

COUNCIL *on*
FOREIGN
RELATIONS

The Global Nuclear Nonproliferation Regime

May 21, 2012

This page is part of the multimedia Global Governance Monitor.

Scope of the Challenge

Nuclear weapons proliferation, whether by state or nonstate actors, poses one of the greatest threats to international security today. Iran's apparent efforts to acquire nuclear weapons, what amounts to North Korean nuclear blackmail, and the revelation of the A.Q. Khan black market nuclear network all underscore the far-from-remote possibility that a terrorist group or a so-called rogue state will acquire weapons of mass destruction or materials for a dirty bomb.

The problem of nuclear proliferation is global, and any effective response must also be multilateral. Nine states (China, France, India, Israel, North Korea, Pakistan, Russia, the United Kingdom, and the United States) are known or believed to have nuclear weapons, and more than thirty others (including Japan, Germany, and South Korea) have the technological ability to quickly acquire them. Amid volatile energy costs, the accompanying push to expand nuclear energy, growing concerns about the environmental impact of fossil fuels, and the continued diffusion of scientific and technical knowledge, access to dual-use technologies seems destined to grow.

In the background, a nascent global consensus regarding the need for substantial nuclear arms reductions, if not complete nuclear disarmament, has increasingly taken shape. In April 2009, for instance, U.S. president Barack Obama reignited global nonproliferation efforts through a landmark speech in Prague. Subsequently,

in September of the same year, the UN Security Council (UNSC) unanimously passed Resolution 1887, which called for accelerated efforts toward total nuclear disarmament. In December 2011, the number of states who have



ratified the Comprehensive Test Ban Treaty increased to 157, heightening appeals to countries such as the United States, Israel, and Iran to follow suit.

Overall, the existing global nonproliferation regime is a highly developed example of international law. Yet, despite some notable successes, existing multilateral institutions have failed to prevent states such as India, Pakistan, and North Korea from "going nuclear," and seem equally ill-equipped to check Iran as well as potential threats from nonstate terrorist groups. The current framework must be updated and reinforced if it is to effectively address today's proliferation threats, let alone pave the way for the "peace and security of a world without nuclear weapons."

Strengths and Weaknesses

Overall Assessment: *Progress but crucial tests ahead*

International instruments for combating nuclear proliferation were largely successful before 1991, but are proving unable to meet today's challenges. Although three states (India, Israel, and Pakistan) are known or believed to have acquired nuclear weapons during the Cold War, for five decades following the development of nuclear technology, only nine states have developed—and since 1945 none has used—nuclear weapons. However, arguably not a single known or suspected case of proliferation since the early 1990s—Pakistan, Iraq, Iran, North Korea, Libya, or Syria—was deterred or reversed by the multilateral institutions created for this purpose.

The continued advancement of Iran's nuclear program—despite the implementation of crosscutting economic sanctions and near universal global condemnation—has elicited serious concerns from states including Israel, the United States, and Saudi

Arabia. Additionally, recent nonproliferation success stories, such as Libya's abandoning its nuclear program in 2003 and the accession of all of the Soviet successor states except Russia to the Nuclear Nonproliferation Treaty (NPT) as nonnuclear weapon states, have been the result of direct government-to-government negotiations and pressure rather than action by global bodies.

In dealing with today's proliferation challenges, international organizations work in tandem with *ad hoc* forums of interested parties, such as the Six Party Talks on North Korea, the P5+1 grouping on Iran, and the most recent development of biannual global nuclear security summits. But such forums have often proven inadequate to arrest the spread of nuclear technology, and states such as Iran and North Korea continue to pursue nuclear capability, if not outright weaponization. Given these trends, rising doubts about the sustainability of the nonproliferation regime are no surprise.

But nonproliferation as an international issue has recently benefited from revived attention. The United States and Russia signed a legally binding replacement agreement to the Strategic Arms Reduction Treaty (START), which expired in December 2009. New START entered into force in February 2011. President Obama has made nuclear issues a centerpiece of his international agenda, convening a high-level Nuclear Security Summit in April 2010, dedicating serious political effort to strengthen the NPT at the NPT Review in May 2010, and building consensus in the UN Security Council and elsewhere for new economic sanctions targeting Iran. The Obama administration has also pledged to win U.S. Senate ratification of the Comprehensive Test Ban Treaty (CTBT) and reduce the role of nuclear weapons in U.S. defense doctrine. Recently, it initiated discussions with the Pentagon about potential deep cuts to the U.S. nuclear arsenal. Yet even with these renewed efforts, major challenges and threats remain, namely with regard to Iran and North Korea.

Establishing a normative and legal framework: *Fairly comprehensive, but with significant gaps*

The Nuclear Nonproliferation Treaty (NPT) is the core component of the global nonproliferation regime, and establishes a comprehensive, legally binding framework based on three principles: (1) states without nuclear weapons as of 1967—a year before the treaty opened for signature—agree not to acquire them; (2) the five states known to have tested nuclear weapons as of 1967—the nuclear weapon states (NWS)—agree to not assist other states in acquiring them and to move toward eventual disarmament; and (3) the non-nuclear weapons states (NNWS) are guaranteed access to civilian nuclear technology and energy development.

NNWS are subject to safeguards to ensure that materials and technology from civilian activities are not diverted to weapons programs. The International Atomic Energy Agency (IAEA) is the implementing body for the NPT, monitoring compliance with the treaty and assisting NNWS in developing civilian technology. Although the scope and mandate of the NPT and the IAEA are relatively broad, there is a critical gap in coverage: 189 states are party to the treaty, but three of the world's nine nuclear powers—India, Israel, and Pakistan—have never joined, and a fourth—North Korea—withdrew in 2003. Thus, even if enforcement of the existing regime were not an issue, nearly half of the world's nuclear-armed states are excluded from its provisions.

