Securing the Bomb 2005

The New Global Imperatives

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COMMISSIONED BY THE NUCLEAR THREAT INITIATIVE

MAY 2005

www.nti.org/cnwm

Printed in the United States of America

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EXECUTIVE SUMMARY

Evidence that terrorists are actively seeking nuclear weapons and the materials needed to make them, and that some nuclear stockpiles around the world remain dangerously vulnerable to potential theft and transfer to terrorist groups, continued to accumulate in the past year. A comprehensive strategy for preventing nuclear terrorism would include many strands, from offensive action against terrorists with global reach to measures to stop nuclear smuggling. But the most crucial element of such a strategy is to lock down every nuclear weapon and every kilogram of potential nuclear bomb material everywhere. Because nuclear weapons and their essential ingredients do not occur in nature and are too difficult for terrorists to plausibly produce on their own, if these stockpiles can be kept out of terrorist hands, nuclear terrorism can be reliably prevented.

Foundations for Accelerated Action—New Imperatives

Over the past year, the United States and other countries laid three critical foundations for an accelerated and expanded effort to prevent nuclear terrorism.

- The UN Security Council unanimously passed Resolution (UNSCR) 1540 in April 2004, legally obligating every country in the world to put in place effective security and accounting for nuclear stockpiles, and thus providing the base for an accelerated nuclear security upgrade effort worldwide, not just in the former Soviet Union.

- In May 2004, the U.S. Department of Energy launched the Global Threat Reduction Initiative (GTRI), offering the potential to accelerate and expand efforts to remove and secure potential nuclear bomb material from insecure sites around the world.

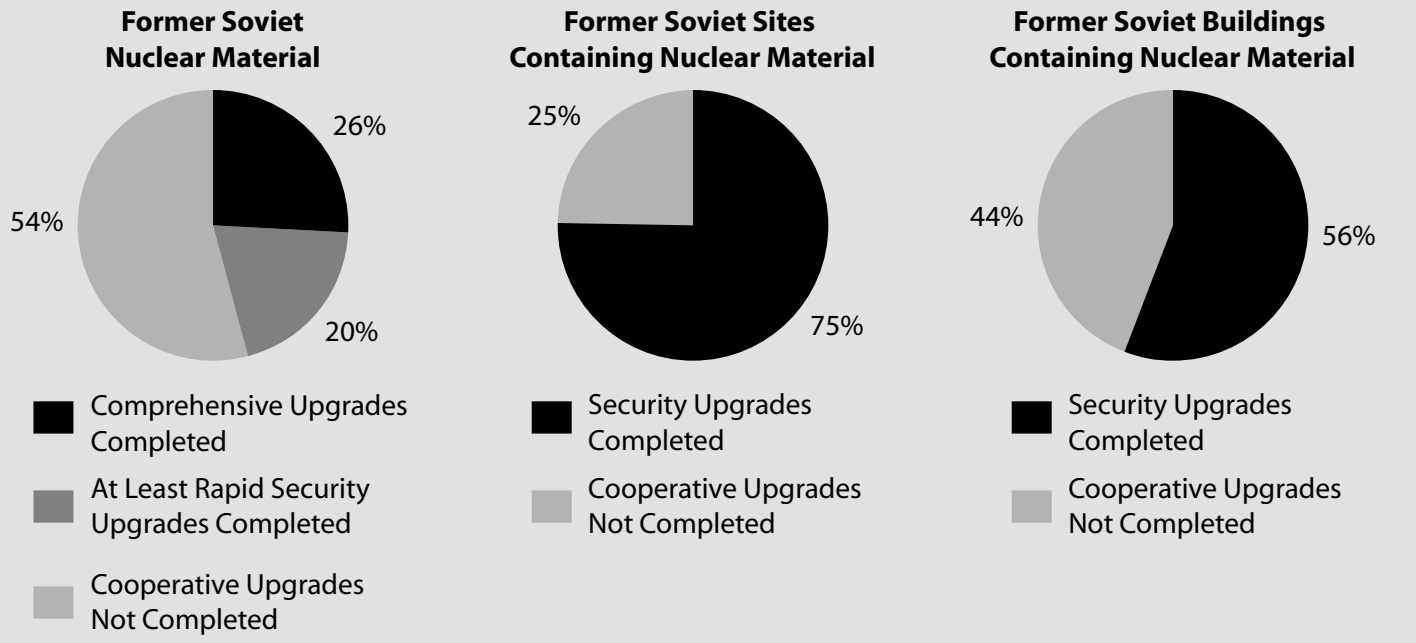
- At their February 2005 summit in Bratislava, Slovakia, U.S. President George W. Bush and Russian President Vladimir Putin issued a summit statement calling for intensified cooperation to secure nuclear stockpiles in Russia, and for joint U.S.-Russian leadership of nuclear security upgrade efforts elsewhere around the world.

