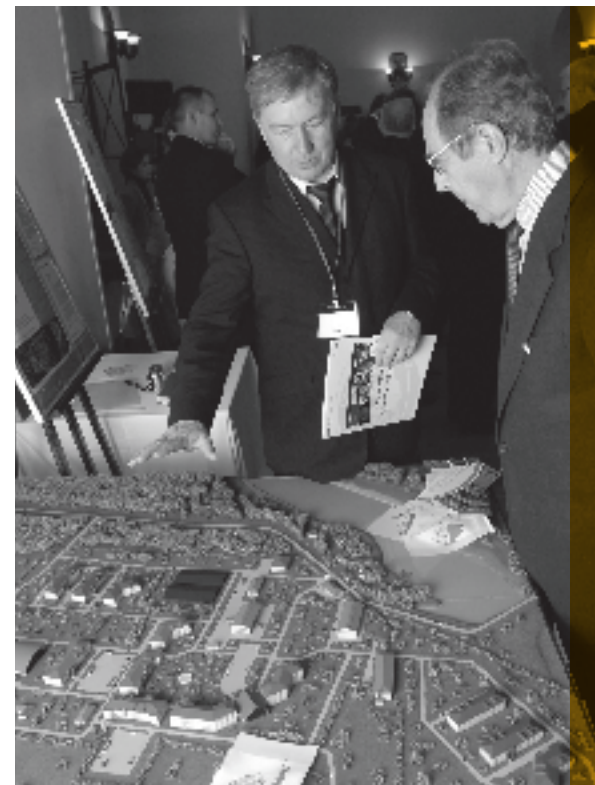
As Russia seeks to cut its nuclear weapons workforce in half over the next few years, it must close or convert facilities at ten nuclear sites and eliminate 35,000 jobs. Many of the people who hold those jobs have access to nuclear weapons material or information useful to terrorists seeking nuclear capabilities.

A transition to sustainable civilian employment is critical to avoiding perilous temptations to sell access or information before jobs are lost. Reducing the total population of workers at all levels with access to sensitive materials or facilities will require a diversity of techniques beyond those currently in use. Small-business creation, joint ventures with Russian high-technology firms and worker transition programs offer new opportunities to mid- and lower-level facility personnel, often neglected by existing redirection efforts but potentially valuable to unauthorized insiders or outsiders seeking to acquire weapons or materials.

Working closely with governments and others in reemploying weapons workers, NTI has identified pilot projects in Russian closed nuclear cities to prevent the spread of nuclear technology and knowledge. In Moscow in October 2005, NTI announced a \$1 million grant to support the infrastructure to bring civilian jobs to former nuclear weapons scientists at Sarov, a formerly secret nuclear city. NTI has also supported new and growing businesses in Sarov that have created jobs for former nuclear employees. Furthermore, NTI is building the capacity of SarovLabs by providing funds to improve their marketing and program management capabilities.

Through these types of pilot projects designed as models to be replicated elsewhere, NTI is strengthening nuclear security by reemploying personnel with knowledge of sophisticated weapons design and materials handling practices.

At the same time, it is essential to strengthen security at nuclear facilities. As Russian nuclear facilities cut back on staff, the work habits and skills of those who continue to steward Russia's enormous nuclear weapons and materials stockpile are critical to maintaining security in the face of today's threats. A decade of U.S.-Russian cooperation to upgrade security equipment at nuclear facilities in Russia reveals that hardware is only as good as the people who operate it, and that a weak security culture in Russia limits the effectiveness of purely equipment-based assistance.



A Russian scientist explains details of the model of the Sarov Open Technopark in Russia to NTI Board Member William Perry.

Changing the Cold War nuclear posture of both the U.S. and Russia would be a major step forward in reducing the risk of nuclear use and set an example for other nuclear and nonnuclear states.

With support from NTI and others, the University of Georgia's Center for International Trade and Security produced a detailed analysis of Russian approaches to nuclear security, with a focus on "the human factor"—the attitudes and habits of the personnel charged with maintaining security at nuclear facilities. This report, published in English and Russian, offers both a critique of Russia's attention to the human factor and recommendations for improvement. These lessons are applicable not only in Russia, but also globally, because weak security cultures exist in many nations.

BUILDING GLOBAL COOPERATION ON SECURITY GOALS

Current physical security arrangements at many nuclear facilities around the world do not adequately address the international community's most pressing security challenge—terrorists seeking to acquire plutonium or highly enriched uranium (HEU) for a crude nuclear weapon. The Convention on Physical Protection of Nuclear Materials, which requires signatories to secure nuclear materials during international transport, is designed to address this threat, and a currently proposed amendment seeks to strengthen it and broaden its scope.

However, even with the adoption of this amendment, security gaps will remain. In the absence of comprehensive, binding global standards for the protection of nuclear materials, an effective near-term strategy for improving security

would be for nuclear facility operators to adopt voluntary global security and accounting best practices. To begin a process for defining these practices, NTI hosted a series of workshops in 2004 through its project on Global Best Practices for Nuclear Materials Management. Hosted in partnership with the Institute of Nuclear Materials Management, the workshops provided an open forum for information exchange among 90 nuclear materials professionals from 36 countries. The workshops offered a unique opportunity for operational experts from government, industry and research institutes to meet with colleagues from other nations for detailed technical discussions.

Drawing on the workshops, NTI is working with the Institute to catalyze the creation of an international institution to help promote best practices for nuclear materials security. Ultimately, sharing best practices could help form the basis for improving nuclear materials management standards globally to better meet the modern threats from terrorists and others seeking nuclear weapons.

GENERATING NEW THINKING ON REDUCING NUCLEAR RISKS

Fifteen years after the end of the Cold War, the United States and Russia still maintain thousands of nuclear weapons on hair-trigger alert. These weapons pose a dangerous security risk to both nations of a mistaken, accidental or unauthorized nuclear launch. To advance the global effort to reduce the risk of nuclear

use, the United States and Russia—the two nations with the largest nuclear stockpiles—must lead in deemphasizing the role of nuclear weapons.

NTI Co-Chairman Sam Nunn has called on the Presidents of the United States and Russia to reduce each country's reliance on nuclear weapons and end their nation's Cold War nuclear force postures by removing all nuclear weapons from hair-trigger alert. If both the United States and Russia can take this step, they can dramatically reduce the chance of an accidental, mistaken or unauthorized launch and deemphasize the role of nuclear weapons in their political and military relations. Nunn has urged the Presidents of the United States and Russia to make a joint commitment to:

- » Engage in a process to remove all U.S. and Russian nuclear weapons from a hair-trigger alert capable of launch within minutes;
- » As an intermediate step, reduce the number of warheads on hair-trigger alert from several thousand to several hundred;
- » Initiate a dialogue with other nuclear weapon states to deemphasize the global importance of nuclear weapons by developing a standard against maintaining weapons on hair-trigger alert status.

Bold and determined presidential leadership in the United States and Russia is essential



This Vinca critical assembly research apparatus once operated with weapons-usable HEU fuel. As a result of NTI's Project Vinca, it will be decommissioned.

to making nuclear policies and force structures fit a post-Cold War security environment.

NTI is also exploring options for removing weapons from hair-trigger alert through two studies commissioned from Russian experts, including a prominent Russian academic and three retired Russian generals with experience developing Russia's nuclear strategy and maintaining its strategic nuclear forces. NTI is also developing similar proposals with U.S. experts.

Changing the Cold War nuclear posture of both the United States and Russia would be a major step forward in reducing the risk of nuclear use and set an example for other nuclear and nonnuclear states.

PROJECT VINCA REMOVING TWO AND A HALF BOMBS OF MATERIAL FROM SERBIA: A MODEL FOR COOPERATIVE ACTION

More than two and a half bombs' worth of highly enriched uranium (HEU) stored in a civilian research reactor in Serbia with inadequate security were flown to a safer storage facility in Russia and ultimately eliminated.

These weapons-usable nuclear materials were vulnerable to theft by terrorists, so NTI worked extensively with the U.S. Department of State, the IAEA, Russia and Serbia to transfer the 48 kilograms (over 100 pounds) of weapons-usable nuclear material worth of HEU to more secure storage in Russia for elimination through blend down.

Following Project Vinca, NTI has used its voice, influence and direct action projects to advocate for the creation of a "Global Cleanout and Secure" initiative to prevent terrorists from acquiring the raw material for a nuclear weapon from insecure civilian facilities.

NTI's leadership and projects catalyzed concerted international action. The United States, Russia and the IAEA undertook operations similar to Project Vinca in Bulgaria, Romania, Uzbekistan and the Czech Republic and announced the development of a schedule, supported in part by an NTI grant to IAEA, to return all Soviet-origin fresh HEU fuel to Russia. In November 2003, the U.S. Energy Department (DOE) initiated a comprehensive risk assessment of radiological and fissile materials worldwide. In May 2004, DOE launched the Global Threat Reduction Initiative (GTRI), combining a number of programs previously dispersed into a single office, and setting milestones for reducing risks of fissile and radiological materials stored around the globe. In September 2004, Russia and the United States sponsored the first GTRI Partners Conference, gathering nearly 600 representatives from over 90 countries.

Terrorists seeking nuclear weapons materials may not look where there is the most material; they may go where the material is the most vulnerable. The chain of global security is only as strong as the security at the weakest, worst-defended site. That's why it is necessary to lock down nuclear weapons and materials around the world.



"NTI was critical to and a major factor in bringing this important non-proliferation deal to closure."

Richard Armitage, former U.S. Deputy Secretary of State

NTI PROJECTS

APPROVED OR ONGOING IN 2005 NUCLEAR

SECURING, CONSOLIDATING AND REDUCING FISSILE MATERIAL

Preparing to Double the Blend-down Rate of HEU

To analyze options for accelerating the rate at which HEU in Russia is transformed into nonweapons-usable forms for ultimate use in civilian power plants.
Facilities and Institutes of Russian Ministry of Atomic Energy
Moscow, Russia
Up to \$2,000,000
2002–2005

Accelerating Russian HEU Blend-down, Phase II

To build on a previous project to analyze options for accelerating the elimination through blend-down of excess Russian highly enriched uranium. This allows for additional analysis to optimize the options, promote the accelerated blend-down concept in the United States, Russia and Europe, as well as prepare additional data necessary for Russian government decision making.
Facilities and Institutes of Russian Ministry of Atomic Energy
Moscow, Russia and others
Up to \$1,000,000
2005–2006

Strengthening IAEA Programs to Secure Vulnerable Nuclear Material

To support the expansion of IAEA programs to secure vulnerable nuclear materials worldwide and to support the IAEA's ability to leverage additional financial contributions for this program.
International Atomic Energy Agency
Vienna, Austria
\$1,150,000
2002–2005

Removing HEU from Serbia

To contribute to the removal of poorly secured HEU from the Vinca Institute of Nuclear Sciences by supporting the decommissioning of its research reactor and management of remaining spent nuclear fuel.
International Atomic Energy Agency
Vienna, Austria
Up to \$5,000,000
2002–2005

Russian Research Reactors Scoping Study

To begin planning for the removal of HEU fuel from research facilities in Russia to more secure locations in that country.
Central Research Institute of Management, Economics and Information
Moscow, Russia
\$60,000
2004–2005

Consolidating and Blending Down HEU in Kazakhstan

To contribute to the security, consolidation and blend-down of all remaining HEU in Kazakhstan so that it cannot be stolen or diverted for use in nuclear weapons.
Institute of Nonproliferation
Almaty, Kazakhstan, and
Ulba Metallurgical Plant
Ust-Kamenogorsk, Kazakhstan
Up to \$2,000,000
2002–2006

Supporting Conversion for Alatau Nuclear Research Reactor

To provide the equipment and incentives for the research reactor at the Institute of Nuclear Physics at Alatau to be converted to use low-enriched uranium fuel by providing a new reactor control and protection system that will improve reactor safety and a beryllium reflector to enhance reactor performance.
Institute for Nuclear Physics
Alatau, Kazakhstan
\$1,600,000

Planning to Secure and Remove HEU from Soviet-Supplied Research Reactors to Improve Safety and Reduce Proliferation Risks

To evaluate security, safety, regulatory, transportation and cost issues associated with removing fresh and spent HEU fuel from 24 poorly secured research reactors in 17 countries and to develop a comprehensive plan to achieve it.

*International Atomic Energy Agency
Vienna, Austria
\$260,000
2002–2006*

Low Enriched Uranium Fuel Development for Russian Naval Reactors

To develop low-enriched uranium fuel for Russian civilian icebreakers and future floating nuclear power plants to replace HEU fuel at risk of theft and diversion. This project will provide the basis for a decision to convert HEU-powered icebreakers and to enable floating power plants to use non-weapons-usable fuels.

*Bochvar All-Russia Research Institute of Inorganic Material
Moscow, Russia
\$500,000*

LEVERAGING RESOURCES TO ADDRESS NUCLEAR INFRASTRUCTURE AND HUMAN CAPITAL

Development of Conversion Companies

To contribute \$1 million to the Fund for Development of Conversion Companies, an existing Russian revolving loan fund, established to create permanent, commercially viable civilian businesses in the closed nuclear city of Sarov and provide sustainable employment for former weapons personnel.

*Fund for Development of Conversion Companies
Sarov, Russia
\$1,000,000
2002–2006*

Promoting Sarov Konversia Fund

To assist the Fund for Development of Conversion Companies expand its capabilities by developing a strategy and mechanism for attracting new donors and investors.

*Fund for Development of Conversion Companies
Sarov, Russia
\$50,000
2004–2005*

Building Capacity at SarovLabs

To assist SarovLabs in becoming a self-sustaining, commercial contract research organization that employs former weapons scientists by providing project management and marketing support.