By design, the NPT does not address proliferation by nonstate actors. After the September 11 attacks, the UN Security Council (UNSC) adopted Resolution 1540, a legally binding instrument requiring all UN member states to enact and enforce measures to prevent nonstate actors from acquiring WMD. Many states in the UN General Assembly, however, have argued that the UNSC did not have the authority to impose a binding resolution in this area. Partly as a result, some states have resisted cooperation with the 1540 Committee established to oversee implementation of the resolution. The UNSC, however, recommitted itself to 1540 in April 2011 with Resolution 1977, extending the mandate of the 1540 Committee by ten years. In addition to resistance facing the implementation of Resolution 1540,

the legally binding Convention on Nuclear Terrorism—which defines nuclear terrorism and requires international cooperation to prevent and punish such acts—had only seventy-nine parties as of June 2012.

Moreover, two important elements of the nonproliferation regime have never come into effect, largely because of resistance by the United States and other nuclear weapon states. **The Comprehensive Nuclear Test Ban Treaty (CTBT) of 1996 has been signed by 183 countries but cannot enter into force until all forty-four states with significant military or civilian nuclear capacity ratify it. China, India, Israel, Pakistan, and the United States have not yet done so.** Efforts to **conclude a Fissile Material Cutoff Treaty (FMCT) to ban the production of weapons-grade material have also stalled.** The United States has been criticized for blocking progress on both issues, but the Obama administration has signaled that it will move to again ask the Senate's advice and consent on ratification of the CTBT (the body rejected the treaty in 1999) and to revive negotiations on an FMCT with verification measures.

A review of the NPT in 2010 concluded with modest success. The final outcome document recommits signatories to the principles of the treaty, provides some specific action plans for nonproliferation and disarmament, and calls for the elimination of nuclear weapons from the Middle East through the establishment of a nuclear weapons-free zone in the region. The need for unanimous agreement resulted in some new U.S. initiatives, such as stronger verification requirements, being eliminated from the final document.

Preventing proliferation by state actors: *Poor record on compliance, continued risk of breakout*

Despite the broad legal coverage of the Nuclear Nonproliferation Treaty (NPT), a string of failures since the early 1990s have highlighted the ineffectiveness of existing nonproliferation instruments to deter would-be nuclear weapon states. **In theory, the International Atomic Energy Agency (IAEA) can refer countries that do not comply with the NPT to the UN Security Council (UNSC), which in turn can**

impose sanctions or other punitive measures. In practice, however, political calculations have often caused deadlock at the UNSC, enabling nuclear rogues such as Iran to defy successive, fairly weak UN sanctions resolutions with virtual impunity. The IAEA did, however, refer Syria to the UNSC in June 2011 due to an "absence of confidence that Syria's nuclear program is exclusively for peaceful purposes."

Another problem is the lack of adequate verification and enforcement mechanisms available to the IAEA, whose budget, intelligence capabilities, and technological resources fall far short of what would be needed to detect, prevent, or punish NPT violations. In 2010, the IAEA's inspections budget was approximately \$164 million. Not surprisingly, even discounting nuclear facilities the IAEA does not have access to, such as those in Iran and North Korea, nuclear materials have reached the black market from installations under IAEA safeguards, namely, from several in Pakistan. One positive step has been the adoption of IAEA Additional Protocols, which strengthen the agency's inspections mandate and is in force in 115 countries, including all five recognized nuclear weapon states and, as of 2009, India. Nonetheless, more than half of all NPT member states—including Syria and Iran (which has ratified but not implemented the protocol)—have yet to agree to the toughened inspections regime. A review of the NPT in 2010 failed to reach consensus on U.S. efforts to make the additional protocols mandatory.

Other multilateral, informal organizations also play a role in implementing and enforcing the NPT, notably the Nuclear Suppliers Group (NSG). Made up of forty-six advanced nuclear states, the NSG prohibits the transfer of civilian nuclear materials or technology to states outside the NPT, or those that do not fully comply with IAEA safeguards. However, the NSG's export bans are not legally binding, and members (including the United States, Russia, and China) have taken advantage of the weakness of the NSG regime to pursue civilian nuclear projects with non-NPT members.

Interdicting illicit nuclear transfers: Some progress since 2001

In addition to legal frameworks, several multilateral initiatives have been created in recent years to improve international coordination in preventing nuclear terrorism. The Global Initiative to Combat Nuclear Terrorism (GICNT), launched in 2006, seeks to coordinate international efforts to detect, investigate, and respond to proliferation by nonstate actors.

Alongside the efforts of the GICNT, many countries are developing a comprehensive detection mechanism to monitor trafficking in nuclear material and related financial transactions. The U.S.-led Proliferation Security Initiative (PSI), established in 2003, today involves more than ninety-eight countries in developing the best practices, joint training exercises, and information-sharing activities to improve multilateral interdiction efforts.

Although often cited as a flexible approach to coordinating the international response to proliferation, PSI does not grant any legal authority for ship-boarding or interdiction beyond the UN Convention on the Law of the Sea Treaty and various bilateral agreements. India and China, which do not participate in PSI, have questioned the legality of its interdictions. PSI also cannot interdict ships of nonmember states unless master consents to being boarded are allowed, such as Iran and Pakistan. Whether the 2003 interdiction of a ship supplying nuclear materials to Libya was the direct result of PSI activities, for example, is still disputed.

Analysts have also criticized the PSI for being a club of developed economies and not addressing the problem of increasing independence among a growing number of developing countries and nonstate actors from the controls enacted by the traditional supporters of the nuclear establishment. Others have pointed out that the initiative is limited by having neither an independent budget nor coordinating mechanisms, and does not provide a legal framework in which to lock in long-term, verifiable, and irreversible member state commitments. However, as a sign that progress may be forthcoming, the United States and China jointly installed a nuclear radiation detection system at the Yangshan port in Shanghai in December 2011. Two years earlier, the U.S. Navy was also able to successfully pressure a North

Korean vessel—which many suspected to be carrying illicit nuclear weapons materials destined for Myanmar—to return to port by tailing the ship in open waters.