Translating last year's pledges into the needed rapid action will require sustained leadership from both President Bush and President Putin—and from the leaders of other key nuclear states. Action from the highest levels is needed because difficult bureaucratic and political impediments persist that cut across agencies and departments and cannot be resolved by officials within any one agency. Success will require not just occasional encouraging statements, but in-depth, day-to-day engagement. As the leaders of the two countries that own the vast majority of the world's nuclear weapons and weapons-usable nuclear material, President Bush and President Putin have an historic opportunity to leave behind, as a lasting legacy, a world in which the danger that terrorists could get hold of a nuclear weapon or the materials needed to make it has been dramatically reduced.

On-the-Ground Progress Still Slow—But Hope for Acceleration

Unfortunately, the on-the-ground progress in securing, consolidating, and eliminating nuclear stockpiles in the last year remained slow, when compared to the urgency of the threat. During fiscal year (FY) 2004, U.S.-funded comprehensive security and accounting upgrades were completed on only 4% of the weapons-usable nuclear material in the former Soviet Union, bringing the total fraction with such upgrades completed by the end of the fiscal year to 26%. Initial rapid upgrades were completed for 3% of the potentially vulnerable weapons-usable nuclear material, so that by the end of the fiscal year, these first steps had been taken for an additional 20% of the former Soviet stockpile. Because huge quantities of material are located at a small number of highly sensitive sites, the

Figure ES-1
Status of Security Upgrades on Sites and Buildings in the Former Soviet Union Containing Former Soviet Weapons-Usable Nuclear Material

