Nuclear Threat Reduction CAMPAIGN

A program of Vietnam Veterans of America Foundation and The Justice Project

SECURING VULNERABLE NUCLEAR MATERIALS OUTSIDE RUSSIA

I. The Issue

Although the vast bulk of the world's weapon-usable nuclear materials—mainly highly enriched uranium (HEU) and plutonium—is located in the United States and Russia, a substantial amount is under very poor security in hundreds of civilian facilities in scores of countries around the globe.[1] For instance, there are estimated to be over 140 HEU-fueled research reactors in operation worldwide, often with very poor security, and more such reactors with HEU on-site that are shut down.[2] If a terrorist group or hostile nation were to gain possession of a substantial quantity of this fissile material, it will have passed the greatest hurdle it faces in acquiring the ability to build a nuclear weapon. Our national security requires the creation of a comprehensive, unified program that has the authority, resources, and expertise to move quickly and efficiently to make sure that this material is removed from vulnerable locations.

In the words of former Senator Sam Nunn: "We are in a new kind of arms race: terrorists and rogue states are racing to get weapons of mass destruction. We ought to be racing to stop them and to secure vulnerable weapons and material."[3]

The most cost-effective way to approach this problem is a global clean-out of these sites, the most vulnerable first, with the nuclear materials being returned to the country of origin or sent elsewhere to be neutralized, and beefing up security at sites that are appropriate to retain the material.

The recent success in Vinca, Yugoslavia, is illustrative. There a research reactor facility that had received HEU from the Soviet Union cooperated with an international team that returned the material to a secure site in Russia, where it was reduced to non-weapon-usable, low-enriched uranium (LEU). The transfer of 48 kilograms of highly enriched uranium (HEU), enough for two nuclear weapons, took place under International Atomic Energy Agency (IAEA) safeguards. The United States provided $2 to $3 million for this project; and making up for a gap in the U.S. government's authority, a private nonprofit group, the Nuclear Threat Initiative, donated $5 million.[4] However we cannot afford the several months of inter-agency negotiations and the enlistment of private help that are currently needed to cobble together each of the many Vinca-like projects that need to be undertaken as quickly as possible around the world.

Such an expedited effort could be accomplished through expansion of the MPC&A program authority to countries outside the FSU and modifying it to provide the authorities that will be needed to extract HEU from facilities whose managers may see the HEU as critical to the reactor's reason for being. Thus, the broader program should

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include the authority to purchase vulnerable HEU and plutonium and transport it to the United States or elsewhere for storage or neutralization and the authority to offer targeted financial and other incentives to encourage facilities to release the material or accept it for neutralization or secure storage. Some incentives might include assistance with managing nuclear waste, funding to convert a reactor to the use of LEU, and decommissioning reactors and related facilities. Where it might be practical for a country to retain the fissile material, the new program should be have the authority to assist with security upgrades that are considered adequate and sustainable.[5]

It should be noted that for the past several years, the Department of Energy (DOE) has conducted a very small program, Reduced Enrichment for Research and Test Reactors (RERTR), for developing proliferation-resistant, low-enriched fuels to replace HEU fuel and helping U.S.-supplied reactors to convert to (LEU). The RERTR program also includes a "take-back" effort, under which DOE takes back HEU, secures it, and converts it to LEU.[6] A similar Russian RERTR program is getting underway with the sponsorship of Russia, the U.S., and the IAEA.[7]

The United States should also solicit the participation of other industrialized countries in mounting a global cleanout. The benefits to us and our friends and allies of cutting off these potential sources of terrorists' nuclear capability clearly warrant the modest expenditures that would be involved.

As Matthew Bunn of Harvard has stated: "[I]nsecure nuclear bomb material anywhere is a threat to everyone, everywhere."[8]

II. Recent Legislation

- Section 5 of S. 2545, the "Nuclear Nonproliferation Act of 2002," introduced on May 22, 2002, by Senator Pete Domenici (R-NM), with the co-sponsorship of Senators Joseph Biden, Jr. (D-DE), Richard Lugar (R-IN), Mary Landrieu (D-LA), Chuck Hagel (R-NE), Jeff Bingaman (D-NM), Frank Murkowski (R-AK), and Barbara Mikulski (D-MD), would have authorized expanding the MPC&A program to countries outside the FSU; directed the Secretary of Energy to accelerate the conversion or return to the country of origin of all weapon-usable nuclear materials outside the country of origin in research reactors and other facilities; and directed the Secretary to assist those research reactors and other facilities in upgrading their materials protection, control, and accounting procedures until the weapon-usable nuclear materials are converted or returned to the country of origin. Significant portions of the foregoing were incorporated in the Senate-passed version of H.R. 4546, the "Bob Stump National Defense Authorization Act for Fiscal Year 2003", but were dropped in conference.

