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The Long Road to Zero

Overcoming the Obstacles to a Nuclear-Free World

Charles D. Ferguson

OVER THE past three years, a remarkable bipartisan consensus has emerged in Washington regarding nuclear security. The new U.S. nuclear agenda includes renewing formal arms control agreements with Russia, revitalizing a strategic dialogue with China, pushing for ratification of the Comprehensive Nuclear Test Ban Treaty, repairing the damaged nuclear nonproliferation regime, and redoubling efforts to reduce and secure fissile material that may be used in weapons. During the 2008 presidential campaign, the veteran foreign policy experts Henry Kissinger, Sam Nunn, William Perry, and George Shultz successfully encouraged both major-party candidates, Barack Obama and John McCain, to embrace the idea of a world free of nuclear weapons. In the past year, President Obama has made this goal a priority for his administration, although he admits that it is not likely to occur in his lifetime.

This presents a conundrum, however: In a world where the strongest conventional military power cannot envision giving up its nuclear weapons before all other nations have abandoned theirs, how will humanity ever rid itself of these weapons? In order to speed the reduction of its own nuclear arsenal and encourage other countries' disarmament,

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the United States will have to confront three daunting obstacles: the insecurities of nations, including some currently protected under the U.S. nuclear umbrella and others that see a nuclear capability as the answer to many of their security problems; the notion that nuclear weapons are the great equalizer in the realm of international relations; and the proliferation risk that inevitably arises whenever nuclear supplier states offer to build civilian reactors for nonnuclear states.

STOPPING THE CASCADE

THE UNITED STATES became the world's first nuclear power in 1945, but it enjoyed a monopoly for only four years. In August 1949, the Soviet Union staged its first atomic test and joined the nuclear club, giving the United Kingdom and France a rationale to follow suit. China, facing threats from the United States, began its nuclear weapons program in the 1950s with help from the Soviet Union. Despite the Sino-Soviet split in the early 1960s, China proceeded with its nuclear program and tested its own weapon soon afterward, in 1964. The 1962 border war between China and India helped spur New Delhi to develop nuclear weapons, which in turn convinced Pakistan to do the same. Fearing for its survival among hostile states, Israel also developed nuclear weapons during the 1960s. And, quietly, during the late 1970s and early 1980s, South Africa's apartheid regime built simple Hiroshima-style nuclear bombs, which it later dismantled as the apartheid state began to crumble in the early 1990s. The most recent member of the nuclear club is North Korea, a small pariah state with a massive insecurity complex.

Although this list may seem ominous, the situation could have been much worse. Dozens of countries, including Argentina, Australia, Brazil, Canada, South Korea, and Switzerland, have explored nuclear weapons programs. U.S. leadership has largely thwarted further proliferation. The Nuclear Nonproliferation Treaty (NPT), which entered into force in 1970, has been one of the most effective tools in curbing the spread of nuclear weapons, but its reach is limited. Although the five permanent members of the UN Security Council are all NPT signatories, the other four current nuclear-armed states are not. Israel, for example, never signed because it has never formally acknowledged that

it has nuclear weapons, and Indian leaders have opposed the NPT because they believe it constrains the ambitions of the world's nuclear have-nots while allowing the original nuclear powers to maintain massive arsenals. Given the deficiencies of the NPT and the current nonproliferation regime more broadly, it is vital for the international community to develop principles of responsible behavior for countries with nuclear arsenals and for those with nuclear materials that could be used to make weapons.

The first principle must be that all states would benefit from a world in which no one ever again used nuclear weapons. This leads to the second principle: governments must declare that nuclear weapons are only necessary for deterring the use of other nuclear weapons—a shift that would enhance the security of all states and at the same time reduce the perceived strategic value of these weapons. As Ivo Daalder and Jan Lodal argued in these pages (“The Logic of Zero,” November/December 2008), “only one real purpose remains for U.S. nuclear weapons: to prevent the use of nuclear weapons by others,” meaning that they should not be used to respond to conventional, chemical, or biological attacks. The United States, however, has followed a policy of calculated ambiguity that leaves adversaries in doubt about whether it would employ nuclear weapons if attacked by nonnuclear means. So far, the U.S. government has been reluctant to state explicitly that it will not.

Washington must address several concerns before making such an explicit declaration. First, adversaries may fear that this decision could be reversed easily if, for example, the United States or its allies were attacked with biological weapons. Second, certain allies, such as Japan and South Korea, may doubt the credibility of U.S. extended deterrence commitments because they fear a Chinese conventional attack or conventional, chemical, or biological attacks by North Korea. The United States currently has the strength to establish a new international norm against the use of nuclear weapons to respond to nonnuclear threats, and it should seize the opportunity to do so.