*SarovLabs
Sarov, Russia
\$450,000
2003–2005*

Strategic Planning for Snezhinsk

To engage local and institute leaders from the closed nuclear city of Snezhinsk in strategic planning to support two key missions of the city over the next five years: downsizing the nuclear weapons facility and staff and securing the remaining nuclear materials at the site.

*The Eisenhower Institute
Washington, DC, USA
\$230,400
2003–2005*

Development of Open Technopark

To support project and infrastructure development in the new Open Technopark, located just outside the closed nuclear city of Sarov and in an area that provides free access to non-Russian companies and investors but still within an easy commute for former weapons scientists and engineers from Sarov. This project will contribute to the creation of new jobs not related to nuclear weapons and accelerate the transition to a smaller, more stable and more secure Russian nuclear weapons complex.

*Center for Technologies Transfer
“Sistema-Sarov”
Sarov, Russia
\$1,000,000
2005–2009*

BUILDING GLOBAL COOPERATION ON SECURITY GOALS

Global Best Practices for Nuclear Materials Management

To continue a discussion among nuclear materials security professionals on how to promulgate “Best Practices” globally through the creation of a new institution that would lead to the implementation of more effective nuclear materials security programs at nuclear facilities worldwide so the materials are less vulnerable to terrorist diversion.

*Institute of Nuclear Materials Management
Northbrook, IL, USA
Up to \$500,000
2005–2006*

Strengthening the Global Partnership

To develop a constituency among and beyond the Group of Eight (G8) leading industrial nations for nuclear, biological and chemical threat reduction programs through partnerships with 21 security organizations from 16 nations. This project promotes the effective and timely implementation of the G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction's commitment to devote \$20 billion to support nonproliferation projects, initially in Russia, over the next decade.

Center for Strategic and International Studies
Washington, DC, USA
\$1,343,152
2005–2006

Capacity-Building for Future Leaders in India, Pakistan and China

To hold a two-week workshop in Nathiagali, Pakistan, for young Chinese, Indian and Pakistani journalists, academics and government officials that will focus on nuclear, biological and chemical weapons threats and cooperative strategies for reducing them.

Regional Center for Strategic Studies
Colombo, Sri Lanka
\$165,000
2004–2005

Supplementary Support for NATO Advanced Research Workshop on “Nuclear Security Culture: From National Best Practices to International Standards”

To support a NATO-sponsored Advanced Research Workshop on “Nuclear Security Culture: From National Best Practices to International Standards” during October 2005 and follow-on involvement in an informal experts group that is working to support the development of International Atomic Energy Agency guidelines on nuclear security culture.

Center for International Trade and Security
University of Georgia
Athens, GA, USA
\$49,100
2005

India, Pakistan and the Global Nonproliferation System

To convene a series of workshops in India and Pakistan that explore how the United States, India and Pakistan might strengthen their adherence to global nonproliferation norms and practices and build an international consensus around a new understanding of India's and Pakistan's relationships to the international nonproliferation system.

The Henry L. Stimson Center
Washington, DC, USA
\$325,000
2004–2007

Modeling Russia's Power Development Plan

To develop models of national and multinational nuclear fuel cycle concepts, with an emphasis on nonproliferation, economics and future excess weapons materials disposition.

Kurchatov Institute
Moscow, Russia
\$49,755
2003–2005

Cooperation on Counterterrorism

To initiate and expand a joint initiative between the U.S. National Academy of Sciences and the Russian Academy of Sciences with special focus on new efforts to collaborate on science and technology solutions for sustaining nuclear materials security cooperation and removing obstacles to U.S.-Russian threat reduction programs.

Russian Academy of Sciences
Moscow, Russia;
National Academy of Sciences
Washington, DC, USA
\$857,000
2002–2005

U.S.-Russian Nonproliferation Working Group

To establish U.S.-Russian working relationships to reinvigorate the U.S.-Russian consensus on nonproliferation objectives and approaches and to create and identify shared interests and cooperative strategies for preventing the spread of nuclear, biological and chemical weapons.

Belfer Center for Science and International Affairs
John F. Kennedy School of Government
Harvard University
Cambridge, MA, USA
\$400,000
2005–2006

Overcoming Impediments to Cooperation

To develop and promote practical means of overcoming obstacles to U.S.-Russian cooperation on reducing threats from nuclear, biological and chemical weapons.

Russian Academy of Sciences
Moscow, Russia;
National Academy of Sciences
Washington, DC, USA
\$200,000
2004–2005

Security Council Resolution 1540—Defining Implications and Advancing Implementation

To convene a symposium involving the UN Secretariat and senior diplomats from many nations to analyze and discuss implementation of UN Security Council Resolution 1540. Resolution 1540, adopted in April 2004, calls upon states to establish domestic controls to prevent the proliferation of nuclear, biological and chemical weapons and their means of delivery.

*McGeorge School of Law
University of the Pacific
Sacramento, CA, USA
\$50,000
2004–2005*

Developing Multinational Fuel Services Approaches

To develop mechanisms that would guarantee cost-effective international nuclear fuel services in lieu of indigenous fuel production.

*Carnegie Endowment for International Peace
Washington, DC, USA
\$50,000
2005*

Promoting Adherence to International Legal Instruments That Enhance Protection Against Nuclear Terrorism

To support IAEA efforts to increase member states' awareness and ability to control, account for and protect nuclear and other radioactive materials from terrorists and to detect and respond to such incidents.

*International Atomic Energy Agency
Vienna, Austria
\$50,000
2005*

Combating Criminal Use of Weapons of Mass Destruction

To support the activities of the United Nations Interregional Crime and Justice Research Institute in terrorism prevention, with particular attention to the illicit trafficking and criminal use of nuclear, biological, chemical and radiological materials and weapons.

*United Nations Interregional Crime and Justice Research Institute
Turin, Italy
\$50,000
2004–2005*

Allies Conference

To develop coordinated approaches for bringing India and Pakistan into the practice of global nonproliferation norms through an Allies Conference that brings together experts on South Asia and government officials from several nations.

*The Brookings Institution
Washington, DC, USA
\$35,000
2004–2005*

Strengthening Multilateral Approaches to WMD Threats

To contribute directly to solving several immediate problems in the existing non-proliferation regime, while also tackling the larger question of what is required, over the long run, to construct an international regime truly capable of managing nuclear, biological and chemical threats.

*Center on International Cooperation
New York University
New York, NY, USA
\$50,000
2005–2006*

Analyzing the Technical and Political Impediments to Eliminating the Civil Use of HEU

To develop an analytical paper on the technical and political impediments to ending the use of HEU in civil commerce.

*Council on Foreign Relations
Washington, DC, USA
\$42,350
2005*

The NPT at a Crossroads: An International Workshop and Preparations for the 2005 Review Conference

To support the Monterey Institute of International Studies in a series of activities to support the 2005 Review Conference of the Nuclear Non-Proliferation Treaty (NPT), including an international diplomatic workshop in Annecy, France, publication and dissemination of an NPT briefing book and policy papers and active participation at the 2005 Review Conference.

*Ploughshares Fund
San Francisco, CA, USA
\$40,000
2005*

Universal Compliance: A Strategy for Nuclear Security

To support the creation and promotion of Universal Compliance: A Strategy for Nuclear Security, through initial meetings to develop the concept, the presentation of an internationally vetted document to the U.S. government and the promotion of the strategy in the run-up to the Nuclear Non-Proliferation Treaty Review Conference and beyond.

*Carnegie Endowment for International Peace
Washington, DC, USA
\$350,000
2004–2006*

GENERATING NEW THINKING ON REDUCING NUCLEAR RISKS

Promoting Responsible Nuclear Stewardship in India

To promote responsible government policies and practices related to the safety and security of nuclear weapons and materials in India by developing educational materials for policymakers and facilitating meetings among nuclear experts in India and other nations.

Delhi Policy Group

New Delhi, India

\$230,000

2003–2006

Deemphasizing the Role of Nuclear Weapons

To produce a report with practical proposals for removing U.S. and Russian nuclear weapons from Cold War nuclear postures and a follow-on report that explores options for the creation of a new multilateral arms control regime.

School for International Security and World Politics at the Institute of U.S.A. and Canada Studies

Moscow, Russia

\$71,728

2004–2005

Managing Threat Reduction Programs

To examine the concept of creating a senior White House position with responsibility for nuclear, biological and chemical weapons threat reduction activities to improve strategic, budgetary and programmatic coordination across different government agencies.

Center for Strategic and

International Studies

Washington, DC, USA

\$19,953

2004–2005

Ballistic Missile Defense and Nuclear Stability in Asia

To assess the impact of ballistic missile defense on the strategic interactions and stability among India, Pakistan, China and Taiwan.

Center for International Security and Cooperation

Stanford University

Palo Alto, CA, USA

\$150,000

2005–2006

BIOLOGICAL





NTI'S GLOBAL HEALTH AND SECURITY INITIATIVE IN ACTION

Imagine if every time a fire alarm went off, the fire department had to raise funds for gas and equipment before it could respond. That would be untenable. But that is essentially the situation the World Health Organization (WHO) was in when an “alarm” would go off indicating a potential outbreak of an infectious disease. Like with a fire, rapid response to a report of an infectious disease outbreak or an act of bioterrorism is critical – getting to the hot zone quickly can mean the difference between a locally contained outbreak and a regional or even global epidemic. Containment depends on early detection and rapid response.

To strengthen the World Health Organization's ability to respond to an infectious disease outbreak, whether the outbreak is naturally occurring or intentionally caused, NTI committed \$500,000 to establish the WHO-NTI Global Emergency Outbreak Response Fund. With this Fund, WHO is now able to send teams of epidemiologists to investigate and respond to reports of disease outbreaks within 24 hours. The WHO-NTI Fund has supported rapid response to several threats to global public health and security, including the SARS outbreaks in China, Taiwan, Hong Kong, Singapore, Vietnam, Canada and the Philippines; Ebola in the Republic of Congo; and avian influenza in Cambodia, China, Indonesia, Laos, Thailand, and Vietnam. The fund has increased attention to the importance of rapid response and has leveraged millions of dollars in contributions from nations and other organizations to replenish it.

“In addition to direct support for outbreak responses, by expediting action, the NTI Fund has proven instrumental in further refining WHO's standard operating procedures for epidemic alert and response activities and supporting WHO Member States more rapidly and comprehensively through WHO's regional and country offices”, said Dr. A. Asamoah-Baah, Assistant Director-General, Communicable Diseases, World Health Organization.

“...the NTI Fund has again proven to be critically important in mobilizing rapid disease outbreak responses and maintaining global health security.”

**Dr. A. Asamoah-Baah,
Assistant Director-General,
Communicable Diseases,
World Health Organization**

With funds from the WHO-NTI Global Emergency Outbreak Response Fund, the World Health Organization (WHO) has responded to multiple infectious disease threats in more than 20 countries worldwide. The Fund was established with a \$500,000 commitment by NTI and has been replenished by other donors several times over, enabling teams of epidemiologists to investigate and respond to reports of disease outbreaks within 24 hours.

THE NATURE OF THE THREAT

Infectious diseases have always been a serious threat to human life. Today, the threat is rising and coming from two directions.

First, increased travel and trade, shifts in agricultural practice, greater microbial resistance to drugs and more concentrated populations have made us more vulnerable to disease outbreaks. Every hour of every day, more than 1,500 people die from an infectious disease worldwide.

Second, terrorists are compounding the danger by threatening to turn microbes into weapons. An attack with a bioweapon could produce an infectious disease epidemic that would sicken and kill large numbers and persist over a prolonged period as contagion spreads. Unlike other types of attack, there would likely be no recognizable event or immediate casualties and no physical location where damage is concentrated.

In the absence of an announcement or a fortuitous discovery, authorities may remain unaware that a biological attack has happened until days or weeks have passed and victims begin to appear in health clinics and hospital emergency rooms.

Biological weapons can be relatively easy to produce and inexpensive. They can inflict significant damage in small quantities and in the absence of sophisticated delivery mechanisms. Pathogens suitable for bioweapons can be easily concealed and transported, and many are found in nature, as well as in government,

university and industry laboratories. Information about how to obtain and prepare bioweapons is increasingly available on the Internet and in open scientific literature.

Moreover, bioweapons activities can be easily hidden within legitimate research laboratories or pharmaceutical sites. The idea of a “dual-use dilemma” has emerged because the same technologies and materials that are used for research to benefit society can also be used by terrorists to make biological weapons.

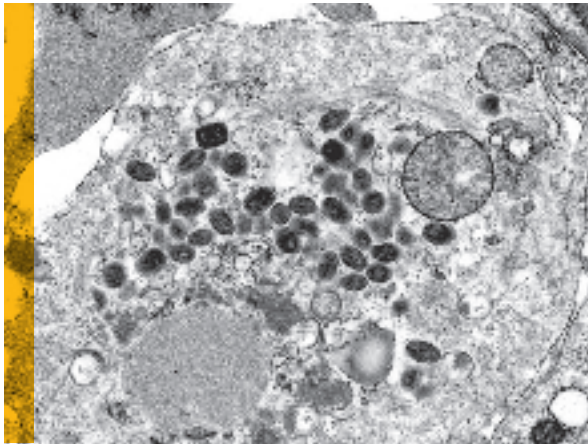
The fight against infectious disease has always been a moral imperative. Today, it is also a security imperative.

STRATEGIES FOR THREAT REDUCTION

The complexities of biological threats challenge traditional ways of thinking about prevention, deterrence, nonproliferation and response and require new thinking about how to define and implement enduring solutions.

