



Controlling and  
Securing Nuclear  
Materials: Multilateral  
Approaches Conference

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Washington, DC

## Controlling and Securing Nuclear Materials: Multilateral Approaches

The Stanley Foundation convened approximately 35 governmental and non-governmental officials in Washington on December 2, 2009, to examine practical steps toward meeting the goal of securing and controlling vulnerable nuclear materials. Participants included leading experts and diplomats from 12 countries and UN officials.

### Highlights and Key Observations

- Participants agreed on the importance of making nuclear security a higher global priority. Its challenges cannot be met without multilateral action.
- The April Nuclear Security Summit (NSS) of more than 40 heads of state in Washington, DC, will be a key opportunity for progress. Specific follow-up steps will be vital to ensure action.
  - One step would be a summit mandate to implement regular meetings, perhaps twice a year, between nuclear security specialists from participating summit delegations and technical experts. In this context, it would be important for heads of state to empower their specialists to cooperate as effectively as possible.
- While the April summit is an opportunity to make significant progress on nuclear materials security, it is equally important to ensure that subsequent efforts are seen as truly international and not primarily as a US agenda.
- Strengthening the fundamentals of the nonproliferation regime, including the Nuclear Non-Proliferation Treaty (NPT) and the International Atomic Energy Agency (IAEA), is important for a solid foundation for multilateral action.
- Participants acknowledged the central role of the IAEA in global nuclear security, but some said the agency may not be capable of fulfilling increased demands within current budgets and personnel capacities. Some believed a major overhaul of the IAEA may be required. Others disagreed with this assessment.
- Suggestions for summit actions to strengthen the IAEA:
  - Major nuclear nations should increase their voluntary contributions over the next three years and earmark increased funding specifically for nuclear security. The goal would be to increase the IAEA nuclear security budget to \$150 million per year.

This brief summarizes the primary findings of the conference as interpreted by the project organizers. Participants neither reviewed nor approved this brief. Therefore, it should not be assumed that every participant subscribes to all of its recommendations, observations, and conclusions.

- All nations should agree to train a certain number of nuclear security specialists annually for assignment at the IAEA to meet expanding demands.
- Funding should be generated for regional and bilateral nuclear security meetings as complementary to broader IAEA security efforts.
- The focus should be on consolidating fissile materials locations and increasing IAEA safeguards inspections.
- Transparency in intentions and actions will be important before the summit, at the summit, and in follow-up activities.
  - Some warned that transparency measures could encourage “grandstanding” which could work against actual progress in improving nuclear security of vulnerable materials.
- One specific suggestion was that all participating nations come to the April summit with a clear commitment to secure radiological sources and materials in their hospitals.
- Most agreed that the private sector plays an important role in effectively securing nuclear materials, and the nuclear industry should be engaged.

### Securing Loose Nuclear Material: A Presidential Decree

In April 2009, President Barack Obama announced an international effort to secure all vulnerable nuclear materials around the world within four years. Participants expressed support for this effort, while stressing the need to protect *every* block of nuclear material. They explained that it is the material itself that is vulnerable, regardless of which building or region it is stored. The approach for achieving the four-year nuclear security goal must be comprised of global, multilateral, and bilateral initiatives executed by a coalition of willing nations united behind the goal of preventing nuclear terrorism. Broad domestic and international support, buy-in, and increased work space will all be essential to its success.

Nuclear security is an important component of the nonproliferation regime and a prerequisite for disarmament. Thus, participants discussed the possibility of adding nuclear security as a fourth pillar of the NPT. They noted that such an addendum could not take the appearance of a backdoor deal that

allows the United States to retain its superiority. Even then, it would be difficult to convince countries that are less likely targets of nuclear terrorism of the negative political and economic consequences that they would still suffer if a nuclear attack occurred in another nation. Direct engagement by the president and vice president on such nuclear security matters with counterparts abroad could also help sustain the agenda.

