

Annual Report 2017

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Letter from NTI Co-Chairs

Ernest J. Moniz, Sam Nunn, and Ted Turner

Seventy-five years ago, in the winter of 1942 on the campus of the University of Chicago, physicist Enrico Fermi launched the nuclear age and set the stage for the Manhattan Project's nuclear weapons when he produced the first controlled nuclear chain reaction. Fermi well understood the promise and the peril of the atom. Still, it is unlikely he could have imagined that in the year 2017, nuclear energy would provide a tenth of global electricity, nuclear medicine would be credited with saving countless lives, and governments and international institutions would be so far from addressing the catastrophic risks posed by the global proliferation of the deadliest weapons ever made.

Those risks grew in 2017 amid deteriorating relations between Russia and the West; growing tensions with North Korea over its advancing nuclear and missile programs; expanding cyber threats to nuclear facilities and command and control systems; and the continued threat posed by terrorist organizations with global reach and aspirations to use weapons of mass destruction (WMD).



NTI co-chairs Ted Turner, Sam Nunn, and Ernest J. Moniz

“We are proud of NTI’s well-deserved reputation as an independent, trusted, pragmatic partner with innovative ideas and the capacity to put them into practice.”

—ERNEST J. MONIZ, SAM NUNN, and TED TURNER

Clear-eyed as we face these challenging times, NTI is now more focused than ever on Sam’s compelling admonition that “we are in a race between cooperation and catastrophe.” NTI is in high gear addressing today’s threats, along with those that are still emerging.

The organization made an important transition this year when Ernie came on board in June as our new CEO and co-chair to partner with Sam, Ted, NTI President Joan Rohlfing, and the entire NTI team on the urgent work of reducing global security risks.

We are proud of NTI’s well-deserved reputation as an independent, trusted, pragmatic partner with innovative ideas and the capacity to put them into practice.

Under Ernie’s leadership, our mission does not change. Against the backdrop of a changed world, we will build on NTI’s active work to address nuclear materials security, radiological “dirty bomb” risks, cyber nuclear vulnerabilities, the need for greater global dialogue on nuclear issues, evolving biosecurity risks, and more.

Drawing on Ernie’s experience, we are expanding NTI’s reach to increase capacity and leadership in the nuclear security field. Our focus is on leveraging the scientific and technical communities for innovative solutions; enabling a safe, more secure, and sustainable nuclear fuel cycle globally to help prevent proliferation and nuclear terrorism; strengthening biosecurity by catalyzing the development of global norms to address dangers associated with breathtaking advances in the bioscience field; and leading the development of verification regimes that can enable a future nuclear weapons-free world.

As excited as we are about the road ahead, we celebrate NTI’s accomplishments in 2017. First among them was the launch in August of the IAEA’s new low-enriched uranium bank in Kazakhstan. A project jump-started by NTI more than a decade ago with an extraordinary investment from Warren Buffett, the bank is the result of an unprecedented international effort to build a safer world—now and for future generations. NTI’s new work on the fuel cycle will build on this project.

Other accomplishments included completing Phase I of our groundbreaking work in partnership with the U.S. Department of State to bring 25 countries together on nuclear disarmament verification. Additional priorities include collaborating with state and city leaders in the United States and governments around the world to reduce radiological “dirty bomb” risks and working both in public and behind-the-scenes to guide developments on Euro-Atlantic security and relations with Russia.

We also are delighted to report key additions to our talented staff. We have a new vice president for global biological policy and programs, Beth Cameron, who is significantly ramping up NTI’s work in this area, and a new chief financial officer, Amy Hargrett. In 2017 we also welcomed Lynn Rusten, formerly senior director for arms control and nonproliferation on the White House National Security Council staff. And we are pleased that Corey Hinderstein has returned to NTI from a three-year stint at the Department of Energy’s National Nuclear Security Administration. Corey is now our vice president for nuclear fuel cycle strategies.



NTI and China Institutes of Contemporary International Relations (CICIR) participants in a table-top simulation of potential nuclear crises

We plan to add additional senior staff in 2018, as we occupy new headquarters at 1776 Eye Street, NW in Washington, DC—where our new board room is named after co-founder Ted Turner to honor his extraordinary generosity to NTI and dedication to building a more peaceful world.

NTI is honored by the return—this time to our Board of Directors—of an international leader in public health, former U.S. Food and Drug Administration Commissioner Dr. Margaret Hamburg. Peggy was a founding vice president at NTI, running the organization's early biosecurity program.

We also want to recognize board member emeritus William J. Perry for his indefatigable work to build awareness around the world about the dangers of nuclear risks and a new

nuclear arms race. Bill's 2015 memoir, *My Journey at the Nuclear Brink*, was released in China and Korea in 2017. He also released his second Massive Open Online Course (MOOC) on nuclear terrorism, in conjunction with Stanford University.

We do have sad news to share with respect to our board as this year marked the passing of two outstanding members: former Senator Pete Domenici and former Intel Corporation CEO Paul Otellini. Pete and Paul made enormous contributions to NTI, and we miss them as partners in our work and as dear friends.

Without the support of the foundations, families, and individuals who put their faith in NTI, we would not be able to do the important work of global threat reduction. We are tremendously grateful to our new funders and

to our steadfast supporters, particularly Warren Buffett, Carnegie Corporation of New York, the John D. and Catherine T. MacArthur Foundation, the Peter G. Peterson Foundation, and the Robertson Foundation. This year, Open Philanthropy and the Bill & Melinda Gates Foundation made significant investments in our biosecurity program.

Last, we would like to give special thanks to former NTI President Charles Curtis, who returned out of retirement this year to lend a hand with NTI's leadership transition. We are grateful to once again have been the beneficiaries of his exceptional leadership, his vast expertise, and his delightful sense of humor. Thank you, Charlie—and thank you to all of you who support us as we work to build a safer world.


 Ernest J. Moniz
 
 Sam Nunn
 
 Ted Turner

Meet Ernest J. Moniz

On March 22, 2017, the NTI Board of Directors elected former U.S. Secretary of Energy Ernest J. Moniz as co-chair of the board, joining Sam Nunn and Ted Turner, and chief executive officer. He took the reins on June 1.

