INSIDE | Five Candidates Vie for Top IAEA Post

Arms Control TODAY

Volume 39
Number 4
MAY 2009

THE SOURCE ON NONPROLIFERATION AND GLOBAL SECURITY

Loose Nukes in New Neighborhoods: The Next Generation of Proliferation Prevention

By Kenneth N. Luongo

IN THIS ISSUE

IN THE NEWS

Obama Calls for Nuclear Weapons-Free World
Steinmeier Calls for U.S. to Withdraw Nukes
N. Korea Launches Rocket, Renounces Talks
World Powers Invite Iran to Nuclear Talks

U.S. $7.00
Canada $8.00

07
0 74470 81148 0

A Publication of the Arms Control Association
www.armscontrol.org

One of the world's TOP THINK TANKS

(FP 2009)

STIMSON

PRAGMATIC STEPS FOR GLOBAL SECURITY

www.stimson.org

Volume 39 • Number 4
May 2009

Arms Control TODAY

THE SOURCE ON NONPROLIFERATION AND GLOBAL SECURITY

CONTENTS

Features

Cover photo: Joint International Atomic Energy Agency (IAEA), World Customs Organization, and Interpol training course for Eastern European customs and police investigators, Vadim Mouchkin, IAEA. Feature photos (top): President Barack Obama, Chinese President Hu Jintao, and Russian President Dmitry Medvedev April 2 during the G-20 financial summit in London, Eric Feferberg/AFP/Getty Images. (Bottom) An IAEA inspector shows broken IAEA safeguards seals salvaged from North Korea, Kirstie Hansen, IAEA.

Spencer Platt/Getty Images

Editor's NOTE

President Barack Obama's April 5 speech in Prague listed a host of nuclear challenges and sketched out plans for meeting them. In this month's issue, three experts provide detailed analyses that fill out and go beyond the broad agenda that Obama articulated in his speech.

Obama announced a new international effort to secure vulnerable nuclear material around the world within four years, vowing to expand cooperation with Russia and "pursue new partnerships" in that effort. In our cover story, Kenneth N. Luongo argues for an effort that continues to give the proper attention to "the old neighborhood" of Russia and the other former Soviet states but broadens the geographical and conceptual focus. A key element, Luongo says, is to include biological as well as nuclear threats.

Lewis A. Dunn also emphasizes cooperation and partnership, but his focus is on U.S. opportunities in two countries, Russia and China. Dunn proposes a series of "cooperative security activities" the United States could pursue with those countries. Among his list of suggestions is information sharing by the United States on its ongoing Nuclear Posture Review.

Obama's Prague speech emphasized the need to punish violators of global nonproliferation rules. But it is difficult to press for punishment if there is no consensus on what constitutes a violation of the rules. In a closely argued analysis, John Carlson delves into the issue of safeguards noncompliance.

Meanwhile, William Lanouette looks back at the question of "civilian control" of nuclear weapons, a question that has surfaced in different forms at various points in the nuclear age.

In the news section, Peter Crail reports on the newly expanded field in the race to succeed International Atomic Energy Agency Director-General Mohamed ElBaradei. Oliver Meier provides details on German Foreign Minister Frank-Walter Steinmeier's call for the removal of U.S. nuclear weapons from Germany and the potential repercussions of that policy for NATO. Cole Harvey reports on Obama's Prague speech and the reactions to it, as well as the launching of U.S.-Russian negotiations on a follow-on to START.

—

This issue of *Arms Control Today* is the first for me and Managing Editor Elisabeth Erickson. It would be difficult to imagine a more fascinating time to be coming into this job. For me, that was one of the great attractions of it.

Another was the magazine's reputation. When I told my friends and colleagues that I was taking the job, many of them said how much they enjoyed and relied on *Arms Control Today* and how they admired the work of my predecessor, Miles Pomper. Those comments were inspiring, but also daunting.

Elisabeth and I, along with all our colleagues at *Arms Control Today*, are committed to maintaining the high quality of the magazine. Now that our first deadline has passed, we are trying to think of ways to make it even better. Please share your thoughts with us at act@armscontrol.org. —Daniel Horner

Arms Control TODAY

Volume 39
Number 4
May 2009

A Publication of the Arms Control Association

1313 L Street, NW
Suite 130
Washington, DC 20005

PHONE
202-463-8270

FAX
202-463-8273

E-MAIL
act@armscontrol.org

WEBSITE
www.armscontrol.org

The Arms Control Association (ACA), founded in 1971, is a nonprofit membership organization dedicated to promoting public understanding and support for effective arms control policies. Through its media and public education programs and its magazine *Arms Control Today*, ACA provides policymakers, journalists, educators, and the interested public with authoritative information and analyses on arms control, proliferation, and global security issues.

Arms Control Today (ISSN 0196-125X) is published monthly, except for two bimonthly issues appearing in January/February and July/August. Membership in the Arms Control Association includes a one-year subscription to *Arms Control Today* at the following rates: $30 student, $65 individual, $80 international. Non-member subscription rates are: $60 individual, $80 institutional, with international rates of $75 individual and $85 institutional. Letters to the Editor are welcome and can be sent via e-mail or postal mail. Letters should be under 600 words and may be edited for space. Interpretations, opinions, or conclusions in *Arms Control Today* should be understood to be solely those of the authors and should not be attributed to the association, its board of directors, officers or other staff members, or to organizations and individuals that support the Arms Control Association. *Arms Control Today* encourages reprint of its articles but permission must be granted by the editor. Advertising inquiries may be made to act@armscontrol.org. Postmaster: Send address changes to *Arms Control Today,* 1313 L Street, NW, Suite 130, Washington, D.C. 20005. Periodicals postage paid at Washington D.C., Suburban, MD and Merrifield, VA.

FOCUS

By Daryl G. Kimball
Executive Director

The Logic of the Test Ban Treaty

In his stirring April 5 speech in Prague, President Barack Obama outlined his vision for strengthening global efforts to curb the spread of nuclear weapons and moving forward on practical, immediate steps "to seek the peace and security of a world without nuclear weapons." Appropriately, his short list of such steps includes re-establishing U.S. leadership on the achievement of a global, verifiable ban on nuclear weapons testing. Obama pledged to "immediately and aggressively pursue U.S. ratification of the Comprehensive Test Ban Treaty [CTBT]."

Indeed, the CTBT remains an essential part of a common-sense strategy to reduce nuclear dangers. By banning the bang, the CTBT constrains the ability of nuclear-armed states to perfect new and more sophisticated warheads. For instance, without additional testing, China cannot perfect the technology to arm its missiles with multiple warheads.

Further, the CTBT can help de-escalate regional nuclear tensions. Ratification by Egypt, Iran, and Israel would reduce nuclear weapons-related security concerns and bring those states further into the nonproliferation mainstream. The Indian-Pakistani rivalry could be eased by converting their unilateral test moratoria into a legally binding commitment to end nuclear testing.

There is neither the need nor the political support for renewed U.S. testing, and it is in the interest of national security to prevent testing by others.

In addition, national and international capabilities to detect and deter possible clandestine nuclear testing by other states will be significantly greater with the CTBT in force. U.S. ratification also is essential to spur action by the eight other states whose ratification is required for entry into force.

Unfortunately, the Senate declined to give its advice and consent to ratification when it briefly considered the treaty in October 1999. Many senators who voted "no" expressed concerns about the ability of the United States to maintain its arsenal in the absence of testing and to verify compliance with the treaty.

That was then, and this is now. There is neither the need nor the political support for renewed U.S. testing for any reason, and it is in the interest of national security to prevent testing by others. Even though the United States has already assumed most CTBT-related responsibilities, it cannot reap the full security benefits of the CTBT until the Senate approves the treaty by a two-thirds majority.

Nevertheless, some pro-testing senators will try to urge their colleagues not to reconsider the CTBT. That would be a mistake. The security value of the CTBT is greater than ever, and significant technical advances address earlier concerns about the treaty.

As George Shultz, former secretary of state under President Ronald Reagan, said April 17 in Rome, his fellow Republicans "might have been right voting against it some years ago, but they would be right voting for it now, based on these new facts." During his 2008 campaign, Sen. John McCain (R-Ariz.) said that if elected president, he would take "another look" at the CTBT.

Another look at the scientific evidence will show that advances in the Stockpile Stewardship Program have significantly increased confidence in the reliability of the existing U.S. arsenal. As a result, more is known today than ever before about the nuclear weapons arsenal, and confidence in the ability to maintain the warheads is increasing at a faster rate than the uncertainties.

For example, the Department of Energy announced in 2006 that studies by Lawrence Livermore and Los Alamos National Laboratories show that the plutonium primaries, or pits, of most U.S. nuclear weapons "will have minimum lifetimes of at least 85 years," which is about twice as long as previous official estimates.

Contrary to the myth perpetuated by some CTBT critics, maintaining the reliability of proven U.S. nuclear warhead designs does not depend on a program of nuclear test explosions. Instead, the existing U.S. nuclear arsenal has been maintained and modernized through non-nuclear tests and evaluations, combined with the replacement or remanufacture of key components to previous design specifications.

Since 1994, a rigorous certification process has determined each warhead type in the U.S. nuclear weapons arsenal to be safe and reliable. Life Extension Programs have successfully modernized major warhead types in the arsenal and stretched out their effective service life for decades to come.

According to weapons physicist Richard Garwin, the new evidence on the longevity of weapons plutonium "has removed any urgency to engineer and manufacture new design replacement warheads." Garwin says the continued performance of legacy warheads can be more reliably certified than new ones.

Test ban monitoring and verification capabilities have also improved. As the July 2002 National Academy of Sciences panel report documents, with the combined capabilities of the International Monitoring System, national technical means, and civilian seismic networks, no potential CTBT violator can be confident that a nuclear explosion of any military utility would escape detection.

The time has come to reconsider and ratify the CTBT. With Obama's leadership, bipartisan support from opinion leaders, and significant improvements in the ability to maintain the U.S. nuclear arsenal and detect nuclear test explosions, the case for the CTBT is stronger than ever. **ACT**

InBRIEF

Notable Quotable

"There is violence and injustice in our world that must be confronted. We must confront it not by splitting apart but by standing together as free nations, as free people. I know that a call to arms can stir the souls of men and women more than a call to lay them down. But that is why the voices for peace and progress must be raised together."

***—President Barack Obama,** April 5, 2009, speech in Prague, Czech Republic*

BY THE NUMBERS

U.S. and Russian deployed strategic delivery vehicles,* 2001 to 2009

1,198
Deployed Russian strategic delivery vehicles (July 31, 2001)

814
Deployed Russian strategic delivery vehicles (Jan. 1, 2009)

-384
Change in deployed Russian strategic delivery vehicles (July 31, 2001, to Jan. 1, 2009)

1,299
Deployed U.S. strategic delivery vehicles (July 31, 2001)

1,198
Deployed U.S. strategic delivery vehicles (Jan. 1, 2009)

-101
Change in deployed U.S. strategic delivery vehicles (July 31, 2001, to Jan. 1, 2009)

*"Strategic delivery vehicles" includes ICBMs, SLBMs, and heavy bombers

Sources: Department of State, "START Aggregate Numbers of Strategic Offensive Arms," Oct. 1, 2001; April 1, 2009 (fact sheets).

Fifteen Years Ago in *ACT*

Strategic Nuclear Policy and Non-Proliferation

"[P]erhaps the clearest single statement about the non-utility of nuclear weaponry was made by President Ronald Reagan in his State of the Union speech in 1984. Speaking directly to the people of the Soviet Union, President Reagan declared that the only reason for either their country or his to have nuclear weapons was to see to it that they were never used."

—Paul C. Warnke, May 1994

Conventional Arming and Disarming

• The **United States** and **Mexico** are considering military aircraft deals valued at up to $153 million. The U.S. Defense Security Cooperation Agency notified Congress of the potential foreign military sales March 13 and April 3. The equipment, one Persuader maritime patrol aircraft and five Bell 412EP helicopters, would serve U.S. interests by "helping to improve Mexico's fight against criminal organizations, drugs, and gang activities," according to the notifications. President Barack Obama highlighted the sales as part of a larger strategy to address these issues, which also includes inspection equipment and other measures through the Merida initiative—a controversial multiyear program to counter criminal organizations in Mexico, Central America, the Dominican Republic, and Haiti—and up to $59 million in funds through the Department of Homeland Security. No foreign military sales notifications to Mexico occurred in 2008. (See *ACT*, March 2009.)

• **Canada**, **Denmark**, **France**, **Germany**, **Italy**, **the Netherlands**, **Norway**, **the United Kingdom**, and **the United States** have agreed on a program of action to block arms smuggling into **Gaza**. In a press statement March 16, U.S. **Department of State** spokesperson Robert Wood described the program as "a comprehensive platform for enhanced cooperation and coordination in the areas of information and intelligence sharing, diplomatic engagement, and military and law enforcement activities."

• The **United States** has agreed to sell anti-submarine aircraft valued at $2.1 billion to **India**. The Obama administration notified Congress March 12 of the deal, which involves eight Boeing P8i long-range maritime reconnaissance, anti-submarine warfare aircraft. **Israel** concluded a pact to sell $1.4 billion in anti-missile air defense systems to India. According to *World Politics Review*, corruption allegations against Indian officials and Israel Aerospace Industries, the company involved in the agreement, could threaten the deal.

• In April, **Ethiopia** announced the destruction of its anti-personnel landmine stockpile ahead of its June 1 deadline under the 1997 Mine Ban Treaty. According to the 2008 *Landmine Monitor Report*, the country has not deployed new anti-personnel landmines since the end of the war with Eritrea (1998-2000), but the report notes casualties have occurred each year since 2003 due to newly laid anti-vehicle landmines in the temporary security zone separating the two countries. Under the Mine Ban Treaty, Ethiopia has until 2015 to clear areas affected by anti-personnel landmines but is not barred from using anti-vehicle landmines.

Treaty Update

Chemical Weapons Convention

India has destroyed its chemical weapons stockpile, a spokesperson for the Organization for the Prohibition of Chemical Weapons (OPCW) told *Arms Control Today* April 20. India's action makes it the third chemical weapons possessor to have fulfilled its destruction obligations under the Chemical Weapons Convention (CWC).

OPCW spokesperson Michael Luhan said India completed destruction of its stockpile on March 15 and that agency inspectors had verified New Delhi's action. India's deadline for destruction was April 28, 2009. Albania and South Korea were the first CWC states-parties to have completed destruction of their stockpiles.

On March 12 Iraq, which had acceded to the convention Feb. 12, filed its initial declaration to the OPCW. According to an April 21 statement by OPCW Director-General Rogelio Pfirter to the organization's Executive Council, Iraq declared "two bunkers with filled and unfilled chemical weapons munitions, some precursors, as well as five former chemical weapons production facilities." Pfirter said Iraq had provided information on its plans for destruction of its chemical weapons and former production facilities, and stated that the OPCW "is now analyzing [the Iraqi] declaration and continuing its work with Iraqi representatives on certain issues related to it."

Libya, Russia, and the United States are possessor states that have not yet finished destruction.

Meanwhile, the Dominican Republic on April 26 became the 187th state-party to the CWC. The Bahamas is poised to become the 188th, after ratifying the CWC April 21. A state becomes a party to the CWC 30 days after depositing its instrument of ratification with the UN secretary-general.

The Bahamian ratification leaves seven states outside the CWC. Israel and Myanmar have signed but not ratified the pact; Angola, Egypt, North Korea, Somalia, and Syria are non-signatories.

CIFTA

President Barack Obama announced April 16 that he would urge the Senate to ratify the Organization of American States (OAS) Inter-American Convention Against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials. Also known as CIFTA for its Spanish acronym, the convention requires states to develop regulations for the legal manufacture, import, and export of firearms and components. Obama made the statement during a press briefing with Mexican President Felipe Calderón while discussing arms flows across the U.S.-Mexican border and drug-related violence. Obama said CIFTA could help "curb small arms trafficking that is a source of so many of the weapons used in this drug war." Signed in 1997 by President Bill Clinton and transmitted to the Senate in June 1998, CIFTA entered into force July 1, 1998 without U.S. ratification.

On April 24, 2009, the Dominican Republic became the 30th OAS member to ratify the convention.

On the Calendar

May 4-15	Preparatory Committee for the 2010 Nuclear Nonproliferation Treaty Review Conference, New York
May 18-July 3	Second Session of the Conference on Disarmament, Geneva
June 15-19	International Atomic Energy Agency Board of Governors Meeting, Vienna

By Kenneth N. Luongo

Loose Nukes in New Neighborhoods:

The Next Generation of Proliferation Prevention

In the initial weeks of the Obama administration, former Vice President Dick Cheney stated that there was a "high probability" of a terrorist attempt to use a nuclear weapon or biological agent and that "whether they can pull it off depends on what kind of policies we put in place." President Barack Obama, in his April 5 Prague speech, said that terrorists "are determined to buy, build, or steal" a nuclear weapon and that the international community must work "without delay" to ensure that they never acquire one.

Obama also outlined a number of policies for locking down vulnerable nuclear material and strengthening the nuclear nonproliferation regime.

If both Cheney and Obama are right, that the threat is real and we are in a race against time, then the new administration needs to act quickly to adapt its nuclear and biological proliferation prevention strategies and threat reduction programs to combat this 21st-century challenge. This effort will require significantly increasing programmatic budgets, creating a robust globalized agenda, harmonizing U.S. government and international programs, removing bureaucratic and legal impediments to action, and utilizing new tools to defeat the new threats. The Obama administration needs to create a next-generation Global Proliferation Prevention Initiative.

Need for a New Concept

The international nuclear and biological threat reduction agenda now encompasses numerous U.S. government agencies and has a budget of more than $1.7 billion in the current fiscal year.[1] With U.S. activities as the core, these programs are supplemented by the Group of Eight (G-8) Global Partnership Against the Spread of Weapons and Materials of Mass Destruction and several other multilateral initiatives, including the Global Initiative to Combat Nuclear Terrorism and the Proliferation Security Initiative (PSI).

Although the threat is global, the overall effort is still culturally, politically, and financially very much rooted in one region: the former Soviet Union. This remains true even as many large-scale projects are nearing completion in Russia and the other former Soviet states. The budgets of key programs in the three major U.S. agencies participating in international threat reduction activities, the Departments of Defense, Energy, and State, currently still devote more than one-half of their combined funding to activities in Russia and the other former Soviet states.[2]

Congress has incrementally provided authority for U.S. agencies to expand their mission to other global hotspots; the agencies have exercised that authority primarily in Asia, Africa, and the Middle

Kenneth N. Luongo is president of the Partnership for Global Security and a former senior adviser on nonproliferation policy to the secretary of energy.

East.[3] For example, the Defense Department has used the authority to remove chemical weapons from Albania and Libya. The Defense and State Departments and the National Nuclear Security Administration (NNSA), a semiautonomous agency within the Energy Department, combined their resources to remove the nuclear infrastructure in Libya after that country abandoned its nuclear ambitions. The State Department's Biosecurity Engagement Program is working to improve biological security in Egypt, Jordan, and other African and Asian nations. Nevertheless, the entire Global Partnership program is still spending its money primarily in Russia, although the G-8 expanded the mandate at its July 2008 summit, stating, "[T]he Partnership will address…global challenges particularly in areas where the risks of terrorism and proliferation are greatest."[4] The follow-up to this statement has been minimal, although more details may surface at the G-8 summit in Italy in July. Still, despite the loosening of the geographic strictures, the effort is suffering from incremental thinking and adaptation.

Threat reduction programs have always suffered a certain political and bureaucratic pigeonholing and second-tier status. Even Obama's Prague speech, which called nuclear terrorism "the most immediate and extreme threat to global security," pushed this agenda to the back of the speech and led with the more politically popular arms control objectives.

In today's environment, there need to be strong and effective policy adjuncts to the traditional military, diplomatic, and intelligence tools for fighting proliferation. The existing threat reduction agenda needs to be reconceptualized as an integrated global proliferation prevention tool focused on the security, removal, and elimination of weapons of mass destruction (WMD) and the targeting of the financing for illicit programs and activities.

Shifting to New Neighborhoods

The targets for an expanded preventive proliferation effort are evolving both geographically and substantively. Obama has made a very bold pledge to lead "an international effort to secure all vulnerable nuclear material around the world within four years,"[5] and he also vowed to strengthen U.S. involvement in a broad range of bioproliferation prevention and response activities. (See Table 1.) What is lacking is a detailed strategy for attacking the problem frontally and rapidly with a modernized and comprehensive initiative to achieve these objectives. Conspicuously absent from the Prague speech was any mention of the need for improvements in global biosecurity policy and international coordination on this multifaceted and growing challenge.

To ensure that a new and refocused proliferation prevention effort achieves the same success in new states that the threat reduction programs have had in Russia and the other former Soviet states, several actions must be taken.

As a first step, the Global Proliferation Prevention Initiative needs to merge the best of the old and new cooperative threat reduction (CTR) policies and programs. As a recent National Academy of Sciences (NAS) report suggested, the effort needs to be updated from "CTR 1.0" to "CTR 2.0."[6] A new proliferation prevention initiative must be more agile, flexible, and globally responsive than the current efforts, while retaining the cooperative and results-focused core of current CTR programs.

Importantly, the effort needs to be operationally multilateral, rather than

Mandel Ngan/AFP/Getty Images

President Barack Obama addresses thousands gathered April 5 at Hradčany Square in Prague. Obama's speech outlined his vision for strengthening the global effort to curb the spread of nuclear weapons and prevent nuclear terrorism.

U.S. dominated. This requires better coordination among allies and may require utilizing non-U.S. funding and letting other countries lead efforts in order to overcome any allergy that may exist to U.S.-led initiatives. In particular, Russia and the United States should find a way to share global nuclear nonproliferation responsibilities based on their past history of post-Soviet cooperation.

Also, the proliferation prevention activities need to be given the same legitimacy as the more traditional treaty-based approach to managing proliferation challenges. Both political and financial capital need to be put behind the effort, and the new concept must be driven home within the executive branch, with congressional policymakers, and with the G-8 Global Partnership and other partners.

In addition, the metrics for this initiative should be broadened to recognize the value of cooperation and engagement. These softer, more intangible benefits of the threat reduction approach are very important, but they are politically difficult to comprehend and sell, in part because they were not part of the original threat reduction legislation. These metrics now need to be legitimized because their value has been proven over time. They should be formally incorporated into a new national security directive and legislation. Then, there could be no dispute in the future about the value of the intangibles as legitimate measures of success.

Finally, at home, the United States must ensure that its own agencies and policies are well coordinated. For example, the Department of the Treasury's new "smart" sanctions program recognizes the reality of integrated global financial markets and utilizes them to combat proliferators. The program targets the proliferators' financing networks and denies them access to essential global financial institutions and mechanisms. By freezing and then releasing the personal assets of a number of North Korean officials, the program is probably most responsible for pushing that country's government to fulfill, at least partially, its commitment to abandon its nuclear program. The targeted sanctions are an essential part of the proliferation prevention initiative even if they never were an integral part of the threat reduction agenda. Obama's Prague speech usefully underscored the importance of these "financial tools."

Table 1: Obama's Commitments to Securing Loose Nukes and Preventing Bioterrorism

In his April 5 Prague speech, President Barack Obama highlighted the need to ensure global nuclear security. Although his Prague remarks largely restated the nuclear nonproliferation goals that he had articulated during his campaign, they represented needed leadership on these globally vital issues.

The table below summarizes Obama's commitments to securing loose nuclear materials and preventing nuclear and biological terrorism. As the accompanying article explains, the administration should go further than Obama did in the Prague speech. In particular, it should develop a stronger focus on biosecurity and bioterrorism as well as embrace the new ideas, tools, players, coalitions, and funding that can result in the creation of a next-generation nonproliferation strategy that is adaptable and robust enough to meet 21st-century threats.

