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Nuclear Terrorism: A U.S. Perspective

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Background

Al Qaeda-linked terrorists have explicitly announced their intent to acquire and use nuclear weapons against the United States. As early as 1998, Osama bin Laden issued a statement, "The Nuclear Bomb of Islam," in which he declared it the "duty of Muslims to prepare as much force as possible to terrorize the enemies of God." In August 2001 bin Laden asked two former Pakistani nuclear officials for help finding other Pakistani nuclear scientists to build a nuclear weapon. After the U.S. overthrew the Taliban, U.S. forces found documentation, including crude bomb designs, at an al Qaeda safe house in Kabul. Since 1992, al Qaeda representatives have been trying to buy highly enriched uranium, and have actively recruited technicians with at least some nuclear training, such as Adnan El Shukrjumah, for whose capture the FBI is offering a \$5 million reward.

There are three basic ways terrorists could stage a nuclear attack on the U.S.: by stealing or buying a nuclear weapon; by buying or stealing weapons grade U-235 or plutonium and assembling a device; by obtaining quantities of any of a variety of radioactive isotopes and assembling them into a non-nuclear "dirty bomb." A successful attack on a civilian nuclear power reactor could replicate the effect of a dirty bomb.

Theft

When the Soviet Union collapsed in 1990, thousands of nuclear weapons were left in poorly secured military sites in four countries. Over the years, there have been a number of reported attempts to obtain nuclear materials from the Soviet armories. In November 2001, for example, the Russian Defense Ministry reported two attempted break-ins at nuclear weapons storage sites. In August 2003 the deputy director of the organization that carries out repair work for Russian nuclear icebreakers and nuclear submarines was arrested in Murmansk for trying to steal nuclear materials. Russian tactical nuclear weapons are a particular concern because of their portability. Russia still has at least 3,000 of these small but still devastating weapons.

While theft of a nuclear weapon would be a grave problem for the U.S., modern U.S. and Russian warheads are equipped with sophisticated devices to prevent unauthorized use that terrorists would find extremely difficult to bypass. The same cannot be said with certainty of devices made by India or Pakistan, home of the notorious A.Q. Khan, father of Pakistan's bomb and Godfather of an international nuclear proliferation network. Should the current government of Pakistan be overthrown, or chronic instability degenerate into chaos, control of that country's devices might weaken, and

¹ This Note was taken from a briefing book on national security issues developed by the Council for a Livable World, funded by the Ploughshares Fund. For further details see Annex 1 to the Note.

terrorist groups might be able to buy or steal a workable nuclear bomb from that country's inventory.

Build it yourself

It is commonly thought that building a nuclear bomb is a project that would cost billions of dollars, take years of effort, and employ thousands of people. In fact, a workable Hiroshima-size bomb could be built by 20 people for less than \$10 million, *provided they did not have to produce the weapons-grade fissionable material*. As far back at 1964, in an experiment devised at Lawrence Livermore laboratory, two recent PhD students, with no prior knowledge of nuclear explosives, using only information from a university library, a machine shop, and conventional explosives, designed a workable, Hiroshima-size bomb. Senator Joseph Biden reported in 2004 that he had asked the heads of the national laboratories to build a nuclear bomb using only off-the-shelf materials. They built one in a matter of months.

The Dirty Bomb

Building a dirty bomb does not require highly enriched uranium or plutonium. A dirty bomb, which uses conventional explosives to spread radioactive materials over a given area, can be made with any of a number of radioactive isotopes such as cobalt-60, cesium-137, and iridium-192. These isotopes have important commercial applications in everything from power generation to medicine; those most dangerous are also the most useful. According to the Nuclear Regulatory Commission, at least 1.8 million devices containing radioisotopes have been licensed for use in the U.S. Internationally, the International Atomic Energy Agency has confirmed 560 cases of unauthorized use of isotopic devices since they began tracking this in 1993, adding that most of these had a criminal dimension. Terrorists could also attempt to replicate the impact of a dirty bomb by attacking a civil nuclear power reactor. A successful attack could have an impact similar to, or greater than, the Three-Mile Island or Chernobyl accidents.

U.S. Responses

In an attempt to deal with the "loose nukes" left over from the Soviet arsenal, the U.S. and Russia, subsequently joined by other countries, signed a Cooperative Threat Reduction Agreement, commonly known in the U.S. as Nunn-Lugar, under which the U.S. would help the Russians retrieve and secure these weapons. With U.S. leadership, this was followed by the G-8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP). The GP was dedicated from its inception in 2002 to preventing terrorists or those that harbor them from acquiring or developing WMD weapons, missiles, and related materials, equipment and technology. In addition, at the July U.S.-Russian summit, the two presidents announced a new Global Initiative to Combat Nuclear Terrorism, to continue and expand international efforts to secure nuclear and radiological materials.