Securing fissile material and nuclear arsenals: Significant progress since the 1990s, but incomplete

Possibly the most successful element of the nonproliferation regime has been the effort to secure so-called loose nukes and fissile material throughout the former Soviet Union. This is critical given that some 135 nuclear facilities worldwide use highly enriched uranium (HEU) as fuel—enough HEU to create some 400 nuclear weapons. If terrorist or criminal groups were able to buy or steal even a small portion of this material, they could use it to construct [PDF] a crude nuclear weapon or dirty bomb.

The United States and Russia have led this effort since 1991. By 2011, some 92 percent of sites in the former Soviet Union with weapons-usable nuclear material had been secured. U.S.-funded efforts such as the Cooperative Threat Reduction program, Global Threat Reduction Initiative, and the Global Initiative to Combat Nuclear Terrorism have been complemented by other multilateral initiatives, such as the Group of Eight Global Partnership against the Spread of WMD, which has provided funding and technical assistance to secure nuclear facilities, repatriate fissile material to origin countries, and promote international cooperation to counter proliferation.

In late 2011, the importance of securing nuclear material came into focus again following the collapse of Muammar al-Qaddafi's regime in Libya. In September 2011, ten thousand drums of uranium yellowcake were discovered in a Libyan warehouse, virtually unguarded, although a UN official claimed the material was only "slightly" radioactive and did not pose an immediate threat.

The Obama administration brought additional attention to this issue, pledging to secure all vulnerable nuclear weapons materials by 2014 and convening a high-level global nuclear security summits in 2010 and 2012. The 2010 summit yielded tangible results, with Ukraine announcing that it would get rid of all its Soviet-era highly enriched uranium, and five other countries stating intentions to convert their research reactors to run on low-enriched uranium, which is less dangerous. The next global nuclear security summit is planned for 2014 and will take place in the Netherlands.

A related concern, ranging from pioneering nuclear powers like the United States to more recent powers like Pakistan, is the security of nuclear arsenals, specifically regarding safeguarding warheads from accidents, theft, or unauthorized use.

The security of Pakistan's arsenal is a serious concern, especially for the United States. Reports have emerged that nuclear warheads are often transported on normal roads with little to no protection. While Pakistan has always countered that its arsenal is secure, some U.S. officials have voiced concern about the possibility of one of Pakistan's weapons falling into the hands of terrorists.

Similarly, there have been repeated safety issues related to the U.S. nuclear arsenal. In 2007 and 2008, two nuclear safety incidents prompted Secretary of Defense Robert Gates to institute high-level leadership shifts within the U.S. military. In November 2011 a damaged component of an unarmed intercontinental ballistic missile prompted a partial evacuation and emergency response at a U.S. Air Force base in North Dakota. In July 2012, activists broke into the Y-12 National Security Complex in Tennessee. It would later come to light that security weaknesses had been discovered at the facility two years previously. These incidents demonstrate that ensuring the safety and security of nuclear arsenal remains a serious and important issue—even for countries with decades of experience with nuclear weapons.

Oversight of civilian nuclear programs and dual-use technologies: *Inadequate monitoring and verification mechanisms*

Some analysts note that the Nuclear Nonproliferation Treaty (NPT), which guarantees states' rights to develop civilian nuclear technology, enables a peaceful path to proliferation through fuel cycle activities. Many of the processes used to produce civilian nuclear power can be converted to military ends. As noted, the International Atomic Energy Agency does not have the capacity to adequately monitor every nuclear site. Iran has almost certainly used its civilian program as a cover for illicit weapons activities. The challenge of monitoring and verifying NPT safeguards will likely only increase as more countries look to nuclear power to offset volatile energy prices and reduce reliance on carbon-based fuels.

In particular, several Middle Eastern countries that currently lack robust civilian nuclear programs have increasingly looked to diversify their economies through nuclear power. Other than safety risks commonly linked with the development of civilian nuclear programs, other countries may also fear that such programs will be used in the future to develop nuclear weapons. The latter concern is most commonly discussed in reference to Iran potentially developing nuclear weapons—regardless of that country's repeated assertions that its nuclear program is for peaceful purposes—and how such a development could affect regional security dynamics in the Middle East.

Disarmament: *Not enough action toward nuclear disarmament by NWS*

The five recognized nuclear weapon states have committed under the Nuclear Nonproliferation Treaty (NPT) to pursue in good faith nuclear disarmament and a treaty on general and complete disarmament. **The NPT does not specify an end-date for achieving disarmament. Although almost everyone believes that complete disarmament or even nuclear disarmament remains a distant goal, the record of NWS on pursuing nuclear disarmament is mixed.**

At the 1995 NPT Review Conference, in return for agreement from the nonnuclear weapon states to extend the treaty indefinitely, the United States and other nuclear powers reaffirmed their commitment to nuclear disarmament. But despite major cuts in the numbers of U.S. and Russian operationally deployed nuclear warheads, both countries still retain massive stockpiles that account for more than 90 percent of the world's nuclear weapons. Many NNWS have repeatedly called for the NWS to make even deeper reductions in their arsenals and argued that the NWS foot-dragging is undermining the legitimacy of the NPT. This perceived failure to make progress toward disarmament has been one factor in the unwillingness of many UN members to support sanctions against Iran for NPT violations, which many developing countries see as a justifiable—even admirable—response to the hypocrisy of the nuclear weapon states. In 2010, the U.S. government revealed it had 5,113 warheads in its nuclear arsenal.

Recently, the NWS have recommitted themselves to reductions in nuclear arms, particularly in the New START Treaty and the outcome document of the 2010 NPT Review Conference. There are also reports that, due to heightened fiscal pressure, the Obama administration is considering deep cuts to the U.S. nuclear arsenal. However, specific estimates for the cuts vary, and it is unclear if reducing the U.S. nuclear arsenal would be a politically viable option.