Securing Vulnerable Nuclear Materials

Campaign Commitments	Prague Speech
Lead a global effort to secure all nuclear weapons materials at vulnerable sites within four years	Undertake a new international effort to secure all vulnerable nuclear material around the world within four years
Work with Russia and other nations to implement a comprehensive set of standards to protect nuclear materials from theft	Set new standards, expand U.S. cooperation with Russia, and pursue new partnerships to lock down sensitive materials
Build state capacity to prevent the theft, diversion, or spread of nuclear materials	
Strengthen policing and interdiction efforts, such as by the institutionalization of the Proliferation Security Initiative (PSI)	Turn efforts such as the PSI and the Global Initiative to Combat Nuclear Terrorism into international institutions
Increase pace of deployment of nuclear security detectors at key border crossings	Build on efforts to break up black markets, detect and intercept materials in transit, and use financial tools to disrupt dangerous trade
Convene a summit on preventing nuclear terrorism in 2009 and regularly thereafter in order to agree on globally implemented measures to prevent nuclear terrorism	Convene a Global Summit on Nuclear Security hosted by the United States within a year
Strengthen nuclear risk reduction work at the Departments of Defense, Energy, and State	

Preventing Bioterrorism

Campaign Commitments
Provide assistance to states in meeting their commitments under UN Security Council Resolution 1540 and the Biological Weapons Convention
Strengthen U.S. intelligence collection overseas to identify and interdict would-be bioterrorists before they strike
Build capacity to mitigate the consequences of bioterrorism attacks, for example, by linking health care providers, hospitals, and public health agencies and investing in electronic health information systems
Accelerate development of new medicines, vaccines, and production capabilities
Expand development of bioforensics program
Create a Shared Security Partnership that forges an international intelligence and law enforcement infrastructure to take down terrorist networks

Sources: Arms Control Association, Center for Strategic and International Studies, Obama for America, Organizing for America, U.S. embassy in Prague

Data compiled by Michelle Marchesano, Partnership for Global Security

Dean Calma/IAEA

An International Atomic Energy Agency (IAEA) inspector holds a briefcase housing an electronic device used to identify nuclear material July 7, 2007, in Vienna. The equipment was utilized a week later by an IAEA team that verified the shutdown of nuclear facilities at North Korea's Yongbyon complex.

New Target Countries and Regions

As the cooperative proliferation prevention agenda globalizes, it is necessary to look at which countries and regions it might encompass. As it relates to radiological material security and elimination, virtually every country is a target, especially the medical facilities utilizing medical radiological sources. Major U.S. friends, foes, and strategic competitors all are ripe for consideration.

- The denuclearization of North Korea is a major international objective that, if it occurs, would require significant multinational involvement. The cost for the dismantling of the existing nuclear infrastructure in North Korea is estimated to be about $700 million. The United States would likely pay this entire amount, and the Obama administration has already requested some funding for this project in its first supplemental appropriations request.[7] In addition, if North Korea's Yongbyon nuclear complex is eliminated, the West may also have to address the issue of excess weapons scientists and the redirection of their activities. Beyond the nuclear program, North Korea has a significant biological infrastructure that also poses a lurking danger.[8]

- The new U.S.-Indian civil nuclear cooperation agreement did not dwell on the issue of the security of India's nuclear facilities beyond the International Atomic Energy Agency (IAEA) safeguards on its declared civilian nuclear facilities. New Delhi has rebuffed efforts by Washington to engage more deeply on this issue. As a state that is not a party to the nuclear Nonproliferation Treaty (NPT) and that has been given an exception from standard nuclear cooperation rules, India should be more willing to engage in a dialogue about how it can assure the highest levels of safety and security for nuclear materials and weapons. The muddled response to the bolt-from-the-blue terrorist attack on Mumbai and ongoing terrorist activity in India inevitably raise questions about adequate nuclear security, even though India's nuclear facilities are presumably much better protected than soft civilian sites.

- The United States and Pakistan have had an ongoing dialogue and cooperation on nuclear security since 2001. Reportedly the United States has provided $100 million for equipment and training. This work, initiated during the administrations of George W. Bush and Gen. Pervez Musharraf, will likely continue under the new governments in Washington and Islamabad. In recent years, Pakistan has worked with the United States on biological security, but the nuclear security cooperation is ripe for expansion as the intensity of terrorist attacks in Pakistan has increased. Also, there are continuing questions about insider threats at nuclear facilities. In addition, Pakistani officials have indicated an interest in working with Washington on the issue of retired weapons scientist redirection, but they have not received much of a response from their U.S. counterparts.[9]

- There has been a nuclear security dialogue between China and the U.S. Energy Department dating back to the 1990s, but it is low-key and cautious. Because China has a close relationship with Pakistan, the former could be a conduit for engaging the latter in more intensive and sensitive cooperation on nuclear security. Also, the May 2008 earthquakes in western China came perilously close to elements of the country's nuclear infrastructure, including a research reactor, two nuclear fuel production facilities, and two weapons sites, all within 40 to 90 miles of the epicenter.[10] Discussions with the United States on how to enhance the resistance of nuclear facilities to earthquakes could be productive. Another very sensitive but vital issue for U.S.-Chinese discussions is preventing nuclear leakage from North Korea and preparing to ensure adequate nuclear security in the event of political transition in that country if it is not denuclearized first.

- Interest in nuclear power development in the Middle East is rising, and 16 nations have expressed interest in it.[11] Just before leaving office, the Bush administration signed a civil nuclear cooperation agreement with the United Arab Emirates. The expansion of the Iranian nuclear infrastructure is one reason, among others, for this increase in regional interest in nuclear power. Growth on the scale currently esti-

mated, however, could be dangerous and far exceed the ability of the IAEA to monitor effectively.[12] The Obama administration has pledged to double the U.S. contribution to the IAEA budget over the next four years, to a total of about $225 million annually.[13] One useful focus of this expanded funding could be to support enhanced IAEA monitoring in the region. In addition, the IAEA's activities could be supplemented under a proliferation prevention initiative by the creation of a U.S. or multilaterally funded nuclear monitoring and training effort in the region.

- Asia is one of the world's fastest-growing biotechnology regions. In fact, the growth of publicly traded biotechnology companies in the Asia-Pacific region outpaced growth in the United States and Europe in 2007.[14] The international community has not agreed on uniform biosecurity standards, and there is a lack of knowledge and adherence to best biosecurity practices in a number of countries. That situation raises the risk of accidental or intentional misapplication of biotechnology as the industry expands. The State Department is already engaged on this issue, but its resources are inadequate to meet the challenge. Additional funding should be provided to expand the scope of efforts to improve biological security in Asia.

The new global targets of opportunity are important, but functional issues can and should drive an expanded proliferation prevention agenda.

New Tools to Drive the Agenda

The original CTR agenda grew out of a congressional initiative, but the drivers for a robust, globalized proliferation prevention effort could come from a number of other sources.

Expanding the Budget

To advance the proliferation prevention agenda, Congress and the administration need to act in the short term to ramp up the budget significantly in the nuclear and biological areas. Over the past several years, the international nuclear and biological threat reduction budget has remained essentially static, with occasional significant decreases and increases to certain programs.[15] The new administration reportedly has indicated that it will increase its fiscal year 2010 budget request to meet the president's initiative to accelerate control of loose nuclear materials. It has already taken a first step with the submission of its supplemental appropriations request, which contained $186.5 million for nonproliferation activities.[16]

Another step the administration reportedly is ready to take is to increase the budget for NNSA nuclear nonproliferation programs in fiscal year 2010 and then to substantially increase the budget for each of the next four years to a total increase of roughly $2.4 billion.[17] This would bring the NNSA nonproliferation budget up to about $3.5 billion by fiscal year 2015. This is an admirable financial goal and certainly should be enough money to secure vulnerable nuclear and radiological stockpiles. Yet, if the budget ramps up too slowly and gradually, it may not allow Obama to meet his four-year promise. Roughly $1 billion could be used by the NNSA alone to accelerate existing activities and capitalize on new opportunities in fiscal year 2010. Therefore, the budget ramp-up should be concentrated in the early years rather than the later years.

Clarifying Authorities

The Obama administration has acted on the long-standing proposal to create a nonproliferation czar whose job is to bring cohesion to the nonproliferation policy elements that are spread across multiple U.S. agencies.

One important action that the new czar could take is to clarify and improve the authorities that govern the use of existing CTR-related funds and future proliferation prevention budgets. For example, transfer authorities between agencies should be streamlined so that the agency best suited to carry out a specific nonproliferation task can do so as rapidly as possible without being hampered by bureaucracy or statutory limitations. Under current law, the State Department's Nonproliferation and Disarmament Fund (NDF) is the only program allowed to finance work in a country that the United States has sanctioned, such as North Korea or Iran, without receiving a waiver to the 1961 Foreign Assistance Act.

The existing threat reduction agenda needs to be reconceptualized as an integrated global proliferation prevention tool focused on the security, removal, and elimination of WMD and the targeting of the financing for illicit programs and activities.

The "notwithstanding any other provision of law" authority enjoyed by the NDF should be expanded on a limited and trial basis to all other relevant agencies and programs. Agencies conducting nonproliferation programs need some unrestricted funding, perhaps 10 percent of the total as suggested by the NAS report, and the latitude to reprioritize funding based on changing conditions. Illustrating this need, even if the Defense and Energy Departments were cleared to work in North Korea, their programs may not have unobligated funds—i.e., funding that has not yet been allocated for a specific purpose—available for a new project. Although budgetary priority should be given to established program line items, small contingency funds are needed to address unexpected threats, and the current funding authorities are not well suited for this purpose.

In addition, U.S. programs should expand their ability to take contributions from foreign governments for relevant work and to send money to foreign countries if another country is leading an important nonproliferation effort. The NNSA Global Threat Reduction Initiative has already accepted funds from third parties, and Congress provided the same

authorization this year to the NNSA's International Nuclear Material Protection and Cooperation program and Russian Plutonium Disposition program. These authorities should be used as a model for other agencies.

Finally, there are questions as to whether the United States has in place all the authorities necessary to recover, remove, and dispose of nuclear, radiological, and biological materials, especially those that may need to be returned to this country. A review of these authorities should be conducted, and any limitations should be remedied by appropriate legislative or executive action.

Creating New Initiatives

One of Obama's key nonproliferation goals is to secure all vulnerable nuclear materials and warheads within four years. Undoubtedly there will be considerable debate inside the administration about how to define and meet this goal, but there is a range of other initiatives that the administration should also pursue as part of a next-generation tool kit to combat WMD threats.

Nonproliferation Enterprise Fund. A "nonproliferation enterprise fund" would allow government programs to form more effective partnerships with the nongovernmental and university communities to assist in nuclear and other nonproliferation analysis. A part of this fund could be dedicated to the development of "the next generation of nonproliferation experts," who would be required to perform some government service in return for educational and training support. This proposal is similar to the collaboration between the federal government and U.S. research universities on energy issues and could be funded at a modest $25 million per year to start.

Multilateral WMD Rapid Reaction Force. Given the unpredictable nature of WMD crises, there is a need for domestic and international forces that would allow for quick and coordinated action in the face of a nuclear, radiological, or biological emergency or disarmament opportunity. This type of force would allow, in advance of a crisis, for the clear delineation of the roles and responsibilities among agencies and partner countries based on threat or opportunity scenarios. It would require dedicated funding for operations, transport, integrated training, and related issues. In addition, it would ensure that all the necessary legal authorities are put in place to allow for the rapid extraction and return of foreign nuclear, radiological, or biological materials and other assets to the United States or other countries if necessary.

Private-Public Partnership for Nonproliferation Funding. In the globalized environment, it is essential to look beyond purely governmental structures and address opportunities for partnership among government, civil society, and the private sector to create innovative nonproliferation solutions. Such collaboration could result in a new, multidisciplinary "Iron Triangle," with government institutions providing the authority and funding, nongovernmental organizations providing their unique analyses and creative approaches to emerging challenges, and the private sector, especially in the nuclear and biological areas, assuming a new partnership role and driving innovative solutions.

One proposal to operationalize this new cooperation is for the nuclear industry to contribute to a nonproliferation fund that could increase funding for IAEA activities or be used for other international nonproliferation purposes. One option is that, for every dollar in direct subsidies for new nuclear power plants that the U.S. government provides, the nuclear industry would be required to contribute a portion, perhaps 0.1 percent, to the nonproliferation fund. Alternatively, if the United States provides only loan guarantees for new nuclear plants, the industry would pay into the nonproliferation fund a small percentage of the underwriting costs of the government-funded guarantees. Another, more global alternative is to require utilities to contribute 0.01 cents of the price of each nuclear-generated kilowatt-hour to the nonproliferation fund.[18]

These ideas are similar to the responsibilities that governments have imposed on the nuclear industry to deal with waste management, and the cost could be 10 percent of that levy. In this case, it would link the nuclear power industry into the security dialogue, recognize explicitly the security implications of the expansion of nuclear power, offer a reputational benefit for the nuclear power industry, and increase the pool of funds available for addressing nuclear security challenges. Similar proposals that link the biotechnology industry into the biosecurity debate also should be explored.

New Treaties and Agreements. The U.S.-Russian strategic arms reduction treaties and the Chemical Weapons Convention

Petr Pavlicek/IAEA

An International Atomic Energy Agency safeguards inspector seals a transport container housing nuclear fuel removed from a shutdown Latvian research reactor on May 25, 2005. The container held about three kilograms of highly enriched uranium, which was shipped to Russia and processed so that it could no longer be used in a nuclear weapon.

Toshifumi Kitamura/AFP/Getty Images

The Japanese Ground Self-Defense Force's nuclear, biological, and chemical protection unit sprays water over a simulated contaminated area during an October 2007 Proliferation Security Initiative exercise, "Pacific Shield 07," at the port of Yokohama, south of Tokyo.

have provided important drivers for the Defense Department CTR program and its nonproliferation spending priorities. In the near term, there may be a follow-on to START, which expires at the end of 2009. Because Obama has called for global reductions in nuclear weapons, the START process could be expanded to other nuclear-weapon states. In addition, the new administration has identified a fissile material cutoff treaty (FMCT) as a U.S. policy goal. As these agreements are pursued, however, a number of other initiatives could be undertaken as part of a next-generation proliferation prevention regime.

- *UN Security Council Resolution 1540 Implementation*: UN Security Council Resolution 1540 requires all nations to report on their nuclear, chemical, and biological security status and nonproliferation activities. Compliance with this mandate has been inconsistent. It would be very useful for the Global Partnership members to provide financial, technical, and manpower support to those countries that need to do a better job of reporting but do not have the resources.[19]

- *FMCT*: An FMCT faces significant challenges. For example, India and Pakistan are opposed to the treaty and continue to produce fissile materials for their weapons programs. One possibility is for the five NPT nuclear-weapon states to take the lead in advance of the 2010 NPT Review Conference and announce that they will agree to end fissile material production. There could be significant challenges in this more limited concept as well, but these five states have stopped making fissile material for weapons, and this could be a common starting point.[20]

- *Global Partnership Reconceptualization*: The G-8 Global Partnership is in need of reconfiguration and expansion. A new proposal is to create from the partnership a multilateral ready reserve that would train for and be prepared to respond to proliferation and WMD challenges.[21] The concept is not unusual, as some countries participate in this type of coalition under the PSI. The proposal for the Global Partnership, however, would expand the concept beyond cargo in transit and would allow for an interchangeable lineup of countries to address the challenges that arise. This approach would use PSI-type exercises, but with more structure and with a focus on the protection, removal, and elimination of WMD materials and infrastructure. The multilateral force would require identification of resources, material, and manpower and plans for short-notice mobilization and assignment of responsibilities.

- *Global Nuclear Security Standard*: Despite the detailed technical information provided by the IAEA for the safeguarding of nuclear facilities and the other domestic and international conventions and regulations that govern nuclear material protection, there is no universally accepted standard for securing nuclear materials and weapons. The new administration, as part of its proposed Global Summit on Nuclear Security, should call for the establishment of a minimum nuclear security standard to jump-start this process.[22]

- *A Global Biosecurity Pact*: The lack of broadly recognized and adhered-to international standards for biosecurity is a looming global danger. As the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism has pointed out, although biotechnology "has benefited humanity by enabling advances in medicine and in agriculture, it has also increased the availability of pathogens and technologies that can be used for sinister purposes."[23] There needs to be an effort to move all countries with life-science research to a common set of security standards. Such an agreement could provide for improved biotechnology trigger lists, beyond those maintained and observed by the Australia Group. These objectives will be extremely difficult to accomplish because the biotech industry is largely owned by private entities, is spreading rapidly around the globe, and generally resists demands for broad intrusiveness. As a first step, developing countries could be offered financial support

to assist them in rising to the highest biosecurity and safety standards as defined by the World Health Organization and the Organization for Economic Cooperation and Development. Funds also could be provided for the improvement of the "network of networks" that serves as the informal, voluntary, transparent monitoring and reporting structure on biological issues and developments. Additionally, the NNSA Second Line of Defense program and the Homeland Security Department's Container Security Initiative should explore the benefits of installing biodetection technologies along with their nuclear screening equipment overseas as an adjunct to the use of medical surveillance to detect pathogens and terrorist smuggling of biological agents.

Maintaining the Old Neighborhood

While the global expansion of the proliferation prevention agenda is pursued and loose nukes in new neighborhoods are locked down, it is important not to lose sight of the enormous security investment that the United States and other Global Partnership members have made in Russia and the other former Soviet states. All the countries involved in that effort must ensure that the quality of the equipment and training remains high as the Western countries hand over control to the former Soviet states. Congress has legislated that the bulk of U.S. funding for Russian nuclear security be completed by 2012. As a result, U.S. officials are in a dialogue with Russia on the issue of the long-term sustainability of the substantial U.S. investment in Russian security improvements, but the progress has been slow. The United States needs to continue its engagement with Russia and the other former Soviet states, and it needs to check the equipment periodically after the 2012 deadline.

In addition, several other initiatives beyond the current scope of the discussion could be undertaken. One is the installation of a satellite uplink on all portal monitors and perimeter security equipment. The satellites would provide real-time reporting on the equipment's operational status and would log security alerts and breaches. Because of the sensitive location of much of the security equipment in Russia, the information could be downloaded to a regional monitoring center that could be manned jointly by U.S. and Russian specialists. This effort could be supplemented by a U.S.-Russian nuclear security hotline that would allow for immediate communication on suspicious incidents. Such a connection already exists between the United States and Russia to reduce the risk of a nuclear exchange stemming from accident, miscalculation, or surprise attack,[24] and the IAEA manages an Incident and Emergency Center to monitor nuclear reactor safety around the globe.[25] This idea would extend these concepts to nuclear materials security. The proposal is likely to meet stiff resistance from the nuclear bureaucracy in Russia, and in the United States if the proposal is reciprocal, but that should not be a deterrent to action in support of greater nuclear security.

This concept could be expanded globally for civilian facilities monitored by the IAEA. In this case, the monitoring center could be manned by rotating international experts. But the goal would be the same: constant real-time monitoring of all nuclear facilities under safeguards, IAEA or domestic, and rapid global alerting and response to security breaches.

This concept could be supplemented by the establishment of regional training centers that could promote nuclear materials security in key regions around the globe. These centers would serve to cultivate a local security culture, improve efficiency by consolidating training courses rather than repeating training to multiple audiences, and provide ready access to best practices for new partners. These training centers could be initiated with U.S. funding but supplemented or ultimately fully supported by Global Partnership nations and the IAEA.

Conclusion

Obama made his first major nuclear security speech just 75 days after he took office, a signal of the importance he places on preventing nuclear proliferation and terrorism. The policies that he committed the United States to pursue are important for U.S. and global security, and they create a firm foundation for progress. Many of the policy proposals are well known, however, and most of the nuclear policy details were left unspoken. Perhaps more importantly, the acute dangers posed by biological terrorism and proliferation were not addressed.

As the new administration works to develop its full suite of policies, it must think beyond the mere expansion and adaptation of the existing arms control

Mark Renders/Getty Images

General view of a cargo scanner, provided by the Department of Energy's Megaports Initiative, at Belgium's Port of Antwerp on Oct. 26, 2006. The initiative provides radiation detection equipment to the world's busiest ports so that they can screen cargo for radioactive material before the cargo is shipped to the United States.

and threat reduction models and programs, and beyond the atom, and focus on how to construct a transformative next-generation proliferation prevention strategy. Creating a Global Proliferation Prevention Initiative would build on the current structures and include new policy ideas and tools, players and coalitions, and funding. It would squarely face the reality that domestic and international institutions and bureaucracies are having difficulty maintaining pace with evolving 21st-century threats and challenges. By tackling these issues early, creatively, and comprehensively, the United States can lead the world toward the enhanced global security and international stability that are so desperately needed. **ACT**

ENDNOTES

1. Total fiscal year 2009 funding for international nuclear and biological proliferation prevention includes funds from the Departments of Defense, Energy, Homeland Security, and State. Excluding the Homeland Security Department, the amount is $1.7 billion. Michelle Marchesano, "Funding Analysis of FY09 International WMD Security Programs," *PGS Policy Update*, April 2, 2009, www.partnershipforglobalsecurity.org/documents/fy09_wmd_security_programs_final_funding.pdf.

2. In fiscal year 2009, the cumulative Russia/FSU component accounted for more than 60 percent of the total combined funding of the four major U.S. government threat reduction programs. The individual percentages for the four programs are as follows: Defense Department's Cooperative Threat Reduction program, 98 percent ($424 million); Energy Department's International Nuclear Material Protection and Cooperation program (INMPC), 56 percent ($224 million); Energy Department's Global Threat Reduction Initiative (GTRI), 34 percent ($134 million); and State Department's Global Threat Reduction program, roughly 50 percent ($30 million). Marchesano, "Funding Analysis of FY09 International WMD Security Programs," and personal communication with program officials.

3. Beginning in 2002, the annual authorization bills began to include language that expanded the authorities of programs in the Defense, Energy, and State Departments to conduct threat reduction work globally. For a full list, see Committee on Strengthening and Expanding the Department of Defense Cooperative Threat Reduction Program and Committee on International Security and Arms Control Policy and Global Affairs, "Global Security Engagement," National Academy of Sciences, 2009 (hereinafter NAS Global Security Engagement report). Most recently, in fiscal year 2009, $10 million was provided for the Defense Department's CTR activities outside the former Soviet Union. Marchesano, "Funding Analysis of FY09 International WMD Security Programs."

4. "G8 Hokkaido Toyako Summit Leaders Declaration," July 8, 2008, para. 64, www.mofa.go.jp/policy/economy/summit/2008/doc/doc080714__en.html.

5. Barack Obama, "Remarks of President Barack Obama," Prague, April 5, 2009, http://prague.usembassy.gov/obama.html.

6. NAS Global Security Engagement report.

7. For the text of the supplemental appropriations request, dated April 9, 2009, see www.whitehouse.gov/omb/asset.aspx?AssetId=1086 (hereinafter president's supplemental appropriations request).

8. Richard Stone, "A Wary Pas de Deux," *Science*, September 17, 2004, pp. 1696-1703.

9. Personal communication with Pakistani officials.

10. Gethin Chamberlain, "Chinese Earthquake: Nuclear Sites Alerted," Telegraph.co.uk, May 17, 2008, www.telegraph.co.uk/news/worldnews/asia/1974263/Chinese-earthquake-nuclear-sites-alerted.html.

11. Sharon Squassoni, "Nuclear Energy: Rebirth or Resuscitation," Carnegie Endowment for International Peace, Washington, D.C., March 2009, p. 55, http://carnegieendowment.org/files/nuclear_energy_rebirth_resuscitation.pdf.

12. For growth projections, see ibid., pp. 48-61.

13. See www.barackobama.com/pdf/issues/HomelandSecurityFactSheet.pdf.

14. Ernst and Young, "Beyond Borders: Global Biotechnology Report 2008," 2008, p. 93, http://www.ey.com/US/en/Industries/Biotechnology/Biotechnology_Beyond_Borders_2008.

15. Marchesano, "Funding Analysis of FY09 International WMD Security Programs"; Partnership for Global Security, "International WMD Security Programs Funding," April 2, 2009, www.partnershipforglobalsecurity.org/documents/fy06_09_cumulative_wmd_security_program_funding.pdf.

16. The president's request includes $89.5 million for the NNSA and $97 million for the State Department. Within the NNSA's $89.5 million amount, $55 million is for the INMPC "to counter emerging threats at nuclear facilities in Russia and other countries of concern though detecting and deterring insider threats through security upgrades"; $25 million is for GTRI "to complete disablement tasks and to initiate spent fuel disposition and other denuclearization efforts" in North Korea; and $9.5 million is for the Nonproliferation and International Security program "for the disablement and dismantlement support for the denuclearization efforts" in North Korea. Within the State Department's $97 million amount that is directed to the Nonproliferation and Disarmament Fund, "$47 million is to support dismantlement of nuclear facilities in North Korea and $50 million is to provide border security equipment, training, and program management for Egypt to prevent smuggling of illicit goods into Gaza." President's supplemental appropriation request, pp. 68, 88.