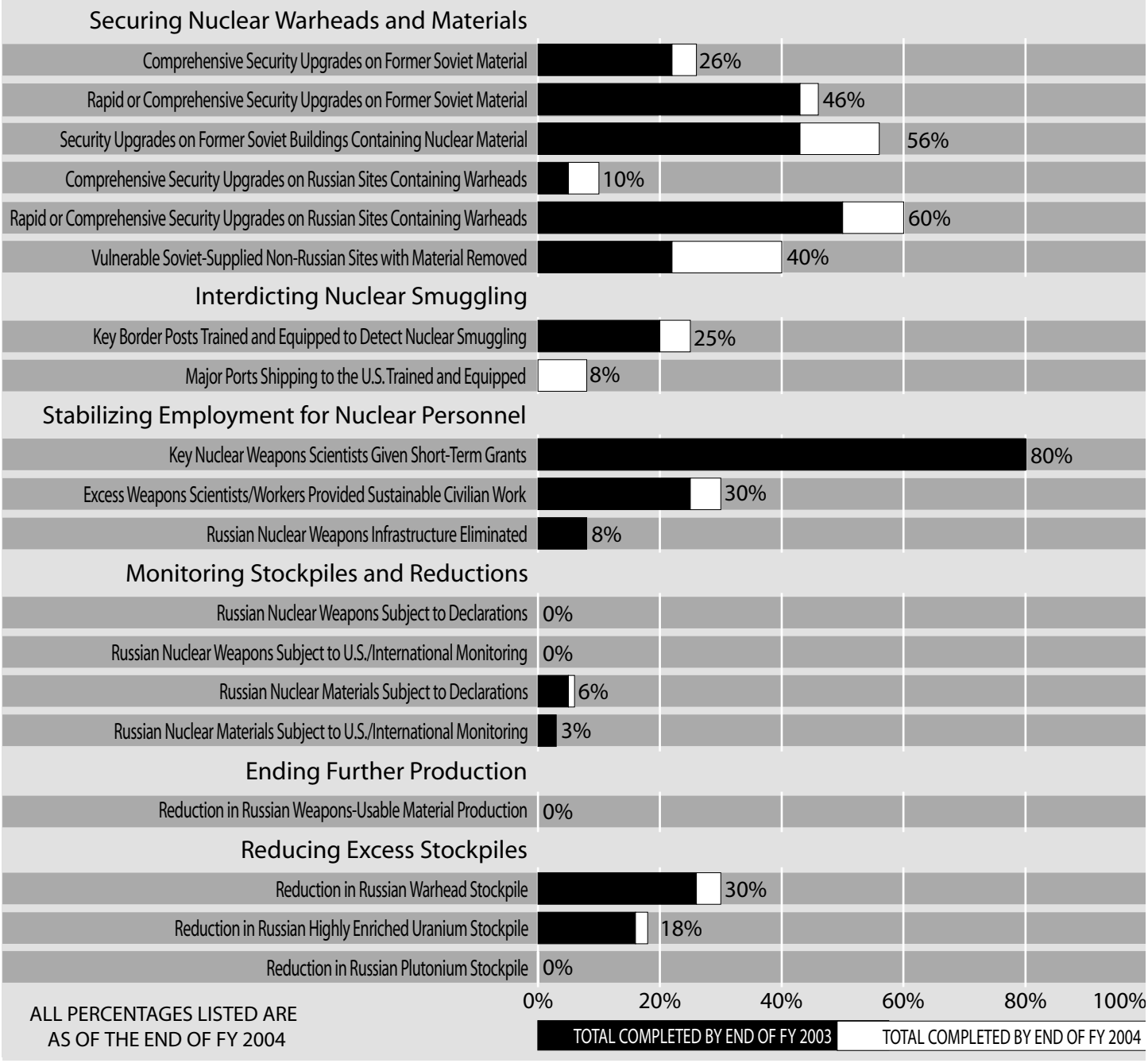


Note: The percentages for buildings and sites completed differ somewhat from DOE's official estimate because we include only those buildings and sites containing nuclear material, treating nuclear warheads separately.

picture looks substantially better when judged by the fraction of *sites* with potential nuclear bomb material where upgrades have been completed (some 75%) or the fraction of *buildings* containing such material with completed upgrades (some 56%). Figure ES-1 illustrates these differing measures. The buildings figure is probably the best available indicator both of the fraction of the work that has been accomplished and the fraction of the potential theft threat that has been reduced; by that measure, roughly half of the job is completed, and roughly half remains.

In last year's report, we noted, based on the official U.S. government data available at the time, that comprehensive security upgrades had been completed for more nuclear material in the two years before the 9/11 attacks than in the two years after those attacks, and that if the quantity of nuclear material upgraded in FY 2003 continued unchanged, it would take 13 years before upgrades were completed. (The Department of Energy subsequently revised its estimates of the amount of material covered by completed upgrades each year, with the result that the amounts secured in the two years before and the two years after the 9/11 attacks are now thought to have been approximately the same.) As comprehensive upgrades were finished on somewhat less material in FY 2004 than in FY 2003, it remains clear that a dramatic acceleration will be needed to meet DOE's stated goal of finishing the upgrades in less than four years from now (by the end of 2008). DOE appears to be on track to meet its goal of completing comprehensive security and accounting upgrades for an additional 11% of the potential bomb material in the former Soviet Union in FY 2005, nearly tripling the FY 2004 pace. Achieving DOE's stated goals for subsequent years will be more challenging. The dramatic acceleration needed to achieve the 2008 goal remains possible, but only if both President Bush and President Putin make a sustained effort to sweep aside the obstacles to progress—including in particular agreeing on access or other assurances for the last highly sensitive sites where access is still a major problem (an issue that was not resolved at the Bratislava summit, despite some significant progress over the past year).

Figure ES-2
Controlling Nuclear Warheads, Material, and Expertise: How Much Work Have U.S.-Funded Programs Completed?



In other categories, similarly, U.S.-funded programs have made major progress, but are far from finishing the job. Figure ES-2 summarizes a comprehensive set of metrics for assessing the progress of U.S.-funded programs to improve controls on nuclear warheads, materials, and expertise to date, and how much of this progress was made during FY 2004. These estimates are described and documented in Chapter Three of this report. For example, approximately 10% of the Russian sites for actual nuclear warheads (as opposed to nuclear material) had received U.S.-funded comprehensive security upgrades by the end of FY 2004. Many thousands of bombs' worth of Russian bomb uranium has been destroyed—but the stockpile eliminated to date represents less than a fifth of Russia's total. It will still be years before destruction

of substantial quantities of U.S. and Russian excess bomb plutonium even begins. While thousands of nuclear scientists received short-term grants to ease the desperate transition of the 1990s, only a tiny fraction of Russia's excess nuclear weapons experts have yet received self-supporting long-term civilian jobs through internationally funded programs. Outside the former Soviet Union, only a few sites had substantial security upgrades put in place or their potential nuclear bomb material removed.