Threats can emerge from many sources and involve human, plant and animal diseases. It is essential to develop strategies for action that do not imperil the advances in bioscience that we depend upon for progress in improving the health of the human condition.

One strategic fact is in our favor: the best steps for fighting infectious diseases are also steps needed to protect against bioterrorist attacks. Whether a disease is naturally occurring or intentionally caused, the essential elements of an effective response are to detect



Centers for Disease Control and Prevention

The smallpox virus.

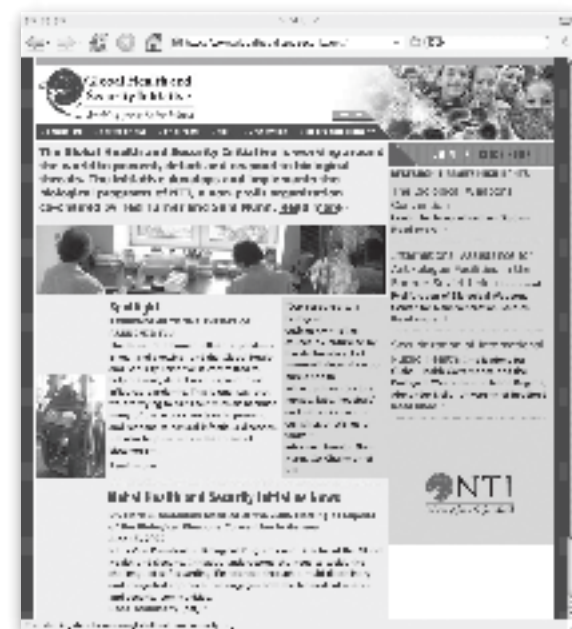
the outbreak, diagnose the disease and take the right measures to treat it and contain it—immediately.

NTI's Global Health and Security Initiative has identified six critical challenges that are essential to increasing our security against biological threats.

- » Construct a world-wide biological event management system to ensure the early detection and capacity to rapidly and effectively respond to any global threat to health and security;
- » Enact measures to protect the food supply, both food animals and agriculture;
- » Support the research and development of new vaccines, antimicrobials and rapid diagnostics;
- » Develop responsible approaches for preventing misuse of the advances in the life sciences;
- » Strengthen intelligence gathering, data analysis and sharing of information; and
- » Develop international safeguards and practices to reduce biological dangers.

Significant government/state programs are underway on both preparedness and response to a biological event. These efforts are critically important, yet many are badly in need of stronger focus, integration and support. New strategies and innovative programs need to be developed to more effectively address this problem and to bridge the gaps between the many sectors that must be fully engaged as partners. Most of the current focus of public and political attention has been on the response to a major biological event, but we must also more closely examine what can be accomplished to prevent and reduce the fundamental threat, as well as to improve early warning and rapid detection systems to minimize casualties in the face of an event.

The Global Health and Security Initiative is focused on improving the global capacity for the prevention and preparedness to biological threats through enhanced disease surveillance, early detection and response and promoting the safe and secure practice of the biomedical sciences by safeguarding access to dangerous pathogens and preventing the misuse of technology and information. The Initiative develops innovative direct action projects that demonstrate effective approaches for preventing, detecting and responding to biological threats – and then encourages governments and other partners to expand on these approaches to improve health and security around the world.



www.globalhealthandsecurity.org

“With early warnings of such significant events as disease outbreaks, public health and other government authorities worldwide are better able to undertake the measures necessary to protect the health and safety of their populations...GPHIN has been an invaluable tool with immeasurable benefits for the global public health community and we look forward to utilizing the enhanced system.”

Guenael Rodier
Director, Communicable
Diseases Surveillance and
Response Program, WHO

Prevention

New advances in the life sciences have brought great benefits to human health. However, the same technologies and tools that fuel these advances can also be misused to create biological weapons. Indeed, the rapid pace in biotechnology and the relative accessibility of new techniques and knowledge mean that development of a new generation of biological weapons is all too likely. Rapid developments in biotechnology could facilitate the creation of novel pathogens or entirely new classes of pathogens. Rendering disease agents resistant to antimicrobials, more lethal, more contagious, less detectable, infectious to a greater host range, or more stable in an aerosol are all theoretically possible.

The world must face the challenge posed by biological threats in the true spirit of cooperation and collaboration. Mechanisms must be established to standardize our global approach to prevention, detection, response and consequence management. Furthermore, given the international dimension of bioscience research, any serious attempt to prevent the misuse of science for malevolent purposes must include efforts to harmonize standards and best practices internationally.

The Global Health and Security Initiative is working with the biomedical research community to establish industry safeguards and practices that can help prevent terrorist use of biological advances without hindering legitimate research. While these actions are only a

start, they are an essential component of any comprehensive biosecurity program.

The Initiative has sponsored, in partnership with the Sloan Foundation, the National Academy of Sciences' groundbreaking report, *Biotechnology Research in an Age of Terrorism: Confronting the Dual-Use Dilemma*. This report recommends steps for improving the industry's own oversight of biotechnology research that is considered 'dual-use' – meaning that it has a beneficial scientific purpose, but also could be misused in ways that present a threat to public health and national security. The report led to the creation of the U.S. Government's National Science Advisory Board for Biosecurity (NSABB), which advises federal agencies on how to reduce the chance that scientific research could serve the cause of terror.

The Initiative also helped establish the International Council for the Life Sciences (ICLS), a private, global, membership-based organization working to preserve the benefits of life sciences and prevent the spread of dangerous pathogens, techniques and knowledge. The ICLS works to encourage best practices, standards and codes of conduct in the life science community worldwide.

Detection

A major biological event will, in all likelihood, emerge as a local health problem. The initial scale of the event will largely depend on the pathogen and the method by which it is able

to spread. If the event is intentional, added factors will include the delivery method, the geographical parameters of the release, and even the environmental conditions such as humidity, wind patterns and temperature.

The challenge is to strengthen and improve the global capacity for early threat detection, integrated disease surveillance and outbreak recognition. These are the fundamental building blocks of preparedness against infectious disease threats—whether naturally occurring, the unintentional result of a laboratory accident, or worse yet, the intentional use of a microbial agent for harm.

Detecting a disease outbreak is not easy. The signs are often subtle: a few unusual medical cases, recurring symptoms, sick animals. Often these indicators can seem like mere coincidences until they are analyzed by public health professionals. What brings these early indicators to the attention of disease experts? The Global Health and Security Initiative has been involved with helping to develop the necessary tools needed for early detection. One indispensable tool is the Global Public Health Intelligence Network (GPHIN).

Through a partnership with the International Society for Infectious Diseases (ISID), the Global Health and Security Initiative is working to Expand Outbreak Reporting and Education in the Newly Independent States. This expansion utilizes Pro-Med Mail (Program for Monitoring



A CDC microbiologist studies H5N1 to determine its pathogenicity and transmissibility.

GLOBAL PUBLIC HEALTH INTELLIGENCE NETWORK ENABLING THE EARLY DETECTION OF GLOBAL BIOLOGICAL THREATS

Nearly 40 percent of disease outbreaks that the World Health Organization responds to were first identified by an Internet-based “early warning” system. Because local news stories often provide the first indication of a public health threat, GPHIN monitors global media sources and websites for early

word of events such as disease outbreaks, contaminated food and water, bioterrorism and exposure to chemical and radio-nuclear agents and natural disasters. The information is then disseminated to key subscribers, including experts at the World Health Organization.

The original GPHIN program pointed investigators to the 2001 typhoid fever outbreak in Kenya and the outbreak of cholera in Zanzibar a year later. But it was slow to identify the 2003 SARS outbreak because it could not monitor Chinese language newspapers.

In collaboration with the World Health Organization and Health Canada, NTI’s Global Health and Security Initiative helped fund the expansion of this “early warning” surveillance tool to include Arabic, Russian, Simplified and Traditional Chinese, and Spanish in addition to French and English. GPHIN II is now responsible for detecting nearly half of the outbreaks investigated by WHO.



Mark Smolinski



Mark Smolinski

[TOP] A smallpox repository
at VECTOR in Russia.

[BOTTOM] NTI funded the renovation
of this Vivarium in Novosibirsk,
Russia for vaccine testing.

Emerging Diseases), an electronic global disease monitoring system that rapidly disseminates reports and educational information written by experts about outbreaks of infectious diseases including potential attacks caused by the intentional use of a biological agent.

ISID, together with colleagues in Uzbekistan, Kyrgyz Republic and Ukraine, has created a Russian language based electronic network that rapidly disseminates reports and educational information. This project was sequentially expanded to include more physicians, scientists and public health officials in new independent states through collaboration with additional infectious disease professional organizations in the region.

Response

Communities must have the capacity to respond quickly to an unfolding biological emergency, both in the health care community to care for the afflicted, but also in the public health community to conduct epidemiologic investigations and enact the appropriate response and control measures. This will require rapid communication systems, integration of the medical and public health communities and the ability

to quickly adapt community resources to deal with the crisis at hand. In the event of an intentional use of a biological agent, other sectors of the community will need to be part of the response network, such as the intelligence and law enforcement communities.

New diseases are emerging at the rate of one to two per year, and old diseases show no sign of retreat. It is crucial that disease investigators respond instantly to signs of any outbreak. But once a disease outbreak is detected, the wider response plans – diagnosing the illness, distributing treatment, disseminating guidelines on containment – must already be in place. The Global Health and Security Initiative is working to help strengthen the global response capabilities – whether from a terrorist attack or a natural outbreak.

The Initiative cosponsored an international tabletop exercise in which 21 participants – six U.S. and 15 European – acted out the international response to a hypothetical release of smallpox. Participants included officials from NATO, the World Health Organization and various governments. The exercise showed what the global community needs to do to prepare for any potential event of this magnitude.

MIDDLE EAST CONSORTIUM ON INFECTIOUS DISEASE SURVEILLANCE

ENHANCING COLLABORATIONS AND COOPERATION ACROSS NATIONAL BORDERS

Infectious diseases do not stop at international borders, so the response to any biological threat must be global. In the absence of a comprehensive global infectious disease surveillance system, an interim solution is the promotion of regional collaborations and surveillance networks. Perhaps nowhere is this a greater challenge than in the Middle East. NTI's Global Health and Security Initiative has worked in partnership with Search for Common Ground to develop the Middle East Consortium on Infectious Disease Surveillance (MECIDS).

MECIDS brings together public health experts and Ministry of Health officials from Israel, Jordan, Egypt and the Palestinian Authority, with advisors from the World Health Organization, the Sandia National Laboratories and other American and European organizations. The goal of MECIDS is to improve the ability of nations in the Middle East to detect and respond to infectious disease threats as a region through integrated surveillance systems and joint epidemiologic and laboratory training.

MECIDS members identified food-borne and water-borne diseases as a priority concern for the region and have established a disease surveillance system comprised of a network of laboratories for identifying food-borne and water-borne disease outbreaks. MECIDS members have established protocols for specimen collection and diagnosis of diarrheal illnesses to assess food-borne disease in the region and to create a mechanism for identifying potential infectious disease outbreaks due to common food products. MECIDS members are sending their data routinely to one another, opening the lines of communication between the Ministries of Health in each country, and have been instrumental in detecting two significant outbreaks, salmonella and mumps, providing evidence to the participants that the system is functioning properly.

The Directors-General of the Palestinian, Jordanian, and Israeli Ministries of Health have signed letters committing to continue food-borne disease surveillance at elevated levels once the system is built and fully-integrated. A new partner, Becton, Dickinson and Company (BD), recently agreed to donate a three-year supply of reagents and other medical supplies needed for the laboratory diagnosis. Polymerase chain



MECIDS participants working together on an exercise at the 2004 Intervention Epidemiology Training Course.

reaction (PCR) equipment and centrifuges, in which the reagents provided by BD will be used, represent the remaining laboratory equipment that is still needed for the project to be fully sustainable. We continue to seek out new partnerships for such endeavors and have recently reached out to the information technology sector. IBM is providing in-kind support for creating a standards-based network for the exchange of clinical and public health information.

Now nearing full implementation, MECIDS can grow in two ways – first, to use the same infrastructure to respond to other global health threats; and second, to bring additional countries into the network. Evidence that the first of these is happening is found in the success of the MECIDS members in planning a regional workshop on preparedness for pandemic influenza, an emerging threat that they felt merited such a conference. On December 11-14, 2005 in Istanbul, Turkey, high-level officials from each of the Ministries of Health in Jordan, Israel, Egypt, and the Palestinian Authority met to better integrate their national preparedness plans into a regional response to the threat of the unfolding avian influenza epidemic. Experts in epidemiology, preventive medicine, vaccines, laboratories and hospitals, as well as influenza experts from each of the countries attended. The four partners worked on strengthening their own national pandemic preparedness plans and worked toward establishing a regional response plan for a better, coordinated approach to such a threat.

MECIDS has become an example for how regional infectious disease surveillance systems make use of health as a diplomatic tool in establishing relationships among parties in conflict and to strengthen cooperation to reduce regional and global threats. The Global Health and Security Initiative is rapidly moving toward bringing this model, specifically referred to as BRIDGES: Building Regional Infectious Disease systems for Global Epidemiologic Surveillance, to other regions. In 2006, we will begin to capitalize on the lessons learned from MECIDS to build better regional collaboration, cooperation, and transparency in South Asia.



Mark Smolinski

MECIDS meeting participants in Istanbul, Turkey were working to better integrate national preparedness plans into a regional response to an infectious disease outbreak.