17. "Sustained Nonproliferation Increase Called For," *Nuclear Weapons and Materials Monitor*, Vol. 13, No. 6 (February 16, 2009), p. 3.

18. The latter alternative was developed by Frank von Hippel and could generate approximately $80 million per year in the United States and $250 million per year on a global basis. For more information, see International Panel on Fissile Materials, "Global Fissile Material Report 2008," 2008, p. 115, n. 93, www.fissilematerials.org/ipfm/site_down/gfmr08.pdf.

19. For more analysis of what is required to implement UN Security Council Resolution 1540, see Elizabeth Turpen, "Non-State Actors and Nonproliferation: The NGO Role in Implementing UNSCR 1540," August 6, 2007, www.stimson.org/pub.cfm?ID=538; Lawrence Scheinman, ed., "Implementing Resolution 1540: The Role of Regional Organizations," UNIDIR/2008/8, September 2008, www.unidir.org/bdd/fiche-article.php?ref_article=2747.

20. "Only India, Pakistan and possibly Israel, continue to produce fissile materials for nuclear weapons. The United States, United Kingdom, Russia, [and] France...have officially announced an end to their production for weapons, while China has indicated this unofficially." International Panel on Fissile Materials, "Global Fissile Material Report 2008," p. 7. This FMCT proposal has also been promoted by former State Department official Ambassador Norman A. Wulf.

21. Partnership for Global Security, "G-8 Global Partnership: Adapting to New Realities," Washington, D.C., July 9, 2008, www.partnershipforglobalsecurity.org/Documents/press_release_g8gp_final.pdf (press release).

22. See Matthew Bunn, "Securing the Bomb 2007," September 2007, pp. 40, 107-108, www.nti.org/e_research/securingthebomb07.pdf.

23. World at Risk: the Report of the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, New York: Vintage, 2008.

24. A 1963 agreement between the United States and the Soviet Union established a direct communication link between the two states. "Hot Line Agreement (1963)," atomicarchive.com, n.d., www.atomicarchive.com/Treaties/Treaty2.shtml.

25. Kirstie Hansen, "A Life-Saving Hotline: The IAEA Incident and Emergency Centre Answers the Call," November 9, 2006, www.iaea.org/NewsCenter/Features/IEC/hotline.html.

By Lewis A. Dunn

Reshaping Strategic Relationships:

Expanding the Arms Control Toolbox

Soon after the Obama administration took office, Vice President Joe Biden set the tone of the new administration's approach toward Moscow when he called for the United States and Russia to press the "reset button" in their bilateral relationship.[1] This theme was reiterated in the March 9, 2009, meeting between Secretary of State Hillary Rodham Clinton and Russian Foreign Minister Sergey Lavrov.

Providing guidance to their bureaucracies, Presidents Barack Obama and Dmitry Medvedev, at their meeting on the margins of the April G-20 financial summit in London, "decided to begin bilateral intergovernmental negotiations to work out a new, comprehensive, legally binding agreement on reducing and limiting strategic offensive arms to replace" START.[2]

Meanwhile, the U.S.-Chinese military-defense dialogue that had been suspended by China in November 2008 to protest U.S. arms sales to Taiwan resumed in February 2009.[3] Again on the margins of the G-20 financial summit, Obama and Chinese President Hu Jintao discussed how to "build a positive, cooperative, comprehensive U.S.-Chinese relationship for the 21st century" and went on to announce the creation of a "Strategic Track" as part of a new U.S.-China Strategic and Economic Dialogue.[4]

Strategic dialogue and formal arms control treaty negotiations are but two elements of a wider spectrum of cooperative security activities available to U.S. officials and their counterparts to revamp the U.S.-Russian and U.S.-Chinese strategic relationships. Other cooperative security activities include:

- Information, data exchanges, and transparency measures;
- Joint studies, experiments, and planning;
- Personnel exchanges, liaison arrangements, and joint military staff bodies;
- Joint activities, programs, systems, and centers; and
- Unilateral initiatives and coordinated national undertakings.

This expanded arms control toolbox also can be used to deepen cooperation among the five nuclear-weapon states under the nuclear Nonproliferation Treaty (NPT). Such cooperative efforts could include the creation of building blocks for pursuing nuclear abolition.

The specific combination of cooperative security activities would vary across today's strategic challenges. Decisions

Lewis A. Dunn, a senior vice president of Science Applications International Corp. (SAIC), served as assistant director of the U.S. Arms Control and Disarmament Agency and ambassador for the nuclear Nonproliferation Treaty in the Reagan administration. The views herein are those of the author and not necessarily those of SAIC or any of its sponsoring organizations.

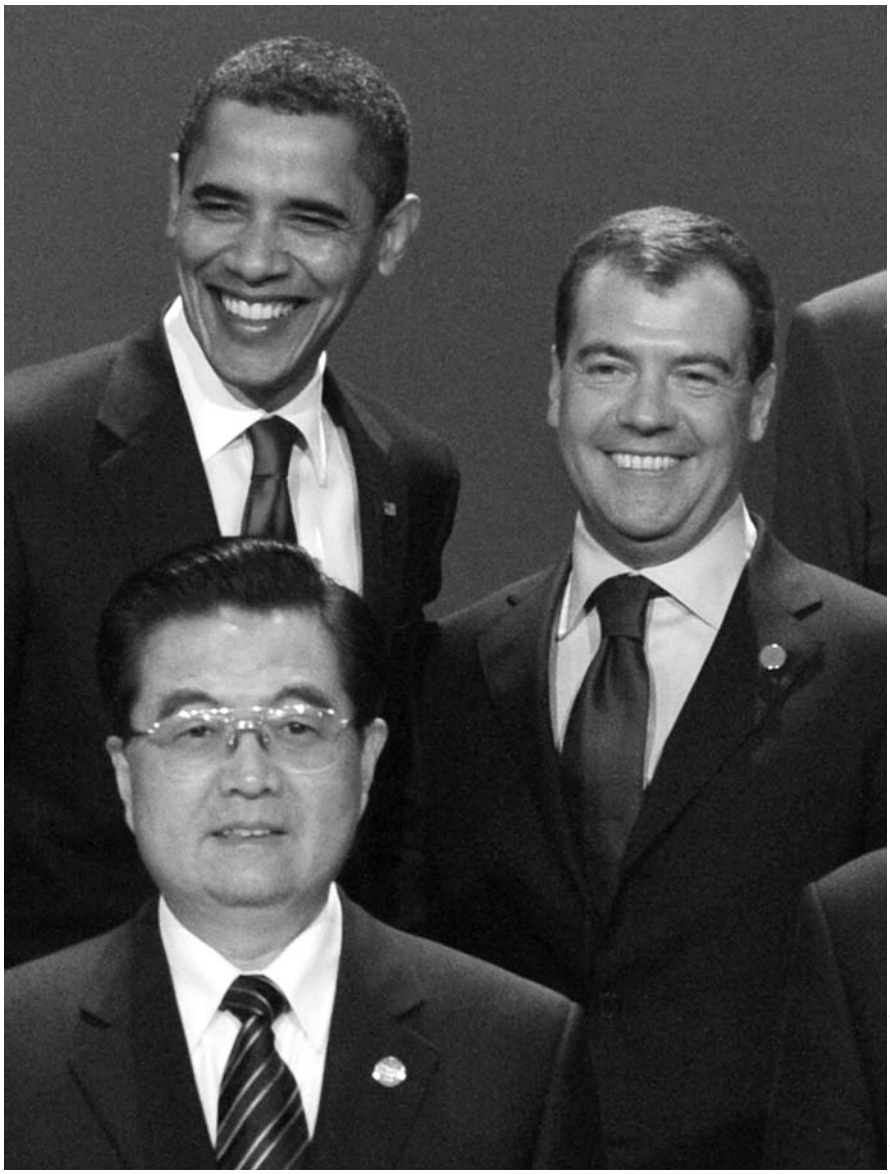
on what particular measures to use will depend not only on U.S. thinking but also on that of U.S. partners. The acceptability of different measures will vary with the underlying political-military relationship, past precedents, and the strategic cultures of the countries directly concerned. The timing of proposals for specific cooperative initiatives will be another important consideration. Not least, the success of U.S. efforts to use an expanded arms control toolbox to help create strong habits of U.S.-Russian and U.S.-Chinese strategic cooperation will depend on comparable commitments to that goal by Moscow and Beijing.

Building a Nonadversarial U.S.-Russian Strategic Relationship

As the Obama administration moves to reset the U.S.-Russian strategic relationship, it confronts deep Russian mistrust of U.S. strategic intentions as well as a pervasive official and public belief that the United States "took advantage" of Russia's weakness in the post-Cold War turmoil. NATO expansion from the 1990s onward, U.S. and NATO use of force in Kosovo in 1999, U.S. withdrawal from the 1972 Anti-Ballistic Missile Treaty and the pursuit of national missile defenses, and the recent proposal to deploy missile defenses in eastern Europe all are cited in a Russian bill of particulars.

On the U.S. side, there is continuing uncertainty about Moscow's intentions. Russia's use of military force against Georgia in August 2008 heightened concerns about Moscow's pursuit of a restored sphere of influence. Sometimes, questions also arise about whether Russian officials would welcome a nuclear Iran as a check on U.S. power. Areas of cooperation exist, most prominently efforts to prevent terrorist groups from obtaining weapons of mass destruction (WMD), but the goal of a nonadversarial relationship characterized by U.S.-Russian strategic cooperation has eluded each of Obama's immediate predecessors—George H. W. Bush, Bill Clinton, and George W. Bush.

Successful negotiation of a START replacement is the necessary first step. Even as those negotiations accelerate, however, U.S. and Russian officials can draw on the full set of cooperative security activities to address mutual uncertainties, deal with key disputes, and lay the building blocks for longer-term, mutually advantageous cooperation.



Eric Feferberg/AFP/Getty Images

President Barack Obama, Chinese President Hu Jintao, and Russian President Dmitry Medvedev pose for photographers April 2 during the G-20 financial summit in London.

Joint Studies, Experiments, and Planning

Given today's deep mutual uncertainties, Washington and Moscow need to find better "windows" into each other's thinking, plans, and programs. Traditionally, arms control negotiations partly served this purpose, and the START follow-on process will do so again.

Strategic dialogue can be another means to provide such windows. To serve that goal, however, a new U.S.-Russian strategic dialogue will require a changed approach on each side. U.S. officials will need to go beyond the recent scripted presentations of U.S. positions of the Bush administration that did little to meet Russian concerns; Russian officials will need to break out of their Cold War confrontational habits of thinking.[5] On both sides, sustained top-level attention and a robust institutional structure to ensure bureaucratic follow-through will be other keys to success.

Joint studies would be a natural complement. There are many possible topics, including the emerging proliferation threat, future nuclear weapons requirements, new concepts of strategic stability, and the political-military conditions of nuclear abolition. Participants could be drawn from the two countries' respective defense establishments, militaries, and nuclear weapons laboratories. Each country's participants would address and then discuss an agreed set of issues. Even if the two sides could not produce a consensus written report,

the process would provide each side with valuable insights into the other's thinking. Official intergovernmental studies would be preferable, but so-called Track 2 efforts of retired officials and experts could be an initial stepping stone.

Joint experiments would also provide windows into each side's thinking and build cooperation by addressing shared problems. Ample precedent exists in both the Joint Verification Experiment of the late 1980s, looking at enhanced verification measures for the Threshold Test Ban Treaty, and the U.S.-Russian-IAEA Trilateral Agreement of the late 1990s, looking at monitoring nuclear warhead storage. Building on the Trilateral Agreement, a joint experiment on nuclear warhead storage monitoring would be a logical first step. This action could be followed by a joint experiment on procedures for the mutually monitored dismantlement of nuclear warheads, including consideration of what types of international involvement or exchange of information could be provided.

Joint military-defense planning is another area to explore. Possible joint responses to nuclear terrorism are one example. Consider a situation in which a non-nuclear-weapon state had thwarted a terrorist attempt to smuggle an improvised nuclear device or even a stolen nuclear weapon through its national territory or waters. What type of assistance would such a country want from the nuclear-weapon states to render that device or weapon safe, how would that assistance be provided in an extremely urgent fashion, and what would be done with the device or weapon? Comparable joint planning could focus on all of the actions that then would be necessary to seek to attribute the terrorist device to its source and to determine the identity of possible aiders and abettors. Crisis gaming also could be used to build habits of cooperation in dealing with the shared terrorist nuclear challenge.

Institutionalizing Defense-Military Engagement

More institutionalized engagement between Russian and U.S. military and defense officials is another cooperative security activity. U.S. readiness to move ahead in this area, however, has not been matched by Russia, reflecting some combination of the downward slide in the overall relationship between the two countries, lingering Cold War thinking, and uneasiness about a U.S. presence at Russian military sites and institutions, even on a reciprocal basis.

Assuming greater opportunity for cooperation in today's changed political context, one possibility would be regularized exchanges of personnel at each other's military training institutions, for example, in the United States at the National Defense University and Army, Air, and Naval War Colleges. More formal military liaison arrangements also could be explored, with senior Russian officers present at one or more U.S. defense sites and vice versa. Such liaison arrangements would build on the presence of Russian military personnel at the North American Air Defense Command during the Y2K transition from December 1999 to January 2000. The two countries could create two joint, standing Senior Military Staff Groups, one in Moscow and one in Washington, each with flag-rank officers from each side, for exchanges on issues of mutual concern as well as approaches to shared challenges.[6] Regardless of the specific mechanism, the purpose of these activities would be to help improve each side's understanding of the other's thinking, plans, and programs and, again, to build habits of cooperation.

Indeed, U.S. officials could consider unilaterally proposing a Russian military presence at one or more U.S. sites, even without asking for reciprocity. Given Moscow's concerns about U.S. missile defenses and the erosion of Russia's deterrent, two possibilities to explore would be a nonreciprocal Russian liaison presence at the North American Air Defense Command or at the Missile Defense Agency. The latter option would complement possible pursuit of a joint missile defense capability along the lines discussed in the next section.

Squaring the Missile Defense Circle

A joint U.S.-Russian-NATO missile defense system could square the circle on the potential deployment of U.S. missile defenses in Europe. It also could be part of a more comprehensive, if somewhat longer-term, approach to addressing the deep and continuing U.S.-Russian differ-

Michael Mainville/AFP/Getty Images

Brigadier Gen. Patrick O'Reilly, deputy director of the Pentagon's Missile Defense Agency (left), and Russian Maj. Gen. Alexander Yakushin, deputy head of Russia's space forces (right), meet with reporters Sept. 18, 2007, outside the Russian-leased Gabala radar facility in Azerbaijan. Then-Russian President Vladimir Putin proposed that Russia and the United States develop a joint missile defense for Europe based partly on the Gabala radar.

ences over national missile defenses. The possibility of joint U.S.-Russian missile defenses, whether globally or for Europe, has been broached periodically by U.S. and Russian officials and experts over the past two decades.

The most recent proposal came in June 2007 from Russia's then-president, Vladimir Putin, in response to U.S. plans for deploying missile defenses in eastern Europe. Current U.S. plans for this "third site" would put ten longer-range interceptors in Poland and a missile-tracking radar in the Czech Republic. But Putin, who is now prime minister, had proposed instead that Russia and the United States develop a joint missile defense for Europe based partly on a Russian radar in Azerbaijan. Some serious technical work on joint activities has been done, both in the 1990s and after Putin's proposal.

A joint missile defense system could begin with a pilot project to test the feasibility of combining available radars, interceptors, and command and control assets, including decision-making rules, to defend Iran's immediate neighbors against that country's existing medium-range missiles. In parallel, U.S., Russian, and NATO experts could define the architecture, components, and associated procedures for a follow-on joint system to counter a more advanced Iranian nuclear missile threat, as well as other threats to Europe. The particular sites for deploying new interceptors and radars would be addressed as part of designing this overall joint follow-on architecture.

Pursuit of a joint missile defense program by the United States, other NATO members, and Russia would help meet Moscow's fears that U.S. missile defenses ultimately are aimed at negating Russia's nuclear deterrent. The potential payoffs of such a proposal for a joint missile defense program in Europe as a means of reassuring Russia and avoiding new arms competition would be increased were it joined to a U.S. commitment promptly to follow a successful START replacement with additional U.S.-Russian negotiations to reach an agreement on offense-defense limitations. A joint program and system also might provide all parties concerned with a credible way to step back from the currently configured plans for deploying missile defenses in Poland and the Czech Republic.

Not least, U.S.-Russian-NATO missile defense cooperation could be part of a broader strategy of offering Iran's leaders a choice between, on the one hand, the benefits of economic, political, and social integration into the wider international community, including steps to meet Iran's security concerns, and, on the other hand, the risks of further isolation and military containment by the United States, Russia, and other countries. In effect, cooperation would send a very strong signal to Iranian leaders that if they actually acquire nuclear weapons, the great powers will act together to ensure that Iran will not gain from that move. Finally, proposing joint missile defenses would be a good test of the potential nonproliferation payoffs for the United States of addressing Russian strategic concerns.

In addition, Moscow and Washington could act to implement their 2000 agreement to create a Joint Data Exchange Center for early-warning data. Officially, implementation has been prevented by disputes over liability; in practice, neither side has perceived a significant advantage in going forward. Implementation would be an important symbolic step to demonstrate both countries' interest in a changed relationship.

Nuclear Posture Review

Congress has mandated a new Nuclear Posture Review (NPR) to be carried out by the secretary of defense in consultation with the secretaries of energy and state. The review will consider all nuclear weapons issues, from the role of nuclear weapons to the future nuclear weapons complex. Its answers will affect the evolving U.S. strategic relationship with Russia, both directly and as a result of Russian reactions.

At the least, U.S. officials should consider informing the Russians of the ongoing progress of the NPR, the key issues being discussed, and eventually the key conclusions reached. U.S. officials even could exchange views formally or informally with Russian officials about selected issues being addressed during the NPR. For example, U.S. officials could raise questions about Russia's own strategic programs, goals, and intentions as well as its views on broader global strategic issues. How to do so would raise its own issues. Engagement of Russia on the NPR would have to be conducted in a way that protected sensitive information on detailed U.S. operational practices and capabilities. It also would need to be done in a manner and at a level that would be taken seriously by the top levels of the Russian military-defense establishment. Such a unilateral U.S. initiative would reduce uncertainties and misperceptions that could affect the parallel START negotiations, would avoid U.S. or Russian misunderstandings and missteps, and would open windows into each other's strategic thinking.

U.S. officials should consider informing the Russians of the ongoing progress of the Nuclear Posture Review, the key issues being discussed, and eventually the key conclusions reached.

NATO Enlargement and Russia's Near-Abroad Posture

Successfully resetting the U.S.-Russian strategic relationship will require addressing Russia's opposition to NATO enlargement. Conversely, it also will require addressing U.S. concerns about Russia's political intentions on its borders. These issues far exceed the scope of this discussion. Successful pursuit of the types of cooperative security activities set out here would build needed habits of U.S.-Russian cooperation and bring both countries closer to their oft-stated goal of a nonadversarial strategic relationship. Within that changed milieu, Russian attitudes

could change (e.g., at least toward NATO enlargement in the past and Russia's need for a security buffer zone); existing mechanisms could prove more effective (e.g., the NATO-Russia Partnership); and now inconceivable options could be considered (e.g., bringing a nonadversarial Russia into a NATO transformed to deal with 21st-century threats).

Building U.S.-Chinese Habits of Strategic Cooperation

Improved relations between Taiwan and China since Taiwan President Ma Ying-jeou took office a year ago have reduced the dangers of a military confrontation involving China, Taiwan, and the United States. Nevertheless, miscalculation by China or the United States remains conceivable, as does the danger of growing strategic competition. Chinese officials are uncertain and concerned about the eventual scope of U.S. missile defenses as well as growing U.S. longer-range conventional strike capabilities.[7] U.S. officials continue to watch closely the growth of China's military power and are uncertain about Chinese strategic plans, programs, and intent.[8]

Beijing and Washington have compelling reasons to avoid military confrontation and competition, while building habits of strategic cooperation. They have strong economic interdependencies as well as many shared regional and global security interests. Cooperative security activities again can contribute to shaping a stable and cooperative relationship. Yet, historical memories, a mix of congruent and competing interests, and differing strategic cultures all shape what cooperative security activities may be practicable and how soon. Moreover, although precedents exist, including, for example, the six-party talks on North Korea, they are much weaker than in the U.S.-Russian relationship. Thus, the bilateral goal should be to achieve some initial cooperative successes, create some additional precedents, and begin a longer-term process.

Defining Principles, Institutionalizing the Process

Resumed strategic dialogue between the two countries promises to provide needed windows into each side's thinking on strategic issues, but China's leaders have been prepared to cut off past strategic discussions, as well as other military-to-military contacts, to express displeasure with perceived U.S. provocations.

Obama's announced visit to China later this year could provide an opportunity for the two presidents to define the overarching principles that would govern their resumed strategic dialogue and their broader strategic relationship in the early 21st century. One important principle would be affirmation of the importance of institutionalizing a renewed U.S.-Chinese strategic dialogue and of insulating it from future political ups and downs. Ongoing working groups could be established to address baskets of issues between high-level meetings.

In negotiating these principles, one particularly difficult question likely will be whether the United States can accept and acknowledge limited nuclear vulnerability because of China's capabilities. Such acceptance may be necessary to avoid growing offense-defense competition, with its adverse spillovers. The United States may have no choice, given China's apparent readiness to invest whatever it deems necessary to hold at least one U.S. city at risk. Acknowledging China's limited deterrent would require language that accepted strategic reality but did not unintentionally reinforce more adversarial ways of thinking in China and the United States. The United States also would need to be careful not to undermine Japan's confidence in the U.S. security relationship.

"Soft" Transparency

Calls for greater strategic transparency have been resisted by Chinese officials. China's periodic White Papers on National Defense, including its 2008 paper, are a partial exception. The arms control model of "hard" transparency—exchanges of data on numbers of warheads, systems, and locations—runs counter to China's historic strategic culture, its continuing sense of weakness, and its operational practices. A different approach would emphasize the "softer" side of transparency, including, for example, discussions of perceived threats and required capabilities for responding to them, as well as of nuclear doctrine, roles, missions, and decision-making. Both sides' views of conventional ballistic missiles—shorter-range in China's case, longer-range in the U.S. case—also could be part of this set of exchanges. "Soft" transparency could prove more acceptable to China but still be useful to both countries.

Win McNamee/AFP/Getty Images

Chinese Foreign Affairs Minister Yang Jiechi and Secretary of State Hillary Rodham Clinton address the press March 11 in Washington, D.C.

From Dialogue to Joint Studies

Joint studies may be a particularly promising next step after strategic dialogue to reduce the risk of mutual miscalculation, lessen mutual uncertainties, and build habits of cooperation. Studies would entail more focused and sustained, rather than limited and ad hoc, discussions. By way of example, topics could include global proliferation trends, dimensions of WMD terrorism, sources of strategic miscalculation and miscommunication, possible futures of nuclear weapons, and pathways to nuclear abolition. Depending on Chinese readiness to participate officially, an initial study or assessment might need to be carried out, not on a government-to-government basis but by some mix of experts and retired government or military officials with official observers. It also might be necessary to frame the issues generically rather than specifically to the U.S.-Chinese relationship. As with Russia, there would be no need to produce a consensus report.

Stretching the U.S.-Chinese Envelope

The time is not ripe for traditional bilateral arms control negotiations aimed at legally binding, verifiable agreements between Beijing and Washington, let alone trilateral negotiations involving Moscow. U.S. officials will be absorbed over the coming year with negotiating a follow-on to START, while outside experts are only beginning to think beyond a bilateral U.S.-Russian arms control process. Chinese officials continue to assert that the United States and Russia bear the immediate burden for nuclear disarmament, while opposing the type of hard nuclear transparency that would be essential for formal treaty negotiations. The eventual ripeness of legally binding arms control agreements also will depend on pursuing negotiations cooperatively rather than in the very adversarial style that characterized much of the U.S.-Soviet and U.S.-Russian arms control experience.