Such assessments of the number of buildings with security equipment installed, or the tons of HEU destroyed, do not describe the whole picture of nuclear security. "Security culture," in particular, is difficult to measure, but critical, as highlighted in the Bratislava summit statement: if guards are patrolling without ammunition in their guns to avoid accidental firing, monitors are turning off intrusion detectors because of their annoying false alarms, and workers are propping open security doors for convenience, the best equipment will not provide high security. Moreover, measures of how much progress U.S.-funded programs have made, by their nature, miss the improvements Russia and other potential recipient states have made in upgrading security on their own, without U.S. or other foreign assistance (or even foreign awareness that the changes have been made). Such measures are also a snapshot in time that says nothing about how well security will be sustained and improved at sites after international assistance comes to an end. Hence, it is quite possible that some material counted as "completed" in these measures remains insecure—or will become so again in the future as equipment breaks or is no longer used—and that some material counted as "not completed" is already secure.

Proposed Budget Increases and Remaining Opportunities

The Bush administration has requested a significant increase in funding for programs to improve controls on nuclear warheads, materials, and expertise around the world for FY 2006. The proposed budget for these programs is $982 million, a 22% increase over the previous year's appropriation, and more than this group of programs has ever been granted before. The total proposed budget for all cooperative threat reduction efforts around the world (which also include control and elimination of chemical and biological weapons and strategic missiles, bombers, and submarines, among other efforts) for FY 2006, is $1.312 billion, just short of 25% more than the Bush administration's proposal for the previous year. While that amounts to less than one-quarter of one percent of the U.S. defense budget, most programs are limited more by the level of cooperation that has been achieved with potential recipient states than by money. But there are several areas where small increases in available funds could accelerate progress.

Outline of a Maximum Effort

There is an urgent imperative to build a fast-paced global partnership to secure the world's nuclear stockpiles on the foundations laid in the last year, before those opportunities slip away. As the 9/11 Commission most recently put it, what is needed is a "maximum effort" to keep nuclear weapons and the materials needed to make them out of terrorist hands. This global effort will have to be at the top of the diplomatic agenda—an item to be addressed with every country with stockpiles to secure or resources to help, at every level, at every opportunity, until the job is done. A comprehensive global nuclear security partnership would have many ingredients, but there are three that are essential: accelerating and strengthening the effort in Russia, where the largest stockpiles of potentially vulnerable nuclear materials still exist; removing the material entirely from the world's most vulnerable sites; and building a fast-paced global coalition to improve security for the remaining nuclear stockpiles around the world.

Step 1: An Accelerated and Strengthened Partnership with Russia

The first and most crucial step is to put in place an accelerated and strengthened effort with Russia, based on genuine partnership.

In the aftermath of the horrifying slaughter of schoolchildren at Beslan, President Putin should take many

of the same steps to secure Russia's stockpiles that the Department of Energy has taken to secure comparable stockpiles in the United States—sending out a team to rapidly assess nuclear security vulnerabilities and suggest fixes; requiring all facilities with nuclear weapons or materials to put in place security capable of defeating demonstrated terrorist and criminal threats, both from outsiders and insiders; consolidating nuclear weapons and materials at fewer locations, to provide more security at lower cost; working to transform the guard force into an elite fighting force; and substantially increasing nuclear security spending. The United States can share its experience and offer to pay some of the costs of such measures.

President Bush's critical diplomatic tasks in the aftermath of Bratislava include: using his excellent relationship with President Putin to convince the Russian president of the urgency of action, both for Russia's own security and as a central requirement of a positive relationship with the United States; pressing for agreement with Russia on key steps to strengthen and accelerate the nuclear security effort in Russia and around the world; and stepping in to overcome the obstacles to a fast-paced U.S.-Russian nuclear security partnership that still exist on the U.S. side.

