



U.S.-RUSSIAN COLLABORATION IN COMBATING RADIOLOGICAL TERRORISM (2006)

Packaging conventional explosives with radioactive material and detonating this radiological dispersal device (RDD) to kill and terrorize people—the “dirty bomb” scenario—is, unfortunately, readily within the means of some terrorist groups. The International Atomic Energy Agency (IAEA) reports numerous incidents of illicit trafficking in radioactive materials, including ionizing radiation sources (IRSs) used in medical, agricultural, and industrial applications. Potential links of such trafficking with international criminal organizations heighten the concern about these materials falling into the hands of terrorists, who could use them in RDDs or in other ways to threaten populations.

THE CHALLENGES IN PREVENTING DETONATIONS OF RDDS ARE IMMENSE

Hundreds and perhaps thousands of inadequately protected IRSs that are considered dangerous by international safety standards are present in many countries. Some are in use, some are in storage, and some are awaiting permanent disposal. Also, some IRSs have simply been abandoned by their legal custodians because there were no financially affordable disposal pathways for those that had exceeded their useful lifetimes or were no longer needed.

Unlike nuclear weapons, RDDs cannot kill tens to hundreds of thousands of people and obliterate a city instantly. However, the disruption attendant to an RDD detonation could be widespread, particularly if it occurs outdoors in a densely populated urban area and the RDD is well designed to maximize the dispersal of radionuclides. Although the number of victims resulting from the effects of radiation will most likely not be great, the psychological impact of a radiological attack may lead to widespread fear, serious social disruption, and potentially catastrophic economic consequences.

SECURITY OF DANGEROUS MATERIALS IN RUSSIA

Shortcomings in the security and life-cycle management of IRSs in Russia make the task of adequately securing dangerous IRSs in that country daunting. For example, hundreds of radioisotope thermal generators (RTGs) are located in northern reaches of the country, and the logistics recovering or replacing them are formidable. Other types of IRSs which could provide components for RDDs are also widespread in hundreds of institutes, and other facilities. These could easily fall prey to theft, and even worse are reportedly frequently discovered in abandoned facilities or open fields.

If IRSs are stolen or diverted in Russia or any country, they might enter the international black market and possibly fall into the hands of terrorist groups that could target U.S. assets in the United States or abroad. Significant portions of the IRSs that have been intercepted at border crossing points and elsewhere have been of Russian origin. The likelihood of stolen Russian IRSs being smuggled into the United States seems relatively low since a terrorist group would probably try to obtain an IRS that is already located in the United States rather than risk detection at a point of entry into the country. However, the use of Russian-origin IRSs against U.S. assets in Russia itself (e.g., U.S. Embassy, facilities of U.S. companies), Central Asia (e.g., U.S. military bases), the Middle East (e.g., U.S. military or private facilities), or elsewhere could have a dramatic impact on U.S. national security interests. A successful RDD detonation in Russia, or indeed in any country, could provide a “proof of principle” for terrorists who have not yet used radiological weapons, possibly encouraging copy-cat attacks by terrorists in the United States or against U.S. interests abroad. A major radiological attack in any major capital or financial hub would likely adversely affect the global economy, including the U.S. economy.

CURRENT PREVENTION EFFORTS

The Department of Energy (DOE) has made a very good start in working with Russian organizations to upgrade the security of IRSs. Linkages have been made with key Russian organizations. Important problems were selected for initial “quick fixes”—improved regional and ministry inventories of IRSs, accelerated timelines to reduce the number of vulnerable RTGs, collection and disposal of unwanted IRSs, and enhanced security at some storage and disposal facilities. Initial projects in each of these areas have been successfully completed. Of particular importance, the modest U.S. financial contributions to the cooperative program to date have helped focus Russian attention on critical aspects of the security of IRSs. The joint efforts have most likely stimulated other Russian efforts in addition to those associated with the cooperative program.

Thus, the program of quick security fixes is very important and should be continued, and DOE leadership should expedite its implementation. It should also continually evaluate the effectiveness of the quick fixes from a risk reduction point of view. Of particular concern is the end-of-life-cycle management of IRSs that are no longer wanted, including many that have simply been abandoned.

At the same time, DOE should develop a comprehensive plan to work with Russian counterparts to reduce the overall risk and consequences of radiological terrorism. The plan for the cooperative program should be developed within the context of a comprehensive Russian program for ensuring adequate life-cycle management of IRSs throughout the country and should take into account activities of other external partners. However, because a comprehensive Russian program may take years to fully develop, DOE should move forward promptly to work with Russian counterparts to address the most urgent problems and help them develop and implement their program.

INTERNATIONAL SECURITY EFFORTS

The United States is not the only country vitally concerned with IRS-related developments in Russia. The Scandinavian countries have long had interests in replacing the RTGs in the Far North of Russia. Japan carefully watches developments in the Far East. Ukraine is concerned about radionuclides of Russian origin being smuggled into its territory. Thus, the international community will probably embrace a number of program approaches advocated in the report. They include development of financially affordable pathways for unwanted IRSs; upgrading security facilities that house highly active IRSs; plans for managing the consequences of IRS incidents; expanded risk analysis capabilities to help establish priorities; and of course, a comprehensive Russian program, which is crucial to long-term success in combating radiological terrorism.

Although only the Russian government can ultimately strengthen the many weaknesses in the security system for IRSs and in dealing with the overall threat of radiological terrorism in Russia, the United States has played and should continue to play an important leadership role in catalyzing this widespread interest in enhancing the security of IRSs in Russia. Such leadership is highly significant in reducing the likelihood of radioactive materials in Russia finding their way into RDDs that are detonated in Russia or elsewhere. Expedient implementation of the current cooperative program of quick security fixes, strong encouragement of the Russian government to carry out a comprehensive program for enhancing the security of IRSs, and development and implementation of an overall plan for U.S.-Russian cooperation that supports critical aspects of a comprehensive Russian program should be the hallmarks of U.S. leadership.

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Copies of *U.S.-Russian Collaboration in Combating Radiological Terrorism* are available from the National Academy Press; call (800)624-6242 or (202)334-3313 (in the Washington metropolitan area), or visit the NAP website at www.nap.edu. For more information on the project, contact staff at (202) 334-2644 or visit the Policy and Global Affairs website at www.nationalacademies.org/pga.