Multilateral efforts, such as working to achieve the entry into force of the Comprehensive Test Ban Treaty (CTBT) and to reach agreement on a treaty setting limits on fissile material production for nuclear weapons, are valuable for Beijing and Washington. In particular, ratification of the CTBT by both countries would be the most dramatic means by which they could implement their nuclear disarmament obligations under Article VI of the NPT. Their ratification would create significant momentum for the CTBT's entry into force, helping to strengthen support for the NPT and for nonproliferation actions by the NPT's many non-nuclear-weapon states. These nuclear risk reduction initiatives, however, address only one part of the overall U.S.-Chinese strategic relationship. By contrast, more thinking is needed on the potential contributions of other cooperative activities, including actions aimed at eventually bringing China into an arms control process involving the United States, Russia, and China.

Liu Jin/AFP/Getty Images

Soldiers walk past a 1960s-era Chinese nuclear-capable Dong Feng-2 medium-range ballistic missile displayed outside China's Military Museum in Beijing on March 4.

As with Russia, one step would be for U.S. officials to brief Chinese officials on the results of the NPR, if not also to exchange views with them formally or informally as the process proceeds. From a Chinese perspective, exchanges on the NPR could provide a potentially irresistible incentive for eliciting Chinese thinking on their own strategic thinking, programs, and plans. Even if such exchanges during the process are ruled out, Chinese officials will be highly attuned to the NPR results and to how China will be treated in it. Better for them to hear the answer officially and accurately from the United States than via leaks and third-party descriptions.

As already noted, given mutual uncertainties about each other's strategic plans, programs, and intentions, there is a danger of growing U.S.-Chinese offense-defense arms competition in the years ahead. Parallel national undertakings—i.e., those pursued in coordination but without a formal treaty commitment—by the United States and China could be part of the overall approach to avoid that outcome. One relevant historical precedent is the Presidential Nuclear Initiatives of 1991, which committed the United States and Russia to withdraw ground-launched and ship-based nonstrategic nuclear weapons to their national territories and destroy them. U.S.-Chinese coordinated national undertakings could be used to set out limits on U.S. missile defenses and Chinese strategic offenses. In turn, should the United States and Russia follow up a new START by negotiating legally binding limits to regulate their own future offenses and defenses, one important issue would be how to involve Beijing in that process. China could be encouraged to associate itself with that agreement by accepting restraints on its own strategic offensive capabilities in parallel with U.S. and Russian restraints on their offenses and defenses.

Planning for Nuclear Abolition

Speaking in Prague on April 5, Obama declared "America's commitment to seek the peace and security of a world without nuclear weapons" and later stated that the United States would host a Global Summit on Nuclear Security within the next year.[9] This U.S. pledge followed British Prime Minister Gordon Brown's March statement that the "recognized nuclear weapon states must show unity and leadership" on nuclear disarmament.[10] A year before, French President Nicolas Sarkozy had set out French thinking on an "action plan" for the five NPT nuclear-weapon states, including agreement on transparency measures.[11]

Dialogue among these five countries on the goal of nuclear abolition will assuredly accelerate in the months ahead. As part of that dialogue, U.S. officials could not only encourage or support joint studies and experiments but also explore possible development of an action plan for nuclear disarmament.

Joint Studies and Experiments

The United Kingdom has already conducted its own technical assessment of verification of nuclear disarmament[12] and is cooperating with Norway to address monitored dismantlement of nuclear warheads.[13] It has proposed an assessment by the five NPT nuclear-weapon states of the technical conditions of nuclear disarmament. Such a study would be a good next step. In addition, it could be broadened over time to entail examination of the political, military, and legal conditions for nuclear abolition and how they might be brought about. Another possible step would be an analysis of technical options for the monitored storage, dismantlement, and disposition of nuclear warheads. How best to engage the non-NPT nuclear-weapon states in the nuclear disarmament process also could be assessed. The format, participants, and product of such studies would be shaped by what the five governments are prepared to support initially and over time. As this process of interaction continued, they then could undertake a joint experiment on the monitored storage of nuclear warheads prior to their elimination.

Nuclear Transparency

The time has come for a favorable response to Sarkozy's call for agreed transparency measures. Obstacles exist, not least Chinese "transparency skepticism." But greater transparency, even if put in place incrementally, is an essential building block toward the goal of nuclear abolition. With that in mind, the Obama administration should declare its support for the Sarkozy proposal. One approach would be for the nuclear-weapon states to exchange views on the full set of soft and hard transparency measures, the benefits and risks of those measures, and possible ways to mitigate perceived risks. Their goal would be to identify incremental transparency actions acceptable to each of them. This process would also provide the basis for a joint transparency initiative at the 2010 NPT Review Conference.

Nuclear Abolition Action Plan

Finally, the five countries should pursue their own action plan for nuclear abolition. This plan would include a reaffirmation of the goal, discussion of conditions for nuclear abolition, identification of building blocks, and specific objectives for action over the next decade. If agreement were reached, this action plan could be presented at the 2010 NPT Review Conference. Even if agreement proves too tough, the process of engagement would help demonstrate the countries' commitment to their Article VI nuclear disarmament obligations, prepare them for the give-and-take at the review conference, and pave the way for later action.

Conclusion

The Obama administration has moved swiftly to take arms control out of the "cold storage" where it was relegated by the Bush administration. The primary focus of the new administration has rightly been on resetting the U.S.-Russian strategic relationship and on negotiating a replacement for START. The administration also has acted to reinvigorate the strategic dialogue with China, while signaling support for a wider nuclear dialogue among the five NPT nuclear-weapon states.

In pursuing these goals, U.S. officials can draw on a rich array of other cooperative security activities, in addition to strategic dialogue or negotiated agreements. Within this expanded arms control toolbox, some of these complementary activities are more "ready to go" than others. The many possibilities for joint studies and, to a somewhat lesser degree, joint experiments stand out. Other activities would stretch the envelope of existing cooperation, including new ways to institutionalize defense and military engagement between the United States and Russia and between the United States and China. Still others would break with long-ingrained thinking, whether pursuing soft transparency among the nuclear-weapon states or ongoing exchanges by the United States with Russia and China on the NPR. Several activities would build on past precedents but in very different ways, perhaps best typified by joint U.S.-Russian-NATO missile defenses. Also in this category is the use of parallel coordinated national undertakings to lessen the risk of U.S.-Chinese offense-defense competition and to begin to integrate China into the bilateral U.S.-Russian arms control process.

The bottom line of this analysis can be stated quite simply: as part of an expanded arms control toolbox, many different cooperative security activities can contribute to reshaping the U.S.-Russian and U.S.-Chinese strategic relationships successfully, as well as building habits of cooperation among the five NPT nuclear-weapon states. U.S. officials and their counterparts in other countries should take advantage of the full spectrum of these activities. **ACT**

ENDNOTES

1. Office of the Vice President, The White House, "Remarks by Vice President Biden at 45th Munich Conference on Security Policy," February 7, 2009.

2. Office of the Press Secretary, The White House, "Joint Statement by Dmitriy A. Medvedev, President of the Russian Federation, and Barack Obama, President of the United States of America, Regarding Negotiations on Further Reductions of Strategic Offensive Arms," April 1, 2009.

3. "China, U.S. to Resume Military Dialogue," Reuters, February 15, 2009.

4. Office of the Press Secretary, The White House, "Statement on Bilateral Meeting With President Hu of China," April 1, 2009.

5. See Stephen J. Blank, "Russia and Arms Control: Are There Opportunities for the Obama Administration?" Strategic Studies Institute, March 2009.

6. This idea builds on a suggestion made by former Arms Control and Disarmament Agency Director Maj. Gen. William Burns (retired).

7. On Chinese attitudes, see Lewis A. Dunn et al., "Foreign Perspectives on U.S. Nuclear Policy and Posture," December 2006 (report prepared for the Advanced Systems and Concepts Office, Defense Threat Reduction Agency).

8. Office of the Secretary of Defense, "Military Power of the People's Republic of China 2009," March 2009.

9. Office of the Press Secretary, The White House, "Remarks by President Barack Obama," April 5, 2009 (in Prague).

10. Gordon Brown, speech on nuclear energy and proliferation, London, March 17, 2009 (hereinafter Brown speech).

11. Nicolas Sarkozy, speech, Cherbourg, March 21, 2008.

12. "Verification of Nuclear Disarmament: Final Report on Studies Into the Verification of Nuclear Warheads and Their Components," NPT/CONF.2005/WP.1, April 18, 2005 (working paper submitted by the United Kingdom of Great Britain and Northern Ireland).

13. Brown speech.

By John Carlson

Defining Noncompliance:
NPT Safeguards Agreements

The process of determining noncompliance is an important aspect of the International Atomic Energy Agency (IAEA) safeguards system, as well as the only established mechanism for determining noncompliance with the nuclear Nonproliferation Treaty (NPT) itself.

Noncompliance with an NPT safeguards agreement constitutes violation of Article III of the NPT, the obligation to accept safeguards on all nuclear material, and, depending on the circumstances, possibly a violation of Article II, the obligation not to acquire nuclear weapons.

In his April 5 speech in Prague, President Barack Obama said one of the needed improvements in the NPT regime is to ensure "immediate consequences for countries caught breaking the rules." Noncompliance is also assuming importance within discussions regarding various fuel-supply assurance schemes. A state would not qualify for assured fuel supply if found in noncompliance with safeguards obligations.

Surprisingly, although the IAEA Board of Governors has determined on five occasions that a state was in noncompliance with its NPT safeguards agreement—Iraq (1991), Romania (1992), North Korea (1993), Libya (2004), and Iran (2006)—there remains no established definition of noncompliance. Lack of a definition may seem advantageous, allowing the board flexibility to deal with complex cases, but it comes at a cost. In this vitally important area, lack of clarity and consistency could have adverse consequences for the integrity and credibility of the IAEA safeguards system.

It is necessary to distinguish between safeguards breaches that have actual or potential proliferation significance and less serious breaches. For this reason, the Statute of the IAEA[1] gives the board the responsibility to determine if a particular case constitutes noncompliance. A mechanistic, black-and-white approach would be inconsistent with the board's responsibility to exercise judgment and would risk unintended consequences (e.g., trivializing the concept of noncompliance by referring to the UN Security Council cases that have no implications for international peace and security).[2] Setting the bar too high, however, so that clear cases of noncompliance are not identified as such, will irreparably damage confidence in the IAEA.

This article has its origins in suggestions made by Australia in 2004 during the board's deliberations on safeguards breaches in South Korea and Egypt.[3] Many on the board were concerned with the handling of the Iranian case[4] and felt that guidelines could assist all parties in understanding the issues and would be helpful to the board's deliberations in future cases. The board has not yet adopted guidelines, but informal consultations have continued among a number of board members. This article discusses the principles involved.

John Carlson is director-general of the Australian Safeguards and Non-Proliferation Office. This article reflects the views of the author and not necessarily those of the Australian government.

Legal Context

IAEA Statute

The term "noncompliance," in the safeguards context, was introduced in the IAEA's founding statute, which entered into effect in 1957, more than 12 years before the NPT. Article XII.A of the statute outlines the IAEA's rights and responsibilities in situations where parties request that the agency apply safeguards. Article XII.C provides that IAEA inspectors have "the responsibility of…determining whether there is compliance with…conditions…prescribed in the agreement between the Agency and the State…concerned."

Article XII.C further provides that "[t]he inspectors shall report any noncompliance to the Director General who shall thereupon transmit the report to the Board of Governors." Article XII.C requires the board to report noncompliance to the Security Council.[5]

Nuclear Nonproliferation Treaty

The entry into force of the NPT in 1970 introduced a range of new obligations for non-nuclear-weapon states-parties, especially a requirement that they accept IAEA safeguards on all their nuclear material.[6]

Under the NPT, a non-nuclear-weapon state undertakes the fundamental obligation "not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices."[7] The fulfillment of this obligation must be verified through the state's obligation to

> accept safeguards, as set forth in an agreement to be…concluded with the [IAEA]…and the Agency's safeguards system…with a view to preventing diversion of nuclear energy from peaceful purposes to nuclear weapons or other nuclear explosive devices. … The safeguards required by this Article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.[8]

These provisions contain several elements pertinent to the issue of compliance. The reference to "diversion of nuclear energy" is particularly interesting. Commonly, the term "diversion" is used in relation to nuclear material, but in the NPT, the term is given a much broader meaning. Here, the sense is the misuse of nuclear processes.

Also interesting is the reference to prevention, which underlines the timely-warning aspect of safeguards. Timely warning must be forward-looking, drawing inferences from known facts.

Dieter Nagl/AFP/Getty Images

Yukiya Amano (left), chairman of the International Atomic Energy Agency's (IAEA) Board of Governors, chats with Ali Asghar Soltanieh, Iran's permanent representative to the IAEA, prior to the Feb. 4, 2006, board meeting in Vienna. Later that day, the board reported its concerns about Iran's nuclear activities, including Tehran's failure to comply with its safeguards agreement, to the UN Security Council.

Comprehensive Safeguards Agreement

The safeguards agreement required of non-nuclear-weapon states under the NPT, now termed a comprehensive safeguards agreement,[9] has been standardized through the model agreement published as IAEA document INFCIRC/153. In terms of the IAEA Statute, an NPT safeguards agreement is an "arrangement where the Agency is requested by the parties concerned to apply safeguards."[10]

The basic obligation in an INFCIRC/153 agreement, reflecting the language of NPT Article III.1, is "to accept safeguards…on all source or special fissionable material…for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices."[11] Also of fundamental importance is the obligation to cooperate with the IAEA in facilitating the implementation of safeguards pursuant to the safeguards agreement.[12]

Determining Noncompliance

Procedural Aspects

A noncompliance finding may be reached through the process set out in Article XII.C of the IAEA Statute, outlined above, or through paragraph 19 of INFCIRC/153.

Paragraph 19 provides that if the IAEA board, "upon examination of relevant information reported to it by the Director General finds that the Agency is not able to verify that there has been no diversion of nuclear material…to nuclear weapons or other nuclear explosive devices," the board may make the reports provided for in Article XII.C of the statute.

Although INFCIRC/153 does not use the term "noncompliance," the effect of the reference in paragraph 19 to Article XII.C is to bring the concept of noncompliance into INFCIRC/153. The cases mentioned at the beginning of this article demonstrate the firmly established practice of the board in reaching a specific finding of noncompliance with respect to INFCIRC/153 agreements.

One way to understand the relationship between Article XII.C and paragraph 19 is to see the former as applying to unambiguous noncompliance, such as

detection of diversion or refusal to allow inspections. The "inability to verify" formulation of paragraph 19 could also apply to some such situations but, in addition, could apply to circumstances that are less clear-cut or where the IAEA's investigations are inconclusive.

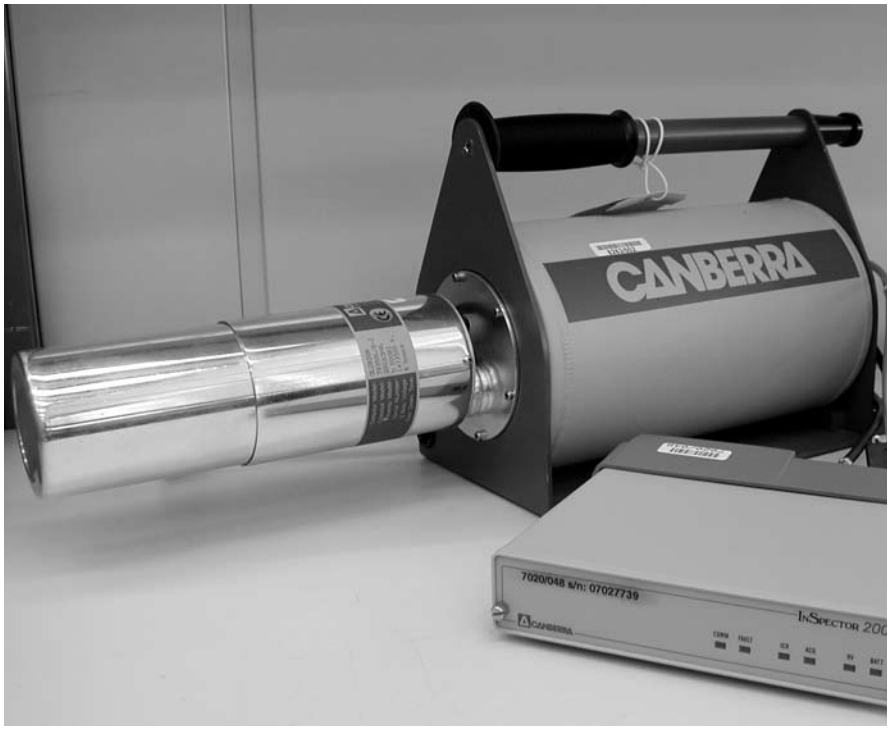
Perhaps Article XII.C of the statute could have been drafted more clearly, but it is apparent that a noncompliance decision involves a two-step process. In the first instance, the inspectors report any noncompliance to the director-general, who is required to transmit the report to the board. A number of observations can be made here: The inspectors, not the director-general, decide if the facts warrant a noncompliance finding. The director-general is obliged to transmit the inspectors' report to the board. The report to the board should make clear whether the inspectors consider the facts to amount to noncompliance. Finally, serious safeguards breaches should also be reported to the board, even if the inspectors do not find noncompliance or remain undecided, so that the board is aware of the situation and has the opportunity to consider it. The board then shall call on the state to remedy any noncompliance "which it finds to have occurred," i.e., the board decides whether the facts constitute noncompliance.

Distinguishing Noncompliance From Less Serious Breaches

Once the IAEA inspectors have decided that a breach is sufficiently serious to report to the board, how does the board determine whether the breach is sufficiently serious to constitute noncompliance?

The language of Article XII.C ("compliance with…all…conditions of the…agreement") seems to indicate that noncompliance is a failure to observe any condition in a safeguards agreement. Nevertheless, clearly not every safeguards breach constitutes noncompliance. Otherwise, the agendas of the board and the Security Council would be taken up with safeguards cases. There is a need to distinguish serious from less serious breaches.

The IAEA Statute provides some guidance for distinguishing the severity of breaches, particularly if one reflects on the purpose behind its provisions for reporting to the Security Council. For example, from the indication in Article XII.A.1 that items under safeguards should not further any military purpose and from the close link between Article XII.C and Article III.B.4, which deals with "questions that are within the competence of the Security Council…as the organ bearing the main responsibility for the maintenance of international peace and security," one can infer that noncompliance involves safeguards breaches that have an actual or potential proliferation significance.



Dean Calma/IAEA

A multi-channel analyzer, used by International Atomic Energy Agency inspectors to detect and analyze radioactive material, is displayed Nov. 20, 2002, in Vienna. The portable tool can be used to search for and locate an unknown source of radiation and isotopically identify its source.

Breaches of Actual or Potential Proliferation Significance

The judgment of actual or potential significance must depend on the facts of each case, but obvious considerations would include the following:

- Is there diversion of nuclear material to nuclear weapons, to purposes potentially related to production of nuclear weapons, or for unknown purposes (see below) that could include nuclear weapons?

- Where undeclared nuclear activities are discovered, do these involve fissile material[13] or production of fissile material, i.e., enrichment or reprocessing? If so, could the quantities involved indicate an intention to produce nuclear weapons, or is there indication of an intention to scale up the undeclared activities to produce such quantities?

- What is the context of the safeguards breaches? Is there a systematic pattern of breaches? Are the nuclear materials and the activities involved of a nature that could be relevant to nuclear weapons? Might they be part of an overall program aimed at acquiring nuclear weapons?

- Is the IAEA being obstructed in carrying out its safeguards activities (inadequate cooperation with inspections, failure to produce records, interference with safeguards equipment, etc.) so that the IAEA is not able to exclude the existence of diversion or undeclared nuclear activities?

- What is the overall record of the state on performance of safeguards and nonproliferation commitments?

Diversion

Diversion has two elements: action and purpose. Regarding action, diversion typically means removal of nuclear material from safeguarded activities. More correctly, however, the term encompasses either removal of nuclear material from safeguards or failure to declare nuclear material for safeguards. The state's basic obligation is to accept safeguards and apply safeguards procedures on all nuclear material. Any significant departure from this obligation could indicate diversion.

The other element of diversion is purpose. Diversion is either "to nuclear weapons or other nuclear explosive devices"[14] or to "purposes unknown."[15] The reference to "purposes unknown" is critically important, indicating that the standard of proof is set at a practical level, not one that is unrealistically high. This point is discussed below.

Undeclared Nuclear Material or Activities

Although the NPT and INFCIRC/153 express the obligation to accept safeguards in terms of nuclear material, INFCIRC/153 also obliges a state to declare nuclear facilities.[16] In addition, INFCIRC/153 requires reports on the processing of nuclear material, which necessarily involves reporting of relevant activities. The Model Additional Protocol (INFCIRC/540) also requires reporting on and provision of complementary access to specified nuclear-related activities even if nuclear material is not present, on the basis that knowledge of such activities will assist the IAEA in drawing conclusions concerning nuclear material.

The discovery of undeclared nuclear material or activities does not necessarily indicate an intention to produce nuclear weapons. Judgment must be based on implications and significance, such as an inadvertent failure to declare, and the possible consequences if the failure had remained undetected (e.g., how the material in question might be used).

In assessing whether particular failures are inadvertent, relevant factors might include the following:

- whether there is evidence of deliberate falsehoods or concealment efforts, indicating that the failures were intentional rather than inadvertent;
- the nature of the nuclear material involved, particularly whether it is fissile material; and
- the nature of the nuclear activities involved, whether these are related to production of fissile material, i.e., enrichment or reprocessing, or to other processes that could be relevant to nuclear weapons.

Standard of Proof

Whether governments have confidence that a state's nuclear program is exclusively peaceful is a judgment based not on certainty but on the balance of probabilities. A judgment on noncompliance cannot wait until the state has succeeded in acquiring nuclear weapons. If the standard of proof is set too high, the IAEA is bound to fail in its responsibility to provide the international community with timely warning.

To prove the existence of a nuclear weapons program is unrealistic. A state having a nuclear weapon or nuclear weapons components or conducting weaponization experiments with nuclear material is unlikely to be caught red-handed. More likely, a state facing obvious exposure would deny inspectors access to the location concerned, preferring to argue whether lack of cooperation constitutes noncompliance, maintaining some ambiguity about its actions.

Depending on the circumstances, the existence of undeclared nuclear material or activities should be enough to raise a presumption of diversion, especially if enrichment, reprocessing, or use of fissile material is involved. The NPT requires acceptance of safeguards on all nuclear material for verifying the fulfillment of obligations assumed under the treaty, namely, not to produce nuclear weapons. When the board determines that a state has intentionally not declared nuclear material, it must initially presume that the material was not intended for peaceful purposes. The smoking gun is the failure to declare nuclear material.

Kirstie Hansen/IAEA

In January 2003, an International Atomic Energy Agency (IAEA) inspector in Vienna holds a bag filled with broken IAEA safeguard seals salvaged from North Korean nuclear facilities. IAEA inspectors utilize the tamper-resistant seals as part of measures to safeguard nuclear material.

If the inspectors find undeclared nuclear material or activities, an immediate challenge is establishing whether further undeclared nuclear material or activities exist. The IAEA Secretariat's ability to do this might depend on having a noncompliance finding from the board, including authorization to carry out additional verification activities.

The amount of additional information gathered by the IAEA is crucial and will help the board judge whether a weapons purpose is plausible under the circumstances. Detection of apparent weaponization activities could be very important, and the IAEA needs to investigate such activities to the extent it is able. Discovery of weaponization activities, however, is not essential to support a finding of diversion or noncompliance.[17]

The drafters of INFCIRC/153 recognized the importance of avoiding an unrealistically high standard of proof. The use of qualitative language—"purposes unknown"[18] and "not able to verify"[19]—allows the application of judgment to deal with ambiguous or inconclusive situations.

INFCIRC/153 takes a practical approach, making it sufficient for the IAEA to show that

- nuclear material or a nuclear activity has not been declared or that nuclear material has been removed from safeguards;
- the failure is considered to be significant (e.g., because of the nature of the nuclear material or activity); and
- the purpose of the use of the nuclear material or the nuclear activity is not clearly exclusively peaceful, that it could be military or uncertain, i.e., "unknown."