- Section 3160 of the National Defense Authorization Act for Fiscal Year 2003 (Public Law 107-314) requires the Secretary of Energy to develop a plan to accelerate the return to Russia of all Soviet supplied weapon-usable materials located in research reactors and other facilities outside Russia. However, the legislation provides no new authority or funding to carry out the plan.

- Section 3162 of that same law expresses the sense of Congress that the Secretary of Energy should, in consultation with the Secretary of State and Secretary of Defense, develop a comprehensive program of activities to encourage all countries with nuclear materials to adhere to, or to adopt standards equivalent to, the International Atomic Energy Agency standard on The Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.4), relating to the security of stockpiles of highly enriched uranium (HEU) and plutonium (Pu).

- Section 101 of the Nuclear Security Initiative Act of 2003 (H.R. 1719), introduced on April 10, 2003, by Rep. Curt Weldon (R-PA) and cosponsored a bipartisan coalition of 11 Republicans and 13 Democrats, authorizes expansion of the MPC&A program for the purpose of a global cleanout effort, includes authority for offering incentives, and authorizes the appropriation of $40 million for this expanded program and for the acceleration of rapid upgrades of facilities storing bomb-grade nuclear material in the former Soviet Union.

- Section 1337 of the Foreign Relations Authorization Act, Fiscal Years 2004 and 2005 (H.R. 1950), as reported by the House Committee on International Relations on May 16, 2003, authorizes the Secretary of State to carry out a global cleanout program, "including provision of such assistance as may be required to secure host country cooperation"; and authorizes the Secretary to use for the program, in each of fiscal years 2004 and 2005, $25 million "[o]f the amounts made available to carry out section 504 of the Freedom for Russia and Emerging European Democracies and Open Markets Support Act of 1992."

- Section 3611 of the National Defense Authorization Act for Fiscal Year 2004 (H.R. 1588), as passed by the House of Representatives on May 22, 2003, authorizes a global cleanout program in the Department of State; and section 1305 of the same bill authorizes the Secretary of Defense to transfer $78 million in unexpended Cooperative Threat Reduction funds to the Department of State for the operation of the global cleanout and various other disarmament and nonproliferation programs outside the former Soviet Union.

- The National Defense Authorization Act for Fiscal Year 2004 (H.R. 1588), as passed by the Senate on June 4, 2003, contains two relevant provisions, neither of which provides the special authorities, such as the ability to offer incentives, that are in section 3611 of the House-passed bill:

    - Section 1304 gives the President authority to use up to $50 million per fiscal year of Cooperative Threat Reductions funds "for a proliferation threat reduction project or activity outside the states of the former Soviet Union" if the President determines that doing so will assist "in the resolution of a critical emerging proliferation threat" or "permit the United States to take advantage of opportunities to achieve long-standing nonproliferation goals."
    - Section 3141 authorizes the expansion of the MPC&A program "to carry out nuclear nonproliferation threat reduction activities and projects outside the states of the former Soviet Union."

III. Obstacles

- Some countries may not be able to afford to convert their reactors to non-weapon-grade fuels without financial assistance or incentives to do so.

- The records for some nuclear materials may be lacking or inadequate.

- Opposition in the U.S. and some other countries to importing nuclear material for blending down even if it is a security risk if left in place.

- The authorities that the U.S. government needs in order to remove vulnerable HEU from foreign locations, transport it, and neutralize it are incomplete and scattered among various agencies. This will continue to seriously hamper our efforts to do the complete job effectively until one entity is empowered, and given the resources, to carry out this mission.