NTI PROJECTS

APPROVED OR ONGOING IN 2005 BIOLOGICAL

PROMOTING SCIENCE & SECURITY

Establishment of a Bioindustry Standards Organization

To engage biotechnology industry leaders in the development of standards to reduce the spread of dangerous pathogens, techniques and knowledge and in the establishment of a new bioindustry organization for monitoring these standards.

International Institute for Strategic Studies-U.S.

Washington, DC, USA

Chemical and Biological Arms Control Institute

Washington, DC, USA

\$1,689,541

2001–2005

Educating and Training the International Life Sciences Community on Dual-Use Dangers

To assess the best methods for educating and training life scientists about the risks of dual-use technologies and research and to cultivate a project for curriculum development in this area.

NTI

Washington, DC, USA

Up to \$50,000

2005–2006

Bioscience Community Self-Governance

To explore strategies to constrain intentionally malevolent applications of biological research and development without unduly encumbering the pursuit of science for scholarly or beneficent ends.

Center for Biosecurity of the University of Pittsburgh Medical Center

Baltimore, MD, USA

\$1,750,000

2002–2005

An International Forum on Biosecurity

To create an International Forum on Biosecurity to engage scientists and policymakers around the world to reduce the risk that research in the biological sciences might be misused by terrorists.

National Academy of Sciences

Washington, DC, USA

\$216,460

2004–2005

International Council for the Life Sciences

To support the creation and sustainability of a bioindustry standards organization, the International Council for the Life Sciences, to develop normative standards to reduce potential proliferation of dangerous pathogens and the misuse of technical information.

International Council for the Life Sciences

Washington, DC, USA

\$397,150

2005

AAAS-NTI Fellowship in Global Security

To strengthen scientific expertise in national security policymaking and encourage scientists to pursue careers in this arena, by supporting biomedical/public health experts to work on national security issues in the U.S. government through a one-year fellowship.

American Association for the Advancement of Science

Washington, DC, USA

\$1,261,763

2001–2007

Biological Weapons Monitoring and Inspection Strategy Development

To facilitate the input of specialists from the U.S. pharmaceutical and biotechnology industries into the development of strategies for U.S. biological weapons nonproliferation policies, particularly to help design an inspection protocol for the Biological Weapons Convention that would be acceptable to the pharmaceutical industry.

Center for Strategic and International Studies

Washington, DC, USA

\$310,720

2002–2005

FSU Hepatitis Vaccine Manufacturing Feasibility Study

To test the possible commercial manufacture of vaccines at a proposed new production facility involving professionals previously engaged in biological weapons work.

State Research Center of Virology and Biotechnology (VECTOR) and the High Technology Foundation/

Gorbachev Project

Novosibirsk, Russia

\$250,000

2001–2005

Integrating Scientists into the International Research Community

To further integrate former Soviet scientists into the international research community, by funding scientists from the former Soviet bioweapons program to attend a variety of highly respected research conferences that bring together top scientists to present and discuss cutting-edge scientific research and ideas.

Gordon Research Conferences

West Kingston, RI, USA

\$80,000

2001–2005

Addressing the Challenge of Proliferation

To convene a series of meetings focused on the question of whether the United States is taking the right steps to diminish the risk of an attack on the U.S. or one of its allies with weapons of mass destruction.

Aspen Strategy Group

Washington, DC, USA

\$25,000

2004–2005

Leveraging the Peaceful Conversion of Former Biowarfare Institutes

To solicit the participation of Western pharmaceutical companies in research collaboration with former Soviet bioweaponers, enhancing the understanding necessary to underpin governmental support of “brain drain” prevention programs.

Center for Strategic and International Studies

Washington, DC, USA

\$762,965

2002–2005

Reducing the Likelihood of Leakage of Bioweapons-related Materials and Expertise

To present a five- to ten-year vision of a biological research and production environment in Russia that reduces the likelihood of the outflow of bioweapons-related materials and expertise from Russian facilities to hostile states and terrorist groups.

National Academy of Sciences

Washington, DC, USA (in partnership with the Russian Academy of Sciences, Moscow, Russia)

\$200,000

2002–2005

The Anti-Plague System of the Former Soviet Union: Assessing Proliferation Risk and Conversion Potential

To examine the anti-plague system in eight countries that were part of the former Soviet Union with respect to biosecurity and proliferation of biological agents, with the goal of improving disease surveillance and the security and safe handling of dangerous pathogens.

Monterey Institute of International Studies, Washington, DC, USA

M. Akimbaev Kazakh Center for Quarantine and Zoonotic Diseases Almaty, Kazakhstan

\$750,000

2003–2006

Brucellosis Vaccine Research

To develop a new vaccine, employing former Soviet bioweapons scientists, to contribute to the management of this disease that threatens domestic and wild animal populations around the world.

All-Russian Research

Veterinary Institute

Kazan, Russia;

International Science and Technology Center

Moscow, Russia (in conjunction with the U.S. Department of State)

\$600,000

2003–2005

Strengthening National Health Preparedness

To assess preparedness for biological and chemical attacks in several nations by establishing and testing a set of international guidelines for preparedness, comparing them against existing public health capabilities that states have in place and making recommendations for improving those capabilities.

World Health Organization
Geneva, Switzerland
\$400,000
2004–2005

India Field Epidemiology Training Program

To develop a cadre of Indian field epidemiologists proficient in identifying, investigating and controlling infectious disease threats, including those caused by existing and potential agents of bioterrorism. The program, established in Chennai, India, is modeled after the Epidemic Intelligence Service of the U.S. Centers for Disease Control and Prevention (CDC) and will serve as an anchor for broader regional surveillance efforts.

CDC Foundation
Atlanta, GA, USA
\$352,000
2002–2005

Employing Former Bioweapons Scientists in Russia to Manufacture Diagnostic Enzymes for Endemic Infectious Disease Threats

To support the establishment of a laboratory for the production of enzymes used in the diagnosis of endemic infectious disease threats. The laboratory will employ former bioweapons scientists who are at imminent risk of unemployment owing to proposed closure of the newly formed State Research Center for Applied Microbiology (SRCAM) at Obolensk, Moscow Region.

SRCAM
Obolensk, Moscow Region, Russia
\$400,000
2005

Creation and Development of a Manufacturing Technology for, and Introduction to Health Care Practice of, Up-to-Date Methods for Detection, Diagnosis and Control of Dangerous Infections

To develop rapid diagnostic tests for select biological agents of most significance to Russia, to introduce them to health-care practices and to organize manufacturing of such tests. Once developed, these tests could help fill a critical global need for better diagnostic tests for the detection of infectious diseases.

Moscow State Central Research Institute for Epidemiology of the Health Ministry of Russia
Moscow, Russia
\$300,000
2005–2008

STRENGTHENING GLOBAL PUBLIC HEALTH AND PREPAREDNESS

International Organizations Bioterrorism Tabletop Exercise

To convene and host a tabletop exercise in 2006 for senior leaders from international organizations. During the exercise, critical issues related to cooperation and coordination in the event of an act of bioterrorism will be discussed with a goal of facilitating enhanced interagency and intersectoral coordination and collaboration.

Applied Marine Technology, Inc.
Virginia Beach, VA, USA
\$52,300
2005–2006

World Medical Association Bioterrorism Meeting

To support an international meeting of physicians in the discussion of bioterrorism, focusing specifically on medical science, technology, public health and disease surveillance systems, medical preparedness and response capacity and bioterrorism in relation to medical research and medical ethics, and to convene a working group of medical and public health leaders.

World Medical Association, in association with the American Medical Association
Chicago, IL, USA
\$160,000
2003–2005

A Global Architecture of Preparedness

To support a meeting on pandemic influenza involving high level representatives from national governments, multilateral institutions, corporations, science research bodies and public health experts.

Royal Institution World Science Assembly (RiSci)

Stamford, CT, USA

\$50,000

2005

Rapid Outbreak Response Revolving Fund

To create within the World Health Organization an account dedicated to supporting rapid emergency response to infectious disease outbreaks.

World Health Organization

Geneva, Switzerland

\$500,000

2003–2006

Public Health Preparedness: State of Georgia Planning and Practice Model

To improve bioterrorism preparedness by assessing the preparedness of Georgia's public health and emergency response systems through a series of site visits and tabletop exercises to be conducted at the state and local levels; refining training and assessment materials, including template exercises, for use in other states; and providing joint terrorism-related training for state and local security and health agencies.

RAND Corporation,

Arlington, VA, USA;

State of Georgia;

Emory University, Atlanta, GA, USA

\$287,500

2004–2005

Middle East Consortium on Infectious Disease Surveillance

To improve regional capacity for infectious disease surveillance in the Middle East by developing a food-borne and water-borne disease surveillance system uniting Israel, the Palestine Authority, Jordan and Egypt and by designing an infectious disease epidemiology course to build regional rapid response capabilities in the event of disease outbreaks.

Search for Common Ground

Washington, DC, USA

\$1,492,000

2002–2006

Development of a National Action Plan for a Disease Surveillance System in Pakistan

To develop a disease surveillance system in Pakistan that will link with other countries in the region, such as India, to ensure the capability of a joint response to potential biological threats.

National Disease Surveillance Project, Ministry of Health,

Islamabad, Pakistan

\$50,000

2005–2006

Model Disease Surveillance System in Iran

To support the policy collaborations between American specialists at the Policy and Global Affairs Division of the National Research Council (NRC), acting on behalf of the National Academy of Sciences, and Iranian specialists at the Iranian Academy of Sciences, in their work to develop a model program of disease surveillance in Iran.

National Academy of Sciences

Washington, DC, USA

\$50,000

2005–2006

Biological Weapons Threat Reduction Expanding Outbreak Reporting and Education in the New Independent States

To reduce the threat of biological weapons and other emerging infectious diseases in the new independent states, the International Society for Infectious Diseases will expand the scope of a Russian language-based electronic network (PROMED) that rapidly disseminates information about outbreaks of infectious diseases, including potential biological weapons attacks, to include more physicians, scientists and public health officials throughout the new independent states.

International Society for

Infectious Diseases

Brookline, MA, USA

\$320,475

2005–2006

Creating a Regional Disease Surveillance System in South Asia

This project builds on NTI's experience developing a regional disease surveillance network in the Middle East with Jordan, Israel, Egypt and the Palestinian Authority, to create a regional disease surveillance network that would initially bring together India, Pakistan and Bangladesh.

NTI

Washington, DC, USA

Up to \$275,000

2005–2006

Safe Food International Conference

To help nations around the world defend against food-borne illnesses, including intentional contamination of food products, by bringing together key parties for an international conference to develop responsible food-safety policies and strategies for implementing safe food guidelines.

Center for Science in the Public Interest

Washington, DC, USA

\$200,000

2004–2005

Building Capacity for Regional Bioterrorism Preparedness in Asia

To support an online symposium on bioterrorism preparedness for interested Asia Pacific Economic Cooperation (APEC) member countries.

International Institute for Strategic Studies, University of Washington

Seattle, WA, USA

\$49,771

2005–2006

CHEMICAL



NTI IN ACTION

Russia has the world's largest declared stockpile of chemical weapons. More than 40,000 metric tons, consisting mostly of modern nerve agents, are stored at seven sites in the west of the country. Destruction of these stocks is a key requirement of the Chemical Weapons Convention and an important part of the global fight against the spread of weapons of mass destruction.

1.9 MILLION CHEMICAL WEAPONS AT JUST ONE SITE.

The Shchuch'ye chemical weapons destruction facility is the top priority, with more than 1.9 million artillery shells filled with the nerve agents sarin, soman and VX sitting in dilapidated buildings. If dispersed to maximum efficiency, that's enough to kill tens of millions of people.

Russia has agreed to destroy these weapons left over from the Cold War arms buildup, but it will take an international effort to build the destruction facilities and infrastructure necessary to accomplish this. To help spotlight this danger and bring international resources to Russia, NTI issued a \$1 million challenge grant conditioned on being matched by a minimum of \$2 million in new contributions. Following this challenge, NTI and the Government of Canada signed a Contribution Agreement under which NTI committed to provide \$1 million toward construction of an 11-mile railway to safely and securely transport the chemical munitions from the current chemical weapons storage depot near Planovy to the destruction facility. Canada is contributing up to \$28 million for this purpose through a Canada-United Kingdom agreement.

This infrastructure project is a model for the kind of international cooperation that is essential for reducing the global threats from nuclear, biological and chemical weapons.

Adam Ingram MP, UK Minister for the Armed Forces, on a visit to a chemical weapons destruction facility in Shchuch'ye, Russia. NTI helped bring international resources to build the facilities and infrastructure necessary to accomplish the destruction of more than 1.9 million artillery shells filled with nerve agents sarin, soman and VX sitting in dilapidated buildings in Shchuch'ye.

Chris Thompson, British Council General, Chesham, Bucks

THE NATURE OF THE THREAT

“Canada is very pleased to join forces with the Nuclear Threat Initiative in the critical campaign to keep chemical weapons out of the hands of terrorists and those who would harbour them.”

Michael Kergin, former Canadian Ambassador to the U.S.

Chemical weapons, such as sarin and mustard gas, can sicken and kill in minute quantities when properly distributed. With the entry into force of the Chemical Weapons Convention in 1997, nations agreed to destroy existing chemical weapons stocks and forgo research and acquisition of such weapons in the future. At the time, 26 nations had declared they had or were suspected of having chemical weapons programs.