In these circumstances, the onus is then on the state to show that nonpeaceful purposes are not intended. It can attempt to do this through full cooperation with and transparency to the IAEA.

Remedying Noncompliance

As discussed above, a noncompliance situation may well be one of ambiguity rather than conclusive evidence. Once inspectors find that they are unable to verify there has been no diversion to nuclear weapons or that there has been diversion to purposes that are uncertain or unknown, the board and governments must consider the implications and what is necessary to rebuild confidence.

Article XII.C provides that the board "shall call upon the…State to remedy forthwith any non-compliance which it finds to have occurred," and paragraph 18 of INFCIRC/153 provides that where the board "decides that an action by the State is essential and urgent in order to ensure verification that nuclear material…is not diverted to nuclear weapons…the Board shall be able to call upon the State to take the required action without delay."

An essential issue for the IAEA to determine is the range of verification activities needed for effective investigation of the noncompliant state's nuclear activities. It is most unlikely that verification under the INFCIRC/153 agreement alone will suffice. At the least, the IAEA is likely to require access and information in accordance with the Model Additional Protocol. If the state does not have such a protocol in place, the board may need to require equivalent measures. Indeed, there are arguments as to whether the standard additional protocol is sufficient to deal with noncompliance. Some observers say the IAEA may need further measures, what has been termed "the Additional Protocol plus," possibly under authority from the Security Council.[20]

Resolution of Noncompliance

A key question is what the board requires before it can conclude that noncompliance has been fully remedied. It is not simply a matter of making good the specific safeguards violations that have been discovered. Discovery of acts of noncompliance raises the possibility that the state has additional undiscovered safeguards violations. A substantial ongoing program of verification, requiring continuing cooperation by the state, may be required before there can be confidence that there are no other instances of noncompliance and that noncompliance is not likely to recur. It could be some time before the board is able to reach a positive conclusion and before there can be confidence on the part of the international community.

Reinforcing confidence in and commitment to the nonproliferation regime depends not only on proficient verification, but also, where necessary, on effective action to uphold treaty compliance.

Conclusion

This article has not examined specific cases, but table 1 includes indicative cases to date. In addition, the IAEA is currently investigating apparent, serious safeguards breaches by Syria, including the construction of an undeclared reactor and the failure to declare nuclear material. At the time of writing, Syria has refused to cooperate with IAEA requests for access to investigate a number of suspect locations. Members of the board and other readers may benefit from analyzing the Syrian case using the factors discussed in this article.

Reinforcing confidence in and commitment to the nonproliferation regime depends not only on proficient verification, but also, where necessary, on effective action to uphold treaty compliance. Well-functioning procedures for determining noncompliance are essential for this to occur.

It is inappropriate to apply a rigid approach to determinations of noncompli-

Table 1: Factors in Determining Noncompliance

In recent years, the International Atomic Energy Agency Board of Governors has found five states to be in noncompliance with their agency safeguards agreements. In another two recent decisions on serious safeguards breaches, involving South Korea (2004) and Egypt (2005), the board did not find the states in noncompliance. The board weighed several factors in making its determination.

	Romania	Iraq	North Korea	Libya	Iran	South Korea	Egypt
Diversion, evidence of nuclear weapons purpose	yes	yes	yes	yes	under investigation	no	no
Nuclear program with possible weapons-related elements	planned	yes	yes	yes	yes	no	no
Undeclared production of fissile material	yes	yes	yes	yes	yes	yes	yes*
Intention to scale up fissile material production	yes	yes	yes	yes	yes	no	no
Safeguards implementation obstructed (e.g., after detection of breaches)	no	yes	yes	no	yes	no	no

*Egypt irradiated and dissolved very small quantities of uranium and thorium but did not separate any plutonium or uranium-233.

Source: John Carlson, based on IAEA reports

ance. The facts are likely to be complex, and a case-by-case approach is required. The terms of Article XII.C of the IAEA Statute and paragraph 19 of INFCIRC/153 provide the board with appropriate scope for the exercise of judgment. Yet, the board's discretion should not be unlimited. Consistency and predictability are essential if the board's decisions are to be credible and maintain confidence in the integrity of the IAEA's processes. It is essential that member states understand and accept the approach taken by the board.

Clarification of the issues involved in noncompliance determinations is important for all parties: states, the IAEA Secretariat, and the board. The development of guidelines to assist the board and, indeed, the secretariat could be very helpful in this regard. **ACT**

ENDNOTES

1. See www.iaea.org/About/statute.html (hereinafter IAEA Statute).

2. The author does not share the rigid approach recently espoused by Pierre Goldschmidt. See Pierre Goldschmidt, "Exposing Nuclear Non-Compliance," *Survival*, Vol. 51, No. 1 (February-March 2009). Goldschmidt rightly is concerned with possible politicization of IAEA Board decisions, but it is clear from the IAEA Statute that the board is required to exercise its judgment. Judgment does not necessarily entail politicization. Having well-understood guidelines can help avoid this.

3. See Australian Safeguards and Non-Proliferation Office, "Annual Report 2003-2004," September 20, 2004, pp. 80-84, www.asno.dfat.gov.au/annual_report_0304/ASNO_2004_AR.pdf. The report was circulated to the board.

4. Although it was clear in 2003 that Iran was in noncompliance, concern about the consequences of a noncompliance finding (e.g., whether Iran would cease cooperation with the IAEA or even withdraw from the NPT and whether the Security Council could agree on a response in any event) led to the noncompliance finding being delayed for three years while efforts were made to negotiate a solution with Iran.

5. Noncompliance is also to be reported to the UN General Assembly and all IAEA member states. In the Iranian case, one complication was how quickly a noncompliance finding would have to be reported. The statute does not specify a time limit, allowing the board to delay formally reporting a finding if it chooses.

6. The obligation is to accept safeguards on all nuclear material in peaceful nuclear activities. To date, the case of nonpeaceful, nonproscribed nuclear activities, such as naval propulsion, has not arisen in practice.

7. "Treaty on the Non-Proliferation of Nuclear Weapons," INFCIRC/140, April 22, 1970, art. II, www.iaea.org/Publications/Documents/Infcircs/Others/infcirc140.pdf.

8. Ibid., art. III.1.

9. Formerly known as a full-scope safeguards agreement.

10. IAEA Statute, art. XII.A.

11. "The Structure and Content of Agreements Between the Agency and States Required in Connection With the Treaty on the Non-Proliferation of Nuclear Weapons," INFCIRC/153, June 1972, para. 1, www.iaea.org/Publications/Documents/Infcircs/Others/infcirc153.pdf (hereinafter INFCIRC/153).

12. Ibid., para. 3.

13. In this context, "fissile material" refers to highly enriched uranium and separated plutonium, which the IAEA terms unirradiated direct-use material.

14. INFCIRC/153, paras. 1, 2 et seq.

15. Ibid., para. 28.

16. There is also an obligation to declare locations outside facilities where nuclear material is customarily used.

17. See John Carlson, Russell Leslie, and Annette Berriman, "Nuclear Weaponisation Activities: What Is the Role of IAEA Safeguards?" n.d., www.asno.dfat.gov.au/publications/weaponisation_inmm072006.pdf.

18. INFCIRC/153, para. 28.

19. Ibid., para. 19.

20. See Pierre Goldschmidt, "IAEA Safeguards: Dealing Preventively With Non-Compliance," July 2008, www.carnegieendowment.org/files/Goldschmidt_Dealing_Preventively_7-12-08.pdf.

Remarks of President Barack Obama (Excerpts)

Hradčany Square
Prague, Czech Republic
April 5, 2009

[T]oday, I state clearly and with conviction America's commitment to seek the peace and security of a world without nuclear weapons. This goal will not be reached quickly—perhaps not in my lifetime. It will take patience and persistence. But now we, too, must ignore the voices who tell us that the world cannot change....

First, the United States will take concrete steps toward a world without nuclear weapons.

To put an end to Cold War thinking, we will reduce the role of nuclear weapons in our national security strategy and urge others to do the same. Make no mistake: as long as these weapons exist, we will maintain a safe, secure, and effective arsenal to deter any adversary and guarantee that defense to our allies—including the Czech Republic. But we will begin the work of reducing our arsenal.

To reduce our warheads and stockpiles, we will negotiate a new strategic arms reduction treaty with Russia this year. President Medvedev and I began this process in London, and will seek a new agreement by the end of this year that is legally binding, and sufficiently bold. This will set the stage for further cuts, and we will seek to include all nuclear weapons states in this endeavor.

To achieve a global ban on nuclear testing, my Administration will immediately and aggressively pursue U.S. ratification of the Comprehensive Test Ban Treaty. After more than five decades of talks, it is time for the testing of nuclear weapons to finally be banned.

And to cut off the building blocks needed for a bomb, the United States will seek a new treaty that verifiably ends the production of fissile materials intended for use in state nuclear weapons. If we are serious about stopping the spread of these weapons, then we should put an end to the dedicated production of weapons grade materials that create them.

Second, together, we will strengthen the nuclear Non-Proliferation Treaty as a basis for cooperation.

The basic bargain is sound: countries with nuclear weapons will move toward disarmament, countries without nuclear weapons will not acquire them; and all countries can access peaceful nuclear energy. To strengthen the Treaty, we should embrace several principles. We need more resources and authority to strengthen international inspections. We need real and immediate consequences for countries caught breaking the rules or trying to leave the Treaty without cause.

And we should build a new framework for civil nuclear cooperation, including an international fuel bank, so that countries can access peaceful power without increasing the risks of proliferation. That must be the right of every nation that renounces nuclear weapons, especially developing countries embarking on peaceful programs. No approach will succeed if it is based on the denial of rights to nations that play by the rules. We must harness the power of nuclear energy on behalf of our efforts to combat climate change and to advance opportunity for all people.

We go forward with no illusions. Some will break the rules, but that is why we need a structure in place that ensures that when any nation does, they will face consequences. This morning, we were reminded again why we need a new and more rigorous approach to address this threat. North Korea broke the rules once more by testing a rocket that could be used for a long range missile. This provocation underscores the need for action—not just this afternoon at the UN Security Council, but in our determination to prevent the spread of these weapons.

Rules must be binding. Violations must be punished. Words must mean something. The world must stand together to prevent the spread of these weapons. Now is the time for a strong international response. North Korea must know that the path to security and respect will never come through threats and illegal weapons. And all nations must come together to build a stronger, global regime.

Iran has yet to build a nuclear weapon. And my Administration will seek engagement with Iran based upon mutual interests and mutual respect, and we will present a clear choice. We want Iran to take its rightful place in the community of nations, politically and economically. We will support Iran's right to peaceful nuclear energy with rigorous inspections. That is a path that the Islamic Republic can take. Or the government can choose increased isolation, international pressure, and a potential nuclear arms race in the region that will increase insecurity for all....

Finally, we must ensure that terrorists never acquire a nuclear weapon.... Today, I am announcing a new international effort to secure all vulnerable nuclear material around the world within four years. We will set new standards, expand our cooperation with Russia, and pursue new partnerships to lock down these sensitive materials.

We must also build on our efforts to break up black markets, detect and intercept materials in transit, and use financial tools to disrupt this dangerous trade. Because this threat will be lasting, we should come together to turn efforts such as the Proliferation Security Initiative and the Global Initiative to Combat Nuclear Terrorism into durable international institutions. And we should start by having a Global Summit on Nuclear Security that the United States will host within the next year....

Human destiny will be what we make of it. Here, in Prague, let us honor our past by reaching for a better future. Let us bridge our divisions, build upon our hopes, and accept our responsibility to leave this world more prosperous and more peaceful than we found it. Thank you.

Source: Embassy of the United States in Prague, Czech Republic.

In The NEWS

May 2009

Obama Calls for Nuclear Weapons-Free World

President Barack Obama delivered his first major address on nuclear disarmament and nonproliferation April 5 in Prague, declaring he would "seek the peace and security of a world without nuclear weapons."

As a first step, Obama repeated his pledge to negotiate a successor agreement to the 1991 START with Russia. The conclusion of a new agreement with Russia would set the stage for a second round of reductions, involving all nuclear-weapon states, Obama said. The administration's lead U.S. negotiator on START, Assistant Secretary of State for Verification, Compliance, and Implementation Rose Gottemoeller was confirmed by the Senate on April 3 (see page 33).

In a reversal of Bush administration policy, Obama said his administration "will immediately and aggressively pursue U.S. ratification of the Comprehensive Test Ban Treaty," which was rejected by the Senate in 1999. Nine specific countries, including the United States, must ratify the treaty before it can come into force. Deputy Secretary of State James Steinberg told the Carnegie International Nonproliferation Conference April 6 that Vice President Joe Biden is to lead a comprehensive review of the technical and political issues surrounding the treaty and to develop a strategy for winning Senate advice and consent for its ratification.

Obama also stated that, "to cut off the building blocks needed for a bomb, the United States will seek a new treaty that verifiably ends the production of fissile materials intended for use in state nuclear weapons." Efforts to begin talks on a fissile material cutoff treaty (FMCT) have been stalled in the Geneva-based Conference on Disarmament (CD) for more than a decade because the CD, which operates by consensus, has not been able to agree on a work program. The Bush administration opposed including verification measures in an FMCT and did not include such provisions in a draft treaty submitted to the CD on May 18, 2006. The Bush administration's position broke a consensus reached in the CD in 1995, known as the Shannon mandate, which directed delegates to negotiate an "effectively verifiable" end to the production of weapons-grade fissile material.

Obama also called for "a new framework for civil nuclear cooperation, including an international fuel bank, so that countries can access peaceful power without increasing the risks of proliferation." Under that concept, which has been supported by a number of world leaders, including President George W. Bush, an international fuel bank would give countries access to assured supplies of fuel for civilian nuclear reactors so that they would not have an economic or energy-security justification for pursuing domestic uranium-enrichment or spent fuel reprocessing programs.

Joe Klamar/AFP/Getty Images

In his April 5 speech in Prague, President Barack Obama said the United States would "reduce the role of nuclear weapons in [its] national security strategy and urge others to do the same."

Obama reiterated that as long as nuclear weapons exist, the United States would maintain "a safe, secure, and effective arsenal" to deter potential adversaries and guarantee the defense

of allies. But he emphasized that he was planning a new approach. "To put an end to Cold War thinking, we will reduce the role of nuclear weapons in our national security strategy and urge others to do the same," he said. The administration is currently conducting a congressionally mandated nuclear posture review, which is to be completed by December 2009.

Calling the possibility of a nuclear-armed terrorist group "the most immediate and extreme threat to global security," Obama announced an international effort "to secure all vulnerable nuclear material around the world within four years." As part of this effort, Obama advocated turning the Proliferation Security Initiative and the Global Initiative to Combat Nuclear Terrorism into "durable international institutions." Both initiatives are voluntary international affiliations established during the Bush administration and do not impose any legal obligations on their members. To begin shoring up international defenses against nuclear terrorism, the United States will host a global summit on nuclear security within a year, Obama said.

The presidential address came just hours after North Korea launched a rocket that could be used as a long-range missile. Obama used the North Korean launch to emphasize that rules "must be binding" in the international disarmament and nonproliferation regime. "Violations must be punished. Words must mean something," he said. Obama urged North Korea and Iran to choose legal and peaceful integration within the international community rather than the pursuit of nuclear weapons.

Representatives of major U.S. allies welcomed Obama's speech and his nuclear policy goals. The French Ministry of Foreign Affairs called Obama's address "a very positive announcement" and said it stands "wholeheartedly alongside the United States in this effort." British Prime Minister Gordon Brown backed Obama's call for nuclear disarmament and said the possibility exists to make "huge advances quickly" in the reduction of nuclear weapons worldwide. German Foreign Minister Frank-Walter Steinmeier also applauded the speech "and the clear line it took on nuclear disarmament." Japanese Foreign Minister Hirofumi Nakasone said in a statement that Japan "strongly supports" Obama's call for a world without nuclear weapons and welcomed the concrete steps the president outlined.

Dan Kitwood/Getty Images

British Prime Minister Gordon Brown

Meanwhile, Sen. John McCain (R-Ariz.), speaking to reporters in Tokyo April 10, said he "certainly supports" Obama's vision of a world without nuclear weapons but emphasized the need to focus on Iran and North Korea, countries he called "destabilizing."

Obama acknowledged that the worldwide elimination of nuclear weapons will not be accomplished quickly but stressed that "as the only nuclear power to have used a nuclear weapon, the United States has a moral responsibility to act. We cannot succeed in this endeavor alone, but we can lead it."
—*COLE HARVEY*

Five Candidates Vie for Top IAEA Post

The International Atomic Energy Agency (IAEA) announced April 29 that the field of candidates for director-general has expanded from two to five.

The agency had reopened the nominating process following an inconclusive vote in March to replace the agency's current head, Mohamed ElBaradei, who is scheduled to end his third four-year term in November. He has indicated that he will not be available for a fourth term. ElBaradei could remain in his position provisionally if a candidate is not elected by the end of his term, diplomatic sources familiar with the election process told *Arms Control Today* in recent weeks.

The search for new leadership comes as the agency is investigating suspicions that Iran and Syria have pursued nuclear weapons programs. The IAEA also is concluding a complex facility-specific safeguards arrangement for nuclear-armed India and is considering multilateral efforts to address the sensitive aspects of the nuclear fuel cycle.

The 35-nation IAEA Board of Governors carried out a series of votes March 26-27 to try to choose between two nominees, Yukiya Amano and Abdul Samad Minty. Amano is Japan's governor on the board, while Minty is South Africa's. In the final ballot, Amano secured 22 votes, just one short of the two-thirds vote necessary to win the election.

According to former U.S. and IAEA officials, the March voting results largely reflected a split between Western states and the developing world. Amano is widely seen by the developing world, as well as China and Russia, as too close to the United States to serve as an independent director of the agency, the sources said. Meanwhile, those sources said, Western governments are concerned that the outspoken Minty may politicize the organization.

The United States has criticized ElBaradei in recent years for speaking out on political decisions rather than focusing solely on the nuclear energy and safeguards tasks of the agency. (See *ACT*, October 2008.)

Following the failed vote, board chairperson Taous Feroukhi of Algeria told reporters March 27 that the agency would reopen the nominating process. A diplomatic source in Vienna said April 22 that the "general guidance" is that the board should come to a decision by its June 15-19 meeting, but no date has been scheduled for additional voting.

According to election procedures, a candidate must secure approval from two-thirds of the board in order to be appointed director-general. The diplomatic source said that the specific process by which the board might narrow the candidates and arrive at the two-thirds majority is largely subject to its consultations before the voting. In addition, the candidates may opt out of the running as part of the overall political jockeying

among the board members.

After securing the board's endorsement, a candidate must be approved by the agency's 146 member states during its general conference, which takes place in September.

Since the nominating process was reopened, three new official nominees have emerged: Luis Echávarri of Spain, Ernest Petrič of Slovenia, and Jean-Pol Poncelet of Belgium. Amano and Minty have also been renominated.

In the last contested director-general election, in 1997, the board decided on ElBaradei as a compromise candidate from within the agency's secretariat, rather than choosing a political figure. Prior to becoming head of the agency, ElBaradei served as assistant director-general for external relations. A similar approach is possible in this year's election, but it is unclear who might play such a role, the former officials said.

There has been some speculation about two senior agency officials, but they appear to be unlikely candidates. Olli Heinonen of Finland, IAEA deputy director-general for safeguards, told *Arms Control Today* last September that he did not intend to run for the post. The former officials indicated that Vilmos Cserveny of Hungary, director of the IAEA Office of External Relations and Policy Coordination, would face difficulties in securing political support because another Hungarian, Tibor Tóth, is currently heading the Preparatory Commission for the Comprehensive Nuclear Test Ban Treaty Organization. —*PETER CRAIL*

Candidates for IAEA Director-General

The International Atomic Energy Agency (IAEA) announced the following five official nominations for the position of director-general on April 29. The IAEA hopes to hold elections and appoint a candidate by its June 15-19 Board of Governors meeting.


AFP/Getty Images

Yukiya Amano (Japan): Amano is Japan's ambassador to the international organizations in Vienna, including the IAEA. He served as chairman of the Board of Governors in 2005-2006 and accepted the Nobel Peace Prize on behalf of the IAEA along with Director-General Mohamed ElBaradei in 2005.


AFP/Getty Images

Luis Echávarri (Spain): Echávarri has headed the Organization for Economic Cooperation and Development's Nuclear Energy Agency (OECD/NEA) since 1997. The OECD/NEA consists of 28 member states, which collectively represent about 85 percent of the world's nuclear energy capacity. Echávarri has also served as a member of the IAEA's Nuclear Safety Advisory Group since 2003.


AFP/Getty Images

Abdul Minty (South Africa): Minty is deputy director-general of South Africa's Department of Foreign Affairs and its representative to the IAEA Board of Governors since 1995. He is also chairman of the South African Council for the Non-Proliferation of Weapons of Mass Destruction.


AFP/Getty Images

Ernest Petrič (Slovenia): Petrič is Slovenia's permanent representative to the United Nations organizations in Vienna, including the IAEA, where he has served since 2002. Petrič became Slovenia's governor on the IAEA Board of Governors in 2006, when he also began a year-long term as chairman of the board. During 2005-2006, he was deputy governor for Slovenia on the board.


European Space Agency

Jean-Pol Poncelet (Belgium): Poncelet is senior vice president for sustainable development and continuous improvement for the French nuclear conglomerate Areva. Poncelet joined Areva after serving in senior positions in the European Space Agency and the Belgian government. His government positions included deputy prime minister, minister of defense, and minister of energy.

CCW Extends Work on Clusters Protocol

At what was to be their final meeting of the year, a group of governmental experts failed to complete the text of a possible new protocol to the Convention on Certain Conventional Weapons (CCW) specifically addressing cluster munitions. The meeting chairman, however, vowed to push ahead in hopes of reaching an agreement. Meanwhile, a sixth country ratified a separate treaty on the weapons.

Cluster munitions are bombs, rockets, and artillery shells that disperse smaller submunitions over broad areas. Those submunitions sometimes strike civilians or fail to explode initially, later injuring or killing military forces and noncombatants. Outrage over use of cluster munitions in southern Lebanon in 2006 and the failure of the CCW to adopt new measures related to the weapons helped spur the so-called Oslo process that led to the 2008 Convention on Cluster Munitions (CCM). That convention bars the use of nearly all cluster munitions and obligates countries to destroy stockpiles, conduct clearance efforts, and take steps to help victims. (See *ACT*, December 2008.) In April, Austria became the sixth country to ratify the treaty, which requires 30 ratifications to enter into force.

Despite international pressure, many of the world's top producers and stockpilers of cluster munitions, including Russia and the United States, have resisted calls to join the CCM, instead opting for continued conversation within the CCW. When the CCW failed in 2008 to develop a new protocol on cluster munitions, states-parties agreed to two more rounds of meetings in 2009, Feb. 16-20 and April 14-17. (See *ACT*, December 2008.)

Led by a new chairman, Gustavo Ainchil of Argentina, the

second round of meetings of CCW governmental experts concluded without a final text. It did accept Ainchil's procedural report, which included the text of what could eventually be a sixth protocol to the CCW.


www.iisd.ca

Gustavo Ainchil, group of governmental experts chairman

Article 4 of the text outlines general prohibitions and restrictions on cluster munitions that fail to meet one of two proposed standards. (See *ACT*, September 2008.) The first standard allows usage of cluster munitions that have a still-undefined number of safeguards, such as self-destruct, self-neutralizing, and self-deactivating mechanisms. The second standard follows current U.S. policy, which limits use of weapons with a failure rate of greater than 1 percent. (See *ACT*, April 2009.) Critics have argued that tests to determine such dud rates are inaccurate.

In a separate article, the draft exempts the same weapons that the CCM does from being defined as cluster munitions, a narrow range of weapons that meet five criteria. At the same time, the draft calls for those weapons to be covered by other provisions within the text, creating a source of contention within the group.

Additionally, the proposal allows states to defer compliance, with certain limitations, for "X years." Defining the length of that period remains a sticking point in the group. The U.S. Department of Defense indicated last year that it will continue to allow limited usage of cluster munitions with a failure rate of greater than 1 percent until 2018. (See *ACT*, September 2008.)