At the announcement, Nunn said, “Ernie comes to us with sterling credentials, deep expertise and enormous credibility in the nuclear and other WMD security fields. Ernie is an outstanding leader and a brilliant thinker, who is respected around the globe.”

Ernie is as passionate about science and innovation as he is about the power of diplomacy. He is effective working with both sides of the political aisle and with leaders around the world. As Energy Secretary, he negotiated—then helped demystify—key provisions in the Iran agreement

blocking that country from developing nuclear weapons; he worked with Chinese officials to establish a world-class Center of Excellence on Nuclear Security in Beijing; and he helped organize the global Nuclear Security Summits that brought dozens of world leaders together to address nuclear security risks. Ernie also led the effort to place clean energy technology innovation at the center of global efforts to mitigate the effects of global warming.

A trailblazer who has spent his career working at the intersection of science and policy, he brings to NTI unparalleled credentials from academia and government, a record of forging innovative programs and partnerships with the private sector, and a powerful and persuasive voice on the key issues of the day.



In his first six months, Ernie has worked closely with the NTI board, leadership, and staff to update the organization’s strategic plan and develop new paths for NTI in 2018 and beyond.

Turner calls Ernie the “ideal candidate to step into the CEO role” following Nunn’s exceptional tenure, adding, “we are all very grateful to Sam for his extraordinary leadership as CEO over the last 16 years and look forward to our continued work together.”



"He's knowledgeable, he's competent and he's refreshingly candid."

—SEN. LISA MURKOWSKI (R-AK)

"Moniz is a threat because of his formidable mix of gusto, guts, and, most of all, smarts."

BOSTON GLOBE

MORE about OUR NEW CEO



Influencers

ADVOCACY GROUPS

'Rock Star' Physicist Remains at Forefront

By MIKE MAGNER

Members of President Barack Obama's Cabinet scattered far and wide after Donald Trump moved into the White House on Jan. 20. Not so Ernest Moniz, the nuclear physicist who was secretary of Energy for most of Obama's second term.

On June 1, Moniz took charge at the Nuclear Threat Initiative, a nongovernmental group based in Washington seeking to reduce the perils of nuclear and biological weapons. It is in many ways a continuation of Moniz's work at the Energy Department, the federal overseer of all things nuclear: energy, research, weaponry and waste disposal.

The Nuclear Threat Initiative's new CEO and co-chairman of its board of directors believes that the job is a good fit for him.

"I was planning all along to share my time post-DOE on nuclear security and on energy

at the time of the worst terrorism event in U.S. history. Media mogul Ted Turner donated the funding and a former chairman of the Senate Armed Services Committee, Democrat Sam Nunn of Georgia, provided leadership and expertise.

Over the years the Nuclear Threat Initiative and its team of experts worked hand-in-hand with two administrations on reducing the threat from nuclear weapons. It inspired the



clear weapons. It inspired the Energy Department under President George W. Bush to work closely with Russia on removing and replacing weapons-grade materials — highly enriched uranium and plutonium — from nuclear facilities around the world so they would not fall into the wrong hands. And it played an active role in

Barack Obama's expressed mission to rid the world of nuclear armaments.

ments.

Moniz was a key player in those efforts as Energy secretary from May 2013 to January 2017. He helped negotiate the international agreement blocking Iran from developing nuclear weapons. He worked with Chinese officials to establish a Center of Excellence on Nuclear Security near Beijing and he organized a series of global summits on reducing nuclear threats.

"I think the nuclear-weapons-free world remains the right goal," Moniz says. "But I'd remind you that President Obama also said quite correctly that he wasn't anticipating that happening in his lifetime. So it's a multi-decade issue, probably as long from here to there as it's been from World War II to here. Who knows?"

The goal seems further out of reach with relations between the United States and Russia at the lowest point since the Cold War, but Moniz remains hopeful.

"Certainly these issues of election tampering and so on are extraordinary," he says. "But in the height of the Cold War we still maintained the essential security communications that were there to avoid something worse happening."

Moniz notes that even after

- U.S. Secretary of Energy, 2013–2017

- U.S. Undersecretary of Energy, 1997–2001

- Associate Director for Science, President's Office of Science and Technology Policy, 1995–1997

- Cecil and Ida Green Professor of Physics and Engineering, MIT

- Faculty member, MIT since 1973

- Founding director, MIT Energy Initiative

- Head, Department of Physics, MIT 1991–1995 and 1997

- Director, MIT Bates Linear Accelerator Center, 1983–1991

- PhD in physics, Stanford University

- B.S. summa cum laude, in physics, Boston College

- Lifelong Red Sox fan

- Proud husband, father, and grandfather

- Son of Fall River, MA

- Honored to have been recognized in the blogosphere for having "the best hair in the Cabinet since 1794"

- Monty Python fan

- Fly fishing aficionado

- @ErnestMoniz

NTI in 2018 and Beyond

As Ernie Moniz came on board, threats to global stability and nuclear risks were on the rise. The landmark, multilateral Iran agreement was under attack, tensions with North Korea were in dangerous escalation, and U.S.-Russia relations were deteriorating to Cold War-era levels—or worse. Against that backdrop, the Trump administration in early 2018 outlined a new nuclear posture that could add to the risk that miscalculation, an accident, a mistake, or catastrophic terrorism will lead to devastating nuclear use.

Moniz laid out an ambitious agenda to take on these near-term crises while preparing to get ahead of tomorrow's threats. His vision for NTI: Build on our strengths, use our voice, and expand our portfolio to ensure that we are identifying and implementing creative solutions for the future.

NTI's Operating Model

How does NTI work? We design innovative projects to directly reduce threats, to show governments the way, and to build momentum and support for action on a larger scale. Among our strengths: We have successfully developed public-private partnerships that leverage our capacity and impact. We are able to gather diverse voices at a single table—technical experts and policymakers, government, academic, and non-governmental—to work together on practical solutions to challenging problems.