U.S. Nonproliferation Policy Issues

Introduction:

The United States deserves both praise and criticism for its recent policies on nonproliferation. On one hand, since the Cold War, the United States has been at the forefront of efforts to secure nuclear material and facilities worldwide, spending more than any other country through programs such as Cooperative Threat Reduction and the Proliferation Security Initiative. However, efforts to reduce and reverse the spread of nuclear weapons technology took up only a small part of the resources devoted to nuclear weapons and defense under the Bush administration.

According to an independent analysis, the entire 2008 U.S. budget for programs to secure nuclear material around the world was only \$250 million—less than the cost of one day of the Iraq war.

After September 11, the Bush administration led the world in creating international normative and legal frameworks to address the threat of nuclear proliferation by nonstate actors, supporting the passage of United Nations Security Council Resolution 1540 and the Nuclear Terrorism Convention (which the United States signed but has not ratified). On the other hand, the administration did not support efforts to broaden constraints on states' nuclear weapons programs, refusing, for example, to accept verification measures as part of any treaty banning the production of fissile material, and failing to push for Comprehensive Nuclear Test Ban Treaty (CTBT) ratification. President Bush did call for, and achieved, a 65 percent reduction in U.S. operationally deployed strategic nuclear weapons. But the Bush administration's position on missile defense (among other issues) hampered bilateral negotiations with Russia and contributed to the failure to extend the seminal U.S.-Russia Strategic Arms Reduction Treaty (START) before its expiration at the end of 2009. The much weaker 2002 Strategic Offensive Reductions Treaty (SORT) requires the countries to dismantle—not destroy—only a portion of their warheads. The United States and Russia have signed and ratified a treaty to replace START—New START—which limits both countries to 1,550 operationally deployed nuclear weapons. It entered into force in February 2011.

By contrast, President Obama laid out his vision for a new nonproliferation strategy in Prague in April 2009, where he reaffirmed "America's commitment to seek the peace and security of a world without nuclear weapons." In doing so, he pledged that the United States would reduce the role of nuclear weapons in the U.S. national security strategy, negotiate a new START treaty with Russia, pursue U.S. ratification of the CTBT, strengthen the Nuclear Nonproliferation Treaty (NPT) with increased resources and authority for international inspectors, work toward building a new framework for civil nuclear cooperation and an international fuel bank, and create a

new international effort to secure vulnerable material globally within four years. The April 2010 Nuclear Posture Review identifies nuclear terrorism and nuclear proliferation as urgent threats, necessitating a U.S. nuclear policy focused on rebuilding the nuclear nonproliferation regime through international efforts.

Despite President Obama's shift in tone from the Bush administration, several nonproliferation issues continue to spark debate in the United States.

Should the U.S. pursue deep cuts in its nuclear arsenal?

No: The U.S. nuclear arsenal—already subject to significant cuts through the 2011 New START Treaty—should not be further reduced as suggested by the January 2012 policy planning document, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*. First, pursuing cuts to the nuclear arsenal, possibly to as few as three hundred warheads, risks damaging perceptions of the viability of the U.S. nuclear umbrella, which covers critical U.S. allies like Germany and Japan. Furthermore, the United States needs a robust nuclear arsenal to counter threats from states like North Korea and Iran, who regularly flout international accords and norms. For example, despite North Korea's February 2012 compromise with the United States to accept a moratorium on the testing of long-range missiles and nuclear weapon in exchange for food aid, it broke the accord just two months later after attempted to test what it claimed was a satellite, but more likely was a long-range missile. It followed this effort with a successful launch of a satellite in December 2012. According to a recent International Atomic Energy Agency report, it is increasingly apparent that Iran's nuclear program is not peaceful in nature, and that Tehran may be moving closer to developing a nuclear weapon.

The United States also needs to be mindful of threats from great power countries like Russia and China. Russia, despite acceding to the New START Treaty in 2011, still has a larger nuclear arsenal than the United States, and has even threatened to target U.S. plans for a strengthened missile defense system in Europe. In addition, reports have emerged that China's nuclear arsenal is substantially larger than

originally projected and growing. U.S. congressional representative Trent Franks claims that further reductions to the U.S. nuclear arsenal would encourage proliferation by countries seeking to outdo the United States, calling plans for deep cuts "reckless lunacy." Now, more than ever, the United States should avoid a major alteration of its nuclear posture and reassure its friends and allies that its deterrent capability remains robust.

Yes: Moving forward with the nuclear weapons strategy put forth in the Obama administration's Sustaining U.S. Global Leadership: Priorities for 21st Century Defense document to "maintain a safe, secure, and effective nuclear deterrent" would strengthen national security and make U.S. defense spending more efficient. Substantial reductions to the number of nuclear weapons in the U.S. arsenal is unlikely to harm U.S. national security interests given that the United States can still rely on its advanced conventional military capabilities. Additionally, a large stockpile of nuclear weapons is ill-suited to addressing current threats the United States faces from other countries.

International sanctions targeting Iran's nuclear program, for example, have escalated, increasing pressure on the Iranian regime to change course. Moreover, even if Iran did develop a nuclear weapon capability, some believe it is extremely unlikely the regime would ever use nuclear weapons due to an assured counterattack from the United States or Israel. North Korea, which resumed multilateral negotiations over its nuclear program and recently agreed to a moratorium on nuclear weapons tests, is estimated to possess only a dozen weapons. Moreover, despite fears of a new Cold War between the United States and China, nuclear weapons appear increasingly exogenous to Sino-U.S. ties—especially given the recent warming of relations between China and Taiwan. Some experts have also pointed out that the size of the U.S. nuclear arsenal inadvertently encourages nuclear weapons proliferation by rogue states by placing too much value on nuclear weapons.

Should the international community move toward universal nuclear disarmament?