The United States and Russia have more than 90 percent of the 71,000 metric ton total declared global stockpile of chemical agents, but less than one-fifth of that material has been verifiably destroyed since 1997. Both nations have committed to destroy these weapons and production capacity, but the sudden collapse of the Soviet Union and the current state of the Russian economy has resulted in a vulnerable supply of weapons, equipment and know-how. The pace of chemical weapons destruction must be accelerated and the scope of activities expanded.

Security at many sites in Russia is dangerously weak. Furthermore, chemical weapons in the United States and Russia have exceeded

their intended shelf life and are vulnerable to leaking dangerous chemicals.

In addition to the known supply, there are chemical weapons caches around the world that are unaccounted for and may be poorly secured. In 2003, Albania declared a 16-ton stockpile of chemical weapons that had been forgotten for more than a decade. As its first Nunn-Lugar Cooperative Threat Reduction project outside the former Soviet Union, the United States is providing \$20 million for the destruction of Albania's chemical weapons cache. If the Albanian government had not discovered these chemical stocks first, they could have been stolen and sold to the highest bidder.

Separately, there are more than 6,000 commercial chemical facilities around the world that use, produce or store toxic materials that could be deadly if released into the atmosphere. In March 2003, the General Accounting Office found that in the United States, more than 700 chemical facilities working with highly toxic chemicals are located close enough to populated areas so that a terrorist attack against the plant could endanger at least 100,000 lives.

STRATEGIES FOR THREAT REDUCTION



Office of U.S. Senator Richard G. Lugar



Safer World Productions

"I applaud the work of NTI. I can think of no better use for these funds than direct contributions to dismantlement projects. NTI's investment in the chemical weapons destruction facility at Shchuch'ye will make the world a safer place."

U.S. Senator Richard Lugar (R-IN)

[TOP] U.S. Senator and NTI Board Member Richard G. Lugar (R-IN) demonstrates that chemical munitions can fit in suitcase.

[BOTTOM] Some of the 1.9 million shells at the chemical weapons destruction facility in Shchuch'ye, Russia.

Inadequately secured chemical weapons stockpiles and commercial facilities are a weak link in the chain of global security that could readily be exploited by terrorists, with deadly results. Securing and dismantling chemical weapons and redirecting production capabilities will reduce the likelihood that terrorists will acquire and use them.

NTI is encouraging regional and global cooperation and investment in stockpile security and destruction, and redirection of know-

how and infrastructure to peaceful pursuits through its support of the G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction. The G8 has pledged \$20 billion to support nonproliferation projects, initially in the former Soviet Union, over the next decade. Russia has identified chemical weapons destruction as one of its highest priorities for cooperation under the Global Partnership, and Global Partnership nations are contributing to chemical weapons projects in Russia.

NTI PROJECTS APPROVED OR ONGOING IN 2005 CHEMICAL

Supporting Russian Chemical Weapons Destruction

To provide \$1 million, matched by a minimum of \$2 million from other sources, for high-priority infrastructure development for the Shchuch'ye Chemical Weapons Destruction Facility. *Global Partnership Program*
Canada Department of Foreign Affairs and International Trade
Ottawa, Canada
\$1,000,000
2001–2006

COMMUNICATIONS



NTI IN ACTION

LAST BEST CHANCE

“The greatest danger of another catastrophic attack in the United States will materialize if the world’s most dangerous terrorists acquire the world’s most dangerous weapons. Al Qaeda has tried to acquire or make nuclear weapons for at least ten years... These ambitions continue.”

—The 9/11 Commission Report, July 2004

More than four years after the 9/11 attacks, the 9/11 Commissioners issued a report card that gave the U.S. government a “D” for its progress to date in meeting the goal of a maximum effort to prevent terrorists from acquiring weapons of mass destruction.

—Final Report on 9/11 Commission Recommendations, December 2005

Deeply concerned that governments around the world were not doing enough to prevent nuclear terrorism, NTI decided dramatic action was needed to raise public awareness about the threats we face and what can be done to reduce them. The result is *Last Best Chance*, a docudrama film that has sparked a grassroots effort by citizens to learn more about these issues and to urge their governments to do more.

Last Best Chance is based on facts about the lack of security for nuclear weapons and materials. There are a number of confirmed incidents around the world in which governments have seized stolen highly enriched uranium (HEU) or plutonium. More than 100 research reactors or associated facilities in countries around the world have enough HEU to build a bomb—some protected by nothing more than a chain link fence. Acquiring weapons and materials is the hardest step for terrorists to take and the easiest step for us to stop. By contrast every subsequent step in the process—building the bomb, transporting it and detonating it—is easier for terrorists to take and harder for us to stop.

In the film, al Qaeda operatives organize three separate operations aimed at getting nuclear weapons. Governments around the world discover clues to the plot and race to try and stop the terrorists before it’s too late. The scenario in the film is fiction, yet it may happen in the near future—if we don’t act now to stop it.

Last Best Chance, a nuclear terrorism docudrama based on facts about inadequate security for nuclear weapons and materials. In the film, al Qaeda operatives organize separate operations aimed at getting nuclear weapons. *Last Best Chance* is a wake up call to secure and destroy nuclear weapons and materials before it’s too late.

“It’s the most
frightening feature
film I’ve seen on
the subject...
because it is
so real.”

**Michael Kilian,
Chicago Tribune**

“Nuclear terrorism is the greatest threat to our country. We need an all-out effort to lock up the weapons-grade nuclear material scattered around the world.

Last Best Chance is not a message of despair but a message of hope. If we act now, we can protect the American people and prevent disaster.”

**9/11 Commission Chair
Thomas H. Kean and Vice Chair
Lee H. Hamilton**

The film got a powerful boost in April 2005 when Warren Buffett encouraged shareholders at his annual Berkshire Hathaway meeting to visit www.lastbestchance.org to order a copy of the film. Mr. Buffett told shareholders that the film was “fictional but not fanciful” and that the threat posed by nuclear, biological and chemical weapons is real.

The strong public response and media coverage of the film got the attention of executives at HBO, who acquired the broadcast rights to the film and aired it several times in October. More than 90,000 people from around the world have ordered a copy of *Last Best Chance*.

In addition to garnering a great deal of interest from the public, *Last Best Chance* is being used to motivate and train those responsible for preventing nuclear terrorism, including border agents, security personnel at U.S. nuclear weapons facilities, intelligence officials and police officers. There have been screenings and discussions of the film around the world—from a Congressman in his district, to a security expert at the World Economic Forum in Davos, to a meeting of 2,000 Mexican customs agents, to an Ohio resident at a Rotary Club meeting.

Free copies of the film are available for individuals or organizations interested in hosting a screening. To get a copy of the film, log on to www.lastbestchance.org.

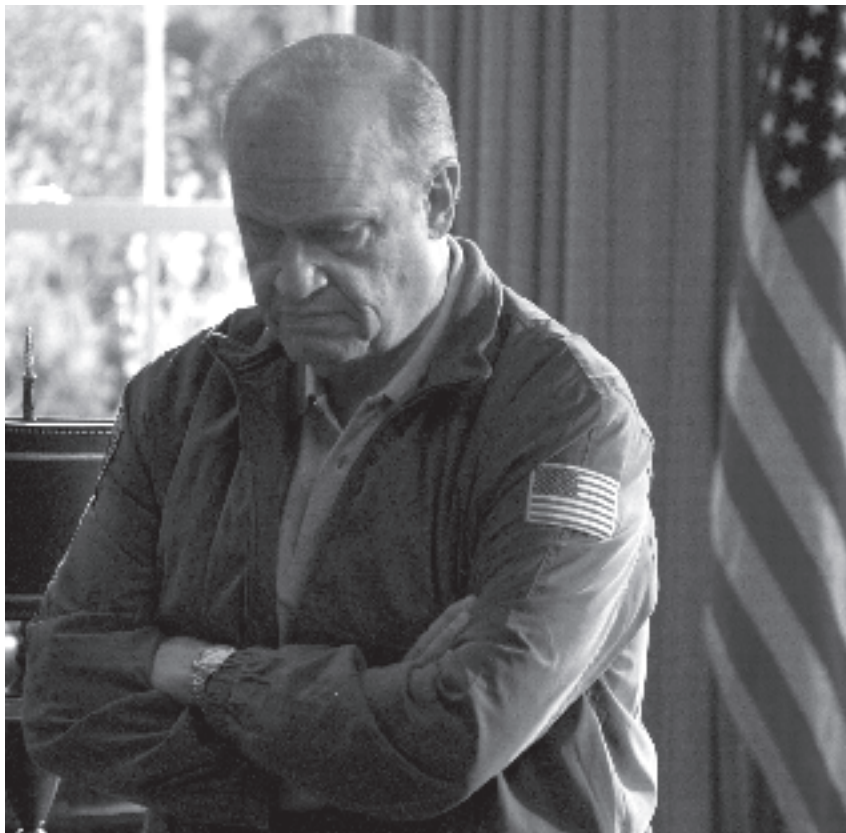


COMMUNICATIONS PROGRAM

NTI's public awareness projects are reducing the global threats from nuclear, biological and chemical weapons by shining a spotlight on the tremendous gap between the threats and the global response, focusing attention on what can be done to reduce those threats and catalyzing greater action to reduce them. Public outreach and education is an important part of our mission because a concerned, informed, attentive public can be a powerful force for holding governments accountable and spurring greater action.



NTI



Verne Boncompagni

Scenes from *Last Best Chance*,
a nuclear terrorism docudrama.

NTI's communications work seeks to:

- » Increase the quality and accessibility of information about the threats from nuclear, biological and chemical weapons and what must be done to reduce those threats;
- » Support new thinking and the development of new expertise to reduce the risk of use and prevent the spread of nuclear, biological and chemical weapons; and
- » Promote dialogue and common ground solutions to reduce imminent global dangers and take these issues beyond the small group of policymakers and experts who work on them and into the mainstream public policy debate.

NTI's website offers daily news and in-depth resources about the global threats posed by nuclear, biological and chemical weapons, terrorism and related issues. Working with National Journal Group, the Center for Nonproliferation Studies at the Monterey Institute of International Studies and others, NTI has built an essential online tool for anyone wanting either a little or a lot of information about nuclear, biological and chemical weapons threats and ways to reduce those threats.

"I got involved in *Last Best Chance* because of its potential to make preventing nuclear terrorism a higher priority. We need an all-out global effort to lock down nuclear weapons and materials so that the line I deliver in this film about al Qaeda becoming a nuclear power never comes to pass."

Former U.S. Senator Fred Thompson, (R-TN) (*Law & Order, Cape Fear, The Hunt for Red October*), who plays the President of the United States in *Last Best Chance*.



HIGHLIGHTS OF WWW.NTI.ORG

- » **Global Security Newswire** is a free, daily news service covering global developments on nuclear, biological and chemical weapons, terrorism and related issues. In addition to offering a comprehensive survey of the day's news from around the world, *Global Security Newswire* provides original news coverage, including in-depth interviews and special reports. www.nti.org/gsn
- » **Issue Briefs** that offer a short introduction and in-depth analysis on a wide range of international security issues, including topics such as "Iran and IAEA: A Troubling Past with a Hopeful Future?" and "Assessing the Threat of Mass Casualty Bioterrorism". www.nti.org/issuebriefs
- » **Country Profiles** with descriptions of nuclear, biological and chemical weapons and missile programs for more than 25 countries. www.nti.org/countries
- » **Self-Guided Tutorials** on Biological Warfare Terrorism, the Nuclear Non-Proliferation Treaty, Chemical Warfare Terrorism, Nuclear Terrorism and Radiological Terrorism. www.nti.org/tutorials

- » **Nonproliferation Databases** with the world's most comprehensive, open-source information containing current and archived material from a wide range of sources including academic and trade journals, government and defense publications, periodicals and electronic news sources, U.S. Congressional testimony, conference proceedings, books, UN and International Atomic Energy Agency (IAEA) documents, correspondence from international advisors, unpublished papers and internet sources. www.nti.org/db

The website is a gateway to the best information on the web about nuclear, biological and chemical weapons. It is updated daily with new information and resources. Bookmark the site at www.nti.org.

WWW.GLOBALHEALTHANDSECURITY.ORG



NTI's Global Health and Security Initiative website features up-to-date information about strategy, projects and progress. Here you can read recent speeches, press releases and testimony prepared and delivered by scientists and security experts. The Global Health and Security Initiative is working around the world to prevent, detect and respond to biological threats. The Initiative's website also offers issue briefs and tutorials about the biological threat prepared by experts at the Center for Nonproliferation Studies and news about biological threats produced by National Journal Group. Issue briefs and tutorials cover topics ranging from the Biological Weapons Convention to Anti-Plague Facilities in the Former Soviet Union to Biological Warfare Terrorism. We invite you to stay informed about NTI's Global Health and Security Initiative and biological threats by signing up online to receive news and updates.

SECURING THE BOMB

To help inform the public about current global efforts to secure and destroy nuclear weapons and materials, NTI commissioned a series of annual reports from Matthew Bunn and Anthony Wier at Harvard University's Managing the Atom Project.

These reports track progress in securing nuclear warheads and materials and make recommendations for accelerating this work. The

report is accompanied by a website that provides detailed information on and an assessment of U.S.-funded programs designed to secure, monitor and reduce the size of nuclear stockpiles and weapons complexes.

Together, the reports and the NTI web section serve as the only available source for "one-stop shopping" for information on all aspects of these critical programs.

These reports have provided new thinking that, in combination with several NTI direct action projects, helped catalyze major government initiatives, such as the removal of HEU from research reactors around the world and efforts to accelerate cooperative security upgrades for nuclear weapons and materials in Russia. A Russian general called the report the first comprehensive look at keeping nuclear weapons and materials out of terrorist hands and urged implementation of its recommendations. www.nti.org/securingthebomb

"A nuclear 9/11 would be a world-changing disaster. This report is another much-needed reminder of what remains to be done to protect the American people, and the world, from catastrophe."