Recognizing that the CCW draft was incomplete, Ainchil asked to continue working and proposed a new round of informal consultations, tentatively scheduled for August. Because no future formal meetings of the group are authorized, the process for such consultations remains unclear.

The next meeting of CCW states-parties is Nov. 12-13. If progress is made on the text, the chair could submit a report that would serve as the basis for negotiation and possible adoption of a new protocol at the members' meeting.

The United States continues to support the CCW effort. In his closing statement April 17, U.S. delegation head Stephen Mathias said, "Over 95 percent of our cluster munitions will be affected by this new standard."

The impact the protocol might have on other countries' stockpiles is less well understood. John Duncan, British ambassador for arms control and disarmament, told *Arms Control Today* in an e-mail April 27 that other countries "have been less forthcoming about how this would affect their current stocks and it is this lack of confidence about the practical effect of the new protocol that in large part explains the impasse in the current negotiations." He commented that, for "many Oslo supporters the prohibitions…are not far reaching enough" and that there is "a slim chance that a deal could be made to allow adoption of a new protocol."

Mathias argued against critics who say the text does not go far enough. He said, "We have in front of us a text that, while certainly not perfect from any delegation's perspective, clearly would have a major positive humanitarian impact." — *JEFF ABRAMSON*

U.S., Russia Agree on Path for New Arms Cuts

At their inaugural meeting April 1, President Barack Obama and Russian President Dmitry Medvedev agreed to launch bilateral talks aimed at concluding a successor agreement to the 1991 START no later than the end of the year. START is scheduled to expire Dec. 5. Top U.S. and Russian negotiators began the talks in Rome on April 24.

In a wide-ranging joint statement issued after their meeting in London, the two presidents pledged "to work together to strengthen strategic stability, international security, and jointly meet contemporary global challenges." In a second statement, focusing specifically on the START follow-on agreement, the presidents instructed their negotiators to draft a treaty that will reduce strategic offensive arms to levels below those specified in the Strategic Offensive Reductions Treaty (SORT), which calls for each side to limit its operationally deployed strategic warheads to no more than 1,700-2,200 by the end of 2012.

That statement also said the new agreement would utilize verification procedures drawn from both countries' experiences implementing START. The negotiating teams are to report on their progress by July, in time for a planned visit by Obama to Moscow.

In their broader statement, Obama and Medvedev underscored their countries' special obligation, as the states with the two largest nuclear arsenals, to "demonstrate leadership in reducing the number of nuclear weapons in the world." In keeping with that obligation, they agreed to pursue new strategic arms reductions in a "step-by-step process," beginning with a successor agreement to START.

Russian Foreign Minister Sergey Lavrov highlighted the significance of the presidents' decision to limit "strategic offensive arms" in a press conference April 9. The wording of the negotiating instructions indicates a change of U.S. position, Lavrov said, because "the previous administration was prepared to talk about reducing strategic nuclear arms only, leaving outside the scope of negotiations strategic weapons equipped with conventional warheads."

The Bush administration had proposed that some U.S. nuclear-armed submarine-launched ballistic missiles be converted to carry conventional warheads under a program called Prompt Global Strike. Moscow considers such a capability to be destabilizing and wants all strategic delivery vehicles to be counted against a treaty limit, whether they carry nuclear or conventional warheads. (See *ACT*, June 2008.)

The Bush administration also did not favor lower limits on strategic delivery vehicles, which are currently limited to 1,600 under START. Moscow has stated that the START follow-on agreement should establish lower limits on such systems. (See *ACT*, May 2008.)

According to the chief U.S. negotiator, Assistant Secretary of State for Verification, Compliance, and Implementation Rose Gottemoeller, the START follow-on agreement will establish limits on strategic delivery vehicles. At the Carnegie International Nonproliferation Conference April 7, Gottemoeller described the subject of the negotiations—strategic offensive arms—as "ICBMs, submarine-launched ballistic missiles, bombers, and the warheads that are associated with them."

Alberto Pizzoli/AFP/Getty Images

Assistant Secretary of State for Verification, Compliance, and Implementation Rose Gottemoeller speaks as her Russian counterpart, Anatoly Antonov, looks on during an April 24 joint press conference at the U.S. embassy in Rome.

Russian Deputy Foreign Minister Sergey Ryabkov told Interfax April 20 that Russia welcomed the shift in the U.S. position on delivery vehicles, saying, "We are still unprepared to accept the idea of limiting operationally deployed warheads only.... Hopefully the new [U.S.] administration will find a possibility to look at this issue constructively."

Obama and Medvedev cast their START follow-on negotiations as part of a broader U.S.-Russian effort to strengthen the global nonproliferation framework. They emphasized their countries' obligation to seek nuclear disarmament under Article VI of the nuclear Nonproliferation Treaty, expressed support for entry into force of the Comprehensive Test Ban Treaty, and applauded the ongoing development of multilateral approaches to the nuclear fuel cycle.

An unnamed senior administration official told reporters April 1 that a new treaty will "send a very clear message to the world—places like Iran...and other countries throughout the world—that this is a United States that's very serious about the challenge posed by nuclear weapons and the proliferation of such technology." Both presidents also expressed their commitment to "achieving a nuclear-free world," a long-term aspiration that Obama further highlighted in his April 5 speech in Prague (see page 29).

Obama and Medvedev did not agree on everything. They acknowledged that differences remain over the proposed deployment of U.S. missile defense assets in Poland and the Czech Republic. Obama has said the planned deployment will proceed as long as the United States continues to perceive a mounting threat from Iran and if the missile defense technology is proven and cost effective. The presidents exchanged letters on the subject in advance of their meeting, in which they "discussed new possibilities for mutual international cooperation in the field of missile defense."

Speaking at the same April 7 event as Gottemoeller, Russian

Ambassador to the United States Sergey Kislyak suggested that a lack of agreement on missile defense would not be a "showstopper" for a START follow-on agreement. Nevertheless, he said the issue must be "factored in" to U.S.-Russian discussions on strategic stability. He added that failure to agree on the subject of missile defense helps define "what are the limits of possible" in the relationship between Russia and the United States.

Gottemoeller, who was confirmed by the Senate April 3, met with her Russian counterpart, Anatoly Antonov, April 24 in Rome. In a press conference following their meeting, Gottemoeller said that the two negotiating teams "got off to a very fast start" and described their discussion as "very productive."

Nevertheless, both Gottemoeller and Antonov have hedged on whether a new agreement will be complete before the Dec. 5 deadline. At the April 24 press conference, Antonov said, "I hope we are capable to prepare a new draft by the end of the year, or at least do our utmost." Likewise, on April 7, Gottemoeller called completing an agreement before December "a difficult task, but…a doable task." She remarked that "we will do what we have to do to get this negotiation done, but…if necessary, we will look for ways to find more time for the negotiators."

Gottemoeller said the new treaty "will be a valuable way to link together two legacies, the legacy of the START I…and all that it's been able to accomplish and the legacy of the Moscow Treaty [SORT] and what it has accomplished."

START, which entered into force Dec. 5, 1994, limited the number of strategic delivery vehicles that the United States and Russia could possess, the number of warheads mated to those vehicles, and the overall disposition of the two sides' strategic forces. The treaty outlined detailed counting rules for delivery vehicles and warheads and gave each party the right to inspect the other's facilities.

Gottemoeller praised SORT as "instrumental in bringing our two nuclear arsenals to lower numbers," as the warhead limits imposed by SORT are significantly lower than those established by START. However, SORT expires on the same day it takes effect, does not limit delivery vehicles, and relies on the verification procedures established by START to monitor compliance.

The U.S. and Russian negotiators will next meet in May in the United States, Antonov said at the April 24 press conference. Antonov expressed hope that a new treaty will improve relations between the United States and Russia and that it "will be a very impressive impulse to [the] international movement regarding getting rid [of] nuclear weapon[s]." —*COLE HARVEY*

Steinmeier Calls for U.S. to Withdraw Nukes

In an unprecedented statement for a German foreign minister, Frank-Walter Steinmeier last month called for the withdrawal of the U.S. nuclear weapons deployed in his country. Steinmeier told the German magazine *Der Spiegel* April 10 that "these weapons are militarily obsolete today" and promised that he would take steps to ensure that the remaining U.S. warheads "are removed from Germany."

NATO keeps details of its nuclear deployments secret, but it is estimated that the United States probably still deploys 150-240 B61 bombs in Europe. Under nuclear sharing arrangements, up to 140 weapons can be assigned for use by Belgium, Germany, Italy, the Netherlands, and Turkey, which are non-nuclear-weapon states-parties to the nuclear Nonproliferation Treaty (NPT). (See *ACT*, September 2008.) These weapons remain under U.S. custody during peacetime but can be released to U.S. allies for delivery in times of war. According to independent estimates, there may be as many as 20 U.S. nuclear weapons deployed in Germany.

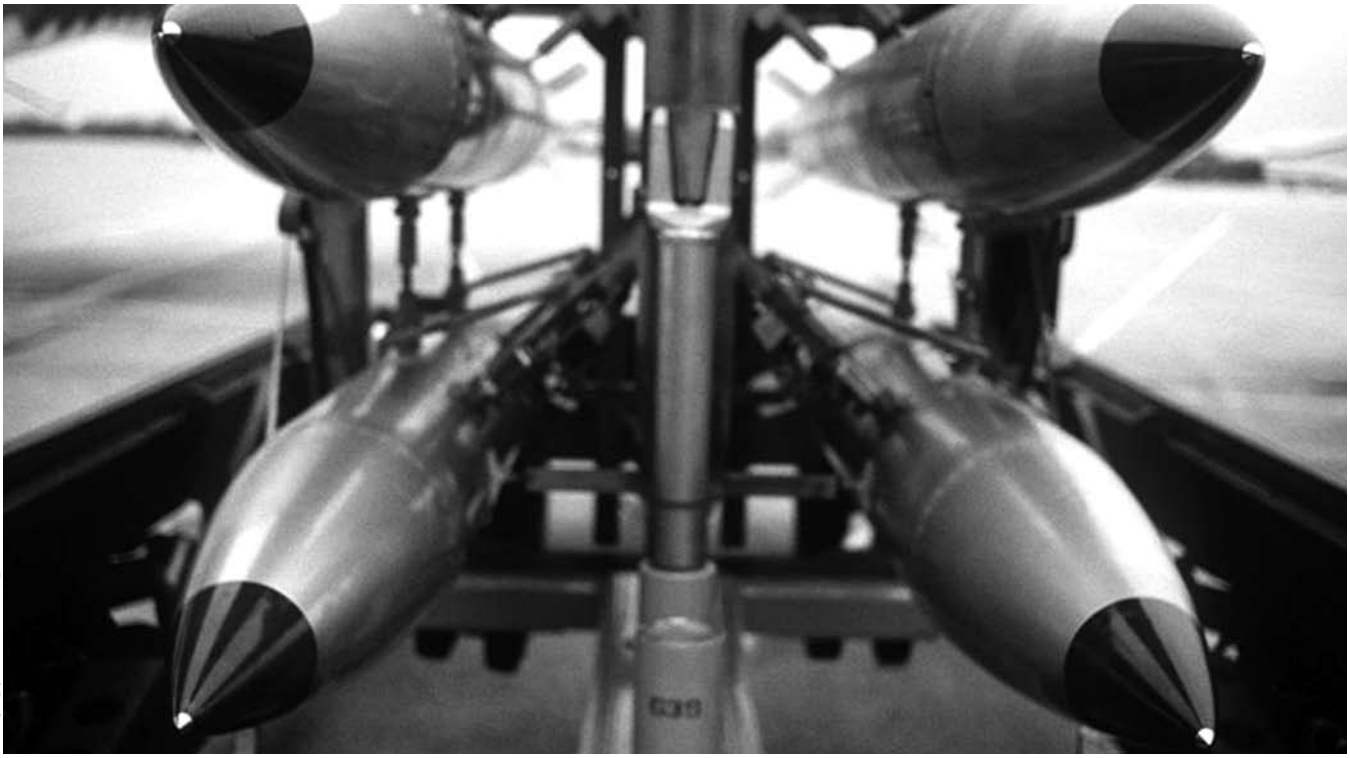
Steinmeier's call appears to be at odds with views held by Chancellor Angela Merkel. In a March 26 debate in the German Bundestag, Merkel defended Germany's involvement in nuclear sharing by stating that "it secures Germany's influence in this sensitive area of alliance politics." That argument is also prominent within the Federal Ministry of Defense, which is led by a member of Merkel's party, the Christian Democratic Union.

Nicholas Kamm/AFP/Getty Images

German Foreign Minister Frank-Walter Steinmeier and Secretary of State Hillary Rodham Clinton during a Feb. 3 press conference in Washington, D.C.

Steinmeier, of the Social Democratic Party, and Merkel are the front-runners in Germany's Sept. 27 national elections. The Social Democrats and the Christian Democrats form the current "Grand Coalition" governing Germany.

It is unclear what steps Steinmeier will take to follow up his initiative. Steinmeier "will speak about the nuclear weapons stored in Germany" in his next meeting with U.S. Secretary of State Hillary Rodham Clinton, Rolf Mützenich, the Social Democratic spokesperson for disarmament, said in an April 24 parliamentary debate. Steinmeier will also say that the tactical nuclear



Department of Defense

B61 nuclear-capable bombs loaded on a bomb cart, Dec. 1, 1986, at Barksdale Air Force Base in Louisiana. Although NATO keeps details of its nuclear deployments secret, it is estimated that the United States still deploys between 150 and 240 B61 bombs in Europe.

weapons eventually "have to disappear" from all of Europe, Mützenich said.

In an April 20 interview with *Arms Control Today*, Mützenich said Merkel should discuss the issue with President Barack Obama "with a view to relatively quickly reaching an agreement on the withdrawal, preferably within the next couple of months." Mützenich also said he assumes that the German delegation at the May 4-15 NPT preparatory committee meeting will present as its position that Berlin aims for a withdrawal of the remaining U.S. nuclear weapons from Germany.

The three smaller opposition parties in the German parliament also support withdrawal of U.S. nuclear weapons from Germany.

Only the Christian Democrats take a different view. Ruprecht Polenz, Christian Democratic chairman of the Foreign Relations Committee of the Bundestag, was quoted by the *Süddeutsche Zeitung* newspaper April 8 as arguing that "an isolated discussion" of a withdrawal of U.S. nuclear weapons from Germany is "wrong and premature." Christian Democratic foreign policy spokesperson Eckart von Klaeden pointed out during the April 24 debate that Steinmeier had personally been involved in reaching a recent NATO consensus in support of nuclear deterrence. Von Klaeden argued that nuclear weapons deployed in Germany have to be discussed against that background of the continued need for nuclear deterrence. "Unfortunately we have to conclude that proliferation risks in recent years have not decreased but further increased," he said.

Steinmeier specifically placed his initiative in the context of Obama's April 5 speech in Prague, in which the president stated that the United States would reduce the role of nuclear weapons in national security and urged "others to do the same."

Steinmeier said in the April 24 debate that an agreement on tactical nuclear weapons has to be part of reaching the goal of complete nuclear disarmament. "Europe also has a role to play" in reaching a formal accord on tactical nuclear weapons, he argued. "If we want Europe to evolve into a nuclear-free zone, then what I say of course also applies to the remaining nuclear weapons in Germany," Steinmeier said.

The chair of the subcommittee on disarmament, arms control, and nonproliferation in the German parliament, Uta Zapf, told *Arms Control Today* April 20 that Germany and Norway should raise withdrawal as an issue under their initiative to strengthen NATO's profile on arms control.

On Dec. 7, 2007, Steinmeier and his Norwegian counterpart, Jonas Gahr Støre, launched an initiative "to identify areas in which NATO can better define its profile on disarmament, arms control and nuclear non-proliferation." (See *ACT*, April 2009.)

Asked about the implications of Steinmeier's call for NATO's upcoming review of its strategic concept, State Secretary Espen Barth Eide of the Norwegian Ministry of Defense told *Arms Control Today* April 17 that "all issues are on the table in NATO, including the presence of U.S. nuclear weapons in Europe as well as tactical nuclear weapons and de-alerting." He cited recent statements on nuclear arms control by Obama and Russian President Dmitry Medvedev.

At its April 3-4 summit in France and Germany, NATO agreed to review its 1999 Strategic Concept, including its nuclear policies. Alliance leaders agreed that "qualified experts" would support the alliance's secretary-general in the drafting and that the new strategy should be approved by the next summit, scheduled for late 2010 in Lisbon. Some are doubtful that NATO can meet that deadline because of the broad range of disputes among the allies. A U.S. official said April 20 that he would "be surprised if we get there by the next summit."

The recent summit, which was dominated by a dispute over the appointment of Danish Prime Minister Anders Fogh

Rasmussen as a successor to the current secretary-general, Jaap de Hoop Scheffer, and the future of NATO's mission in Afghanistan, did not clarify what future role the alliance should play in arms control and nonproliferation. According to the U.S. official, "NATO managed to collectively underperform before the summit to the point where nobody expected any breakthroughs" on those issues. Assessing the outcome of the summit, the deputy head of NATO's Weapons of Mass Destruction Centre, Roberto Zadra, told *Arms Control Today* April 20 that "allies have explored areas where NATO can provide added value to strengthening arms control and nonproliferation." They will continue to do so, but "one needs a certain degree of realism when addressing this question," he said.

Many had expected that NATO would endorse the entry into force of the Comprehensive Test Ban Treaty (CTBT), just as it had done prior to the Bush administration, but the communiqué issued at the end of the summit does not mention the CTBT. The U.S. official attributed the omission to inertia. "Frankly, the issue didn't come up, and it was too soon for the U.S. at the working staff level" to champion the CTBT prior to and during the summit, he said.

The official said there was a dispute on the role of deterrence in alliance security. "This was a very sophisticated debate which involved a number of allies," he said. Sources indicated that some allies wanted to contrast the NATO summit communiqué language that "arms control, disarmament and non-proliferation will continue to make an important contribution to peace, security, and stability" with a direct reference to the importance of deterrence for alliance security.

Privately, officials said others opposed that approach, apparently with success. The final text of the communiqué does not contain any reference to deterrence while the "Declaration on Alliance Security," also adopted at the summit, states that "deterrence, based on an appropriate mix of nuclear and conventional capabilities, remains a core element" of NATO's overall strategy. According to several sources, the inclusion of that statement in the declaration was also contentious.

NATO leaders also adopted a "Strategic-Level Policy for Preventing the Proliferation of WMD and Defending against Chemical, Biological, Radiological and Nuclear Threats." This document, which updates NATO's 1994 "Policy Framework on Proliferation of Weapons of Mass Destruction," remains classified, although it appears to be a description of the current policy rather than a proposal for revising it. —*OLIVER MEIER*

Presidents Back U.S.-Russian Civil Nuclear Pact

President Barack Obama and Russian President Dmitry Medvedev have agreed to move ahead with a civilian nuclear cooperation agreement between their countries, but a senior Department of State official said the Obama administration may need some time to address congressional concerns about the pact.

Speaking April 7 at a luncheon session of the Carnegie International Nonproliferation Conference, Rose Gottemoeller, assistant secretary of state for verification, compliance, and implementation, said the process of consulting with lawmakers will be "slow and, I think, deliberate" because of "the difficult issues that confront the agreement on Capitol Hill." Nevertheless, she said, "I hope that this is an agreement that can be fairly quickly brought before the Congress again."

In May 2008, President George W. Bush submitted the agreement to Congress but withdrew it three months later in the wake of Russia's military action in Georgia. Even before the clash with Georgia, the pact was facing resistance from some influential members of Congress. The main focus of their concern was Russia's relationship with Iran, particularly with regard to Tehran's nuclear program.

Last year, the two top members of the House Foreign Affairs Committee—Chairman Howard Berman (D-Calif.) and ranking member Ileana Ros-Lehtinen (R-Fla.)—introduced legislation that would have made the issuance of licenses for U.S. nuclear exports to Russia contingent on a presidential certification that Russia was not providing Iran with assistance relevant to nuclear or certain other types of weapons. The president also would have had to certify that Russia was "fully and completely" supporting U.S. efforts to impose "effective" international sanctions on Iran.

At the April 7 luncheon, Sergey Kislyak, the Russian ambassador to the United States, said such conditions were "absolutely irrelevant" to the agreement. If the agreement serves U.S. interests, then it should be supported, he said.

Supporters of the pact have said it would solidify support for U.S. work on nonproliferation issues, including efforts to convince Iran to abandon its uranium-enrichment program. "Virtually every nuclear danger America faces will be made more dangerous if Congress rejects [the agreement]," Sen. Richard Lugar (R-Ind.) and former Sen. Sam Nunn (D-Ga.) argued in *The New York Times* last May. (See *ACT*, June 2008.) Lugar, ranking member on the Senate Foreign Relations Committee, and Nunn, a former chairman of the Senate Armed Services Committee, drafted legislation that led to many existing U.S.-Russian nonproliferation programs.

Gottemoeller's comments "directly acknowledged the deep problems" that members of Congress have with the agreement, a Democratic congressional staffer said in an April 20 e-mail. A Republican staffer said April 21 that he had not yet seen any signal from the administration that it was preparing to resubmit the pact.

After their meeting in London April 1, Obama and Medvedev issued a wide-ranging statement on U.S.-Russian relations. According to the statement, the two leaders "will work to bring [the cooperation agreement] into force."

Under U.S. nuclear export law, Congress does not have to vote to approve the agreement. Once it is submitted, the pact could enter into force after 90 days of so-called continuous session unless lawmakers vote to disapprove it. Congress also could vote to approve it, but that approval could come with conditions, as Berman and Ros-Lehtinen proposed in their bill last year. —*DANIEL HORNER*

N. Korea Launches Rocket, Renounces Talks

North Korea's long anticipated rocket launch April 5 set off a chain of events resulting in international sanctions on North Korean firms and Pyongyang's withdrawal from six-way talks to end its nuclear weapons program.

North Korea, which warned that any UN response would provoke a hostile reaction, insisted that it is no longer bound by multilateral agreements reached with the United States and countries in the region and stated its intention to reconstitute the nuclear facilities that it temporarily disabled under those accords. In an April 25 Foreign Ministry statement, Pyongyang declared that it had begun separating plutonium to enhance its "nuclear deterrence."

Rocket Launch

More than a month after indicating that it would attempt to launch a satellite into space, North Korea fired a three-stage rocket April 5, defying calls by the United States and countries in the region not to take such an action. Although Pyongyang declared the launch a success, other countries have concluded that the rocket did not place a satellite in space.

The U.S. Northern Command (NORTHCOM) issued a statement April 5 explaining that the first stage landed in the Sea of Japan while "the remaining stages along with the payload itself landed in the Pacific Ocean." NORTHCOM said that "no object entered orbit."

Korean Central News Agency/AFP/Getty Images

North Korea's Unha-2 rocket, believed to be a modified version of the country's Taepo Dong-2 missile first tested in 2006, is launched April 5 from Hwadae-gun, North Korea. Although Pyongyang declared the launch a success, in an April 5 statement the U.S. Northern Command said that "no object entered orbit."

The rocket, which North Korea calls the Unha-2, is believed to be a modified version of the North's Taepo Dong-2 missile first tested in 2006. That test failed about 40 seconds after launch. The recent launch, in spite of its failure to orbit a satellite, therefore demonstrated some improvement of North Korea's proficiency with its longest-range missile system.

Independent estimates suggest that, in a ballistic missile configuration, the Taepo Dong-2 may be able to carry a 500-kilogram payload about 9,000 kilometers, making it capable of reaching Alaska, Hawaii, and the western coast of the continental United States. The rocket's first stage is believed to be powered by a cluster of four Nodong medium-range ballistic missiles, offering considerable lift capacity. The makeup of its second and third stages is unclear.

Although the NORTHCOM statement referred to the rocket as a satellite launch vehicle, the United States and its allies said the rocket launch was intended to test North Korea's long-range ballistic missile technologies, which have many similarities with satellite launchers. (See *ACT*, April 2008.) Additional modifications are needed for the rocket to serve as a nuclear-weapon delivery vehicle.