### Despite Good Intentions, Challenges Remain

While the United States has never had a problem generating dialogue and action regarding nuclear security, other states have taken a narrower view of their responsibility to secure the sensitive materials that have been produced in their borders. In some situations it can be difficult to get scientists to forfeit such materials. There is a need to make leaders around the world aware of how much material actually exists within their borders and then seek the capital needed to relocate unwanted materials out of state or improve security structures already in place. The United States has institutions that can assist countries with this type of work, but even these institutions could benefit from increased human and financial capital. For instance, only a handful of people are working on these issues full time at the National Security Council (NSC). And often, qualified officials are forced to split their attention among several shifting priorities.

Four major challenges to progress on the nuclear security agenda, as identified by conference participants, are: 1) perceived US arrogance, 2) lack of priority, 3) increased number of nuclear stakeholders, and 4) the imbedded assumption that there must be a parallel disarmament track for these issues to gain legitimacy.

Two issues came to the forefront when addressing these challenges:

- Legitimacy vs. Expediency—United Nations Security Council Resolutions (UNSCR), including UNSCR 1540, have been passed in recent years because insufficient time was available to negotiate universally agreed-upon standards. Implementation of these resolutions has been uneven, and it is clear that threats are evolving more quickly than the tools to counter them.
- Expediency vs. Efficacy and Sustainability—While current efforts could grow into global coverage and standards, they are limited by the

willingness of states to implement them. Even among states that join voluntary initiatives, not all make any tangible contribution to improving domestic and global security.

While analyzing treaty-based and ad hoc nuclear security efforts, a few observations on the current environment in which they operate were observed. First, there are no global security standards in place and many initiatives lack international legitimacy. Non-treaty based efforts like the G-8 Global Partnership, the Proliferation Security Initiative (PSI), and Cooperative Threat Reduction (CTR) are valuable tools, but they lack the legitimacy and comprehensiveness of traditional treaties and treaty-based mechanisms. This legitimacy gap must be addressed in order to incorporate the flexibility needed into a comprehensive nuclear security regime able to respond to evolving threats.

Second, a considerable constraint to all nuclear security efforts is the governance gap. Countries unable to implement small scale security measures are unlikely to be able to implement nuclear security ones. There is a need for a whole government approach that coordinates several sectors and all the acronyms (including those outside of traditional security and threat reduction circles). Substantial gains will not be achieved through any channel, including UNSCR 1540, PSI, and the Global Initiative to Combat Nuclear Terrorism (GICNT), if there is not sustained engagement with countries in need of assistance to fulfill their international responsibilities. Buy-in from developing countries' leaders and development assistance will be required to maintain the long-term sustainability of any security improvements made.

Third, participants emphasized the importance of conducting nuclear security work within a partnership framework with agreed-upon goals. Packages should be created that address each partner's unique concerns (e.g. small arms with nuclear terrorism or export controls with development). While our near-term goal is fissile material security, there are also long-term technology diffusion and sustainability issues to consider. Several capacity assumptions that underlie implementation and long-term efficacy of these security tools need to be addressed jointly by partner nations from the beginning.

Fourth, the United States has a credibility gap. Lagging nuclear disarmament efforts have made some nations less than willing to take on addi-

tional nuclear security responsibilities or limitations until disarmament progress has been made. The United States has also blocked progress on security issues prioritized by developing nations, such as limiting small arms, while asking the world to support its nuclear terrorism prevention activities. Additionally, countries are suffering from reporting fatigue. They see the new international obligations, like those in UNSCR 1540, as burdens. While pairing donor countries with those in need of implementation assistance is helpful, there is always a risk of perceived arrogance as a result. Further, not all countries are willing to accept assistance to implement activities that they do not see as vital to their immediate national interests. Others may be averse to assistance that comes from the United States in particular because of domestic perceptions.