Yes: In a groundbreaking op-ed piece in the Wall Street Journal in January 2007, U.S. foreign policy heavyweights George Shultz, Henry Kissinger, William Perry, and Sam Nunn set out the vision of a world free of nuclear weapons and ways in which the United States can lead the world toward this goal. The essay argued that relying on nuclear weapons for deterrence purposes was "becoming increasingly hazardous and decreasingly effective." As preliminary steps, authors called for substantial reductions in the size of the U.S. nuclear arsenal, elimination of short-range forward-deployed nuclear weapons, ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT), creation of an international nuclear fuel bank, and a halt to the production of fissile material (which the United States has not produced since 1988). Because calls for disarmament had previously been viewed as the purview of the Democratic party, the piece's high-profile authorship helped shift the debate within U.S. government and other policy circles. President Obama has endorsed this perspective by calling for a world free of nuclear weapons. In addition, UN secretary-general Ban Ki-moon has called global nuclear disarmament a "concrete possibility."

Many who support universal global nuclear disarmament posit that a legally binding convention on nuclear weapons is the best means of achieving universal nuclear disarmament. One prominent pro-disarmament nongovernmental organization suggests that such a binding global convention could be practically implemented by all nuclear capable states by 2030.

Global Governance Update

Read the latest on multilateral cooperation in the twenty-first century from the International Institutions and Global Governance program. *Quarterly*.

Email Address

Submit

[View all newsletters >](#)

No: Opponents of nuclear disarmament argue that **it would actually encourage would-be proliferators like Iran, which would have far more to gain and less to lose by acquiring nuclear weapons.** Many experts, including the authors of the Wall Street Journal piece, also believe that the U.S. nuclear umbrella has been a primary factor in preventing allies such as Japan, South Korea, and Turkey from seeking nuclear weapons, and that U.S. disarmament, in particular, could spark regional arms races elsewhere.

Critics of a convention on nuclear weapons also raise concerns of the political feasibility of reaching an agreement on such a contentious issue. Specifically, the UN organ that would be entrusted with drafting such a covenant, the UN Conference on Disarmament, operates by consensus and has historically faced serious internal divisions. Another common critique is that an international convention banning nuclear weapons would require an intrusive verification regime, which many states might be unwilling to accept. Furthermore, such a covenant could have the unintended effect of nuclear blackmail by a rogue state that covertly develops nuclear weapons. North Korea's 2003 decision to withdraw from the Nuclear Nonproliferation Treaty demonstrates the risks that the international community could by agreeing to such a convention.

Should the United States ratify the Comprehensive Test Ban Treaty?

Yes: The Bush administration claimed to support the CTBT, which was rejected by the U.S. Senate in 1999, but did not push for ratification while in office. Proponents point out that Washington already observes a de facto moratorium on testing, and that new technology and initiatives such as the Stockpile Stewardship Program

mean that the United States can retain its nuclear capabilities without testing. They add that monitoring technology would deter cheating by detecting any secret testing on a scale large enough to ensure that weapons are reliable. Supporters of the CTBT also note that President Clinton pledged to ratify the treaty in 1995, and that doing so might encourage other states, such as India and China, to do the same. President Obama has stated his support for the treaty and his intent to seek Senate ratification, putting Vice President Biden in charge of this effort.

No: Critics argue that the CTBT would limit the United States' ability to maintain functional weapons for defensive and deterrence purposes, and could eventually lead to what has been referred to as involuntary disarmament. Opponents [PDF] also believe that the treaty would be impossible to monitor or enforce and that cheaters could use secret tests to advance their nuclear programs, possibly putting the United States at a disadvantage. Finally, they argue that only a strong U.S. nuclear deterrent and not arms control treaties, which the international community will ignore, can dissuade other states from acquiring nuclear weapons.

Should the United States go ahead with missile defense?

Yes: Supporters say missile defense will protect the United States against nuclear-armed, adversarial states such as North Korea and, in particular Iran, where deterrence may not work because the the rationality of highlevel leaders is in doubt." Some believe this threat is likely; others, such as former undersecretary of defense Paul Wolfowitz, said that even if the threat were only possible, Americans have a duty to use existing missile defense technology to protect themselves. Supporters of missile defense believe that the program will overcome most of the technological hurdles it now faces, and some note that even if the system isn't perfect, the difficulty of overcoming the defense will be enough to deter enemies. They are also likely to point to the successful deployment of a missile defense radar system in Turkey in 2012 as well as the successful use of Iron Dome missile defense in Israel during the Gaza-Israel clashes in March 2012.

No: Opponents argue that policymakers should reallocate the considerable resources absorbed by the missile defense system to more imminent, and arguably more plausible, dangers such as terrorists smuggling improvised nuclear devices into the United States in cargo containers. A great technological leap is required, they note, to move from building a nuclear bomb (as North Korea appears to have done, and as Iran may be close to doing) and designing a reliable warhead that can be loaded onto a missile. Opponents also argue that, because the United States would be able to identify the geographical origin of an incoming missile within seconds from launch, the near certainty of a devastating U.S. retaliation guarantees a strong deterrent against any such attack. Some of these critics also dislike the sense of invulnerability that such a system would lend to the United States, which, they worry, could lead Washington to take increasingly unilateral policies in a variety of areas, potentially alienating friends and antagonizing others. During the 2008 presidential campaign, then candidate Barack Obama promised to "responsibly deploy missile defenses that would protect us and our allies," but "only when the system works." The European missile defense system being pursued by the Obama administration has fewer technical barriers than the one proposed by the Bush administration. Nonetheless, Russia has suggested it will target the missile defense systems in Europe unless it receives guarantees from the United States and NATO that the system will not threaten Russia's strategic interests.

Should the United States introduce new weapon components into its nuclear arsenal?