In March, Pyongyang provided international agencies with information on where the rocket's first two stages were expected to land in the Sea of Japan and the Pacific Ocean. The first stage landed in the expected location while the second reportedly landed hundreds of kilometers short of the area in which North Korea estimated it would land, about 3,150-3,950 kilometers from the launch site.

Security Council Condemnation, Sanctions

The UN Security Council responded to the launch by issuing a presidential statement April 13 condemning it and declaring that it was "in contravention of Security Council Resolution 1718." The council also imposed sanctions on three North Korean firms believed to be involved in Pyongyang's nuclear and missile programs. Presidential statements by the council are issued with the approval of all 15 members but do not have the same legal force that resolutions do.

Although the statement fell short of a new resolution sought by the United States and Japan, those countries did appear to win concessions from China and Russia to declare that the launch contravened Resolution 1718 and to levy sanctions under that resolution.

The council adopted Resolution 1718 in October 2006 in response to North Korea's nuclear test earlier that month. (See *ACT*, November 2006.) It prohibited Pyongyang from engaging in "any ballistic missile activity" and required that all countries freeze the assets of designated North Korean entities believed to be involved in that country's nuclear and missile programs. Prior to April, the council had not designated any entities.

China and Russia previously maintained that because the Unha-2 was intended to orbit a satellite, the launch was not pro-

hibited by Resolution 1718. The United States and Japan argued that the resolution barred all activities with ballistic missile applications. (See *ACT*, April 2008.) To prevent any continued legal dispute, the April 13 statement demanded that North Korea "not conduct any further launch."

Beijing and Moscow had also warned against taking any steps, such as new sanctions, that would jeopardize negotiations with North Korea on its nuclear program.

Following the launch, Russia's permanent representative to the United Nations, Vitaly Churkin, told reporters that it was important "not to give in to emotions" and lose sight of the "main goal…the denuclearization of the Korean peninsula."

After the UN statement, however, Russian Foreign Minister Sergey Lavrov told reporters in Seoul April 24 that Moscow stood behind the council's decision to penalize North Korea for the rocket launch. During an April 23 visit to Pyongyang, Lavrov told North Korean officials that Russia would be willing to launch their satellites.

The United States and Japan were also able to win agreement to sanction North Korean entities under Resolution 1718, though not as many as they had wanted. On April 24, the council agreed to place financial restrictions on three North Korean firms: Korea Mining Development Trading Corp., Tanchon Commercial Bank, and Korea Ryongbong General Corp.

Reuters reported April 21 and *Arms Control Today* confirmed with diplomatic sources that the United States sought to sanction 11 firms, while Japan proposed that the council list those 11 entities plus an additional three.

The U.S. Department of the Treasury has placed financial restrictions on 10 North Korean firms suspected of involvement in the country's nuclear and missile programs, including the three firms now designated by the council.

In addition to seeking UN penalties, Japan extended its own sanctions against North Korea April 10, including an embargo on North Korean imports and limitations on exports and remittances to the isolated state. Moreover, in contrast to its usual practice of extending the sanctions for six months, Tokyo imposed them for an additional year. The sanctions have been in place since 2006.

Hours after the council adopted its statement, the North Korean Foreign Ministry issued a declaration "resolutely" rejecting the UN action and outlining steps that Pyongyang would take in response. In the April declaration, North Korea argued that "there has never been a case in history that the [council] took issue with a satellite launch."

Nuclear Talks Denounced

Alleging that the other participants in the six-party talks on denuclearizing the Korean peninsula had infringed on North Korea's sovereignty by issuing the council statement, Pyongyang declared that it "will never participate in such talks and will no longer be bound" by any of its agreements.

South Korea and current Security Council members China, Japan, Russia, and the United States have been the participants in the talks with North Korea.

The six countries have reached three formal agreements since the talks were initiated in August 2003 in response to Pyongyang's withdrawal from the nuclear Nonproliferation Treaty (NPT) earlier that year. In a 2005 joint statement, the parties

Yung Yeon-Je/AFP/Getty Images

During an April 24 press conference in Seoul, Russian Foreign Minister Sergey Lavrov told reporters that Moscow stood behind the UN Security Council's decision to penalize North Korea for its April 5 rocket launch.

concluded a key overarching agreement outlining the goal of the negotiations. In that agreement, North Korea pledged to abandon "all nuclear weapons and existing nuclear programs" and to return "at an early date" to the NPT.

Two subsequent agreements reached in February and October 2007 detailed initial steps to implement the 2005 statement, including temporarily rendering North Korea's key plutonium-related facilities temporarily inoperable. The process, which requires reciprocal steps by North Korea and the other five countries, has not been completed.

In spite of Pyongyang's withdrawal from the negotiations, other participants have insisted that the six-party talks continue.

Department of State spokesperson Megan Mattson told reporters April 25, "The United States remains committed to the six-party goal of the complete and verifiable denuclearization of the Korean peninsula in a peaceful manner through the six-party talks."

Lavrov similarly stated during an April 24 press conference that "our joint task is to create conditions towards the resumption of the negotiating process" with North Korea. He had traveled to Pyongyang one day earlier to discuss the talks with key members of the North Korean leadership. Based on those meetings, Lavrov said at the press conference, "today, North Korea is not ready to return to the negotiating table."

In its April 14 statement, North Korea said it would reverse the steps taken under the 2007 agreements to disable its nuclear facilities, "putting their operation on a normal track." On April 16, Pyongyang ejected international and U.S. monitors from its Yongbyon nuclear complex.

Escalating the situation further, Pyongyang also declared that it would "fully reprocess" the spent fuel rods from its Yongbyon reactor in order to extract plutonium for nuclear weapons. The 8,000 spent fuel rods from the reactor contain about 7-10 kilograms of plutonium, enough for one or two nuclear weapons. (See *ACT*, October 2008.)

In an April 25 Foreign Ministry statement, North Korea said

that it has already begun separating this plutonium. "The reprocessing of spent fuel rods from the pilot atomic power plant began as declared in the Foreign Ministry statement dated April 14," said a Foreign Ministry spokesperson, according to the North's official Korean Central News Agency.

The statement said the move "will contribute to bolstering the nuclear deterrence for self-defense in every way."

It is unclear whether the reprocessing facility has been restored to its normal working condition. Siegfried Hecker, former director of Los Alamos National Laboratory, told *Arms Control Today* last September that it would only take "a month or so" to restart operations at that facility once the equipment was moved back into place. (See *ACT*, October 2008.) In the September interview, he said that "the reprocessing facility was the one that was disabled the least." The disablement work on the reprocessing facility focused on the "front-end" loading operations because the other portions of the facility contain high-level radioactive waste, Hecker noted.

South Korea Considers Full PSI Membership

Seoul is mulling its own response to the Taepo Dong-2 launch. South Korea indicated prior to the launch that it would consider formally joining the U.S.-initiated Proliferation Security Initiative (PSI) if North Korea went ahead with the action. (See *ACT*, April 2008.) Although Seoul appears to be in favor of joining the effort, reported divisions in the South Korean government seem to have delayed any final decision.

The *Korea Herald* reported April 23 that the delay is due in part to "competing foreign policy camps within government." The disagreement reportedly centers on concerns that North Korea may stoke a conflict in response to a South Korean decision to join the PSI. Pyongyang has warned that Seoul's membership in the PSI would constitute an "act of war," a threat it has reiterated in recent weeks. A South Korean diplomat told *Arms Control Today* in April that Seoul has begun taking additional precautionary steps to protect its civilian ships from threats by North Korean vessels.

The United States established the PSI in 2003 as an informal grouping of states that pledged to share information on and interdict suspected shipments of unconventional weapons and related goods. (See *ACT*, September 2003.) That year, the first 11 key participants identified North Korea as one of the "states of particular concern" with respect to the goals of the initiative. Seoul is currently an observer to the effort, which now includes more than 90 participants.

South Korean presidential spokesperson Lee Dong-kwan said during an April 14 press conference that the government planned to announce its decision after a high-level security policy meeting the following day. After that meeting, Foreign Ministry spokesperson Moon Tae-young told reporters that although Seoul was committed to joining the initiative, it was postponing an announcement until the end of that week.

April 15, the date of the originally expected announcement, is also the date that North Korea celebrates the birthday of its founder, Kim Il Sung. As of April 24, South Korea had yet to make an announcement on the PSI.

Although it has not publicly disclosed its decision, South Korea does appear to have shared it with PSI members. The *Korea Times* quoted an unnamed Foreign Ministry official April 15 stating that Seoul "informed related countries of our plan to take part in the initiative," adding "we are also conducting internal procedures." —*PETER CRAIL*

World Powers Invite Iran to Nuclear Talks

The United States and five other world powers in April invited Iran to renewed talks to address international concerns over Tehran's nuclear program. The move came as Washington was finalizing a new Iran policy, which U.S. officials have indicated will include diplomatic outreach to Tehran. During an April 5 speech on arms control in Prague, President Barack Obama said his administration "will seek engagement with Iran based upon mutual interests and mutual respect."

Meanwhile, Iran celebrated its "National Nuclear Technology Day" April 9 by declaring that it has mastered the nuclear fuel cycle as it inaugurated a nuclear fuel manufacturing facility, with Iranian officials suggesting that such a development alters the terms for any diplomatic initiative.

U.S. to Join Nuclear Talks With Iran

In the first public statements revealing some of the conclusions from the ongoing U.S. policy review on Iran, U.S. officials indicated in April that Washington would break from previous practice and send a representative to all future meetings of a six-country dialogue with Tehran. During an April 8 press briefing, Department of State spokesperson Robert Wood expressed the U.S. commitment to the "P5+1 process" but explained "what is different is that the U.S. will join P5+1 discussions with Iran from now on."

The P5+1 process refers to the five permanent members of the UN Security Council (China, France, Russia, the United Kingdom, and the United States) and Germany, which have pursued a dual-track approach since 2006 to respond to Iran's nuclear program. The two tracks involve proposals for a negotiated resolution to concerns about the nuclear program and sanctions for Iran's failure to comply with UN obligations.

The six countries issued a statement April 8 warmly welcoming "the new direction of U.S. policy towards Iran" and indicating that they would formally invite Iran to take part in negotiations on its nuclear program with their representatives to "find a diplomatic solution to this critical issue."

The Bush administration had maintained that it would enter such talks only after Iran complied with UN Security Council demands to suspend its sensitive nuclear activities. It made an exception to this policy in June 2008 when Undersecretary of State for Political Affairs William Burns attended a discussion between the six countries and Iran. (See *ACT*, July/August 2008.) U.S. officials stated at that time that such participation would only occur once. Burns continues to serve as the key U.S. negotiator in the P5+1 process.

Obama has frequently indicated that the United States would be willing to enter negotiations with Iran "without preconditions," an apparent reference to the Bush administration's insistence that Iran first suspend certain nuclear work.

Although no longer a prerequisite for the start of talks, the nuclear suspension is still a key objective of negotiations with Iran, U.S. officials say. Wood told reporters April 9 that Iran's suspension of its uranium-enrichment program "is a fundamental international community requirement for us to be satisfied that Iran is pursuing a…peaceful nuclear program."

Uranium enrichment can be used to create fuel for nuclear power reactors as well as material for the explosive core in nuclear weapons.

Iran appears to have responded positively to the U.S. interest in diplomatic engagement and the invitation for renewed talks with the P5+1 countries on its nuclear program. Iranian President Mahmoud Ahmadinejad stated during an April 15 speech that Iran has "designed a new package for negotiations which will soon be ready and delivered" to the six countries. He did not provide any details of what the package would include.

Iran Touts Nuclear Progress

As the six countries sought to renew talks to address Iran's nuclear program, Tehran continued to claim advances in its nuclear efforts. Celebrating Iran's third annual National Nuclear Technology Day, Ahmadinejad declared that Iran had mastered the nuclear cycle with the inauguration of a nuclear fuel manufacturing plant near the city of Isfahan.

The head of the Iranian parliament's National Security and Foreign Policy Committee, Alaeddin Borujerdi, told report-

Behrouz Mehri/AFP/Getty Images

Iranian President Mahmoud Ahmadinejad examines domestically built fuel rods during the April 9 inauguration ceremony of a nuclear fuel manufacturing plant near the city of Isfahan.

ers April 9 that suspending uranium enrichment cannot be discussed with Iran now that the country has completed the nuclear fuel cycle.

The nuclear fuel cycle refers to a series of processes by which nuclear fuel is produced, used in nuclear reactors, and disposed of or recycled for further use. Certain aspects of this cycle, including enriching uranium for fuel in certain types of reactors and separating plutonium from spent reactor fuel, may be used to create material for nuclear weapons.

Iran has facilities and operations encompassing all of the processes involved in the production of nuclear fuel and the disposition of nuclear waste, although, according to estimates by the International Atomic Energy Agency (IAEA) and the Organization for Economic Cooperation and Development, the country has limited "reasonably assured" sources of domestic uranium. (See *ACT*, April 2009.) In 2003 Iran acknowledged carrying out undeclared small-scale experiments with plutonium separation between 1988 and 1992, but no such work is believed to be ongoing.

Iranian officials indicated that the fuel manufacturing plant would be used to produce fuel for Iran's heavy-water reactor, currently under construction near the town of Arak. A Feb. 19 IAEA report stated that the agency had carried out an inspection of the plant earlier that month and that fuel rods for the Arak reactor were being produced. Both facilities are covered under Iran's safeguards agreement with the IAEA.

A senior UN official stated during a background briefing last September that the Arak reactor is likely to be completed in 2011 and come online in 2013. The reactor is designed for research purposes rather than to produce nuclear power, but it could be used to produce plutonium for nuclear weapons. (See *ACT*, March 2007.)

To meet the needs of the Arak reactor, the fuel manufacturing facility will only need to produce natural uranium fuel, rather than the enriched uranium fuel generally used for light-water nuclear power reactors. Because of the demands of the enrichment process, the latter fuel is more difficult to manufacture.

It does not appear that Iran would be able to use the plant to manufacture fuel for its only currently existing nuclear power reactor, at Bushehr. Russia has agreed to provide the initial enriched uranium fuel for that reactor, which was recently completed and underwent a trial run in March; and the specification for its production is proprietary information maintained by Rosatom, Russia's state-owned nuclear conglomerate. (See *ACT*, April 2008.) In an April 13 e-mail to *Arms Control Today*, a Russian diplomat said he doubted that Rosatom sold the right to manufacture such fuel to Iran.

When contacted by *Arms Control Today* April 20, Rosatom officials would not comment on any arrangements made with Iran.

In addition to inaugurating the fuel plant, Iranian officials declared that they had made additional advances in uranium enrichment, including the installation of about 7,000 centrifuges at the commercial-scale uranium-enrichment facility at Natanz.

The Feb. 19 IAEA report indicated that, as of that month, Iran had installed about 5,400 machines.

Additional Targets for Treasury Sanctions

While the Obama administration expresses its intention to chart a new course for negotiations with Iran, it continues to levy sanctions on firms and individuals believed to be contributing to Iran's nuclear and missile programs.

Atta Kenare/AFP/Getty Images

An Iranian student walks past a P-1 centrifuge displayed as part of an exhibition of Iran's nuclear industry achievements April 20 at Shahid Beheshti University, north of Tehran.

The Department of the Treasury April 7 sanctioned six Iranian firms and one Chinese individual under Executive Order 13382, which freezes any U.S.-held assets of these entities. The order also blocks their access to the U.S. financial system and prevents U.S. firms from doing business with them. (See *ACT*, November 2008.)

Stuart Levey, undersecretary of the treasury for terrorism and financial intelligence, said in an April 7 press release that the administration applied the sanctions to prevent those entities "from abusing the financial system to pursue centrifuge and missile technology for Iran."

The six Iranian entities are all owned by or affiliated with Iranian defense firms that have been placed under U.S. and UN sanctions. Five are suspected of involvement in Iran's uranium-enrichment program. The United States says the sixth firm manufactured power units for Iran's ballistic missile systems.

Two of the Iranian entities were sanctioned by UN Security Council Resolution 1803, adopted in March 2008. (See *ACT*, April 2008.)

The sanctioned Chinese individual, Li Fangwei, is the commercial manager of LIMMT Economic and Trade Company Ltd., a firm that the United States sanctioned in June 2006. In addition to placing restrictions on Li, the Treasury Department listed eight front companies as aliases used by LIMMT to skirt U.S. financial restrictions. —*PETER CRAIL*

Gates Reorienting Missile Defense Programs

The U.S. missile defense program would be refocused and its overall spending would decline under the Obama administration's fiscal year 2010 budget request, Secretary of Defense Robert Gates said April 6. At a press conference, Gates said he intends to reorganize the program around short-range missile defense and efforts to counter "rogue" states.

As a result, the Pentagon would not increase the number of ground-based, mid-course strategic missile interceptors at Fort Greely, Alaska, and would scale back or eliminate two programs—the Airborne Laser (ABL) and Multiple Kill Vehicle (MKV)—he said. Overall, the Missile Defense Agency (MDA) budget would be reduced by $1.4 billion. In fiscal year 2009, which ends September 30, Congress appropriated $8.85 billion for the agency.

The ABL is a modified Boeing 747 jet aircraft that, once completed, would use a powerful laser to shoot down enemy missiles while they are climbing through the atmosphere. According to a March 2009 Government Accountability Office (GAO) report, the ABL, which began in 1996, is more than six years behind schedule. The projected budget for completing the program has jumped from an estimate of $724 million in 1996 to $3.6 billion today, the GAO said.

Gates announced that the Department of Defense would cancel the second ABL prototype plane, while shifting the existing aircraft into a research and development role. In announcing the change, Gates said that "the program's proposed operational role is highly questionable."

Gates said he also plans to end the MKV program, citing "its significant technical challenges." The MKV is intended to intercept ballistic missiles during the mid-course phase of flight by firing several independent interceptors from a single booster. The program was designed to overcome an incoming missile's decoys or countermeasures by simultaneously targeting multiple objects. The MDA projected that the MKV would not be ready for deployment until 2017, according to the GAO.

Not every MDA project will need to tighten its belt under Gates' budget. Programs that focus on theater missile defense would be given additional resources. Gates would direct an additional $700 million toward the Terminal High Altitude Area Defense (THAAD) and Standard Missile-3 (SM-3) programs.

Chip Somodevilla/Getty Images

Secretary of Defense Robert Gates and Gen. James Cartwright, vice chairman of the Joint Chiefs of Staff, during an April 6 press conference at the Pentagon. Gates announced the Missile Defense Agency's budget would be reduced by $1.4 billion in fiscal year 2010.

THAAD is a truck-mounted interceptor designed to destroy incoming missiles as they fall to earth during their final phase of flight. The MDA plans to deploy the first THAAD unit, which includes 24 interceptors, in 2010.

The SM-3 is the sea-based interceptor employed aboard ships using the Aegis ballistic missile defense system and is intended to counter intermediate-range ballistic missiles during the mid-course phase of flight. Gates also recommended upgrading an additional six ships to incorporate the Aegis missile defense system, beyond the 18 Aegis-equipped ships already at sea, at a cost of $200 million. Both Aegis and THAAD can be used "to better protect our forces and those of our allies," Gates said.

The reordering of the MDA budget represents a shift toward more flexible regional defenses, according to Gates. At the press conference, he said that although the Pentagon would continue to develop long-range intercept capabilities, "we are adding a significant amount of money…to provide tactical or theater missile defense. We are basically maxing out the production lines for the SM-3 and the THAAD.… So I think that's a real focus here." —*COLE HARVEY*

Part of GNEP Officially Canceled

The Department of Energy last month announced it had ended a key part of the Bush administration's Global Nuclear Energy Partnership (GNEP) but said it is "considering options" for continuing the effort's international component.

GNEP sought to promote nuclear power in the United States and around the world while developing new types of spent fuel reprocessing plants and fast-neutron reactors. A main focus of GNEP, which was launched in early 2006, was an effort to speed the deployment of a commercial-scale reprocessing plant in the United States.

But in an April 15 statement, the Energy Department said it is "no longer pursuing near-term commercial demonstration projects." Deputy Press Secretary Jen Stutsman issued the statement in response to a question from the magazine *Nuclear Engineering International*, which posted excerpts from the statement on its Web site.

The fiscal year 2009 omnibus appropriations bill provides $145 million for the Energy Department's Advanced Fuel Cycle Initiative, a research and development program that preceded GNEP and then served as its technology development arm. The funding bill specifies that the research effort should be focused on "proliferation resistant fuel cycles and

waste reduction strategies." Secretary of Energy Steven Chu also has made clear that he views reprocessing as a subject of long-term research, rather than a near-term domestic option.

GNEP's push for near-term commercial deployment had been one of the most heavily criticized parts of the controversial program on Capitol Hill.

The program's recruitment of international partners—more than 20 countries have signed GNEP's statement of principles—also drew criticism in Congress, but the Energy Department indicated it sees some value in that part of the program or a variation of it. The department "is considering options for advancing the Administration's nonproliferation and energy priorities through its participation in the international activities of GNEP," according to the April 15 statement.

The Obama administration has supported a global expansion of nuclear energy in conjunction with an international "fuel bank," a mechanism to provide assured supplies of fuel so that countries have less reason to pursue domestic programs for uranium enrichment and spent fuel reprocessing. President Barack Obama made that connection in his April 5 speech in Prague, saying that the fuel bank will allow countries to "access peaceful power without increasing the risks of proliferation." He added, "We must harness the power of nuclear energy on behalf of our efforts to combat climate change and to advance opportunity for all people."

Gregory Schulte, U.S. permanent representative to the International Atomic Energy Agency, specifically cited the international work under GNEP in remarks to an April 20-22 nuclear conference in Beijing. Schulte, who delivered the remarks on behalf of Chu, said, "We need to take full advantage of these and other exchanges to seek solutions and innovations to bring about the new framework proposed by President Obama."

Meanwhile, some U.S. utilities are exploring the so-called closed fuel cycle, which involves spent fuel reprocessing and fabrication of new fuel from the reprocessed material, in spite of the drop-off in government support for the idea. U.S. industry sources said a group has been in discussions about obtaining plutonium now stored in Europe and having the material fabricated into fuel in Europe for a demonstration program in U.S. reactors.

The plutonium would be made into mixed-oxide (MOX) fuel, so called because it is a mix of plutonium and uranium oxides. Conventional nuclear fuel—the kind used in all current U.S. reactors—is made from uranium oxide.

Top officials from AREVA, the French nuclear company, confirmed that they are in talks with U.S. utilities about a MOX demonstration program in the United States. AREVA owns and operates facilities covering all parts of the nuclear fuel cycle, including MOX fabrication.

One of the AREVA officials said there are several outstanding issues, including the price. A large part of the cost would be for the transportation of the MOX assemblies from Europe to the United States, he said. —*DANIEL HORNER*

GAO Details Nuclear Aid to Terrorism Sponsors

Four countries the Department of State has designated as sponsors of terrorism received a total of $55 million in nuclear technical assistance under an International Atomic Energy Agency (IAEA) program between 1997 and 2007, according to a report by the Government Accountability Office (GAO).

The four countries—Cuba, Iran, Sudan, and Syria—received the money through the IAEA's Technical Cooperation Fund. In 2007 the United States accounted for 25 percent, or approximately $19.8 million, of the fund's budget. IAEA member states agree to pledge a certain amount of money to the fund each year.

The report was requested by Sen. Daniel Akaka (D-Hawaii), chairman of the Homeland Security and Governmental Affairs Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia. In releasing the report March 31, Akaka issued a statement saying, "As a long-time advocate for strong, international nonproliferation efforts, I am troubled by GAO's findings."

Akaka's office said April 23 that "no final decisions on hearings or legislation have been made at this point" but that he is "working with his colleagues in the Senate and the State Department on an appropriate solution."

One problem the GAO noted was the inability of the Departments of Energy and State and U.S. nuclear weapons laboratories to get detailed information concerning specific technical cooperation projects while the projects are under consideration by the IAEA. For instance, for 97 percent of the projects under review from 1998 to 2006, the only information the laboratories received was the names of projects, the report said. The GAO also found that, from 1998 to 2006, the Energy Department flagged 43 projects as potentially posing a proliferation risk, but 34 of those were approved and funded by the IAEA.

U.S. Senate

Sen. Daniel Akaka (D-Hawaii)

The GAO proposed that Congress instruct the State Department to withhold part of the U.S. technical cooperation contribution in an amount proportionate to the U.S. share of IAEA aid to countries designated as state sponsors of terrorism. According to the report, the United States currently withholds funds in proportion to its share of aid to Cuba and has done the same in the past for Iran, Libya, and the Palestinian territories.