NTI Voice

NTI's influence and expertise, along with our well-established reputation for excellence, means that our voice is heard and it makes a difference—both behind the scenes and in public. NTI works to influence key debates, actively conduct dialogue with leaders in the United States and around the world, and offer policy proposals to help defuse the crises that are permeating our current, precarious landscape. Sam Nunn, Moniz, and the entire NTI staff will continue speaking out on the great security challenges facing our nation and globe.



“Leaders around the world see NTI as the ‘go-to’ organization for developing and, in many cases, implementing solutions to address catastrophic threats.”

— DES BROWNE, *NTI VICE CHAIR AND FORMER UK DEFENCE SECRETARY*

Priority Initiatives

New areas of focus include verification, the nuclear fuel cycle, and a significantly expanded focus on global health and biosecurity while building out our continuing work on radiological, cyber, global nuclear policy, and preventing nuclear terrorism. Key NTI initiatives addressing long-term challenges now include:

- **Verification:** Building new verification tools and techniques to limit nuclear weapons today and prepare for verifying a world without nuclear weapons tomorrow
- **Nuclear fuel cycle:** Creating a safer, more secure, proliferation-resistant system for producing nuclear fuel for civil energy programs globally
- **Global nuclear policy:** Reducing reliance on nuclear weapons, preventing their use and spread, and ultimately ending them as a threat to the world
- **Nuclear terrorism:** Working to keep nuclear weapons and materials out of the hands of terrorists
- **Radiological:** Raising awareness, improving security, and strengthening global standards to prevent dirty bombs
- **Biosecurity:** Reducing risks posed by bioterrorism, pandemics, and technical advances.



2017 Highlights

The Launch of “Mr. Buffett’s Excellent Idea”

NTI reached a major milestone in our work to prevent the dangerous spread of uranium enrichment technology. In August, Sam Nunn and Ernie Moniz joined dignitaries and representatives from the International Atomic Energy Agency (IAEA) in Kazakhstan for the official launch of the world’s first international IAEA-operated low-enriched uranium (LEU) Bank.

“In the midst of a gloomy international environment, the LEU Bank is a reminder of what we—governments, civil society, and international organizations—can achieve together through international cooperation based on vision, equity, and trust,” Nobel laureate and former IAEA Director General Mohamed ElBaradei said.

NTI proposed the reserve in 2006, with a generous pledge of \$50 million by advisor Warren Buffett, who called the bank “an investment in humanity.” *The New York Times* dubbed it “Mr. Buffett’s excellent idea.”

The idea was to provide the 30-plus countries interested in developing nuclear power with an assured supply of fuel so that they won’t feel compelled to incur the significant costs of building their own uranium enrichment facilities and won’t add to global proliferation risks in doing so. As *The Washington Post* reported from the launch in Astana, “Enriching uranium, the technology that produces fuel for a nuclear power plant, is also the process for creating a

nuclear bomb, meaning that the risk of proliferation spreads when individual countries build their own fuel-making facilities.”

To bring the LEU Bank to fruition, \$100 million more in financing was raised; a host country was found; a series of complex international agreements were reached, including with Russia and China; and more. How it all came together is a remarkable story that in many ways exemplifies what NTI does best: Develop ambitious ideas, build international coalitions, and facilitate action on a large scale.

This initiative lays a foundation for NTI’s more ambitious aspirations to create a new, safer, more secure fuel cycle for the future.

Andrew Weber, Corey Hinderstein, Laura Holgate, and Jack Edlow at the launch of the IAEA Low-Enriched Uranium (LEU) Bank

Preparing to launch the LEU Bank

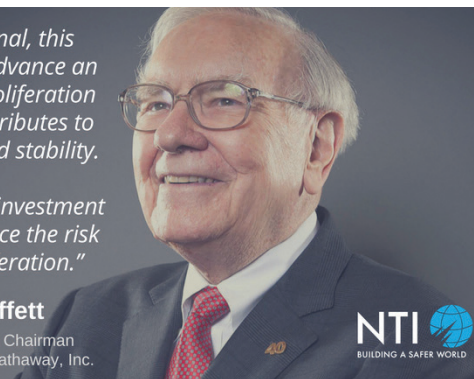


“Once operational, this facility will help advance an important nonproliferation mission that contributes to global security and stability.

There is no better investment than helping reduce the risk of nuclear proliferation.”

Warren Buffett

an advisor to NTI and Chairman and CEO of Berkshire Hathaway, Inc.



NTI
BUILDING A SAFER WORLD



"The LEU Bank is a reminder of what we – governments, civil society, and international organizations – can achieve together through international cooperation based on vision, equity, and trust."

—MOHAMED ELBARADEI, NOBEL LAUREATE AND FORMER IAEA DIRECTOR GENERAL

Corey Hinderstein is NTI's vice president for international fuel cycle strategies.

Q&A with **COREY HINDERSTEIN**



After the successful launch of the IAEA LEU Bank, what's next?

The LEU Bank is one part of an effective, multilayered nuclear fuel assurance regime. We need to start with the commercial market. If the LEU Bank is to be effective in providing a credible alternative to national uranium enrichment, we need to make sure that countries have confidence in the bank. They need to know that if their supply is disrupted, fuel can be delivered using LEU from the bank. So we will be working to bolster that assurance. Moving forward, we'll work to build confidence in the supply of other elements of the fuel cycle, beyond LEU.

What other steps is NTI taking on the nuclear fuel cycle?

In 2018, we'll launch a new initiative to develop and support international nuclear fuel cycle approaches that reinforce key nonproliferation and nuclear security principles, are backstopped by robust international safeguards and monitoring, and make sense commercially.

How can we balance the benefits of nuclear energy with the risks of proliferation?

To realize peaceful benefits, we have to be clear-eyed about the risks—and creative in how we address them. We believe it's possible to support the reliable and economical commercial fuel market, minimize the spread of uranium enrichment capacity, and address the management of irradiated fuel in ways that don't lead to steadily increasing inventories of separated plutonium. It must start with building the political will to address the challenges and building consensus around regional, multinational, and international nonproliferation efforts.