IV. Q & A

Q: Why should the United States take the lead in this kind of effort when much of the problem was created by the Soviet Union and since other nations are also at risk of a terrorist attack?
A: Of course, it is fair and highly desirable for the Administration to press for a multilateral cooperation in this effort. But regardless of whether, or to what extent, it succeeds, we must also ask ourselves this question: Do we want to risk the destruction of one or more American cities and the lives of hundreds of thousands of our citizens in the pursuit of getting members of the international community to assume their fair share of this burden?

Q: Why have major efforts not been made before now to deal with the problems of insecure nuclear materials in research reactors and other civilian institutions around the world?
A. Before September 11, 2001, efforts focused on the enormous quantities of inadequately secured nuclear weapons and materials in the former Soviet Union, but now nuclear analysts are realizing that smaller but still highly dangerous and very poorly guarded materials are present elsewhere. It is imperative that we carefully protect and dispose of these materials.

Q. Why focus on the Department of Energy's MPC&A program as the means to address the need for a global cleanout? Are there not other programs to do this?
A. The key point is to make sure that an effective, coordinated program is put in place so that there is no need for intra-government negotiating regarding which agency has the resources and authority to carry out which part of the effort in each case. There is a need for several programs, including RERTR, to participate in this effort, but the MPC&A program has much of the experience and expertise that are necessary. Until the President designates a high-ranking official to coordinate all the relevant programs, it seems wise to empower one large program to do the work in this area.

Q. Civilian nuclear energy programs in eight countries have large quantities of separated plutonium, which could also be used for nuclear bombs. Does this proposed clean-out programs deal with this problem?
A. The existence of separated plutonium in these countries is an enormous and difficult problem that is beyond the scope of this proposal because it involves large-scale energy programs that are known to be highly resistant to giving up their plutonium-based reactors.

V. Talking Points

- As the events of September 11, 2001 showed, terrorists plan to attack societies where they are vulnerable. If we continue to allow weapon-grade nuclear material to be vulnerable, it is only a matter of time before terrorists obtain materials or weapons and use them to attack the United States, our allies, or our troops overseas.

- Terrorist groups and hostile states are racing to obtain weapon-grade nuclear materials, and some of them have sizable financial resources to use for this purpose. We need to beat them in this race by placing the materials for nuclear weapons beyond their reach. The stakes could not be any higher.

- Vulnerable nuclear materials anywhere are a serious threat to people everywhere.

- A global cleanout of weapon-grade nuclear materials in civilian research reactors would eliminate a source of material that is highly vulnerable and thus very attractive to terrorists.

VI. Factoids

- An estimated 20 tons of HEU, enough to build more than 500 Hiroshima-type bombs, is in civilian research reactors and institutions worldwide.

- There are estimated to be 140 HEU-fueled reactors worldwide, often very poorly secured, with HEU stored onsite at other reactors that have been shut down.

VII. Applicable Treaties, Legislation, and Other International Agreements

- Not applicable.

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[1] Matthew Bunn, Anthony Wier, and John P. Holdren, *Controlling Nuclear Warheads and Materials: A Report Card and Action Plan* 141 (Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard University, 2003), accessed at: http://www.nti.org/e_research/cnwm/overview/cnwm_home.asp. .
[2] *Ibid*,p. 142.
[3] Sam Nunn, "Building Global Cooperation for Threat Reduction," Address to the Wilmington (DE) World Affairs Council, March 11, 2002.
[4] Department of State, Fact Sheet, August 23, 2002.
[5] The suggestions in this paragraph are derived for the most part from Bunn, et al., *op. cit*,note 1and an October 21, 2002, memorandum from Matthew Bunn to Defense Authorization Conferees.
[6] Matthew Bunn, John P. Holdren, and Anthony Wier, *Securing Nuclear Weapons and Materials: Seven Steps for Immediate Action* 48 (Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard

University, 2002), accessed at:
http://bcsia.ksg.harvard.edu/publication.cfm?program=STPP&ctype=book&item_id=90.
[7] *Ibid*.
[8] Statement of Matthew Bunn before the U.S. House of Representatives Committee on Government Reform Subcommittee on National Security and Veterans Affairs, September 24, 2002 accessed at:
http://www.armscontrolcenter.org/prolifproject/nonprolif/bunntestimony.html.