



THE BIOLOGICAL THREAT REDUCTION PROGRAM OF THE DEPARTMENT OF DEFENSE From Foreign Assistance to Sustainable Partnerships (2007)

During the past 15 years, the Department of Defense (DOD) has supported a variety of international security-oriented biological activities within the framework of DOD's Cooperative Threat Reduction program. These activities are referred to by DOD as the Biological Threat Reduction Program (BTRP). They have been carried out in Russia, Kazakhstan, Uzbekistan, Georgia, Azerbaijan, and Ukraine. The U.S. Congress included in the National Defense Authorization Act of 2007 a provision calling for a study by the National Academy of Sciences of the activities carried out by BTRP and activities that should be considered in the future.

The Looming Threat

The rapid diffusion of scientific knowledge and technical capabilities has enabled many countries to benefit from recent advances in biological science and biotechnology. These developments have improved medications and medical procedures, increased agricultural productivity, diversified sources of energy, and spawned new industrial processes. However, research directed to pathogens that are dangerous to humans, animals, and plants and to biotechnology activities in a variety of fields has also led to dual-use technologies that can be employed not only for the betterment of the lives of people but also for the development of advanced biological weapons for use by military forces, terrorist groups, or disgruntled individuals. For example, research to understand the characteristics of anthrax or foot-and-mouth disease, while important for public health and agriculture, can also attract the attention of groups or individuals who are interested in using these pathogens as weapons of terrorism.

For many years, leading scientists and security specialists have issued warnings about the threat of bioterrorism. The following incidents suggest that these warnings must be taken seriously:

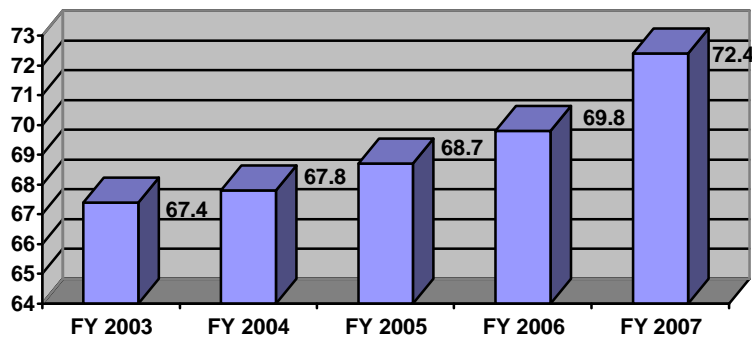
- Anthrax letters disseminated in the United States in 2001
- Plans for bioterrorism set forth in al Qaeda training manuals discovered in 2001
- The discovery of "makeshift ricin laboratories" in the Pankisi Gorge adjacent to Chechnya and a "do-it-yourself guidance sheet" on how to make ricin found in 2003
- An attempted theft targeted at the pathogen collection at the central reference laboratory for animal health in Indonesia in 2007 that was thwarted by security systems installed by the U.S. government

BTRP Activities to Date

Over the years, BTRP has supported the following categories of activities:

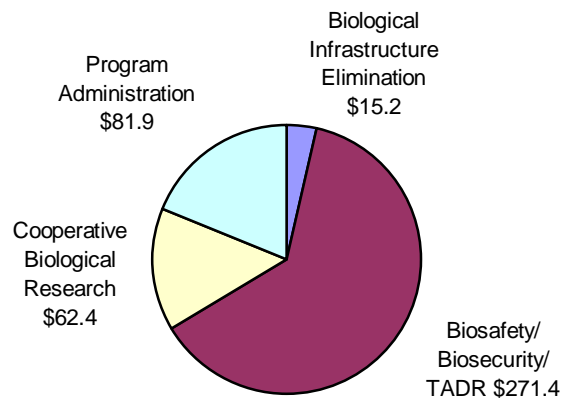
- *Biological Infrastructure Elimination*, with facility dismantlement projects in Kazakhstan and Georgia and on Vozrozhdeniye Island in the Aral Sea (3.5 percent of the program)
- *Biosafety/Biosecurity*, which involves facility upgrades, training, and related activities and initial steps in establishing the Threat Agent Detection and Response (TADR) network in Georgia, Azerbaijan, Uzbekistan, and Kazakhstan (63 percent of the program)
- *Cooperative Biological Research*, with laboratory upgrades and research carried out in Russia, Kazakhstan, Uzbekistan, Georgia, and Azerbaijan (14.5 percent of the program)
- *Program Administration*, with support by many organizations (19 percent of the program)

BTRP funding in recent years (in millions of U.S. dollars).



SOURCE: Data provided by DTRA, June 6, 2007.

BTRP funding by program category, FY 1998-2007 (in millions of U.S. dollars).



SOURCE: Data provided by DTRA, April 2007.