Following up on the Bratislava summit statement, the United States and Russia should agree on (a) a joint plan to complete security upgrades for all nuclear warhead and material sites by the end of 2008; (b) approaches to overcoming the key impediments to progress (including compromises on the issues of both access and liability); (c) steps to build strong security cultures at nuclear sites in both countries; (d) a joint plan to provide the resources, organizations, and incentives necessary to sustain and improve security after U.S. and international assistance phases out; and (e) a new initiative to secure, monitor, and in many cases dismantle the most dangerous warheads—particularly those not equipped with modern, difficult-to-bypass electronic locks. The interagency committee on nuclear security cooperation established at the Bratislava summit should be used to focus high-level attention on reaching such agreements and taking the decisions needed to sweep aside the obstacles to accelerated progress.

Building genuine Russian commitment—a sense in Russia that cooperation on nuclear security is not just a favor to the Americans but essential for Russia's own security—will be crucial to success. The United States should (a) encourage Russia to undertake a fast-paced review by Russian experts of security vulnerabilities at Russian sites, judging whether they are adequately defended against Beslan-scale outsider attacks or substantial insider conspiracies; (b) pursue joint U.S.-Russian nuclear theft and terrorism threat briefings for senior officials; (c) sponsor simulations and war games focused on nuclear theft and terrorism for senior officials; (d) develop jointly with Russia, as part of ongoing security awareness training, a video highlighting the very real possibility that terrorists could make a crude nuclear bomb if they got the nuclear material.

To achieve both the top-level Russian commitment necessary to move nuclear security cooperation forward and the working-level Russian "buy-in" essential to ensure that upgraded security systems will be sustained and improved over time, a shift from a donor-recipient relationship toward a true partnership will be essential. In a real partnership, Russia would have to contribute more of its own resources, and the United States would have to pursue a truly joint approach, with Russian and U.S. experts involved in all stages of the conception, design, implementation, and evaluation of these programs. Shifting from a focus only on improving nuclear security in Russia with U.S. help toward a focus on joint U.S. and Russian leadership in improving security around the world (starting with making sure their own houses are in order) can strengthen this sense of partnership. A leading Russian role can greatly strengthen the global effort, as there are key countries where Russia has the relationships necessary to work on nuclear security or negotiate the removal of nuclear material, and the United States does not. Building a genuine nuclear security partnership will be more likely to succeed if political issues that have been souring U.S.-Russian relations and strengthening those who are suspicious of cooperation in these

sensitive areas, on both sides of the ocean, are also addressed.

Step 2: Fast-Paced Removal from Vulnerable Sites Worldwide

The surest way to ensure that nuclear material will not be stolen from a particular site is to remove it, so there is nothing left to steal. What is needed now is a fast-paced effort to remove the weapons-usable nuclear material entirely from the world's most vulnerable sites, particularly including HEU-fueled research reactors. The goal should be to remove the nuclear material entirely from the world's most vulnerable sites within four years—substantially upgrading security wherever that cannot be accomplished—and to eliminate all HEU from civil sites worldwide within roughly a decade. The United States should make every effort to build international consensus that the civilian use of HEU is no longer acceptable, that all HEU should be removed from all civilian sites, and that all civilian commerce in HEU should be brought to an end as quickly as possible. Those goals are challenging, and achieving them will require a substantial effort, but the scale and urgency of the threat demands no less. Success in achieving them will require focusing comprehensively on *all* the facilities that have vulnerable potential nuclear bomb material, not just those that happen to be operating civilian research reactors, or whose nuclear material happens to be Russian-supplied or U.S. supplied. Success will require flexible and creative tactics, with approaches—including incentives to give up the nuclear material—targeted to the needs of each facility and host country, and it will require the United States to convert and adequately secure its own HEU-fueled research reactors as part of convincing others to do so.

Step 3: A Global Partnership to Prevent Nuclear Terrorism

The problem of insecure nuclear material is global. Solving it will require forging a global coalition of countries around the world willing to work together to ensure that every cache of nuclear weapons or weapons-usable nuclear materials worldwide is secure and accounted for, to a level sufficient to defeat plausible terrorist and criminal threats from both outsiders and insiders.

Given the devastating global economic impact a nuclear terrorist attack would have, every country has a strong self-interest in cooperating to reduce this threat. But the intense secrecy surrounding nuclear stockpiles and their security arrangements will make building the needed global effort an extraordinary challenge. The United States should seek to convince the top leadership of states around the world of the urgency of the threat, using approaches similar to those suggested above in the case of Russia.