**Governor Thomas Kean, NJ,
Chairman of the 9/11 Commission**



NTI PROJECTS

APPROVED OR ONGOING IN 2005

COMMUNICATIONS

INCREASING THE QUALITY AND ACCESSIBILITY OF INFORMATION ABOUT THE THREATS

Global Security Newswire

To support a one-stop global news-stand—available exclusively on the NTI website—with original reporting and a comprehensive snapshot of the day's global news on nuclear, biological and chemical weapons, terrorism and missile issues.

National Journal Group, Inc.

Washington, DC, USA

\$1,641,978

2004–2006

Online Research Center and Library

To build, expand and update a comprehensive online research library with information, analysis and educational materials about the threats from nuclear, biological and chemical weapons. The library builds on the most comprehensive open-source nonproliferation databases in the world and brings together a range of expert opinion and analysis on these issues.

*Monterey Institute of International
Studies*

Center for Nonproliferation Studies

Monterey, CA, USA

\$1,320,488

2004–2006

PROMOTING THREAT REDUCTION SOLUTIONS

South Asian Security and WMD Website Module

To continue a weapons of mass destruction module on the Institute of Peace and Conflict Studies website that draws from South Asian, Chinese and Central Asian sources and provides comprehensive news analysis and reference materials relating to nuclear, chemical and biological weapons and to support research, workshops and publications on nonproliferation and nuclear, biological and chemical threats.

*Institute of Peace and Conflict Studies
New Delhi, India*

\$150,000

2004–2006

Tracking Global Efforts to Improve Nuclear Security

To track the progress and budgets of global nuclear security programs with an annual report and website and make recommendations for accelerating the pace and effectiveness of this threat reduction work.

*Project on Managing the Atom, Belfer
Center for Science and International
Affairs*

*John F. Kennedy School of
Government*

Harvard University

Cambridge, MA, USA

\$959,930

2004–2008

Public Opinion Project

To conduct public opinion research on the threats from weapons of mass destruction.

NTI

Washington, DC, USA

\$339,500

2002–2005

***Last Best Chance*—Public Education on Nuclear Threats**

To produce and distribute a fact-based fictional film that illustrates the threat of nuclear terrorism. The film highlights the threats and what should be done to address them, and reminds viewers of the real human, political and economic costs of a nuclear terrorism incident.

NTI (in conjunction with the Carnegie Corporation of New York and The John D. and Catherine T. MacArthur Foundation)

Washington, DC, USA

Up to \$1,000,000

2004–2005

Global Health and Security Outreach

To develop and implement outreach activities to advance the agenda and activities of NTI's Global Health and Security Initiative.

NTI

Washington, DC, USA

Up to \$75,000

2005–2006

Safer World Action Network

To engage and expand the network of individuals interested in efforts to reduce the threats from nuclear, biological and chemical weapons and materials with the goal of inspiring individuals to become personally involved in efforts to expand and accelerate the pace of work to reduce these threats.

NTI

Washington, DC, USA

Up to \$350,000

2005–2006

Research and Analysis

To conduct research and analysis to support NTI projects and activities.

Monterey Institute of International Studies

Center for Nonproliferation Studies

Monterey, CA, USA

\$155,885

2004–2006

SUPPORTING NEW THINKING AND THE DEVELOPMENT OF NEW EXPERTISE

Collaborative Education and Cooperative Security: A Joint Curriculum Project on Reducing the Nuclear Threat

To bring together Russian and American security experts to develop joint course materials that compare current nuclear security issues with the Cold War experience and explore new cooperative security arrangements to move from deterrence to reassurance.

School for International Security and World Politics at the Institute of U.S.A. and Canada Studies in Moscow, Moscow, Russia;

Center for International and Security Studies, School of Public Affairs, University of Maryland

College Park, MD, USA

\$735,178

2001–2005

Religious Community Outreach Pilot Project

To support the Fourth Freedom Forum and the Inter-religious Network in holding more than 100 *Last Best Chance* screenings and nuclear dangers discussion groups in two states, Nebraska and Pennsylvania. The goal of the project is to deepen understanding of nuclear issues, test the feasibility of creating a localized network of activists committed to civic involvement to reduce nuclear dangers and expand the reach of NTI's Safer World Action Network.

Fourth Freedom Forum

Goshen, Indiana, and Washington, DC, USA

\$50,000

2005–2006

BOARD OF DIRECTORS





R. E. (Ted) Turner

Ted Turner is Co-Chairman of the Nuclear Threat Initiative. Mr. Turner founded NTI when he realized that several years after the end of the Cold War, the United States and Russia still had thousands of nuclear weapons on hair-trigger alert, that global nuclear threats were in some ways growing worse and that governments were not moving quickly enough to address these threats.

Mr. Turner is the founder of CNN—the world's first live, in-depth, round-the-clock news television network. Whether in billboard advertisement, cable television, sailing, environmental initiatives or philanthropy, Mr. Turner's vision and determination have resulted in bold, big achievements.

Mr. Turner is the founder of the United Nations Foundation, which manages his historic \$1 billion gift to support the United Nations' work in addressing the world's most pressing problems; Chairman of the Turner Foundation, his family's private grant-making organization that focuses on population and the environment; and a partner in the successful Ted's Montana Grill restaurant chain, which operates more than 40 locations nationwide. He is also Chairman of Turner Enterprises, Inc., which manages private landholdings in an economically sustainable and ecologically sensitive manner, while promoting the conservation of native species.

Mr. Turner is the recipient of numerous honorary degrees, industry awards and civic honors, including being named *Time* magazine's 1991 Man of the Year and *Broadcasting and Cable's* Man of the Century in 1999.



Sam Nunn

Sam Nunn is Co-Chairman and Chief Executive Officer of the Nuclear Threat Initiative. He served as a U.S. Senator from Georgia for 24 years (1972–1996) and is retired from the law firm King & Spalding.

Senator Nunn attended Georgia Tech, Emory University and Emory Law School, where he graduated with honors in 1962. After active duty service in the U.S. Coast Guard, he served six years in the U.S. Coast Guard Reserve. He first entered politics as a Member of the Georgia House of Representatives in 1968.

During his tenure in the U.S. Senate, Senator Nunn served as Chairman of the Senate Armed Services Committee and the Permanent Subcommittee on Investigations. He also served on the Intelligence and Small Business Committees. His legislative achievements include the landmark Department of Defense Reorganization Act, drafted with the late Senator Barry Goldwater, and the Nunn-Lugar Cooperative Threat Reduction Program, which provides assistance to Russia and the former Soviet republics for securing and destroying their excess nuclear, biological and chemical weapons.

In addition to his work with NTI, Senator Nunn has continued his service in the public policy arena as a distinguished professor in the Sam Nunn School of International Affairs at Georgia Tech and as Chairman of the Board of the Center for Strategic and International Studies in Washington, DC.



Charles B. Curtis

Charles B. Curtis is the President and Chief Operating Officer of the Nuclear Threat Initiative. Previously, Mr. Curtis served as the Executive Vice President and Chief Operating Officer of the United Nations Foundation (UNF).

Before joining UNF, Mr. Curtis was a partner in Hogan & Hartson, a Washington-based law firm with domestic and international offices. Mr. Curtis served as Under Secretary and, later, Deputy Secretary of the U.S. Department of Energy from February 1994 to May 1997. He was Chief Operating Officer of the Department and, among other duties, had direct programmatic responsibility for all of the Department's energy, science, technology and national security programs.

Mr. Curtis is a lawyer with more than 15 years' practice experience and more than 18 years in government service. He was a founding partner of the Washington law firm Van Ness Feldman. Mr. Curtis served as Chairman of the Federal Energy Regulatory Commission from 1977 to 1981, and he has held positions on the staff of the U.S. House of Representatives, the U.S. Treasury Department and the Securities and Exchange Commission. He is a current member of the Council on Foreign Relations.



U.S. Senator Pete V. Domenici

U.S. Senator Pete V. Domenici (R-New Mexico) is a strong proponent of creating and sustaining programs focused on reducing the threats from weapons of mass destruction.

As Chairman of the Senate Energy and Natural Resources Committee and the Senate Energy and Water Development Appropriations Subcommittee, he has promoted legislation to bolster U.S. efforts to prevent the proliferation of nuclear weapons and the components to build such weapons. He has worked in support of the evolving mission of the U.S. national laboratories and other high-technology research facilities.

Senator Domenici supports greater U.S. energy independence, encouraging the development of the domestic oil and natural gas industries, while calling for a reduction in the country's reliance on foreign sources of energy. He has led national efforts to assure that nuclear energy, which now provides over one-fifth of our nation's electricity, remains a strong option for clean, reliable production. A 25-year veteran of the Senate Budget Committee, Senator Domenici is also recognized as one of the nation's foremost experts on the federal budget. In December, he was awarded the French Nuclear Energy Society's Grande Médaille de l'Académie des Sciences, the most prestigious award offered by the society.



Susan Eisenhower

Susan Eisenhower, President of the Eisenhower Group, Inc., is best known for her work on U.S.-Russian relations and international security issues. She is a Distinguished Fellow of the Eisenhower Institute, where she served as both President and Chairman.

In the spring of 2000, Ms. Eisenhower was appointed by the U.S. Secretary of Energy to a blue ribbon task force, the Baker-Cutler Commission, to evaluate U.S.-funded nuclear nonproliferation programs in Russia, and since that time she has also served as an advisor to another U.S. Energy Department study. She also serves as an Academic Fellow of the International Peace and Security program of the Carnegie Corporation of New York. Ms. Eisenhower has received three honorary doctorates and a number of other awards for her work in U.S.-Russian relations.

Ms. Eisenhower has spent more than 20 years of her career on foreign policy issues, though she came to the field from the business community. A onetime consultant to IBM, American Express and Loral Space Systems, she was appointed in 1998 to the National Academy of Sciences' standing committee on international security and arms control.

Ms. Eisenhower is an author of two best-seller books: *Breaking Free* and *Mrs. Ike*. She has edited three collected volumes on regional security issues and written hundreds of op-eds and articles for major newspapers and other national publications. In addition to her membership on NTI's board, Ms. Eisenhower serves on a number of boards of corporations, private foundations and educational institutions.



Ambassador Rolf Ekeus

Since 2001, Ambassador Rolf Ekeus has served as High Commissioner on National Minorities for the Organization for Security and Cooperation in Europe. He is also Chairman of the Board of the Stockholm International Peace Research Institute. He has held a number of diplomatic posts, including Swedish Ambassador to the United States from 1997 to 2000 and head of the United Nations Special Commission on Iraq.

In October 2000, the Swedish government appointed him as a special commissioner and asked him to carry out two delicate investigations. One was to analyze and assess Sweden's security policy during the Cold War. The second was to investigate the political and military handling of foreign submarine intrusions into Swedish territorial waters from 1980 until the present.

Ambassador Ekeus has spent the last two decades working on international nonproliferation issues. From 1991 to 1997, he served as Executive Chairman of the United Nations Special Commission on Iraq. In that post, he was responsible for working to eliminate the Iraqi infrastructure for nuclear and other weapons of mass destruction. He also served as Ambassador and Head of the Swedish delegation to the Conference on Security and Cooperation in Europe and as chairman on the Chemical Weapons Convention. He was a Member of the Advisory Board on Disarmament of the Secretary-General of the United Nations, the Canberra Commission on Nuclear Weapons and the Tokyo Forum on Disarmament.

His work in this field was recognized by the Waterler Peace Price from the Carnegie Foundation in 1997.



General Eugene Habiger

General Eugene E. Habiger (U.S. Air Force, Retired) has more than 35 years of experience in national security and nuclear operations. In his role as the Commander in Chief of the United States Strategic Command, General Habiger was responsible for all U.S. Air Force and U.S. Navy strategic nuclear forces. During his tenure, General Habiger established an unprecedented military-to-military relationship with his counterparts in Russia. He brings a unique, in-depth understanding of nuclear operations and nuclear policy to NTI.

General Habiger is a Distinguished Fellow and Policy Advisor with the University of Georgia's Center for International Trade and Security, where he assists with the Center's international programs aimed at preventing weapons proliferation and reducing nuclear dangers. Prior to joining the Center, General Habiger was the President/CEO of the San Antonio Water System, where he was responsible for the general operations of the System along with the strategic long-range business and water resources planning for the ninth-largest city in the United States. He also worked as the U.S. Department of Energy's Director of Security and Emergency Operations. As the Department's "Security Czar", he was charged by the Secretary with changing the security culture at the Energy Department and establishing a program to reenergize and restore confidence in the Department's Security Program.

He is a command pilot with more than 5,000 flying hours, primarily in bomber aircraft. During the Vietnam War, he flew 150 combat missions. He is also the Chairman of the Board of the Armed Services YMCA, serves on the Fisher House Foundation of San Antonio and is a Senior Fellow with the Gorbachev Foundation.



HRH Prince El Hassan bin Talal

A pluralist, believing in consensus and respect for others, His Royal Highness Prince El Hassan bin Talal works to build societies in which all groups of people can live, work and function in freedom and with dignity. This goal has been the moving force behind his interest and involvement in humanitarian and interfaith issues, with particular emphasis on the human dimension of conflicts.

His Royal Highness has initiated, founded and is actively involved in a number of Jordanian and international institutes and committees. He co-chaired the Independent Commission on International Humanitarian Issues in 1983 and is currently Chairman of the Arab Thought Forum, President of the Club of Rome, Moderator of the World Conference of Religions for Peace, and Vice Chairman of the Foundation for Interreligious and Intercultural Research and Dialogue (Geneva).