However, if the United States does not lead nuclear security efforts, then who in the developing world will drive this agenda? Participants could not point to any country poised to take the lead. One panelist expressed surprise over China's recent willingness to be an active player at high-level meetings outside of its sphere. China, like Brazil, tends to engage when it plays a role in agenda development as opposed to backing a predetermined vision. These two countries, along with the IAEA, could play leading roles on nuclear materials security issues. Further, it has become clearer in recent decades that nuclear materials security is not, and cannot be, simply an intergovernmental affair. Private industry, which has a huge stake in materials security, and members and organizations within civil society, must be a part of the conversation and work collectively to push this priority.

## Overview of Tools and Initiatives

The conference stressed that with the proper political will to implement and sustain efforts within a modernized structure, there are enough mandates and acronyms across the board that collectively can achieve progress:

- Convention on the Physical Protection of Nuclear Material
- UNSCR 1373 and 1540
- UN Counter-Terrorism Implementation Task Force and the 1540 Committee
- Proliferation Security Initiative
- Global Initiative to Combat Nuclear Terrorism
- Global CTR 2.0

Most of today's nuclear security tools sprout from a serious problem or event that prompted nations or the world to act (including the NPT and Nuclear Suppliers Group). Without such events it can be quite difficult to garner support. (Is the Iranian threat enough to birth fuel banks?) However, it is important to remember that even the September 11, 2001, attacks did not result in more than a \$200 million supplemental appropriation. Catastrophic events cannot be relied upon as drivers for this agenda, and the Obama administration appears determined to not wait around for one. Additionally the dialogue on security has moved forward within the World Association of Nuclear Operators (WANO), an international organization that fosters cooperation and safety within the nuclear industry. WANO has set up a model for information-sharing and peer review, which is an important way to move security forward.

### Rethinking Priorities and Transparency

The panel next considered whether priorities are being misplaced. The question was posed whether attention and scarce resources are being diverted to create the impression of progress, while conditions are actually worsening. This fosters a false sense of security. It has been eight years since 9/11 and one has to wonder whether fissile material security is really at the top of nuclear agenda concerns.

The way to think about nuclear transparency is changing. An important example of this was when critical letters that the French government sent to AREVA regarding its GenIV technologies were made public. Another example is how the Pakistani government has reacted to the 2004 A.Q. Khan scandal. Pakistan created and gave presentations on the custodianship of its nuclear arsenal on its own terms because it believed that doing so was in its national interest. Finally, the panel noted that there are models for regional transparency that could be useful. Argentina and Brazil's transparency agreement brought confidence to their region, and the European Union has an agreement that offers a similar model.

### Fuel Cycle and HEU

Issues surrounding the fuel cycle and HEU stocks are realities of the nuclear world. According to mid-2009 figures on global HEU stocks, the United States is home to 124 metric tons of fissile material while Russia scaled in at an alarming 367 metric tons. As one participant noted, the safest fissile material is that which has been eliminated. These fuel cycle and HEU issues are not slated for the offi-

cial agenda at the upcoming Nuclear Security Summit (NSS). However, heads of state from over 40 invited nations can draw attention to any such issues pertaining to nuclear security planning.

Other analysis of the numbers reiterates Russia's elemental role in HEU security. Currently 28 countries encompass a total of 199 HEU-fueled research reactors and 15 icebreaker reactors. Among these, 56 research reactors and all icebreaker reactors are located in Russia. While roughly 67 HEU-fueled research reactors worldwide have been shut down or converted, small but significant quantities of material often persist.

Additionally, the HEU problem applies to naval fleets both longstanding and new. Rising powers are not all adopting methodology that favors security. For example, Brazil has adopted low enriched uranium (LEU) for its submarines while fellow rising power India is utilizing HEU. Even among traditional powers the United States, United Kingdom, and Russia are lagging behind France's efforts to convert to LEU.

