



**Testimony of
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Subcommittee on Prevention of Nuclear and Biological Attack**

on

Building a Nuclear Bomb: Identifying Early Indicators of Terrorist Activities

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Mr. Chairman, I appreciate the opportunity to contribute to your exploration of nuclear terrorism. At NTI, we have observed that the difference between a terrorist and a nuclear terrorist is found in the word “nuclear”: no nuclear material, no nuclear terrorism. This obvious logic underpins our fundamental prescription for averting nuclear terrorism: secure, consolidate, and—where possible—eliminate nuclear weapons materials, in all forms, in every location. We know how to do this, and it is affordable and achievable within the next decade, but we have yet to act with the sense of urgency this threat requires, whether out of a misplaced sense of priorities, or out of a false perception that this threat is not real.

How might a terrorist become a nuclear terrorist? They could steal or acquire a weapon manufactured by a state with a weapons program. Russia has tens of thousands of weapons, including small, portable and low-tech tactical weapons, none of which are subject to outside accounting. The Beslan tragedy demonstrates the corruption and incompetence that exists in the Russian security services. Pakistan is known to have radical Islamists in the armed services charged with guarding their weapons, and A. Q. Kahn, one of the leaders of their nuclear weapons program, ran the most stunning nuclear black market commerce we have ever seen. North Korea, who has proven they will sell anything to anyone, may be prepared to sell one or more weapons to terrorists once they make enough for themselves.

Given the technical difficulties associated with detonating a bomb that they did not design, however, terrorists might instead prefer to build their own. They could build a simple gun-type device, based on stolen highly enriched uranium or, less likely, an implosion device using plutonium. The largest sources of raw materials of nuclear bombs can be found in facilities associated with national weapons programs, but they are also used, and, in many instances poorly guarded, in dozens of civilian research facilities and

college campuses in over 40 nations around the world. The nuclear materials once in hand, a small handful of chemists and metal workers, even without prior experience with weapons, could build such a device.

We need not speculate about Osama bin Laden's interest in acquiring a nuclear weapon. He has spoken to the world of his intentions, and even sought a *fatwa*, or religious decree, sanctifying his pursuit of nuclear and other weapons of mass destruction. We know that he recruited scientists and engineers—many trained in Western institutions—who could help him realize his nuclear vision, and we found nuclear weapons designs in the caves in Afghanistan. It would be foolish to believe that he is unique among terrorists in seeking nuclear capabilities.

Preventing terrorists' access to nuclear weapons and materials is the single most effective way to avert nuclear terrorism; it's the only step in the process where we have an advantage. Every other step along the terrorists' path to the bomb is easy for them and hard for us. The US and others have been making progress in the prevention mission, in large part through the visionary and effective threat reduction programs known collectively as "Nunn-Lugar," but not on a pace or at a scope that will solve the problem on a timeframe relevant to the threat.

When Senators Nunn and Lugar originally passed their ground-breaking bill in 1991, our picture of the proliferation threat was very different. We worried about starving Soviet scientists decamping for Baghdad or Tripoli or Pyongyang, carrying in their heads or their briefcases the "crown jewels" of nuclear bomb design, sophisticated miniaturized weapons suitable for delivery on the tip of an ICBM. Programs like the International Science and Technology Center were designed to give these scientists a reliable monthly stipend in exchange for working on peaceful research topics, in the hopes that avoiding economic desperation would prevent them from selling the keys to the nuclear kingdom.

The good news is that this early set of proliferation concerns never came to pass, probably for a combination of reasons: our programs' effectiveness, Russian preferences to remain within familiar social and political structures, patriotism, professionalism, fear of getting caught. So far as we know, there has never been a Russian A.Q. Kahn. The bad news is that US and international programs have not adapted to today's nuclear threat: terrorists' pursuit of nuclear weapons through theft of materials or weapons.

This reality—combined with the elimination of two of the largest state-based proliferators in Iraq and Libya and the discovery that Iran's nuclear technology came from Pakistan, not Russia—fundamentally changes the way humans may contribute to nuclear threats. A decade ago, we focused on the scientists because they held the keys to developing the large-scale nuclear materials production and sophisticated weapons systems necessary to states seeking a sustainable nuclear arsenal. Today, we need to widen our scope to understand the role any employee at a nuclear facility can play in facilitating nuclear terrorism through access to nuclear materials, or to information about how such materials are handled at a particular site. Individuals at all levels know about storage venues and conditions, transfer schedules, security vulnerabilities, routines and

procedures. This kind of insider information provided to an outside terrorist group can help them to acquire nuclear weapons and materials. This is today's challenge, and we are not yet rising to meet it.

Russia's ten closed nuclear cities are host to hundreds of tons of highly enriched uranium and plutonium, and dozens of military bases house tens of thousands of nuclear weapons. Even if we were doing all we could from a physical protection point of view, the drastic shrinkage these facilities will experience over the next several years creates the potential for disgruntled, opportunistic, unprofessional, or blackmailed personnel at all levels to make their knowledge of or access to materials and weapons available to those who seek it. In an environment in which petty pilferage of toilet seats, cooking oil, and even small arms occurs on a daily basis, we should not assume that less educated staff will distinguish nuclear materials from other assets they may be willing to steal or reveal. In fact, it is more likely that a machine-tool operator or a maintenance worker would do so than the higher-level scientists. Yet many of our programs persist in their focus on scientists, and pay scant attention to the broader set of personnel who may pose nuclear risks.