The United States should (a) put forging such a global nuclear security partnership at the top of its diplomatic agenda with every relevant country with resources to offer or stockpiles to secure; (b) move quickly to implement UNSCR 1540, seeking general agreement that its requirement for "appropriate effective" security requires that every facility with nuclear weapons or potential nuclear bomb material should be secured against the terrorist and criminal threats that have been demonstrated in that country, and moving quickly to help countries around the world put such security in place; (c) adapt threat reduction assistance to new contexts, working with states such as Pakistan, India, and China to ensure that their nuclear stockpiles are secure and accounted for, finding creative ways to do so without forcing these states to reveal sensitive nuclear information; (d) exchange nuclear security and accounting best practices—particularly institutionalized approaches to regularly finding and fixing nuclear security weaknesses—with countries around the world; (e) seek to forge effective and binding global nuclear security standards, building from UNSCR 1540; and (f) work with other states to expand the mission, personnel, and resources of the International Atomic Energy Agency's (IAEA's) Office of Nuclear Security, substantially increasing its contribution to preventing nuclear terrorism.

Steps the G8 and Other Leading Powers Should Take

At their July 2005 summit, the leaders of the G8 (along with the other participants in the Global Partnership Against the Spread of Weapons and Materials of

Mass Destruction) should (a) explicitly identify locking down nuclear stockpiles and interdicting nuclear smuggling as top priorities for expenditure of the $20 billion they have pledged to provide; (b) put the "global" back in the Global Partnership by explicitly focusing the effort not just on Russia and the former Soviet states, but on helping states worldwide put in place the controls on weapons of mass destruction and related materials and technologies required by UNSCR 1540; and (c) take a range of other steps to secure, consolidate, and eliminate dangerous nuclear stockpiles.

All states with nuclear weapons (including Pakistan, India, and Israel), and all states with significant stockpiles of weapons-usable nuclear material, should join in this global nuclear security effort, and adopt national rules requiring every facility with nuclear weapons or weapons-usable nuclear material to be secured against specified outsider and insider threats, comparable to those terrorists and criminals have demonstrated in their country.

The Nonproliferation Treaty (NPT) review conference in May 2005 should (a) call on all states to adopt effective national nuclear security rules, and agree to interpret UNSCR 1540 as requiring such steps; (b) call for new efforts to secure, consolidate, and where possible eliminate nuclear stockpiles (particularly HEU and tactical nuclear weapons); (c) support the rapid conclusion of a verifiable fissile material cutoff agreement, which would limit additions to the stocks that need to be secured; and (d) agree on the need for new measures to control the spread of nationally controlled enrichment and reprocessing facilities (which would add to the sources of new stocks requiring security).

Options for the U.S. Congress

The U.S. Congress should consider additional action to make the priority of these efforts clear, to exert performance-based oversight, to enable and authorize key steps while removing legal constraints, and to mandate particular steps where necessary. In particular, Congress should consider (a) eliminating certification requirements and restrictions, or giving the president long-term authority to waive them when that serves U.S. interests; (b) broadening the government's legal authority to provide incentives to convince vulnerable facilities and their host states to allow potential bomb material to be removed, while ensuring that the programs cover all potentially dangerous caches of nuclear material; (c) providing increased funds and authority for a global effort to help countries implement all the key requirements of UNSCR 1540; (d) appropriating additional funds for efforts to remove and secure nuclear material at vulnerable facilities around the world; and (e) mandating other new initiatives.

Seizing the Opportunities

Much remains to be done to build on the foundations for a fast-paced global nuclear security partnership that were laid in the past year, transforming current programs into the "maximum effort" the 9/11 Commission called for. The need for action is urgent—both because terrorists and criminals will not wait, and because the opportunities created by GTRI, UNSCR 1540, and the Bratislava summit may well be fleeting. Few of the steps recommended here will happen without sustained leadership and political heavy lifting from the White House and its counterparts around the world. President Bush should appoint a senior full-time White House official, with the access needed to walk in and ask for presidential action when needed, to lead these efforts, to keep them on the front burner at the White House every day, to set priorities, to eliminate gaps and overlaps, and to seize opportunities for synergy. If the world can muster the will to change its past approaches, there remains an excellent chance of preventing a nuclear 9/11.