Yes: The National Nuclear Security Administration, the agency in charge of nuclear weapons within the Department of Energy, has recommended updating the U.S. nuclear arsenal to adapt it to post-Cold War scenarios and ensure its long-term dependability, leading to debates over plans to develop a reliable replacement warhead that would be easier to maintain and would not require nuclear testing. Although Congress decided not to fund the originally proposed Reliable Replacement Warhead (RRW) Program, advocates of the idea, including Secretary of

Defense Robert Gates, have argued that current methods of maintaining the nuclear stockpile will work only in the short term and that ensuring a strong nuclear deterrent is a fundamental U.S. national security interest. They note that, should the United States one day no longer be able to reproduce the materials and devices it used during the Cold War, it may find itself having to choose between letting its arsenal fade into irrelevance or resume weapons testing.

No: Opponents say that there are no technical reasons to doubt the soundness of the current stockpile maintenance system. They point to the Stockpile Stewardship Program and the Warhead Life Extension Program as evidence that confidence in the safety, security, and reliability of the U.S. nuclear arsenal can be maintained without nuclear tests or the development of new nuclear weapons. Opponents also worry that the RRW may undermine the nonproliferation consensus, either because other states will believe that it adds capability to U.S. weapons or because it may eventually require nuclear testing. They believe that RRW may be prohibitively expensive, and that the current system ensures an adequate, long-term nuclear deterrent. The Obama administration's April 2010 Nuclear Posture Review asserts that the United States will not build new nuclear warheads.

Should the international community do more to engage states like North Korea and Iran?

Yes: While states such as Iran and North Korea admittedly present a challenge to the international community—whether in terms of the Nuclear Nonproliferation Treaty or threats to regional stability—experts contend engagement should trump confrontation. Although international sanctions targeting Iran's nuclear program have recently expanded amid increasing calls for preemptive military strikes against Iranian nuclear facilities, Tehran remains resolute. With that said, talks are slated to begin once again in February 2013 after recent delays. Similarly, despite prolonged sanctions and international isolation, North Korea has retained its nuclear arsenal. On the other hand, proponents of engagement argue [PDF] that negotiations have yielded concrete results by checking both countries' nuclear ambitions. Overall,

supporters of engagement argue that more coercive approaches would not only preclude the United States and international community from reaching any compromise from such states, but would also unhinge regional stability and facilitate nuclear proliferation. They also argue that advocates of more hard-line strategies exaggerate the risks of nuclear proliferation by states such as Iran and North Korea, as well as underrate the value of deterrence and the mutually assured destruction to ensure stability and prevent the use of nuclear weapons.

No: Rather than squander efforts on engagement, the international community should take a harder line on intransigent states such as North Korea and Iran to halt nuclear proliferation. Time and time again, diplomatic negotiations—whether in the form of the Six Party Talks with North Korea or multilateral negotiations with Iran—have yielded little in terms of substantive results. North Korea, for instance, has continued to conduct nuclear tests and repeatedly threatened to attack South Korea, a critical U.S. ally. Iran also appears to be moving closer to achieving nuclear weapons capability, and is openly enriching uranium up to 20 percent. Either of these countries could also attempt to export technical expertise abroad, risking proliferation of sensitive missile and nuclear technology to states such as Syria or Myanmar. In general, those who favor coercive approaches argue that negotiations are little more than delaying tactics rather than genuine attempts to reach an agreement. Additionally, both North Korea and Iran can count on the support of powerful allies on the UN Security Council—Russia or China—and thus have little incentive to change course. Specifically, the United States and others should prioritize measures including suspending foreign aid (in terms of North Korea), expanding economic sanctions, launching covert espionage missions, and, as a last resort, targeted military action.

Should the United States provide Pakistan aid to improve the security of its nuclear arsenal?

Yes: As Pakistan is a U.S. ally, consistently faces external and internal threats [PDF] from terrorists and extremists alike, and currently holds an estimated 90 to 110 nuclear warheads, it is vital that the United States provide Pakistan aid to secure its nuclear arsenal. Exemplifying the importance of helping Pakistan in this area, U.S. congressional representative Michele Bachmann has labeled Pakistan "too nuclear to fail" and has warned that suspending Pakistan's aid would be "highly naïve." Proponents of providing Pakistan aid to secure its arsenal also note that such a policy is a relatively cheap way to prevent dangerous nonstate actors from stealing or acquiring one of Pakistan's nuclear weapons. In particular, aid set aside for improving the security of Pakistan's arsenal has represented only a small proportion of the more than \$20 billion the country has received from the United States since 2011. Additionally, the United States, as a long standing nuclear power committed to nuclear security, is uniquely equipped to provide nuclear security related assistance to Pakistan.

No: Although the United States has a critical national security interest in ensuring the security of Pakistan's nuclear arsenal, providing the Pakistani government with aid will do little to accomplish this goal. First, Pakistan has repeatedly denied claims that its nuclear arsenal is insecure; it also recently announced training of an elite team comprising eight thousand members to guard the nuclear arsenal. Even if security gaps do exist in Pakistan, it is not clear that additional U.S. aid—on top of the tens of millions the U.S. has already provided Pakistan already to secure its arsenal—will fix the problem. There is also the risk that certain actors within Pakistan's government could divert U.S. aid, and perhaps even to extremist elements in the country. Similarly, aid designated for Pakistan's nuclear arsenal might actually increase suspicions in the Pakistani military that U.S. intelligence agencies are spying, with potentially harmful ramifications for U.S.-Pakistan cooperation. More broadly, providing aid to Pakistan to secure its nuclear arsenal could be interpreted by some members of the international community as a "reward" to Pakistan for developing nuclear weapons—and inadvertently encourage the proliferation of nuclear weapons elsewhere.

Recent Developments

November 2013: Breakthrough in Iran talks

On November 24, 2013, the United States and the rest of the P5+1 struck the first meaningful deal with Iran regarding its nuclear program in over a decade. In return for limited and reversible sanctions relief, Iran agreed to halt its nuclear program for a period of six months. Though the agreement does not provide a long-term solution to concerns about Iranian nuclear aspirations, it lays the groundwork for further negotiations. As of January 20, 2014, the IAEA and the United States verified that Iran had fulfilled its initial commitments under the joint plan of action.