The trend is moving away from reprocessing as the breeder dream fades; Armenia, Belgium, Bulgaria, Czech Republic, Finland, Germany, Hungary, Slovak Republic, Spain, Sweden, Switzerland, and Ukraine have all quit or are in the process of quitting. Some plutonium is being recycled in light water reactors, some for breeder reactors, but other stocks have no planned destination. While these countries have quit civilian reprocessing, other countries and interests are pushing for its installation. Supporters of reprocessing include India, South Korea, AREVA, Congressional Republicans, and some Democrats.

Spent fuel keeps the prospect of reprocessing alive since there has been no long-term solution for dealing with waste. India argues that recycling is actually safer than dry cask storage because less waste means less danger and greater security. Many participants disagreed with this line of reasoning and argue for dry cask storage until a long term solution, like a geological repository, can be created. India and Russia still have active breeder programs but the radiation such reactors produced marks them as inherently insecure. Participants argued that spent fuel in dry cask storage offers greater security than recycling.

There are only three real major HEU locations in the United States and most of this HEU is located at Y-12 facilities in Tennessee. However, one pan-

elist explained that raw numbers should not drive nuclear security work. Focus should be directed to the specific locations and facilities that pose the largest threat. For instance, the panelist pointed to the small stocks held by South Africa in facilities that have been attacked in recent years. A major problem with prioritizing facilities for nuclear security work is that not all of the locations of all materials are known, even by some of the leaders of the countries in which they are stored. Because HEU is the most accessible fissile material to terrorists, many participants believe that countries should not only be asked to secure their HEU stocks, but eventually ban the civil use of HEU.

### Administration's Priorities

President Obama's unprecedented heads of state summit has to be an integral part of a four-year approach in order to set the pace of action. World leaders must be personally invested and should genuinely view these issues to be in their political and security interests. Their attention is needed to instill a sense of urgency. Further, mid-level support must be garnered from governments around the world in order to create an implementation force.

Participants expressed hope that the US government is trying to produce new bilateral arrangements from having these 40+ countries around the table.

One participant proposed the idea of a mandate for technical parties from these 40+ countries to convene several times per year. These implementers should be politically empowered to share information in smaller groups. Such information-sharing events can serve as a reporting mechanism, which also drives the agenda over time. Discussing the various infrastructures could also be beneficial. One participant suggested looking to the G-8 Global Partnership (GP) as a model.

Participants stressed that the NSS should strive to prevent creating the appearance of nuclear "haves" and "have-nots." Like the GP, which includes donors beyond the G-8 countries themselves, the follow-up to the NSS could contain a measure to reach out beyond the states that were invited by the Obama administration. Therein lies the potential for countries' commitment to be transparent beyond the summit. Governments' communication with NGOs and the private sector could help legitimize the NSS, its communiqué, and also make it and its agenda more palatable to countries that were not invited.

The question was posed: What transparency measures would be useful within the 40+ countries and beyond? There seem to be problems when select countries make decisions and everyone else sees conspiracies, such as with the Nuclear Suppliers Group (45 countries) or with 1540 coming from the United Nations Security Council (UNSC). Sharing deliberations in a candid way would be very helpful, especially if the threat really affects everyone. It is one way to establish credibility and help with follow-on.

One issue that was raised was the idea of creating a virtual security portal where countries could examine nonfacility specific designs, challenges, and best practices for securing materials. Most participants agreed that getting into any design details is a non-starter unless it is confidential with the IAEA.

The summit cannot just agree to allow countries to check boxes indicating that they conducted Design Basis Threats (DBTs). Working with an agency at least brings in a third-party verifier who can follow up. Moreover, the IAEA already reports on its country activities. That is equivalent to box checking as a confidence-building measure (CBM). The US-Russia sharing experience needs to be expanded to others. One participant called for a CBM short of sharing sensitive information.

### Strengthening the IAEA

Participants agreed that the sole regulatory agency needed to be strengthened and its role enhanced, while explanations of the problem and solutions to fix them varied. One major issue raised was who would pay for a strengthened IAEA. The United States currently pays the most and, therefore, has a large influence on the agency. If countries want a bigger say, they should contribute a larger share. Major nuclear nations should increase their voluntary contributions over the next three years and earmark increased funding specifically for nuclear security. The goal would be to increase the IAEA nuclear security budget to \$150 million per year.