Acting Assistant Secretary of the Bureau of Arms Control, Verification and Compliance, U.S. State Department, Anita Friedt; Deputy Foreign Minister of Argentina Ambassador Daniel Raimondi; and NTI President Joan Rohlfing at the IPNDV's 5th Plenary in Argentina.

Innovative Solutions for Future Verification

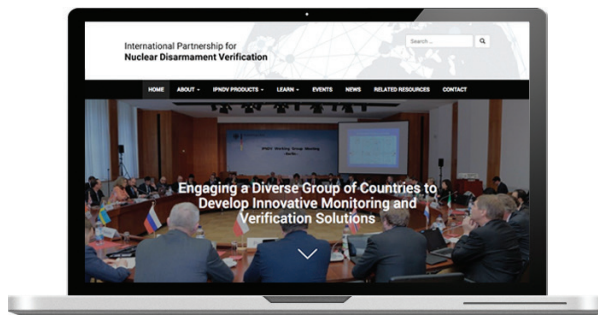
Since the end of the Cold War, nuclear weapons stockpiles have decreased dramatically, progress made possible by the ability of countries—primarily the United States and Russia—to monitor and verify each other's compliance on implementing arms-reduction treaties. Today, inspectors use an extensive toolkit of instruments, techniques, and methods—including data exchanges, on-site inspections, tags and seals, containment and surveillance equipment, and environmental sampling—to verify compliance with a range of bilateral and multilateral agreements.

Such verification systems and methods are key to managing risks and mitigating threats, but significant gaps remain. Going forward, states will need the ability to monitor and detect smaller items and quantities of nuclear material, and new technologies and broader verification capacity will be crucial.

To address this capacity gap, NTI, the U.S. Department of State, and more than 25 countries are engaged in an innovative public-private partnership to build global verification expertise. The International Partnership for Nuclear Disarmament Verification (IPNDV) is working to identify the challenges associated with nuclear disarmament verification and to develop procedures and identify new technologies to address them.

Launched in 2014, the IPNDV completed the first phase of its work in 2017. Participants reached an important conclusion: "Although tough challenges remain, multilaterally monitored nuclear warhead dismantlement should be possible, while at the same time successfully managing safety, security, nonproliferation, and classification concerns."

In the future, NTI plans to build on this significant foundation. Taking advantage of our convening power and relationships with the world's best technical experts, a new cross-cutting initiative will build new verification tools and techniques and address urgent issues like verifying and monitoring a nuclear freeze in North Korea, using big data analytics of financial patterns associated with proliferation activities, and more.



"Real progress in nuclear disarmament can only be achieved through effective verification in a transparent and irreversible way....The Partnership offers, for the first time, a standing multilateral framework to implement these principles in a joint effort among nuclear and non-nuclear states."

—AMBASSADOR DANIEL RAIMONDI, *DEPUTY FOREIGN MINISTER OF ARGENTINA*

Q&A with **JOAN ROHLFING**

Joan Rohlfing is president and COO of NTI.



How hard is verifying a world without nuclear weapons?

It's difficult, but not impossible. We already have a detailed understanding of the technology and procedures required. The biggest challenge is building the political will needed to allow the kinds of verification and monitoring measures that will be necessary to verify a world without nuclear weapons.

What are the big verification challenges?

Perhaps surprisingly, Iran is a guidepost for big opportunities in verification. What many people don't understand about the Iran deal is how robust and intrusive its monitoring and verification measures are. Every stage of the nuclear fuel cycle from raw materials to spent fuel is covered with continuous monitoring, including the ability to inspect suspicious nuclear activities anywhere in Iran. Despite the controversy over the deal, we'd like to see this kind of verification approach applied to future agreements with other countries.

Why does a country without nuclear weapons need to participate in dismantlement verification?

How can a country trust that another country has truly gotten rid of nuclear weapons without some evidence? It can't be based on trust. All states will have obligations, including those without nuclear weapons, whether it's preventing the transit or illicit trafficking of nuclear materials, or protecting their own nuclear energy facilities from bad actors, and those without nuclear weapons will need to be persuaded that nuclear-armed states have given up their weapons if they are to abide by the constraints of a disarmament agreement. The best way to persuade countries without nuclear weapons is to make sure they're engaged in the verification process from the beginning.

U.S.-Russia Relations and Euro-Atlantic Security

The alliances built since the end of World War II are being challenged repeatedly amid a serious downturn in U.S.-Russia relations. The United States and the West have stark differences with Russia, but there are also areas of existential common interest—chief among

them is reducing the risk of a nuclear mistake or blunder—where we can and should agree to work together to avoid catastrophe.

NTI is working publicly and privately to create new channels for dialogue and action while

developing the policies, leadership, and global capacity—human and institutional—necessary to reduce reliance on nuclear weapons and reduce the risk of accidental, mistaken, and unauthorized nuclear use.

In 2017, NTI:

- Issued a joint report with the Moscow-based Center for Energy and Security Studies (CENESS) offering a **menu of more than 50 potential projects** that advance key objectives for both countries across five thematic areas: nuclear science, nuclear energy, nuclear safety, nuclear security, and nuclear environmental remediation.
- **Organized a radiological security workshop** in Kazakhstan this year, in partnership with CENESS, and in cooperation with the IAEA and the Government of Kazakhstan. The workshop reviewed progress on strengthening security around radiological sources in Central Asia and explored opportunities to prevent the illicit trafficking of these sources. The two-day event brought together more than 50 technical experts

and officials from Tajikistan, Kyrgyzstan, Uzbekistan, and Kazakhstan as well as the United States and Russia. A follow-on meeting is scheduled for Kyrgyzstan in 2018.

- **Published an open letter to President Trump and President Putin recommending specific steps to reduce nuclear and other military risks** and prevent catastrophic terrorist attacks. The letter—from former British Defense Secretary and NTI Vice Chair Des Browne, former German Ambassador to the United States Wolfgang Ischinger, former Russian Foreign Minister and NTI board member Igor Ivanov, and Sam Nunn—received global attention, including in the news media in Washington, Moscow, and European capitals.