June 2013: Nuclear states defying NPT

The Stockholm International Peace Research Institute's latest yearbook has suggested that all five recognized nuclear states are either deploying new nuclear weapons or delivery systems for nuclear systems or plan to do so. The report contends that these states "appear determined to retain their nuclear arsenals indefinitely." Such a development would violate the terms of the nonproliferation treaty which states that recognized nuclear states work toward disarmament.

April 2013: Egypt walks out of nuclear meetings

On April 30, Egypt walked out of the Geneva preparatory meeting for the 2015 Review Conference of the State Parties to the Treaty on the NonProliferation of Nuclear Weapons. The Egyptian foreign minister for international organizations explained that the delegation's walkout from the talks stemmed from Egypt's frustration at a lack of progress toward a nuclear-free zone encompassing the Middle East. The creation of such a zone was not on the agenda for the current round of global nuclear talks.

April 2013: Chinese pledge for nuclear-free North Korea

During his visit to China, Secretary of State John Kerry said that China had agreed to help North Korea demobilize its nuclear arsenal by peaceful means. It is hoped that China, as North Korea's primary trading partner and financier, has the leverage to mitigate the increasingly aggressive rhetoric from Pyongyang that has increased fears of military operations on the peninsula.

February 2013: Third North Korea test blast

North Korea conducted a controversial nuclear test on Monday, February 11, the country's third since 2006. North Korean officials claimed the country has successfully miniaturized its nuclear technology, a crucial step in developing long-range missile capabilities, but details of the test remain murky.

The United States announced that Washington would push for stricter sanctions in the wake of the most recent test, which has been condemned by South Korea and Russia, among others. Even China, North Korea's closest ally for decades, strongly criticized the test—Chinese foreign minister Yang Jiechi announced that China was "strongly dissatisfied and resolutely opposed" to North Korea's most recent provocation. Its subsequent threats against the United States and South Korea, combined with its scrapping of a Korean War armistice, have led to widespread condemnation from the United Nations, European Union, and other states.

December 2013: U.S.-Russian disposal program ends

In 1994, the United States and Russia struck a deal to dispose of large stockpiles of Soviet highly enriched uranium (HEU). Over twenty years, Russia converted five hundred metric tons of HEU (enough bomb-grade uranium for 20,000 warheads) into low-enriched uranium (LEU) that the United States purchased. The United States-Russia Highly Enriched Uranium Purchase Agreement, commonly known as the Megatons to Megawatts program, ended with the last shipment of LEU reaching the United States on December 11, 2013.

Options for Strengthening the Nonproliferation Regime

Introduction

Recent trends have brought the nuclear nonproliferation regime to a moment of grave crisis. The regime is under siege from both rogue states and nonstate actors, and its core bargain between the nuclear haves and have-nots continues to erode. Bolstering international restraints on the world's deadliest weapons will require the United States and its international partners to adopt realistic, concrete steps to strengthen and close gaps in existing treaty regimes, institutions, and partnerships.

These recommendations reflect the views of Stewart M. Patrick, director of the program on international institutions and global governance.

Increasing the IAEA budget and reforming the safeguards, security, and personnel systems

The International Atomic Energy Agency (IAEA) is the world's technical agency in charge of ensuring that countries maintain safeguards on their peaceful nuclear programs. Safeguards help deter a country from diverting nuclear technology and materials from peaceful to military programs. The major concern is that safeguards capabilities have not kept up with the increased use of nuclear power and the projected expansion of nuclear power to many countries. In the words of the Bush administration's head of the National Nuclear Security Administration, "safeguards equipment is outdated and personnel preparedness declining as the agency failed to replace retiring experts with new hires."

The IAEA provides services on improving nuclear security in order to prevent nuclear and radiological materials from falling into the hands of terrorists. In 2008, the Eminent Persons Commission advised the IAEA director general that the agency needs to substantially increase its budget for safeguards and security work.

Unfortunately, this financial support has not been forthcoming. The IAEA, however,

needs member states to commit to place the agency on a sustainable funding path. It also needs to reform its personnel rules to allow experts to stay in one type of job for longer than seven years and for highly qualified senior personnel to stay employed beyond the mandatory retirement age of sixty-two. The recent release of an IAEA report discussing Iran's alleged covert nuclear weapons activity presents more evidence regarding the need to ensure the funding needs of the IAEA are satisfied.

Increasing national and international efforts to bring the Comprehensive Test Ban Treaty into force

Increasing national and international efforts to bring the Comprehensive Nuclear Test Ban Treaty into force and boost funding to the CTBT Preparatory Commission is required in order to continue to improve the international monitoring system. The CTBT is specifically linked to the overall nonproliferation regime, and entry into force would strengthen the norm against proliferation of nuclear weapons and make it more difficult for states to have confidence that nuclear weapons would work without testing. For the CTBT to enter into force, forty-four nuclear-capable states must ratify it. If the United States ratifies, it can then apply more leverage to the remaining holdout states to do the same.

Nonratifying states include China, Egypt, India, Indonesia, Iran, Israel, North Korea, Pakistan, and the United States. In a February 2010 speech, Vice President Biden reaffirmed U.S. commitment to ratify the treaty. The United States will need allied states to reach out and apply diplomatic pressure to holdout states to help secure entry into force. To ensure the requisite technical support for the treaty, the United States and its allies need to provide enough funding and other technical resources to the CTBT Organization (CTBTO) and Preparatory Commission. Such support will improve the global monitoring system that is designed to detect relatively low yield nuclear tests throughout the world.