Current programs, effective in dealing with last decade's threat, often fail to take today's materials-and-weapons-based threat into account:

- Many of those who are counted as "engaged" in peaceful activities maintain their clearances and access to sensitive facilities and materials.
- Non-scientists are often not eligible to receive funding from these programs.
- Programs are not prioritized to address cities or facilities with the greatest risk of materials diversion.
- They do not address the risks posed by retired military officers who continue to be housed (often unemployed and perhaps alcoholic) at bases that store nuclear weapons.
- Most programs have a high-tech, entrepreneurial approach that leaves out middle- and lower-level employees.

The solution to today's nuclear threats is this: sustainable alternatives for all types of employees set to lose jobs owing to nuclear downsizing. Existing programs, such as the Department of Energy's Russian Transition Initiatives and the Department of State-funded Science and Technology Centers, will continue to be valuable components of a comprehensive approach, but taking these threats seriously would include the following changes or additions to current efforts:

- Spin off non-weapons research or commercial activities to locations outside nuclear facilities, so that staff employed there no longer have awareness of or access to nuclear materials and activities
- Reduce current "moonlighting" practices by creating full-time sustainable jobs outside institutes
- Develop new techniques to reduce or redirect excess staff, such as early retirement programs

- Make educating total employment—especially of employees with access to nuclear materials, weapons and related information—should become the key measure of merit
- Increase low(er)-tech job creation, and recognize that it contributes to the overall mission
- Support regional economic planning and development
- Increase access to capital for small-business start-ups and expansions
- Incorporate relevant military personnel and sites into personnel-related programs

This approach demands greater funding, but even more important, broadened authorities for existing programs and linkages to traditional international development efforts, such as those carried out by the US Agency for International Development. Even though critics have dismissed the relevance of so-called “soft” programs, developing sustainable alternatives to weapons work is a critical component of reducing nuclear terrorism.

Some small but instructive progress has been made in broadening the approach to unemployed nuclear workers, or those at risk of losing their jobs. US AID has recently changed its mind-set toward working in Russia’s closed nuclear cities. Whereas in the past, US AID has by and large avoided cities where significant nonproliferation projects are being carried out, they now interpret their mission to include, and I quote from their own strategic goals, “reducing the threat of weapons of mass destruction to the United States, our allies, and our friends.” This has created interest at US AID in finding ways to target some of their ongoing programs in economic development and health, for example, to Russian cities dealing with large layoffs of nuclear workers. (Unfortunately, this realization comes at a time of shrinking US AID budgets in Russia.) US AID’s existing cadre of local nongovernment organizations provides a ready base of expertise to work effectively in these new areas, and in the process, to become familiar with the unique needs of these cities. As part of US efforts to reduce the risks of nuclear terrorism, US AID should be encouraged, and funded, to expand its existing programs and develop targeted initiatives to contribute to the creation of sustainable alternatives to weapons work, including language and business training, local governance, housing, and civic infrastructure.

A second novel approach has developed out of volunteer-based Sister City relationships. During the 1990s, several US and Russian towns involved in nuclear weapons activities became Sister Cities: Los Alamos, NM and Sarov; Livermore, CA and Snezhinsk; and Blount County, TN and Zhleznogorsk. Citizen-to-citizen contacts have engaged schools, local officials, cultural leaders, and others in a myriad of exchanges, planning exercises, donations and other interactions. These cities have joined with other US-Russian Sister Cities where nonproliferation activities are carried out in an initiative known as Communities for International Development. Based on what these groups have been able to accomplish on pure volunteerism, they offer a solid platform for expanding federally funded activities in this arena.

At NTI, we have factored these issues into our own project design. We have developed two projects intended to demonstrate new techniques for engaging weapons workers

generally, especially middle managers, in the closed city of Sarov. One project involves a \$1 million NTI contribution to an existing Russian revolving loan fund. This fund supports small and medium business generally in Sarov, and NTI's funds are targeted specifically to supporting businesses that provide jobs for workers coming out of the weapons institute. Our funds have supported three new businesses, provided over 70 new permanent jobs for weapons workers, and enough funds have been repaid from these businesses' success to permit investment in a fourth enterprise. This dollar-per-job-created compares very favorably with government-funded programs. Also at Sarov, NTI's funds will permit the hiring of two experienced marketing directors to promote SarovLabs, a contract research firm, to Western and Russian private sector clients. SarovLabs, formerly known as the Open Computing Center, provides part-time jobs for some current weapons institute employees, but the rest of their time they continue to work at the institute. The goal is to bring in enough new business to create 100 new full-time positions that are sustainable enough to give former weapons workers confidence to sever their ties with the institute, which limits the risk they might pose to theft of materials or weapons. We believe these new approaches offer models that might be built on to more fully address these nuclear terrorism risks.

The Day After

At NTI, we frequently ask ourselves, our elected representatives, and our fellow citizens of the world: the day after a catastrophic instance of nuclear terror, what will we wish we had done to prevent it? Why aren't we doing that now? I've done my best to offer some answers to the first question. The second question has no good answers. The time to act is now.