- Convened the Euro-Atlantic Security Leadership Group, which includes high-level government and non-government representatives from Europe, Canada, Russia, and the United States, to discuss **practical steps to decrease the threat of armed conflict in Europe** and to prevent nuclear use.
- **Proposed a Congressional liaison group** to work with the executive branch **to improve U.S.-Russia relations**, through a *Washington Post* op-ed by Ernest J. Moniz and Sam Nunn.
- **Fostered continued growth of the Younger Generation Leadership Network (YGLN) on Euro-Atlantic Security**, a robust 60-member group of young professionals launched by NTI and partners to build trust and next-generation capacity on nuclear and other security issues.

In 2018, we will be investing significant resources and energy to sustain these relationships and enhance dialogue on reducing threats.



Members of the Younger Generation Leadership Network meet to discuss Euro-Atlantic security

NTI Vice Chair and board member Des Browne with NTI's Leon Ratz and Younger Generation Leadership Network members

"The current state of Russia–U.S. relations defies all logic and reason. The very idea of minimizing communication with each other during a crisis is simply absurd. On the contrary, during a crisis, dialogue is needed more than ever."

—IGOR IVANOV, FORMER RUSSIAN FOREIGN MINISTER AND NTI BOARD MEMBER

Q&A with SAM NUNN

Former Senator Sam Nunn is co-chair of NTI. Nunn co-founded NTI in 2001 and served as CEO until 2017.



Why should Washington work with Moscow, given our very sharp differences?

There's no question that the United States has fundamental and profound differences with Russia in several important areas: Ukraine, Syria, and Russia's extremely serious interference in elections in the United States and elsewhere. The current investigations must be pursued, but it's already clear Russia's actions are destabilizing and have damaged its relationships with the United States and Europe. One fact, however, has not changed: our countries together possess more than 90 percent of the world's nuclear weapons and weapons-grade materials. I believe it is our responsibility—in fact, our obligation—to work together to prevent the accidental, unauthorized, or mistaken launch of a nuclear weapon and to prevent nuclear terrorism.

Are those risks heightened today?

They are. Even during the height of the Cold War, we had a level of cooperation between our military and political leaders to prevent nuclear catastrophe, but today communications have broken down. This is dangerous to our own

citizens and to the world. NTI, working in partnership with Russians and Europeans, is developing proposals to reopen channels to dialogue and to focus on areas of cooperation where our mutual existential interest is clear.

What comes next?

We understand the urgent need for dialogue and constructive engagement between the United States and Russia on these matters of existential interest to both of our countries. Our work will continue to cut across multiple strands: A robust new high-level leadership group with members from across Europe, Russia, and the United States is hard at work—in public and behind-the-scenes—to develop practical steps to decrease the risk of military conflict. Our international partners are developing new ideas and relationships in their regions to promote cooperation. We are bringing younger professionals to this dialogue with a Younger Generation Leaders Network, which includes Europeans, Ukrainians, Russians, and Americans. These are very challenging times, but we must make headway in reducing nuclear risks in 2018 and beyond. We have no choice.

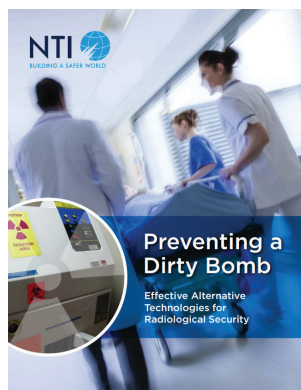
Significant New Commitments on Radiological Sources

A radiological attack—or dirty bomb—would have devastating consequences: mass panic, costly decontamination, and serious economic repercussions. Yet dangerous radiological material exists in tens of thousands of sites around the world and even in local communities, potentially vulnerable to theft.

Recognizing that these urgent threats are being addressed too slowly, NTI set out ambitious goals: Work for replacement of cesium-137 blood irradiators—the most dangerous radiological sources—in the United States and limit the dangers around radiological sources in other parts of the world. To accomplish this challenging agenda, NTI has formed unique partnerships in the United States and worldwide.

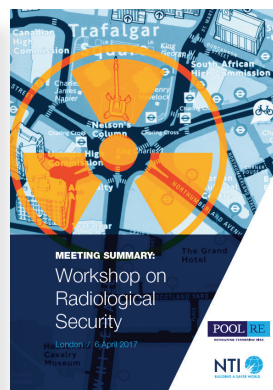
In the United States, we've worked with key cities and states to understand barriers, address concerns, and create models that can apply more broadly.

- In October 2017, NTI joined the New York City Department of Health and Mental Hygiene to announce a significant, first-ever,



innovative program to replace these radiological sources with effective alternative equipment at hospitals, medical facilities, and blood banks throughout the city.

- NTI hosted a workshop in California where Gov. Edmund G. Brown and Sen. Dianne Feinstein urged more than 60 public health and hospital radiation safety officers, law enforcement officials, emergency response officials, and regulators to step up efforts to lock down and, where possible, eliminate and replace, radiological sources that could be stolen and used to build “dirty bombs.” Internationally, NTI organized a Central



Asia radiological security workshop, mentioned earlier, and we continued our work to advance radiological security measures with Pool Re, a mutual reinsurer whose members comprise most insurers and syndicates offering commercial property insurance in Great Britain. Under the leadership of NTI vice chair and board member Des Browne, NTI and Pool Re hosted a joint conference on the effect of a dirty bomb to educate its membership on liabilities and steps to address the security risks posed by radiological sources.

NTI will expand this work in 2018 and has been asked by the IAEA to help organize an international meeting on radiological issues to ensure global awareness and action.



California Governor and NTI board member Jerry Brown discusses radiological threats at a workshop organized by NTI

“NTI has a deep understanding of matters related to these threats. Working with them has given Pool Re a unique insight into these highly complex issues.”

—JULIAN ENOIZI, *POOL RE CEO*

Deborah Rosenblum is executive vice president of NTI.

Q&A with **DEBORAH ROSENBLUM**



What are the biggest challenges to removing cesium-137 sources?

