STRENGTHENING LONG-TERM NUCLEAR SECURITY: PROTECTING WEAPON-USABLE MATERIAL IN RUSSIA (2006)

If terrorists detonated a nuclear device in a major urban area, hundreds of thousands of city residents could be killed or maimed, and radioactive fallout spread for hundreds of miles. The acquisition of such a capability by terrorist groups has thus far been constrained primarily by the difficulty these groups face in obtaining sufficient quantities of highly enriched uranium (HEU) or plutonium that could be fashioned into crude nuclear weapons. But, the protection, control, and accounting of these materials—and particularly control over the significant quantities that exist in Russia—are imperative to mitigating the threat of nuclear terrorism.

INDIGENIZATION IS CRUCIAL

There are an estimated 600 tons of weapon-usable material in Russia that are not in weapons. During the past decade, the U.S. Congress has appropriated more than $1.5 billion for U.S.-Russian efforts to upgrade materials protection, control and accounting (MPC&A) systems that protect this material, but the job is still not finished. The amount of additional funding from abroad that will be required to upgrade protection of all stocks of weapon-usable material depends on the ability of Russia to assume full responsibility for protecting its own material. Thus, i*ndigenization*, the process of making the transition from the U.S.-Russian cooperative program financed largely by the Department of Energy (DOE) to an MPC&A program managed, maintained, and financed by Russia that ensures the security of weapon-usable material at a level that is necessitated by the threat of international terrorism and is consistent with internationally acceptable practices, should be the focal point of MPC&A efforts.

An indigenized Russian MPC&A program that meets levels of international acceptability over the long term must rest on three pillars: (1) a strong and unwavering political commitment by the Russian government to maintaining a high level of proven security measures protecting weapon-usable material; (2) adequate resources at the facility level to fulfill such a commitment; and (3) approaches to installing MPC&A systems that are not only technically sound but also fully embraced by Russian managers and specialists.

INTERNATIONAL MPC&A FUND

An international MPC&A Indigenization Fund should be established within the framework of the G-8 global partnership to provide financial support for MPC&A improvement projects proposed by Russian facilities that have demonstrated their commitments to robust MPC&A systems.

- The Fund would have an initial investment of $500 million to dispense to Russian institutes and other facilities over a period of ten years.
- The contributions to the Fund would include the following: $200 million from the United States, $100 million from Russia (in cash, not in kind), and $200 million from other G-8 partners.

• The Fund would be managed by a new intergovernmental entity taking into account the experiences of the intergovernmental mechanisms that have been effectively used to provide international funds to Russian nuclear facilities until now.
• The Fund would provide financial support on a competitive basis in response to Russian proposals for MPC&A improvement projects, with smaller levels of funding supporting training, replacement parts, and accounting software, etc.

The Fund would embody three approaches that are essential aspects of indigenization: (1) Russian facilities would propose projects that respond to their priorities in complying with Russian regulations; (2) an intergovernmental governing board would approve projects and ensure that they are consistent with international practice; and (3) the Russian government, as an investor in the Fund, would play a more active role in promoting the importance of modern MPC&A systems within Russia and internationally.

ADDITIONAL RECOMMENDATIONS
In addition to this new initiative, Congressionally-appropriated funds should continue to support current DOE efforts. However, there should be some modifications to the program. Specifically, DOE should

• Encourage Russian institutions to give higher priority to improving their own accounting systems, which should be designed and built in Russia to the extent possible.
• Encourage Russian counterparts to give greater attention to accelerating the development of a modern regulatory framework.
• Continue to strengthen the capabilities of both the public and private sectors in Russia to produce and service MPC&A equipment.

Finally, adherence to the following principles is essential if the cooperative MPC&A program is to achieve its full potential and lead to indigenization.

Russia should be treated as an equal partner, not as a recipient of foreign aid.

Consolidating weapon-usable material would significantly reduce the amount of material at risk and should reduce security costs.

Continued attention to the development of a nuclear security culture is essential to the indigenization of MPC&A programs.

The cooperative MPC&A program provides an important mechanism for enhancing the security of material throughout the Russian nuclear complex. But such cooperation will be limited in its effect unless Russia continues to maintain adequate security systems in the decades ahead. If they fail, the result could be a nuclear disaster. DOE has made a good start in creating greater awareness among Russian officials and specialists of the importance of protecting nuclear material through education, training exercises, exchange of information and best practices, and incentive programs. However, the job initiated through the cooperative program must be finished correctly, rapidly, and in a manner that facilitates the transition of full responsibility to the Russian Federation.

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For More Information
Copies of *Strengthening Long-Term Nuclear Security: Protecting Weapon-usable Material in Russia* 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) 334-2359 or visit www.nationalacademies.org/dsc/.