In the 15 years since the passage of Nunn-Lugar, almost 7,000 of these weapons have been deactivated and destroyed, as well as hundreds of missiles and delivery systems. Yet, these achievements notwithstanding, the CTR Program has been hampered by administrative inconsistency and under-funding.

Bush Administration Funding for the CTR (Nunn-Lugar) Program

Year	Requested	Appropriated
FY2007	\$372,128,000	\$372,128,000
FY2006	\$415,549,000	\$411,394,000
FY2005	\$409,200,000	\$409,200,000
FY2004	\$450,800,000	\$450,800,000
FY2003	\$416,700,000	\$416,700,000
FY2002	\$403,000,000	\$403,000,000
FY2001	\$458,400,000	\$443,400,000
FY2000	\$475,500,000	\$460,500,000

All figures taken from the LOC Archive for Status of Appropriations Legislation. Further analysis and breakdowns of CTR funding can be found at the [Russian American Nuclear Security Advisory Council](#) budgetary assessment page.

The Nuclear Non-Proliferation Treaty (NPT) is the cornerstone of international efforts to halt – and ultimately reverse - the spread of nuclear weapons. The spread of nuclear weapons to potentially unstable states hostile to the U.S. will dramatically increase the risk of one or more of these weapons finding their way into the hands of terrorists. Nuclear weapons, technology and explosive material will become harder to track; the resulting uncertainty will undermine the credibility of U.S. claims to deterrence.

Yet the current NPT regime is being undermined by U.S. policies that weaken our ability to bring other states into compliance. U.S. plans to produce a new generation of nuclear warheads, and the new nuclear agreement with India, coupled with U.S. reluctance to enter into new, binding multilateral security arrangements such as the Comprehensive Test Ban Treaty, all make more difficult the task of limiting the spread of nuclear materials and thus increase the possibility that terrorist groups will acquire nuclear weapons, material, and know-how. While U.S. initiatives such as the Proliferation Security Initiative (PSI) offer the potential to intercept individual shipments of nuclear materials destined for rogue states or non-state actors, the ad hoc nature of the program, its lack of a formal international legal basis, and the lack of transparency surrounding its operations, all limit the willingness of states to cooperate with it.

The National Commission on Terrorist Attacks Against the U.S. (9/11 Commission) made 41 specific recommendations on ways to improve U.S. ability to deter terrorist attacks. The report points out “that al Qaeda has tried to acquire or make weapons of mass destruction for at least ten years. There is no doubt the United States would be a prime target. Preventing the proliferation of these weapons warrants a maximum effort -- by strengthening counter-proliferation efforts, expanding the Proliferation Security Initiative, and supporting the Cooperative Threat Reduction program.”

Recommendations

The key to keeping terrorists from attacking the U.S. with a nuclear weapon or dirty bomb is to secure fissile and radiological materials so as to prevent their theft or illicit sale. To do this, the U.S. needs to:

- Secure our own stockpiles. It is more important to plug known security weaknesses than to build new “tamper-proof” warheads, when building those warheads weakens international support for non-proliferation.
- Work with Russia to secure and reduce tactical nuclear weapons that are most susceptible to terrorist use.
- Increase funding for the 9/11 Commission recommendations, particularly the Cooperative Threat Reduction Program (Nunn-Lugar).
- Ratify the Comprehensive Test Ban Treaty and the 2005 International Convention for the Suppression of Nuclear Terrorism.
- Re-energize the Global Threat Reduction Initiative, a 2004 U.S. initiative to remove nuclear materials from vulnerable research facilities and convert or shut down research reactors that operate on weapons-grade materials.
- Complete the U.S.-Russian safe fuel project by no later than 2013.
- Help other nations improve their control of fissile and radioactive materials.
- Strengthen the Export Administration Act. Develop a regime to better control the commercial trade in radioactive sources, both domestically and internationally with enforceable export controls.
- Obtain a UN Security Council Resolution authorizing PSI.
- Assist other nations to effectively implement UN Security Council Resolution 1540 which requires states to “develop and maintain appropriate physical protection measures” for nuclear, chemical, biological, and radiological materials.

Additional Resources

Allison, Graham, *Nuclear Terrorism: The Ultimate Preventable Catastrophe*, Times Books, 2004.

Perkovich, George, et. Al. *Universal Compliance: A Strategy for Nuclear Security*, Carnegie Endowment for International Peace, 2005.

Weapons of Mass Destruction Commission, (Hans Blix, Chairman) *Weapons of Terror: Freeing the World of Nuclear, Biological, and Chemical Arms*, Weapons of Mass Destruction Commission, 2006.

www.nuclearterror.org/blastmaps.html: See the effect of a 10 kiloton blast in any ZIP Code in the U.S.

Annex 1: This Note was taken from a 65-page [briefing book](#), which covers many difficult security issues on the new Congressional agenda. It was developed by the Council for a Livable World, supported by the Ploughshares Fund, and written by:

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