There has been much talk about the importance of strengthening the IAEA, as well as meetings among technical experts, but what does this mean in practice? With an injection of a large sum of capital, would the IAEA actually do the job? The IAEA is widely viewed as the most appropriate institution to work through, however, it is unrealistic to expect the IAEA to address *all* radiological materials. Accountability for these materials is the

responsibility of sovereign countries, therefore national governments must live up to their responsibilities, according to one participant.

Participants' views on enhancing the role of the IAEA differed. Some argued that given the agency's mandate, it cannot be expected to serve as a rigorous enforcement agent on all matters related to nuclear security. Therefore, more must be done on strengthening nonproliferation measures outside of the IAEA. Others sought an expanded role for the agency, which would require significant increases in financial and human capital. Some argued, however, that for a fraction of the cost, individual countries could take on much of the work with which the IAEA is currently charged. One such national undertaking could be a country or set of countries agreeing to train a certain number of nuclear security specialists annually for assignment at the IAEA to meet expanding demands.

### Challenges for the IAEA

There are many challenges the IAEA has to work around. IAEA mechanisms respond to breaches in the security of nuclear material, but what is in place to spur an immediate response? Perhaps there should be an obligation to allow the IAEA into countries once an incident is suspected. The current procedure for reporting and responding to material breaches is inadequate.

Most IAEA safeguards are presently enacted in non-nuclear weapons states. Some strengthening measures could piggyback onto the safety reviews the IAEA already performs on the facilities it monitors.

Participants who argued against injecting funds into the IAEA stated that if the IAEA received a huge influx of funds, it would not have the human capital to effectively utilize such financial increases. The nuclear security fund is almost entirely comprised of voluntary contributions, making planning difficult. Recently, El Baradei said that 80-90 percent of the IAEA's nuclear security activities came from voluntary contributions. The organization is hamstrung by not knowing how much it will receive year to year. Because countries can earmark their voluntary contributions, this adds more uncertainty to the program budgets that rely on voluntary contributions to operate.

Those participants who saw a need for an expanded IAEA argued that personnel and equipment are not sufficient. An enhanced authority capacity is necessary to address some of the

toughest global security challenges we face. Additional authorities are difficult to come by because of countries' security concerns. There is also a need to expand the IAEA's nuclear forensic capabilities. Presently it has a very limited lab for such activities and relies primarily on member states to help with smuggling and material identification. The IAEA has no enforcement authority. It simply refers noncompliance cases to the UNSC. Consideration needs to be given as to whether this is an appropriate process and whether the IAEA should have an enforcement authority.

One participant made the point that the IAEA has been operating off a zero-growth budget. This artificial budget, which does not reflect today's threats, would be even more problematic if a nuclear power renaissance were to occur. In addition, the IAEA has other limitations, such as limiting work to five days a week. UNSCR 1887 calls for creating predetermined repercussions for noncompliance, the implementation of which could cause problems for the IAEA. This also applies to whatever results from the summit. However, neither UNSCR 1887 nor the Nuclear Security Summit have any real political authority.

### Next Steps for Nuclear Materials Security

Conference participants focused next on the steps ahead. Best practices should be set as a minimum requirement for facilities and materials. National governance is very important, as is interagency cooperation. The IAEA needs mandates, but governments are the frontline of this work.

The conference finally opened up to recommendations. Participants offered a number of suggestions:

- A more effective strategy would be to eliminate the civil use of HEU to get at the largest stocks.
- A summit outcome should be to set up technical level collaborations among global experts to discuss standards.
- Dialogue on security has moved forward within the WANO. WANO has set up a model for information-sharing. Peer review and information-sharing are important ways to move security forward, with the United States as one among many.
- To encourage transparency and accountability, countries should announce publicly sites that it eliminates and open its eliminated sites to inspection.

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