Unlike weapons-usable nuclear material, which is located in 22 countries, radiological sources that could be used to make a dirty bomb can be found in more than 150 countries. One of the biggest challenges is just raising awareness—among public health officials at the local and state levels, among hospital administrators and COOs—then making sure that they are confident in the solutions, from a health perspective, cost perspective, and liability perspective. That’s why the workshops have been so important—whether at the city level, like New York, or regional level, like Central Asia.

Are there good models for this kind of work?

Japan has been phasing out the use of cesium-137 for two decades. Today, about 75 percent of the hospitals and medical facilities that use blood irradiation equipment have switched to x-ray-based technology, which is just as effective. The change was not mandated by Japan’s government. Instead, tight regulations associated with the use of cesium and a significant and understandable long-held public fear of radiation—compounded in 2011 by the disaster at Fukushima—prompted operators to make the switch.

Why hasn’t there been a dirty bomb incident already?

We’ve been incredibly lucky. As Sam Nunn wrote in *The Washington Post*, “Given the stated interest by terrorist groups and the widespread availability of potentially dangerous radiological sources, it is nothing short of a miracle that we have not yet seen a dirty bomb terrorist attack. We must act before our luck runs out.”

Expanding NTI's Work in Global Health Security

Biological threats have the potential to kill millions of people, cost billions in economic losses, and exacerbate political and economic instability. The risk of a catastrophic biological event continues to be magnified by global travel, urbanization, terrorist interest in weapons of mass destruction, and rapid advances in technology that can create and manipulate pathogens with pandemic potential.

Thanks to a significant grant from Open Philanthropy, NTI is expanding our biosecurity work under the leadership of NTI Vice President Beth Cameron, PhD, former senior director for global health security and biodefense on the White House National Security Council staff, with guidance from Board Member Margaret A. Hamburg, MD.



Members of the winning team of NTI's Next Generation for Biosecurity Competition

NTI in 2017 laid the groundwork to make a long-term impact in this important security arena. We:

- Embarked on developing a **first-of-its-kind Global Health Security Index** to provide a public benchmarking of global biosecurity conditions by assessing countries' capability to prevent and mitigate high-consequence biological events. NTI is partnering on the project with the Center for Health Security at the Johns Hopkins Bloomberg School of Public Health and the Economist Intelligence Unit; the new Index will model many of the lessons learned from NTI's groundbreaking Nuclear Security Index.
- Brought together, with the World Economic Forum, senior executives from industry, government, and universities to discuss the **current landscape of biological risks** associated with technology advancement and possibilities for **cooperative action to reduce those risks**.
- Participated as co-chair in the Global Health Security Roundtable of the Global Health Council and provided educational briefs to Congressional staff **to highlight the importance of U.S. health security programs to national security**. NTI also provided vital support to broader advocacy efforts aimed at strengthening biosecurity as a critical piece of the Global Health Security Agenda.
- Partnered with the Next Generation Global Health Security Network to **sponsor a competition for students from around the world** who submitted proposals to reduce biological risks and improve collaboration. Winners attended the Global Health Security Agenda meeting in Uganda.

"In our interconnected world, biological threats are among the most dangerous and difficult. NTI is committed to generating new international approaches to strengthen biosecurity."

—ERNEST J. MONIZ, *NTI CEO*

Elizabeth Cameron is NTI's vice president for global biological policy and programs.

Q&A with **ELIZABETH CAMERON**



Why is NTI focusing on global health security?

Biological threats—whether naturally occurring disease outbreaks or intentional bioterrorism events—are a major threat to global health and international security. Despite our name, NTI has been committed to global disease prevention, detection, and response since its inception because in today's world, a single outbreak can easily cross borders and lead to a worldwide emergency.

"Dr. Cameron fought Ebola for the White House. Now she works to stop something even worse."

—ROBERT WILBLIN, *80,000 HOURS* PODCAST

How can NTI make an impact in this area?

We focus on areas where we can make the most difference and play to our strengths. The Global Health Security Index applies lessons from our Nuclear Security Index—and is intended to spur actions by governments. NTI will also develop new activities to curb global catastrophic biological risks. Certainly, we'll also be using NTI's credible voice to collaborate, innovate, and call out, as needed.

How can security priorities keep pace with progress in biotechnology?

It will be a big challenge—but it's one we must meet. Biotech breakthroughs are exciting and promising, but they can also increase the risk of developing and deploying biological weapons. NTI is poised to gather the range of leaders from security, science, policy, and health to find solutions that marry biosecurity innovation and risk mitigation.

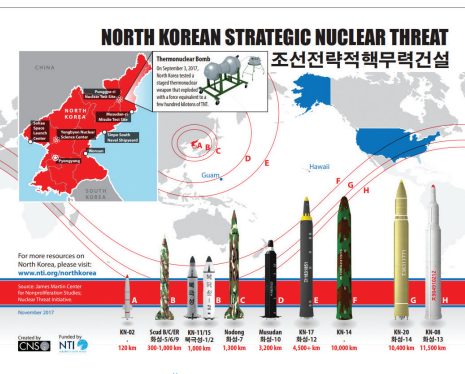
Educating and Activating the Public

This year, NTI's public education initiatives touched students, professors, lawmakers, government officials, business leaders, people of faith, journalists, and many others who want to understand more about the risks and threats from nuclear, biological, radiological, and chemical weapons—and what to do about it.

Our extensive online library, produced in partnership with the James Martin Center for Nonproliferation Studies, includes interactive maps and models, tutorials, dynamic infographics, and timely web analysis.

The media in particular relied on our extensive North Korea resources, including a virtual reality tour of the North Korean nuclear test site, Punggye-ri—which was featured on *Vice News* on HBO and *The Verge*, among others.

Infographic from the James Martin Center for Nonproliferation Studies (CNS)



The expert blog *Arms Control Wonk* called NTI's North Korea country profile "the single most comprehensive resource" on North Korean WMD—a recommendation picked up by *National Journal's Defense One* publication. The data and graphics on the NTI site are referenced by hundreds of media, blogs, and websites every year.