His Royal Highness is the author of six books: *A Study on Jerusalem* (1979); *Palestinian Self-Determination* (1981); *Search for Peace* (1984); *Christianity in the Arab World* (1994); *Continuity, Innovation and Change: Selected Essays* (2001) and joint author of *To Be a Muslim*, which is available in the Italian and French languages (2001).



Dr. Andrei Kokoshin

Dr. Andrei Kokoshin is a scientist, scholar and author and is a Member of the State Duma of the Russian Federation. Between 1992 and 1997, Dr. Kokoshin served as First Deputy Minister of Defense of the Russian Federation and as State Secretary. From 1997 to 1998, Dr. Kokoshin was Secretary of Defense Council and Chief Military Inspector and then became Secretary of Russia's Security Council. He is a former First Deputy Minister of Defense in Russia as well as a former member of Russia's Security Council.

Dr. Kokoshin is the Director of the Institute for International Security Studies at the Russian Academy of Natural Sciences and served as the acting Vice President of the Academy from 1998 to 1999. In 2003 he was elected to the post of Chairman of the State Duma's Committee for the Commonwealth of Independent States' Affairs and Relations with Compatriots. That same year, he became Dean of the School of World Politics at Moscow State University. Dr. Kokoshin is also a member of the Scientific Advisory Council of the Institute for International Studies at Stanford University.

Dr. Kokoshin holds an engineering degree in radioelectronics from Moscow Higher Technical School and a doctorate in political science. He is the author of 12 books on international security, political and military affairs and defense industry policy.



Pierre Lellouche

Pierre Lellouche has been a member of the French National Assembly since 1993 and was recently elected President of the NATO Parliamentary Assembly. He is the National Secretary of his party (in charge of Defense), the Union Mouvement Populaire (UMP), and a practicing attorney with Clyde and Co. in Paris.

From 1989 to 1995, he was Diplomatic Advisor to French President Jacques Chirac, and he has held a number of positions in his party on foreign affairs and defense issues.

Previously, Mr. Lellouche was a Co-Founder and Deputy Director of the French Institute for International Affairs. He has taught and published widely on political-military affairs, including serving as a columnist for *Le Point* and *Newsweek*.

He is a Vice Chairman of the Atlantic Partnership and a member of the Trilateral Commission and the Council of the International Institute for Strategic Studies. Mr. Lellouche also serves as a Member of the Board of Directors of the Foundation du Futur and as a member of the editorial board of the *European Journal of International Affairs* and the *Journal of Arms Control and Security Studies*.

Mr. Lellouche is the author of several books including: *Illusions Gauloises* (2006), *Le Nouveau Monde* (1992), *La République Immobile* (1998) and *La France et les Bombes* (2000). He was educated in Paris and at Harvard Law School, where he earned his master's and doctorate degrees.



U.S. Senator Richard G. Lugar

U.S. Senator Richard G. Lugar (R-Indiana) is Chairman of the Senate Foreign Relations Committee and a well-known leader in international security issues. A proponent of free trade and economic growth, Senator Lugar was elected to the U.S. Senate in 1976 and in 2000 won his third consecutive victory by a two-thirds majority.

Senator Lugar has been instrumental in Senate ratification of treaties that reduce the world's use, production and stockpiling of nuclear, chemical and biological weapons. In 1991, he forged a bipartisan partnership with then-Senate Armed Services Chairman Sam Nunn to create a cooperative program to destroy weapons of mass destruction in the former Soviet Union. To date, the Nunn-Lugar program has deactivated more than 6,000 nuclear warheads that were once aimed at the United States.

As Chairman of the Agriculture Committee, Senator Lugar built bipartisan support for the 1996 federal farm program reforms, ending 1930s-era federal production controls. He initiated a biofuels research program to help decrease U.S. dependency on foreign oil and led initiatives to streamline the U.S. Department of Agriculture, reform the food stamp program and preserve the federal school lunch program.

Senator Lugar has received numerous awards including Guardian of Small Business, the Spirit of Enterprise, Watchdog of the Treasury and 38 honorary doctorate degrees. He manages his family's 604-acre Marion County corn, soybean and tree farm. Before entering public life, he helped run the family's food machinery manufacturing business in Indianapolis.



Commissioner Vladimir P. Lukin

Vladimir Lukin is the Human Rights Commissioner of the Russian Federation and is former Russian Ambassador to the United States. He previously served as the Deputy Chairman of the Russian Duma and as Chairman of the Duma's Foreign Affairs Committee.

Born in the Siberian city of Omsk, Commissioner Lukin is a longtime specialist in U.S.-Soviet/Russian strategic arms control issues. He is a graduate of the Moscow Pedagogical Institute and received a PhD in History from the Institute of the World Economy and International Relations of the USSR Academy of Sciences. Commissioner Lukin was a member of the Editorial Board of the international journal *World Review* in Prague but was recalled to the USSR in 1968 for protesting the Soviet-led Warsaw Pact invasion of Czechoslovakia.

From 1969 to 1987, Commissioner Lukin was a Research Fellow at the Institute of U.S. and Canadian Studies of the USSR Academy of Sciences. He then served in the USSR Foreign Ministry as a Deputy Head of the Foreign Policy Analysis and Prognosis Department until 1990, when he was elected as a People's Deputy of the Supreme Soviet of the Russian Socialist Federal Soviet Republic (RSFSR). There he served as a chairman of the Supreme Soviet Committee on International Affairs and Foreign Economic Relations.

Commissioner Lukin is the author of books and numerous articles on various issues of international relations and Russian foreign policy. He speaks French, Spanish and English and is married with two sons.



Dr. Jessica Tuchman Mathews

Dr. Jessica Tuchman Mathews is President of the Carnegie Endowment for International Peace, an international research organization with offices in Washington, DC and Moscow. Dr. Mathews, who holds a PhD in molecular biology, has held positions in the executive and legislative branches, in management and research in the nonprofit arena and in journalism.

She was a Senior Fellow at the Council on Foreign Relations from 1993 to 1997 and served as Director of the Council's Washington Program. During that time her *Foreign Affairs* article "Power Shift", was chosen by the editors as one of the most influential in the journal's 75 years.

From 1982 to 1993, Dr. Mathews was founding Vice President and Director of Research of the World Resources Institute, an internationally known center for policy research on environmental and natural resource management issues.

She served on the editorial board of *The Washington Post* from 1980 to 1982, covering energy, environment, science, technology, health and arms control issues. Later, she became a weekly columnist for *The Washington Post*.

From 1977 to 1979, she was the Director of the Office of Global Issues of the National Security Council, covering nuclear proliferation, conventional arms sales policy, chemical and biological warfare and human rights. In 1993, she returned to government as Deputy to the Under Secretary of State for Global Affairs.



Judge Hisashi Owada

Judge Hisashi Owada was appointed to the International Court of Justice in The Hague in early 2003. Before his appointment to this post, he served as President of the Japan Institute of International Affairs, Advisor to the Minister for Foreign Affairs of Japan, Senior Advisor to the President of the World Bank and Professor of Law and Organization at Waseda University Graduate School in Japan.

One of his country's most respected diplomats, Judge Owada previously served as Vice Minister for Foreign Affairs, Permanent Representative of Japan to the Organization for Economic Cooperation and Development in Paris and Permanent Representative of Japan to the United Nations in New York.

In the academic field as a professor of international law and organization, Judge Owada has taught at Tokyo University since 1963 and at the law schools of Harvard University, Columbia University and New York University. He is a member of the *Institut de Droit International*. Judge Owada is the author of numerous writings on international legal and political affairs.



Dr. William J. Perry

Dr. William J. Perry currently serves as the Michael and Barbara Berberian Professor at Stanford University, with a joint appointment in the School of Engineering and the Institute for International Studies. He is also a Senior Fellow at the Hoover Institute and Co-Director of the Preventive Defense Project, a research collaboration of Stanford and Harvard Universities.

Dr. Perry was the 19th Secretary of Defense for the United States, serving from February 1994 to January 1997. As Secretary of Defense, he was instrumental in implementing and strengthening the Nunn-Lugar Cooperative Threat Reduction Program. He also served as Deputy Secretary of Defense (1993–1994) and Under Deputy Secretary of Defense for Research and Engineering.

Dr. Perry has extensive business experience and currently serves on the boards of several high-tech companies and is Chairman of Global Technology Partners. He is a member of the National Academy of Engineering and a fellow of the American Academy of Arts and Sciences.

Dr. Perry has received numerous awards and decorations from U.S. and foreign governments, nongovernmental organizations and the military, including the Presidential Medal of Freedom in 1997.



Dr. Nafis Sadik

Dr. Nafis Sadik has consistently called attention to the importance of addressing the needs of women directly in making and carrying out development policy. From April 1987 to December 2000, Dr. Sadik served as Executive Director of the United Nations Population Fund (UNFPA), with the rank of Under-Secretary-General, becoming the first woman to head one of the United Nations' major voluntarily funded programs. In 2001, Dr. Sadik was appointed as Special Advisor to the UN Secretary-General, where she continues to work on gender, population and development issues.

Dr. Sadik came to the United Nations after a distinguished career in Pakistan, where she served as Director-General of the Central Family Planning Council. Since beginning her career as a physician in 1954, Dr. Sadik has taken on a number of increasingly challenging leadership roles in the family planning field. She first served as a civilian medical officer in charge of women's and children's wards in various Pakistani armed forces hospitals before directing hospitals and eventually heading the Planning and Training Division, the government agency charged with national family planning program.

Dr. Sadik was educated at Loreto College, Calcutta, India; received a doctor of medicine degree from Dow Medical College, Karachi, Pakistan; and completed further studies at Johns Hopkins University. She is the recipient of numerous international awards and honors for her contributions to improving the health of women and children of the global community.



Professor Amartya Sen

Professor Amartya Sen is a world-renowned economist, scholar, philosopher and author. He has done groundbreaking research in a number of areas, including social choice theory, political and moral philosophy and decision theory. Awarded the “Bharat Ratna”, the highest honor given by the President of India, Professor Sen’s work in economics has also been recognized with a Nobel Prize.

Professor Sen is Lamont University Professor and Professor of Economics and Philosophy at Harvard University. Until recently, he was the Master of Trinity College, Cambridge. Earlier, he was the Drummond Professor of Political Economy at Oxford University and a Fellow of All Souls College. Prior to that he was Professor of Economics at Delhi University and at the London School of Economics.

Professor Sen has researched and written books in a number of fields. His work has covered welfare economics, theory of measurement, development economics, moral and political philosophy and the economics of peace and war. His most recent book, published by W.W. Norton in March 2006, is entitled *Identity of Violence: The Illusion of Destiny*. Other recent books include *Development as Freedom*; *Rationality and Freedom*; and *The Argumentative Indian*.

Born in Santiniketan, India, in 1933, Professor Sen studied at Presidency College in Calcutta, India, and at Trinity College, Cambridge. He is an Indian citizen.



Rt. Hon. Professor Shirley Williams

Rt. Hon. Professor Shirley Williams is a Member of the United Kingdom’s House of Lords, where she was Leader of the Liberal Democrats from 2001 to 2004. She began her career as a journalist for the *Daily Mirror* and the *Financial Times*, and in 1960 became Secretary of the Fabien Society. Earlier in her career, she was a Member of the House of Commons and served as a Labour Cabinet Minister of Education and Science.

Outside her career in government, Baroness Williams served as Public Service Professor of Elective Politics from 1988 to 2000 at the John F. Kennedy School of Government at Harvard University. She lectured at numerous universities including Princeton University, University of California at Berkeley and Cambridge University. She is a member of the Council on Foreign Relations International Advisory Board and serves on several other boards, including the Moscow School of Political Studies and the International Crisis Group.

Baroness Williams holds 11 honorary doctorates from British, Belgian and U.S. universities. She received a BA in philosophy, politics and economics from Somerville College, where she also received an MA, and attended Columbia University on a Fulbright Scholarship.



Professor Fujia Yang

Professor Fujia Yang, academician of the Chinese Academy of Sciences, is an internationally renowned nuclear physicist who currently serves as the sixth Chancellor of the University of Nottingham, one of the United Kingdom's leading research universities, and the Vice Chairman of the Chinese Association for Science and Technology.

Born in Shanghai, Professor Yang graduated from Fudan University in 1958 with a degree in physics. He went from his initial appointment as a Teaching Assistant, to a Professorial Chair in Physics, to the Presidency of the University of Fudan from 1993 to 1999. He served as Director of the Shanghai Institute of Nuclear Research of the Chinese Academy of Sciences from 1987 to 2001, was Chairman of the Shanghai Science and Technology Association from 1992 to 1996 and was the founding President of the Association of University Presidents of China from 1997 to 1999.

Dr. Yang's work has taken him to positions around the globe, including visiting professorships at the Neils Bohr Institute in Copenhagen, Denmark; State University of New York at Stony Brook, USA; Rutgers University, New Jersey, USA; and Tokyo University, Japan.

Professor Yang served as a council member representing China on the Association of East Asia Research Universities, was a member of the International Association of University Presidents and of the Association of University Presidents of the Pacific Rim. He holds honorary degrees from Soka University, Tokyo, Japan; the State University of New York; the University of Hong Kong; the University of Nottingham; and the University of Connecticut.



Warren E. Buffett
Advisor to the Board of Directors

Warren E. Buffett, who has been concerned about the threats from weapons of mass destruction for four decades, serves as an Advisor to NTI's Board of Directors.