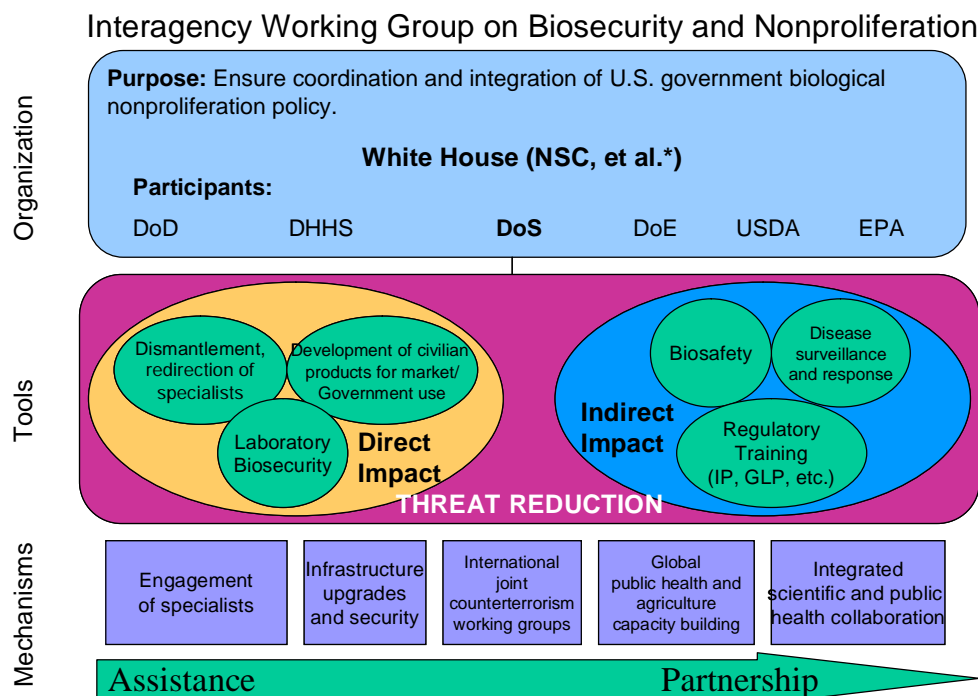
BTRP activities have strengthened the containment of biological materials, technologies, equipment, and expertise that, if misused, could result in serious biological threats. Specific changes in the region that can be attributed at least in part to BTRP have included the following:

- Unprecedented transparency at dozens of important facilities with dual-use capabilities that had not previously been open to foreign specialists

- Dismantlement and/or conversion of production and research facilities established to support biological weapons activities, including transformation to civilian activities of more than a dozen important components of the weapons-oriented Biopreparat complex
- Redirection to civilian pursuits of hundreds of senior biological scientists, engineers, and technicians who were formerly engaged in defense programs
- Attraction and retention of hundreds of younger specialists working in basic sciences and in the fields of public health and agriculture
- Adoption by local institutions of standard international approaches to project management and to fiscal accountability
- Participation in scientific conferences and training programs abroad by specialists from the region who had not previously traveled abroad
- Increased publication by local scientists in peer-reviewed international journals of research findings, which demonstrate their capabilities to participate effectively in international scientific activities
- Enhanced quality of local research projects and technology transfer activities that have taken advantage of the experience and expertise of international collaborators
- Improved biosecurity and biosafety at biological research institutions, particularly with regard to consolidation and physical protection of dangerous pathogen strains
- Opening and sharing of local databases with international collaborators
- Construction and equipping of modern research, public health, and agriculture facilities where activities of interest to international partners are carried out
- Development of local regulations and related training programs concerning the safety and security of biological materials and good laboratory practices

Importance of Interagency Collaboration

Given the variety of biological threat reduction programs and the need to maximize program impacts, a new model of U.S. government interagency coordination to promote synergies and reduce duplication may be needed. One approach would call for an NSC-led Interagency Working Group on Biosecurity and Nonproliferation, with senior agency officials as participants. The participants would be drawn from the Departments of Defense, State, Health and Human Services, Energy, and Agriculture, and the Environmental Protection Agency, with support from the intelligence community and input from other departments with relevant international programs.



* Assure coordination/liaison with other U.S. government international activities of Homeland Security Council, Office of Science and Technology Policy, National Science Foundation, U.S. Agency for International Development, Department of Commerce, Department of the Treasury, Office of Management and Budget, Department of Homeland Security, etc.

Recommendations

- The U.S. government should provide strong and sustained support for BTRP and related biological threat reduction programs of the U.S. government.
- The White House should exert strong leadership to ensure integration of BTRP with related programs.
- BTRP should be transformed from a Washington-directed program of assistance to a genuinely collaborative program of partnerships with governments of the states of the former Soviet Union, built on strong relationships between important scientific, public health, and agriculture institutions and specialists in these states and counterparts in the United States. Collaboration rather than assistance should be a guiding principle whenever possible, should BTRP expand into other geographical areas.
- BTRP should give greater emphasis to a comprehensive, multi-faceted approach to international engagement for achieving biosecurity, public health, and agriculture objectives. The approach should include development of countermeasures to bioterrorism, enhanced facility security, collaborative surveillance activities, expanded cooperative research, development of common biosafety procedures, adoption of good laboratory practices and good manufacturing practices, development of human resources, and related activities.
- DOD should work through existing scientific networks and establish new models as appropriate to reinvigorate BTRP in Russia by supporting cost-shared collaborative research projects, scientific conferences, and other scientific activities that promote both Russian and U.S. national security interests through engagement of outstanding established and young scientists in the two countries.
- To improve program management, DOD/DTRA should ensure availability of adequate internal technical staffing for BTRP and should recognize that while there is a need for commercial integrating contractors for construction projects, assistance in management of research projects and related training programs can be more appropriately provided by U.S. government, academic, or nonprofit organizations.

As biotechnology capabilities continue to spread throughout the world, opportunities for misuse of biology that can seriously harm U.S. interests at home and abroad are rapidly growing. Current U.S. government programs for redirecting former weapon scientists in the former Soviet Union to peaceful pursuits and for upgrading security of facilities in that region and elsewhere that house dangerous strains of pathogens have never been more important. U.S. security interests can be served in many ways by a robust and broadly based approach by BTRP and related programs.

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For More Information

Copies of *The Biological Threat Reduction Program of the Department of Defense: From Foreign Assistance to Sustainable Partnerships* are available from the National Academies Press; call (800)624-6242 or (202)334-3313 (in the Washington metropolitan area), or visit the NAP Web site at www.nap.edu. For more information concerning this project, contact staff at (202) 334-2644 or visit the Policy and Global Affairs Web site at www.nationalacademies.org/pga.