As part of our outreach to students and professors, NTI staff shared our educational resources at the National Model United Nations conference, the International Studies Association's Security and Arms Control conference, and the Youth Disarmament Conference in Los Angeles.

Expanding our connections with the faith-based community, NTI supported a Vatican-hosted high-level international symposium, "Prospects

for a World Free from Nuclear Weapons and for Integral Disarmament." The symposium drew 11 Nobel peace laureates, top United Nations and NATO officials, leading experts, heads of major foundations and civil society organizations, as well as representatives of bishops' conferences, Christian denominations, and other faiths. NTI staff accompanied the only student delegation, with participation from University of Notre Dame, Georgetown University, Catholic University of America, and Loyola University Chicago.

NTI has a history of promoting independent, mainstream journalism on under-covered security issues as part of our public education mission. In 2017, we continued support for The Pulitzer Center on Crisis Reporting, an award-winning non-profit with a reputation for excellence in journalism and education. With NTI's support, Pulitzer has been able to expand coverage of global nuclear and other threats through impactful stories in media as prominent and varied as the *New Yorker*, *Science* magazine, and *PBS NewsHour*.

Nobel Laureate and former IAEA Director General Mohamed ElBaradei with a student delegation at the 2017 Vatican Conference on Disarmament



"I use NTI's website for my own education and to select relevant materials for my graduate course on nuclear arms control and nonproliferation."

—DR. JINGDONG YUAN, *UNIVERSITY OF SYDNEY*

Top 10 Atomic Pulse Stories for 2017

Our blog, *Atomic Pulse*, is a popular source for the public with news, updates, and analysis on WMD.

ATOMIC  PULSE

1. "From Bad to Worse: Options for the U.S. on North Korea"
[An Interview with FRANK AUM](#)
2. "Cyber Threats to Nuclear Weapons: Should We Worry?"
[An Interview with DR. ANDREW FUTTER](#)
3. "Not One-Sided: The Many Benefits of the New START Nuclear Arms Reduction Treaty"
[by BRIAN ROSE](#)
4. "Biosecurity Imperative: An Urgent Case for Extending the Global Health Security Agenda"
[by BETH CAMERON](#)
5. "Inside the Surprisingly Collegial and Sometimes Ironic Nuclear Weapons Ban Negotiations"
[by SAMANTHA PITTS-KIEFER](#)
6. "North Korean Nuclear Threat Model Makes Headlines"
[by RACHEL STALEY GRANT](#)
7. "APLN's Chung-in Moon on U.S. Policy Toward Asia and the North Korea Nuclear Threat"
[An Interview with CHUNG-IN MOON](#)
8. "Get to Know Samantha Pitts-Kiefer"
[by MIMI HALL](#)
9. "Construction of International IAEA Low Enriched Uranium (LEU) Bank Underway"
[by MIMI HALL](#)
10. "Democratization of Synthetic Biology: Implications for Biosecurity and Pandemic Threats"
[by BETH CAMERON](#)

More 2017 Highlights

NTI'S OTHER WORK AROUND THE WORLD INCLUDED REGIONAL PARTNERS AND GAVE US GLOBAL REACH TO MOVE ISSUES FORWARD.

LONDON, England

Former U.S. Secretary of Defense and Emeritus Board Member William J. Perry released the UK edition of his book, *My Journey at the Nuclear Brink*.

PARIS, France

NTI Executive Vice President Deborah Rosenblum addressed radiological risks with executives from global reinsurance companies.

VIENNA, Austria

NTI's Global Dialogue for Nuclear Security met to create a new action plan, with the end of the global Nuclear Security Summits.

INDIAN WELLS, California

Young NTI experts presented at the Institute of Nuclear Materials Management meeting on topics including radiological security, U.S.-Russia cooperation, and nuclear disarmament verification.

GENEVA, Switzerland

Vice President Beth Cameron presented plans for the NTI Global Health Security Index to the annual World Health Assembly and participated in the Biosecurity Working Group of the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

CAIRO, Egypt

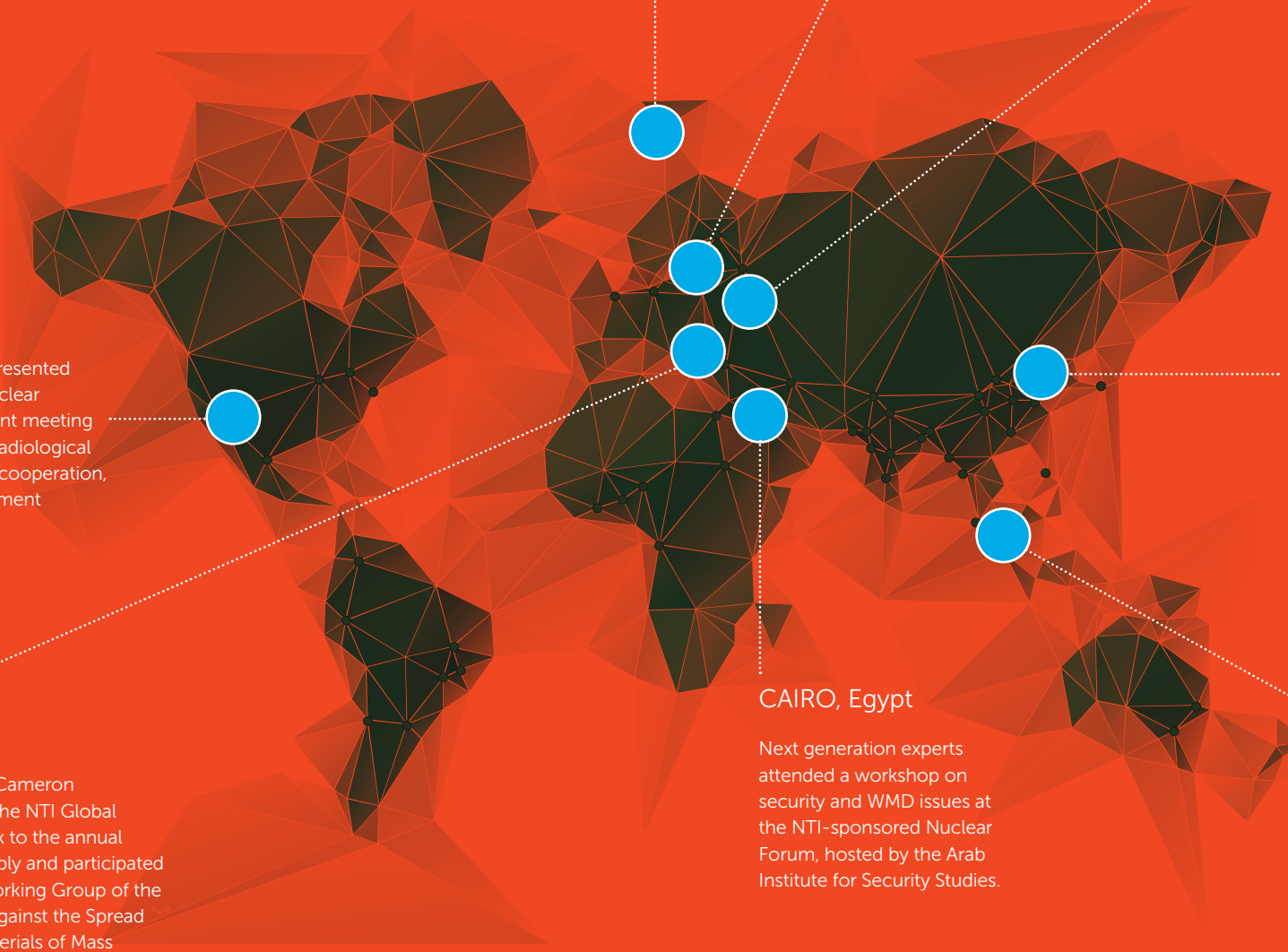
Next generation experts attended a workshop on security and WMD issues at the NTI-sponsored Nuclear Forum, hosted by the Arab Institute for Security Studies.