The State Department "strongly opposed" the idea and argued that because contributions to the Technical Cooperation Fund are not directed toward specific projects, such an action would fail to prevent technical cooperation projects in states of concern and would "anger states in the developing world." The GAO defended the proposal but also broadened it to include the option of requiring the State Department to explain its rationale for not withholding funds, so that lawmakers have additional information before making their decision.

In addition to that "matter for congressional consideration," as

the GAO called it, the report offered 10 recommendations for the executive branch. The State Department agreed with seven of those 10 recommendations. For example, the department endorsed recommendations to focus technical cooperation projects on a limited set of "high priority technical areas" and to encourage outreach to private sector donors and partners.

The department expressed misgivings about a recommendation to establish a formal information-sharing mechanism on technical cooperation project proposals, citing confidentiality concerns. —*SCOTT MILLER*

National Ignition Facility Completed

The National Ignition Facility (NIF), a central component of U.S. scientific research and stockpile stewardship, has been completed, the Department of Energy announced March 31. The NIF has been under construction at Lawrence Livermore National Laboratory in California since May 1997.

The 10-story complex houses 192 lasers capable of producing close to 2 million joules of energy, making it the world's most powerful laser. According to the NIF Web site, the heat and pressure produced when all the laser beams are focused on its small eraser-sized target is similar to the conditions found within stars, planet cores, and nuclear detonations.

In a March 31 Energy Department press release, Thomas D'Agostino, head of the National Nuclear Security Administration (NNSA), hailed the facility as "a cornerstone of a critical national security mission, ensuring the continuing reliability of the U.S. nuclear stockpile without underground nuclear testing, while also providing a path to explore the frontiers of basic science, and potential technologies for energy independence."

The NNSA, a separately organized agency within the Energy Department, is responsible for the Stockpile Stewardship Program. Congress introduced the program in 1993 to bolster the effort to maintain the safety and reliability of the U.S. nuclear arsenal in the absence of nuclear weapons testing.

The cost of completing the NIF was $3.5 billion, an Energy Department budget official said in an April 27 e-mail. That figure includes "the building itself and the assembly and installation project (i.e. what goes in the building)," the official said. —*SCOTT MILLER*

CORRECTION

In the April 2009 issue of *Arms Control Today*, a word was omitted from a sentence in the article, "The Future of Nuclear Arms: A World United and Divided by Zero." The sentence, on page 21, should read, "The *world* today is largely united on the merits of this goal but remains deeply divided over how to achieve it."

By William Lanouette

LOOKING BACK: Civilian Control Of Nuclear Weapons

Ever since the Manhattan Project, which built the first U.S. atomic bombs during World War II, tensions have persisted among civilian and military leaders over the control of nuclear weapons. Those tensions are highlighted anew with a proposal to move the U.S. nuclear weapons program from the Department of Energy to the Department of Defense. President Barack Obama this year asked the Office of Management and Budget to study the shift and report on the pros and cons by September.

The concept has raised concern on Capitol Hill and elsewhere. Former Secretary of Energy Hazel O'Leary recently said that civilian control is good public policy and a good model for other countries to follow.[1]

What exactly is meant by "civilian control" of nuclear weapons? Over the last seven decades, this elusive and evolving topic has blended and sometimes blurred two related concepts: authority and administration. The authority to order the use of nuclear weapons rests with the president, based on the U.S. Constitution. The administration of the nuclear complex and arsenal is based on legislation that created a civilian nuclear authority and specified new roles for the president.

Authority comes from the "civilian control of the military" that the Constitution guarantees by giving Congress power to declare war while making the president commander-in-chief. As commander-in-chief, the president and his civilian secretary of defense have the authority to order the use of nuclear weapons. That authority has never been in dispute.

Administration is what has changed over the decades since it first became politicized after World War II by scientists and politicians who opposed "militarization" of the atom. Thus, the debate that helped frame the Atomic Energy Act of 1946 and spelled out the role civilians should play in the nuclear enterprise re-emerges with the Obama proposal. It is essentially about administration, not authority.

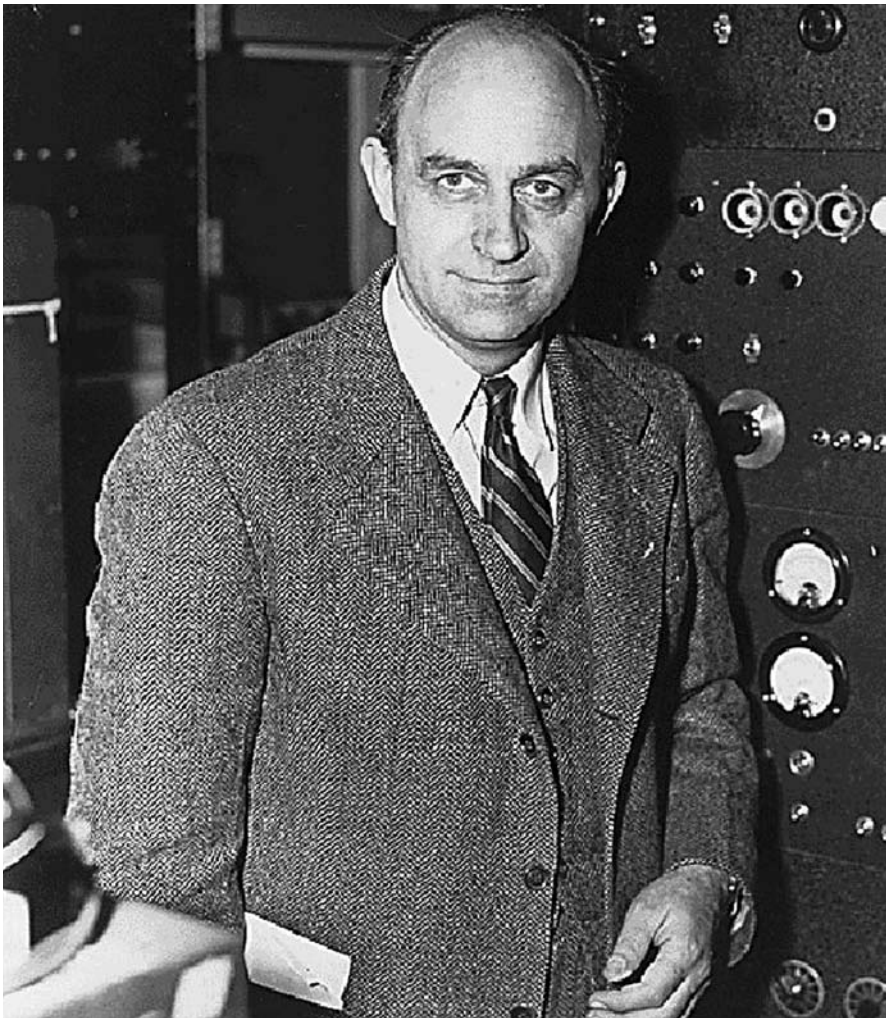
At issue is a tangle of traditions, laws, presidential directives, and ad hoc practices that have evolved since 1939, when scientists at Columbia University first saw that the awesome power of the atom could play a decisive role in the coming war. The civilian-military interactions that followed have fostered a massive nuclear weapons program that swelled during the Cold War and is only now in serious decline. Throughout this history, many scientists working on nuclear weapons have asserted their independence and mistrusted the military, and those attitudes may yet influence the decision at hand.

To appreciate these attitudes, it is helpful to trace these civilian-military interactions to the dawn of the nuclear age, from the time when nuclear scientists dominated policymaking to the present, when they have some influence but no power. During the spring and summer of 1939, physicists Enrico Fermi and Leo Szilard demonstrated that nuclear chain reactions might work and then co-designed the world's first nuclear reactor. Also at Columbia, chemist Harold Urey devised a way to separate the rare uranium isotope U-235 that could fuel it.[2] Yet, with the science of nuclear weaponry at hand, a way to integrate science and the military was still missing.

At first, the scientists were the only ones who foresaw nuclear weapons as a possibility, and their interactions with the military were frustrating and nearly futile. Szilard urged Fermi to approach the U.S. Navy that spring, but when he told Navy scientists about the atom's potential both as a power source for ships and a powerful new weapon, he was ridiculed. That summer, Szilard drafted and helped deliver a warning letter from friend and colleague Albert Einstein to President Franklin Roosevelt that detailed recent German atomic bomb research and urged a prompt U.S. effort. When a federal government Uranium Committee was finally created that fall, however, Army and Navy members mocked Szilard's ideas as little more than a type of science-fiction death ray.[3]

Still, Fermi and Szilard persevered; and their research finally garnered the first government support in 1940, allowing them to conduct experiments at Columbia that eventually paid off in December

William Lanouette is author of *Genius in the Shadows: A Biography of Leo Szilard, The Man Behind the Bomb.* A writer and journalist who has covered nuclear energy and nuclear weapons for more than four decades, he was a senior analyst for energy and science issues at the U.S. Government Accountability Office from 1991 to 2006.



Department of Energy

Physicists Enrico Fermi (above) and Leo Szilard co-designed the world's first nuclear reactor during the summer of 1939. Fermi and Szilard's research, which garnered government support in 1940, resulted in the world's first controlled, self-sustaining nuclear chain reaction in December 1942.

1942 with the world's first controlled, self-sustaining nuclear chain reaction. Beginning then, it was clear that an atomic bomb was possible. By the fall of 1942, however, the Army's Manhattan Project had absorbed their work, and tensions soon arose between scientists and military leaders. Szilard enjoyed "baiting brass hats" and resisted the gruff demeanor and no-nonsense management style of the project's commanding general, Leslie R. Groves, who considered the scientists he supervised to be "crackpots."[4]

In 1943, soon after the secret Los Alamos laboratory was established, physicists Isidor Rabi and Robert Bacher protested the Army's "militarization" of the scientists and their work, and a compromise was negotiated so that the scientists did not need to wear Army uniforms.[5] The same year, physicists Hans Bethe and Edward Teller proposed giving "full responsibility" for the atomic bomb project to the scientists. "It was natural," historian Martin Sherwin noted, "that many scientists came to believe that they, themselves, rather than the military, bore the ultimate responsibility for victory and the security of the nation."[6] Szilard especially believed that scientists should participate in policy decisions for two reasons: they had expert knowledge of what was and was not possible, and they had rational powers that could clarify public policy issues. From the beginning, Szilard eagerly offered his self-proclaimed "sweet voice of reason" to anyone who would listen.

One wartime leader who heeded that voice was Vannevar Bush, the civilian director of the U.S. atomic bomb effort. In the spring of 1944, Szilard bombarded Bush with proposals for a postwar control commission that would be dominated by scientists and other civilians. Bush proposed the scheme to Roosevelt that summer, saying that "experts," not politicians or the military, should run the commission.[7] A year later, in the summer of 1945, the Interim Committee that President Harry Truman had created to advise him on postwar nuclear policies proposed a nine-member commission with five civilians holding sway over two Army and two Navy officers.[8]

This history of the scientists and their mistrust of the military is important because it set the stage for the rancorous legislative struggle over "civilian control" that defined national policy following the war's end. First, the scientists lobbied for international control of atomic energy, warning of a postwar nuclear arms race with the Soviet Union. In that context, they insisted that only civilian control would convince other nations to cooperate in such a broad-reaching alliance.

The Manhattan Project scientists were quick to oppose Groves and the May-Johnson bill that was introduced in the House to continue Army control over all nuclear programs.[9] They found a champion in the Senate with Brien McMahon (D-Conn.), who considered the atomic bomb "the most important thing in history since the birth of Jesus Christ" and viewed the scientists who had created it to be secular saints.[10] Following their lead, McMahon proposed creating a five-member civilian Atomic Energy Commission (AEC).

Groves inadvertently made the scientists' case for civilian control when he refused to turn over classified atomic bomb information to Congress, a move that highlighted potential problems with continuing military control of nuclear research and weapons.[11] At the same time, the scientists decried as intolerable the restrictions on scientific research proposed by the May-Johnson bill.[12]

In Congress, the debate over postwar control of nuclear weapons eventually came down to a fight between the scientists and the military. In a national radio broadcast in March 1946, McMahon denounced the "militaristic oligarchy" that Army control would bring. But on Capitol Hill, a legislative compromise driven by Senator Arthur Vandenberg (R-Mich.) undermined the concept of an independent Atomic Energy Commission by creating a statutory Military Liaison

Committee that would soon come to dominate the civilian commissioners' deliberations on nuclear weapons policy. Also created in the amended bill was a scientists' General Advisory Committee , whose opinions over the years were heard but seldom heeded. The Atomic Energy Act that Truman signed gave the president authority to appoint AEC commissioners and to order the AEC to transfer nuclear materials to the Pentagon.[13] Truman had supported the McMahon bill as first proposed but also accepted the amendments that weakened its emphasis on civilian independence.[14]

Truman came to recognize that, from the beginning, his authority was not absolute in practice. Indeed, he acknowledged that he had not actually authorized the atomic bombing of Hiroshima and Nagasaki. Truman only acted decisively on August 10, 1945, when he ordered that the third bomb, which would be ready in about two weeks, should not be used without his explicit permission.[15] As Groves later remarked, Truman was "like a little boy on a toboggan who never had an opportunity to say yes. All he could have said was no."[16]

Truman voiced his continued fears about losing his authority over the atomic bomb's use in 1948 when he said that he did not want "to have some dashing lieutenant colonel decide when would be the proper time to drop one."[17] That year, Truman professed that the atomic bomb "isn't a military weapon" because of its widespread destructive power and thus should not be integrated into the Pentagon's operational plans.[18] At the time, Truman's budget director, James Webb, supported the president's view by arguing that atomic bombs are "symbolic" and that the military's failure to grasp this reality was a good reason not to transfer them.[19]

Gradually, Truman's authority came under challenge, especially after the Soviet Union exploded its first atomic bomb in August 1949. During the Korean War, it was not a dashing lieutenant colonel but a flamboyant general, Air Force Gen. Curtis LeMay, who claimed he was prepared to dispatch nuclear-armed bombers under his command on his own authority.[20] LeMay argued in 1950 that he should have the authority to receive nuclear weapons from the AEC if Washington were ever destroyed by Soviet attack.[21] This claim was not authorized, but the same year, Truman ordered that nine MK-4 non-nuclear assemblies be transferred to the military for training purposes. Then, in April 1951, AEC Chairman Gordon Dean agonized in a memo to fellow commissioners about whether it was legal to heed another order by Truman and transfer to Guam nine complete weapons.[22] Dean did so, ceding physical control of usable nuclear weapons to the military for the first time.

Truman voiced his continued fears about losing his authority over the atomic bomb's use in 1948 when he said that he did not want "to have some dashing lieutenant colonel decide when would be the proper time to drop one."

Civilian control of the atomic bomb's administration shifted again from the AEC to the Pentagon when, in a more bureaucratic way, the Eisenhower administration created a new post: assistant to the secretary of defense for atomic energy. President Dwight Eisenhower also approved transfer and deployment of weapons to secure U.S. bases overseas.[23] Next, the Atomic Energy Act of 1954 allowed the Pentagon to manufacture weapons and weapons components. That same year, nuclear weapons were dispersed around the United States and abroad to assure their greater safety from Soviet attack and their operational readiness.[24] Still, in the decades since the act's amendment, the Pentagon has continued to rely on the AEC and its successors for nuclear expertise and weaponry rather than developing the capability itself.

Unavoidably, as the nuclear stockpile's size and diversity expanded, it became increasingly impractical to arrange for AEC civilians physically to transfer nu-

Harry S. Truman Library

President Harry Truman signs the Atomic Energy Act on Aug. 1, 1946. The act, which established the Atomic Energy Commission (AEC), gave the president the authority to appoint AEC commissioners and to order the AEC to transfer nuclear material to the Pentagon.

clear bomb components to the military. Also, with the advent of thermonuclear hydrogen bombs, Eisenhower ordered that only these new and more powerful weapons, with yields of more than 600 kilotons, would require the AEC to maintain custody of the capsule that contains fissionable material.[25] In 1956 the AEC said it no longer needed to insist on civilian control, and from then on, transfers from the weapons complex to the military became so routine they were called "allocations." Near the end of the Eisenhower administration in 1959, more than 80 percent of U.S. nuclear weapons were in military custody.[26]

This trend did not pass unnoticed, however, and in 1960, Representative Chet Holifield (D-Calif.) took to the House floor to sound the alarm. Holifield decried the loss of civilian control over nuclear weapons, blaming in part the "gradual step-by-step surrender to the steady pressure of our strong and entrenched military bloc" while acknowledging "that technological change has made obsolete the old and cumbersome procedures."[27]

In the 1960s, questions arose about the president's authority to order nuclear attack as the Eisenhower administration's "massive retaliation" policy shifted under presidents John Kennedy and Lyndon Johnson to one of "flexible response." A massive retaliation with strategic nuclear weapons would be ordered from a central military command, whereas a flexible response with tactical nuclear weapons might be ordered by a field commander.

The Kennedy administration was the first to fit the weapons with electronic permissive action links (PALs), which are coded mechanical or electrical locks. According to political scientist Peter Douglas Feaver, that step provided a change from "custody" of the weapons to "assurance" that weapons could only be used if so ordered by the president.[28] In 1966, AEC Chairman Glenn Seaborg proposed that all finished nuclear weapons be automatically transferred to the Pentagon, a practice Johnson ordered in 1967.[29]

Since then, the AEC's successors—the Energy Research and Development Administration, the Energy Department, and the department's semi-autonomous National Nuclear Security Administration—have retained administrative control over the nuclear weapons enterprise.

Yet, that control may have less practical value than it did when the debate over the issue began more than 60 years ago. In part, PALs provided an attractive technical fix. They afforded practical assurances that command-and-control systems used to implement a presidential order were reliable, even when the weapons were in military custody. This arrangement settled the question of authority, but the question of administration continues to this day.

At issue in the current debate is the perspective that "civilian" scientists and bureaucrats can bring to questions about the utility, safety, reliability, and ultimate value of the still-vast nuclear arsenal. These topics assume special significance as the United States pursues policies aimed at reducing that arsenal and eventually eliminating all nuclear weapons worldwide. In this context, the scientists' resistance to "militarization" when the Atomic Energy Act was new may still survive to inform the debate. **ACT**

ENDNOTES

1. Matthew L. Wald, "Bomb Plants Could Shift to Control of Pentagon," *The New York Times*, February 7, 2009, p. A11. See Lisa Hoffman, "Military to Control Nukes?" Scripps-Howard News Service, February 6, 2009.

2. William Lanouette with Bela Silard, *Genius in the Shadows: A Biography of Leo Szilard, The Man Behind the Bomb* (New York: Scribners, 1992), chaps. 13-15. See Richard G. Hewlett and Oscar E. Anderson Jr., *The New World: A History of the United States Atomic Energy Commission, 1939-1946* (Washington, DC: U.S. Atomic Energy Commission, 1972), chap. 14.

3. Lanouette, *Genius in the Shadows*, pp. 284-297. See Vincent C. Jones, *Manhattan: The Army and the Atomic Bomb* (Washington, DC: U.S. Government Printing Office, 1985), pp. 568-569, 574-578.

4. Martin J. Sherwin, *A World Destroyed: The Atomic Bomb and the Grand Alliance* (New York: Vintage Books, 1977), p. 59. Lanouette, *Genius in the Shadows*, pp. 237-238.

5. Sherwin, *A World Destroyed*, p. 55.

6. Ibid., p. 48.

7. Peter Douglas Feaver, *Guarding the Guardians: Civilian Control of Nuclear Weapons in the United States* (Ithaca, NY: Cornell University Press, 1992), p. 90.

8. Ibid., p. 91; Hewlett and Anderson, *New World*, pp. 412-413.

9. The Army's bill for its continued control over nuclear affairs was introduced in the House by Military Affairs Committee chairman Andrew Jackson May (D-Ky.) and in the Senate by Edwin C. Johnson (D-Colo.).

10. Stewart L. Udall, *The Myths of August* (New York: Pantheon Books, 1994), p. 32.

11. Feaver, *Guarding the Guardians*, p. 93.

12. Hewlett and Anderson, *New World*, p. 434.

13. Section 6(a) of the Atomic Energy Act of 1946, which is entitled "Military Applications of Atomic Energy," authorized the AEC to research and produce atomic bombs. It gave the president authority to direct the AEC to "deliver such quantities of fissionable materials or weapons to the armed forces for such use as he deems necessary in the interest of national defense" or "authorize the armed forces to manufacture, produce, or acquire any equipment or device utilizing fissionable material or atomic energy as a military weapon." In this sense, the AEC's "monopoly" over weapons development and production was already undermined by the new legislation.

14. Feaver, *Guarding the Guardians*, p. 100.

15. J. Samuel Walker, *Prompt and Utter Destruction: Truman and the Use of Atomic Bombs Against Japan*, rev. ed. (Chapel Hill, NC: University of North Carolina Press, 2004), p. 86.

16. Fletcher Knebel and Charles W. Bailey, "The Fight Over the Atom Bomb," *Look*, Aug. 13, 1963, p. 20.

17. Feaver, *Guarding the Guardians*, p. 120.

18. Ibid., p. 125.

19. Ibid., p. 123.

20. Fred Kaplan, *Wizards of Armageddon* (New York: Simon and Schuster, 1983), pp.

133-134.

21. Feaver, *Guarding the Guardians*, p. 50.

22. Ibid., pp. 134, 138. See Gordon Dean and Roger Anders, eds., *Forging the Atomic Shield: Excerpts From the Office Diary of Gordon E. Dean* (Chapel Hill, NC: University of North Carolina Press, 1987), pp. 107-109, 136. See also Richard G. Hewlett and Francis Duncan, *Atomic Shield: A History of the United States Atomic Energy Commission, 1947-1952* (Washington, DC: U.S. Atomic Energy Commission, 1972), pp. 522, 538-539.

23. Feaver, *Guarding the Guardians*, pp. 158, 161.

24. Ibid., p. 159. For a broader assessment, see Walter B. Slocombe, "Democratic Civilian Control of Nuclear Weapons," *Geneva Centre for the Democratic Control of Armed Forces (DCAF) Policy Paper*, No. 12 (April 2006).

25. Feaver, *Guarding the Guardians*, pp. 163-164.

26. Ibid., pp. 168, 202.

27. Ibid., p. 178. See *Congressional Record*, Feb. 9, 1960, p. 2169.

28. Feaver, *Guarding the Guardians*, p. 195.

29. Ibid., p. 203.

how do we achieve

world peace?

VELCOME 歡迎 BIENVENIDOS ΚΑΛΩΣ ΩΡΙΣΑΤΕ **KARIBU** ආයුබෝවන් ยินดีต้อนรับ **MALOLELEI** ברוכים הבאים HOŞ GEDİNİZ **TONGA SOA**

by degrees

Earn your master's degree in International Policy Studies

With specializations in:

- Terrorism Studies
- Nonproliferation Studies
- Security and Development

Graduate certificate in Nonproliferation Studies

Online professional development courses in terrorist movements and terror financing

MONTEREY INSTITUTE OF INTERNATIONAL STUDIES

An affiliate of Middlebury College

WWW.MIIS.EDU

THE FLETCHER SCHOOL
TUFTS UNIVERSITY

Acts of terror. Failed states. Border disputes. Crimes against humanity.

Has the world's need for international security ever been greater?

For more than 35 years, the International Security Studies Program (ISSP) at The Fletcher School has prepared the world's leaders to address security, defense, conflict and strategic issues through a multidisciplinary, global lens. Led by world-recognized faculty, the ISSP program features unique simulation exercises, a lecture series, world-recognized research and conferences, which combine with Fletcher's curriculum to provide the optimal environment to address the 21st century's most complex issues.

Experience the world at Fletcher.
Contribute to the world with Fletcher.

Master of Arts in Law and Diplomacy (MALD)
Master of International Business (MIB)
Global Master of Arts Program (GMAP)
Master of Laws in International Law (LLM)
Doctor of Philosophy (PhD)
Master of Arts (MA)
Executive Education (non-degreed)
Summer School (non-degreed)

Visit fletcher.tufts.edu or call 617.627.3040.