Negotiating new, emboldened nuclear arms control treaties

The United States and Russia replaced the Strategic Arms Reduction Treaty (START) with the New START Treaty. Successful negotiation and ratification of this agreement improved the overall condition of U.S.-Russian relations, possibly making it easier to work together on other multilateral efforts (such as ensuring the peaceful use of nuclear energy, preventing further proliferation to additional states, and implementing global best security practices on nuclear weapons and weapons-usable nuclear materials). The New START agreement preserves many of the best elements of its predecessor, such as information exchange, predictability, and permanence in reductions, verification, and transparency. But the United States and Russia must also look ahead to deeper nuclear reductions and focus on broader issues of contention, including missile defense and advanced conventional weapons.

In the longer term, the United States and its international partners should consider the following steps:

Reforming and strengthening the NPT by creating automatic or binding UNSC mechanisms.

Rights in the NPT come with responsibilities. Nuclear weapon states have the responsibility to ensure access to peaceful nuclear technologies, and the recipient states need to show that they can manage nuclear power safely and securely. Although Iran has cited its inalienable right under the NPT to access peaceful nuclear technologies, including dual-use enrichment technologies, it has not met its responsibility to ensure adequate safeguards on its peaceful nuclear program. It has also not provided enough transparency into suspected nuclear weapons development activities to assure the world that it is meeting its responsibility to not acquire nuclear weapons. North Korea left the NPT under the Article X supreme national interests clause, but it did so while under suspicion of developing nuclear weapons. Moreover, it never placed its nuclear program under safeguards.

Although amending the NPT is admittedly a difficult task, states should commit to strengthening the interpretation and application of the treaty's rules. In particular, the UN Security Council should require that any state in violation of its safeguards agreement should suspend the suspect activity until the violation is resolved. The Security Council should also require any state in violation of its safeguards agreement that wants to leave the NPT to return nuclear technologies and materials obtained while a member to countries of origin. In addition, the Security Council should call for a special inspection in any country that has violated its safeguards commitment and is under suspicion of having a nuclear weapons program. Nuclear weapon states have a special responsibility to reaffirm their commitment to pursue nuclear disarmament. They need to demonstrate what concrete actions they have taken and intend to take on the disarmament front. The 2010 NPT Review Conference provided an opportunity for treaty signatories to recommit themselves to a world free of nuclear weapons; however, U.S. efforts to include language on stronger verification measures in the final document failed.

Determining whether to institutionalize PSI.

In his April 2009 Prague speech, President Obama advocated that the world should "come together to turn efforts such as the Proliferation Security Initiative...into a durable institution." The purported benefits of creating a formal institution out of PSI are still being debated. For example, turning the PSI from an informal cooperation agreement into an organization with a secretariat and a budget has the potential to increase its resource endowment and expand its reach. Institutionalizing the initiative may also help clarify commitments and increase operational transparency, making it easier to evaluate performance and measure progress. Bringing the PSI under UN aegis, some analysts have argued, could boost its international legitimacy and appeal to China, India, and Middle Eastern states, whose cooperation in policing the nuclear trade market remains important. One

way to put PSI on a firmer institutional footing without folding into an explicitly formalized institution would be to strengthen its legal foundation. This would place interdiction on grounds consistent with international law.

Creating a global alliance against nuclear terrorism.

The terrorist attacks of September 11, 2001, while nonnuclear, renewed fears of catastrophic nuclear terrorism. In response, the United States and partner countries have revived or initiated international efforts to counter this threat. In particular, the Group of Eight (G8) countries in 2002 launched the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, in which the United States committed to spend at least \$10 billion over ten years, and other partners pledged to match that sum. In 2004, the United States formed the Global Threat Reduction Initiative, which was an umbrella program including several programs to secure and reduce fissile materials as well as radioactive materials. Russia is a major partner in this initiative. In 2006, Russia and the United States joined forces again when then president Bush and then Russian president Putin began the Global Initiative to Combat Nuclear Terrorism, which as of early 2010 had eighty-two countries voluntarily taking part in sharing intelligence on nuclear terrorist threats as well as pledging to work toward better security practices over nuclear and other radioactive materials.

These programs and initiatives have achieved significant results, but more committed and coordinated global efforts are needed. The challenge for the new U.S. administration is to urge countries to meet their financial and resource commitments pledged under these programs and to increase funding and personnel to ensure that President Obama's goal of securing all vulnerable nuclear material can be achieved by 2014. The institutionalization of biennial global nuclear security summits—with the next summit planned for 2014 in the Netherlands—is a solid step in the right direction.

Developing a system of layered nuclear fuel assurance.

The spread of nuclear fuel-making facilities under a single state's control can increase the risk of diversion of peaceful nuclear technologies into weapons programs. Issuing an edict to prohibit this activity runs into the barriers of state sovereignty and the "inalienable right" to pursue peaceful nuclear programs. States have built fuel-making facilities for reasons of satisfying national pride, developing a latent weapons capability, and trying to make a profit. To take away or at least to reduce the economic rationale for these facilities, several fuel assurance programs have been proposed. Many of these proposals were studied decades ago. Concerns about proliferation in response to Iran's nuclear program have prompted a dusting off of these proposals or a dressing up with more incentives. The important point is that the nuclear fuel market has worked effectively and there is no reason to expect it to fail in the foreseeable future especially with the expansion plans of the established nuclear fuel producers.

To further strengthen nonproliferation, it makes sense to offer a layered system of fuel assurances that would be available to any country that is in compliance with its safeguards commitments. The first layer would be the existing market in which a handful of major producers have been meeting customers' needs. The second layer would consist of political commitments and insurance policies that would form in effect a virtual fuel bank to back up the existing market. The final layer would consist of an actual fuel bank containing sufficient fuel or low-enriched uranium that can be readily converted to fuel. Such a bank should contain at least enough fuel or enriched uranium to supply the needs of a few large power reactors over a two to three year period. Even with this layered approach, certain countries may still decide to pursue new fuel-making endeavors, but a robust layered fuel system will at least expose that these countries are doing such activities for other than economic reasons.

International Institutions

and Global Governance
Program

Mega Lecture