BEIJING, China

NTI and the China Institutes of Contemporary International Relations jointly organized a scenario-based, table-top simulation focused on how China and the United States could strengthen cooperation to address potential nuclear crises.

JEJU ISLAND, South Korea

Vice Chair Des Browne keynoted the seventh annual meeting of NTI's Asia-Pacific Leadership Network which has more than doubled its membership since its 2001 founding.

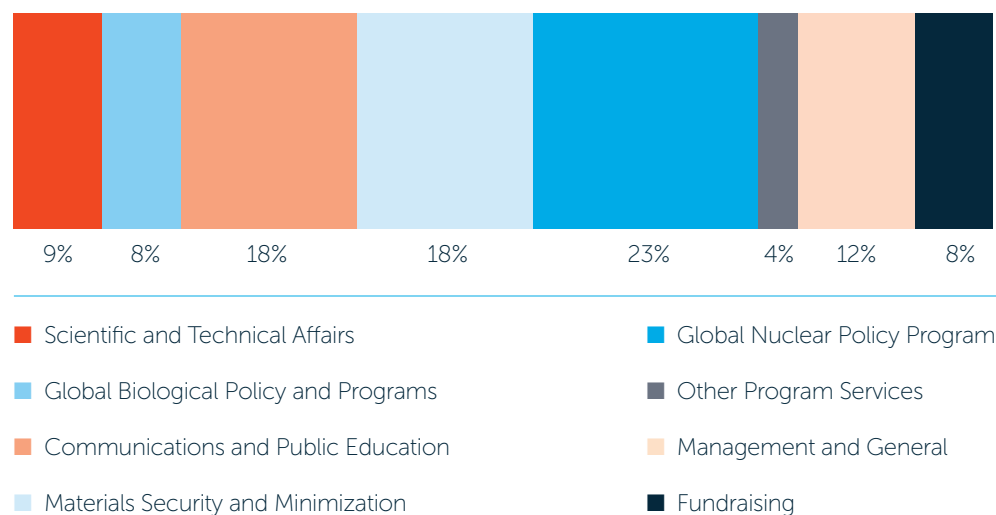


Where the Funds Came From



Where the Funds Were Spent

2017 EXPENSES



2017 EXPENDITURES

Scientific and Technical Affairs	\$ 1,359,200
Global Biological Policy and Programs	\$ 1,124,128
Communications and Public Education	\$ 2,649,891
Materials Security and Minimization	\$ 2,720,243
Global Nuclear Policy Program	\$ 3,485,785
Other Program Services	\$ 560,930
Management and General	\$ 1,823,693
Fundraising	\$ 1,174,836
TOTAL EXPENDITURES	\$ 14,898,706

With Thanks to Our Donors

NTI's critical work is possible only through the generous support of individuals, private foundations, corporations, and international donors. As an accredited 501(c)(3) nonpartisan public charity, we rely on the financial contributions of our supporters to help us build a safer world.

Join Us

NTI donors can take part in exciting NTI-hosted dialogues on the security challenges and solutions facing our nation and world. In 2017, events included an exclusive NTI panel discussion on urgent nuclear challenges with Sen. Ben Cardin, former National Security Advisor Stephen Hadley, and others. In New York, Warren Buffett and Julian Robertson hosted a salon dinner, where guests were able to discuss innovative solutions for global threats with Ernest J. Moniz and Sam Nunn. At another dinner in New York, Des Browne led a discussion on European security, post-Brexit.

Give a Gift with Global Impact Thank You!

We invite you to join NTI to combat the most urgent security threats of the 21st century by financially supporting our work. Your tax-deductible gift supports efforts to protect our lives, livelihoods, and the environment now and for future generations. With so much at stake for our families, our communities, and the world, shouldn't reducing these threats be part of your agenda? Visit www.nti.org/donate to learn more.

We gratefully acknowledge all our 2017 funders who generously donated \$500 or more, listed to the right. Though we don't list those below this threshold, we are grateful for every contribution. Your generosity makes the world safer. Thank you for your vote of confidence and for supporting this critical mission.



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As of December 31, 2017



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