Mr. Buffett is Chairman of the Board and Chief Executive Officer of Berkshire Hathaway Inc., a holding company owning subsidiaries engaged in a number of diverse business activities and controlled by him since 1965. Berkshire Hathaway Inc.'s business activities include the underwriting of property and casualty insurance and a wide variety of manufacturing, retailing and service companies.

Mr. Buffett started out as an investment salesman and securities analyst, and early in his career he created his own investment partnership.

Mr. Buffett also serves as a Director of The Washington Post Company, and is a life trustee of Grinnell College and The Urban Institute.

Mr. Buffett attended the Woodrow Wilson High School in Washington, DC, the Wharton School of Business at the University of Pennsylvania and in 1950 received a B.S. from the University of Nebraska. He earned an M.S. in Economics from Columbia University in 1951.



Siegfried S. Hecker
Advisor to the Board of Directors

Siegfried S. Hecker is Director Emeritus of the Los Alamos National Laboratory, where he was Director from 1986 to 1997, and is currently Visiting Professor at Stanford University's Center for International Security and Cooperation. He served as Chairman of the Center for Materials Science and Division Leader of the Materials Science and Technology Division before becoming Director. From 1970 to 1973, he was a Senior Research Metallurgist with the General Motors Research Laboratories.

Dr. Hecker is a Member of the National Academy of Engineering, Foreign Member of the Russian Academy of Sciences, Fellow of the TMS (Minerals, Metallurgy and Materials Society), Fellow of the American Society for Metals, Honorary Member of the American Ceramics Society and Fellow of the American Academy of Arts and Sciences. He is a member of the American Association for the Advancement of Science, Council on Foreign Relations, Tau Beta Pi Honorary Engineering Fraternity, Alpha Sigma Mu Honorary Metallurgical Fraternity and the Society of Sigma Xi.

In addition to his current research activities in plutonium science and nuclear weapons stockpile stewardship, he works closely with the Russian Academy of Sciences and the Russian Federal Agency for Atomic Energy on a variety of cooperative threat reduction programs. Dr. Hecker is also actively involved with the U.S. National Academies, serving on the Council of the National Academy of Engineering, serving as chair of the Committee on Counterterrorism Challenges for Russia and the United States and as a member of the National Academy of Sciences Committee on International Security and Arms Control Nonproliferation Panel.



Joshua Lederberg
Advisor to the Board of Directors

Joshua Lederberg, a research geneticist, is President Emeritus at the Rockefeller University in New York. There, he continues his lifelong research on bacterial genetics as a Scholar of the Beverly and Raymond Sackler Foundation. He was awarded the Nobel Prize in Physiology and Medicine in 1958, and the U.S. National Medal of Science in 1989. He serves on the Defense Science Board and the Defense Threat Reduction Agency advisory committee, as well as a range of other governmental, industrial and academic consultancies.



George F. Russell Jr.
Advisor to the Board of Directors

George F. Russell Jr. has been a worldwide leader in promoting the critical importance of globalization to reduce poverty and disease throughout the world.

Mr. Russell built the Frank Russell Company into one of the world's leading investment advisory firms, serving as Chairman from 1958 until the firm was sold to Northwestern Mutual Life in 1999. Today, the company guides 1,100 clients in 35 countries with assets exceeding \$1.8 trillion and manages \$130 billion in funds.

Mr. Russell pioneered the business of pension fund consulting. He is a well-known advocate of diversified global investing and, along with Warren Buffett, was named in 1993 as one of the four most influential people in institutional investing.

Mr. Russell is Co-Chairman of the EastWest Institute, Co-Chairman of the Kendall-Russell Centre for Corporate Competitiveness in Russia, Co-Chairman of the Pacific Health Summit, Chairman of the National Bureau of Asian Research, Chairman of Transmutation Technologies, Inc., Chairman of the Russell Family Foundation, Chairman of The Threshold Group, Honorary Co-Chairman of the Business Humanitarian Forum and is also involved in projects to educate Americans on Islam and the critical importance of globalization.

OFFICERS & STAFF

NTI is staffed by a group of experts on international affairs, nonproliferation, security and military issues, public health, medicine and communications who have operational and international experience in their fields. They have held high-level posts in the White House, federal and state agencies, the U.S. military, the U.S. Congress, the Russian Federation Ministry of Atomic Energy and international organizations. The NTI staff share a common vision of a safer world and are working to reduce the global threats from nuclear, biological and chemical weapons.

Sam Nunn

*Co-Chairman & Chief Executive Officer
(see biography in Board of Directors section)*

Charles B. Curtis

*President & Chief Operating Officer
(see biography in Board of Directors section)*

Joan Rohlfig

*Senior Vice President for Programs
& Operations*

Ms. Rohlfig joined NTI after spending six years in a number of senior positions with the U.S. Department of Energy. She served as Senior Advisor for National Security to the Secretary of Energy and Director of the Office of Nonproliferation and National Security. She took a nine-month assignment in New Delhi, India, in the wake of nuclear tests in South Asia, to advise the U.S. Ambassador on nuclear security issues. Ms. Rohlfig also has served on the staff of the U.S. House of Representatives Armed Services Committee and at the U.S. Department of Defense.

Brooke D. Anderson

Vice President for Communications

Ms. Anderson joined NTI after serving in various senior positions in the executive and legislative branches of the U.S. government, including Special Assistant to the President and Senior Director for Communications at the National Security Council at the White House. She also served as Director of the U.S. Department of Energy's Office of Public Affairs and Deputy Chief of Staff and Press Secretary to former Congressman David Skaggs.

Kraig M. Butrum

Chief Development Officer

Mr. Butrum has more than 20 years of fundraising experience, has held senior-level development positions with a number of nonprofit organizations and has consulted internationally on nonprofit fundraising. His fundraising experience includes major capital campaigns, including directing Conservation International's five-year \$600 million *Campaign to Save the Hotspots* and the *National Park Foundation's Connecting Our Children to America* campaign.

Laura S. H. Holgate

Vice President for Russia/New Independent States (NIS) Programs

Ms. Holgate joined NTI after serving in a number of senior positions in the federal government. She managed the Nunn-Lugar Cooperative Threat Reduction program at the U.S. Department of Defense, which provides assistance to Russia and the new independent states in securing and destroying excess nuclear, chemical and biological weapons and materials. She also served as Director of the Office of Fissile Materials Disposition at the U.S. Department of Energy. Ms. Holgate has received numerous public service awards and is a member of the Council on Foreign Relations and the Executive Board of Women in International Security.

Melissa Sarver, CPA*Treasurer and Controller*

Melissa came to NTI in 2002 from KPMG LLP, where she worked in their Business Process Outsourcing group. She has ten years of experience working with community non-profits and non-profit trade associations. Ms. Sarver is a Certified Public Accountant and a member of the American Institute of Certified Public Accounts and Maryland Association of CPAs.

Mark Smolinski, M.D., M.P.H.*Vice President for Biological Programs and Director of the Global Health and Security Initiative*

Before coming to NTI, Dr. Smolinski was a Senior Program Officer at the Institute of Medicine of the National Academies of Science and study director for "Microbial Threats to Health: Emergence, Detection, and Response". He is a physician and expert in medical epidemiology and public health. Dr. Smolinski has served in various senior positions in the federal, state and local governments, including Senior Advisor to the U.S. Assistant Secretary for Health and Surgeon General, and was an Epidemic Intelligence Officer for the U.S. Centers for Disease Control and Prevention.

Robert E. Berls, Jr., PhD*Senior Advisor for Russia/NIS Programs, Director of the Moscow Office*

Dr. Berls brings to NTI a background in Soviet/Russian energy and nuclear weapons issues. As a Colonel in the U.S. Air Force, he served as Air Attaché at the U.S. Embassy in the 1980s. During the first Clinton Administration, he was Special Assistant to the Secretary of Energy for Russia/NIS Programs. Before joining NTI, he was Vice President for Business Development and Government Relations for a U.S. oil company.

Lisa K. Cutler*Director of Programs and Outreach*

Prior to joining NTI, Ms. Cutler directed external communications for the U.S. National Nuclear Security Administration. She has also held senior communications positions at the U.S. Department of Energy and the U.S. Department of Labor and was Press Secretary to former U.S. Senators John Glenn and Harris Wofford.

Catherine O'Brien Gwin*Director of Communications*

Ms. Gwin came to NTI from the law firm of King & Spalding, where she served as former Senator Sam Nunn's director of communications and public policy. She previously served as Senator Nunn's press secretary in the U.S. Senate and the spokesperson for the Senate Armed Services Committee.

Margaret A. Hamburg, M.D.*Senior Scientist*

Dr. Hamburg previously served as NTI's Vice President for the Biological Program and now provides strategic advice and expertise to NTI as Senior Scientist. Before coming to NTI, Dr. Hamburg was Assistant Secretary for Planning and Evaluation at the U.S. Department of Health and Human Services. She is a physician and expert in public health and bioterrorism. Dr. Hamburg was the Commissioner of Health for the City of New York and former Assistant Director of the Institute of Allergy & Infectious Diseases at the National Institutes of Health. She is a member of the Institute of Medicine of the National Academies of Science, the Intelligence Science Board, the Council on Foreign Relations, the Aspen Study Group and a fellow for the American Association of the Advancement of Science.

Diane G. Hauslein*Director of Administration*

Ms. Hauslein joined NTI following a 21 year career in the field of legal management - including finance, human resources, facilities/equipment management, technology and marketing. Most recently, Ms. Hauslein served as the Director of Administration for the Washington, DC office of an international law firm co-managed by James Hall, former Chairman of the National Transportation Safety Board.

Kirsten Houghton

Development Associate

Ms. Houghton joined NTI five years ago after managing a private art collection in New York. While working at NTI, Ms. Houghton earned a Masters degree in International Peace and Conflict Resolution at The School of International Service of American University. Ms. Houghton has a Bachelor of Arts in French from Dickinson College and is a member of Women in International Security.

Stephanie S. Loranger, Ph.D.

Senior Program Officer, Global Health and Security Initiative

Before coming to NTI, Dr. Loranger was the Director of the Biosecurity Project at the Federation of American Scientists (FAS). Dr. Loranger's work at FAS focused on: biological weapons control, the responsible use of science and technology, training and preparedness for WMD attacks, and developing on-line educational materials for teaching biosecurity to bioscience graduate students. Dr. Loranger received her Ph.D. in Biology and Biomedical Sciences with a concentration in Molecular Cell Biology at Washington University. Dr. Loranger is also an Adjunct Associate Professor in the Security Studies Program at the Edmund A. Walsh School of Foreign Service at Georgetown University.

Tatiana G. Nikolenko

*Program Manager,
Biological Programs in Russia,
Moscow Office*

Prior to joining NTI, Ms. Nikolenko worked as a senior project manager at the International Science and Technology Center (ISTC) Headquarters where she ran the Russian/NIS biological programs and served as coordinator for the U.S. public health programs in Russia and the new independent states. Ms. Nikolenko received her degree in Biomechanics from Moscow State University. She has authored three books.

Major Robert E. Schultz, USAF (Ret.)

Senior Program Officer, Russia/NIS Programs
Major Schultz joined NTI after a military career in strategic nuclear operations and strategic offensive arms threat reduction. He brings extensive program implementation experience from the U.S. Department of Defense's Nunn-Lugar Cooperative Threat Reduction program, where he was involved in the disposition of Russian strategic missiles. He also served as a Minuteman ICBM Flight Commander and as an Operations Planner on the Strategic Air Command's Airborne Command Post "Looking Glass."

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The Nuclear Threat Initiative is saddened by the passing of J.B. Fuqua, a strong and generous supporter of our work to make the world safer. As NTI Co-Chairmen Ted Turner and Sam Nunn said, "J.B. Fuqua was a brilliant businessman, a generous philanthropist and a visionary leader...the positive impact of J.B.'s life will be felt for generations to come."

THE DAY AFTER AN ATTACK, WHAT WOULD WE WISH WE HAD DONE? WHY AREN'T WE DOING IT NOW?

“The Nuclear Threat Initiative embodies the best features of public-private partnership: a worthy cause; crisply defined, practical objectives; and—in four years—a series of concrete achievements, successful steps towards making the world safer and more secure...since its establishment in 2001, NTI has made important contributions towards securing weapon-usable nuclear material and reducing the threat of nuclear terror.”

**Mohamed ElBaradei, 2005 Nobel Peace Prize Winner
and Director General of the International Atomic
Energy Agency**

Our work at NTI is driven by these questions.

The threats from nuclear, biological and chemical weapons are growing, and governments are not doing enough to prevent an attack. Don't sit on the sidelines. Your security is at stake.

We're in a race between cooperation and catastrophe. Terrorists are racing to get nuclear, biological and chemical weapons. We should be racing to stop them. You can help.

Support NTI's pathbreaking work to combat the most urgent security threats of the 21st century.

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Your gift will go directly to projects that create paths for governments and other organizations to follow. Many projects address high-risk situations involving nuclear, biological and chemical weapons and materials.

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For more information on how you can contribute to NTI, please contact Kraig M. Butrum, NTI's Chief Development Officer, at (202) 454-7713.

“I believe that the greatest danger facing our nation and the world is the global threat from nuclear, biological and chemical weapons. In my view, the global community has not committed the resources necessary to close the dangerous gap between the threat and the response and must do more. NTI has shown that private resources can be leveraged to get governments around the world to do more, and I’m pleased to support its efforts.”

Warren Buffett, Chairman of the Board and CEO of Berkshire Hathaway, Inc. and Advisor to NTI’s Board of Directors



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