The third principle should be that every state that possesses nuclear weapons or materials and technologies that can be used in nuclear weapons must ensure the security of their arsenals and stockpiles. For example, many nonnuclear weapons states use highly enriched uranium

(HEU) to produce medical isotopes for diagnoses and cancer treatment. However, HEU can also be used to fuel basic nuclear weapons, and therefore states possessing HEU should replace it with less highly enriched materials that cannot be used in weapons or substitute it with alternative nonnuclear technology.

Although adopting these principles should make both U.S. adversaries and U.S. allies more comfortable, some nations would still have many lingering insecurities.

STATUS ANXIETY

CURRENTLY, Japan, South Korea, and the nonnuclear NATO countries do not feel compelled to acquire their own nuclear weapons because the United States provides a credible deterrent to nuclear attacks against them. Other states, however, seek to maintain or acquire nuclear arsenals because they do not benefit from any great power's nuclear umbrella and because they see nuclear arms as the great equalizer that will guarantee their security in a dangerous world.

Three types of states fit into this category: U.S. enemies, such as Iran and North Korea; U.S. rivals that share Washington's interest in curbing proliferation, such as China and Russia; and U.S. allies that have nuclear weapons but have not signed the NPT, such as India, Israel, and Pakistan. To deal with the first group, the United States and its partners have employed a combination of sanctions and incentives. If such packages fall short in turning back those countries' nuclear weapons programs, the United States should employ containment strategies to limit the leverage that these aspiring nuclear powers can gain. For example, in the case of North Korea, Washington must show Pyongyang that there is a viable path toward joining the international community while making it very clear that there will be consequences if it uses its nuclear weapons or transfers its nuclear technology to other states or to nonstate actors. The United States must also increase its economic and military support to its allies bordering these states.

The second group comprises major nuclear-armed powers that are already in a mutual-deterrent relationship with the United States. Because China and Russia are weaker than the United States from a conventional military standpoint, they have little incentive to agree to

deep cuts in their nuclear arsenals. Therefore, conventional arms control—in the form of assurances that U.S. conventional forces and missile defense systems will not undercut Chinese and Russian nuclear deterrents—must play a role in any future negotiations on nuclear disarmament.

Washington has leverage over most of the countries in the third group because they are U.S. allies. Renewed U.S. engagement in helping resolve the Indian-Pakistani dispute over Kashmir is one necessary step toward reducing nuclear tensions on the subcontinent. But this is not enough. Because Pakistan relies on nuclear weapons to counter India's conventional superiority, the United States needs to address this imbalance by recalibrating its policy of supplying armaments to both states, giving Islamabad enough assistance so that it feels sufficiently secure to free up more military forces to fight the terrorists who are threatening the Pakistani government and its nuclear arsenal. For Israel, meanwhile, a major prerequisite for considering nuclear dismantlement is a serious commitment from all the Muslim states in the region to honor its right to exist. The United States must, therefore, redouble efforts to work toward this recognition, which will require reaching a final-status agreement between the Israelis and the Palestinians.

Even if the insecurities of these three groups of states are eased, Obama's dream of a world without nuclear weapons will remain just that until nuclear weapons cease to confer elevated status on the regimes that possess them. The fact that every permanent member of the UN Security Council possesses nuclear weapons has led many nations to believe that international clout is dependent on having a nuclear capability. Iran, which has been charged with violating the statute of the International Atomic Energy Agency (IAEA) and pursuing a nuclear weapons program, has repeatedly reminded the international community that the Security Council's permanent members have not lived up to their own NPT commitment to pursue nuclear disarmament.

The permanent members of the Security Council still reflect the international balance of power that existed in the wake of World War II, even though the world has changed substantially since then and many rising regional powers crave recognition. Unlike the Security Council, the IAEA's Board of Governors has sought to reflect these changes by including the ten states with the largest peaceful nuclear energy

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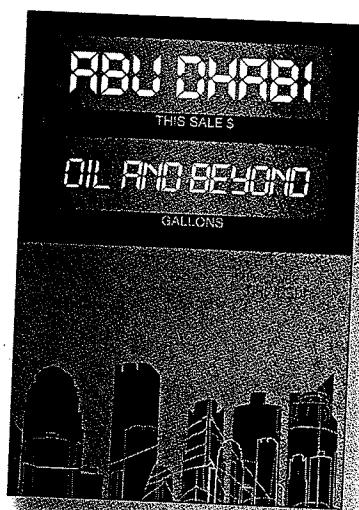
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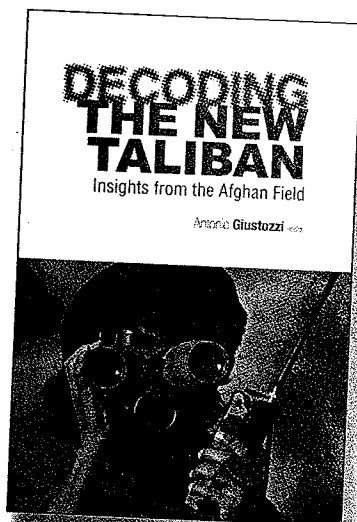
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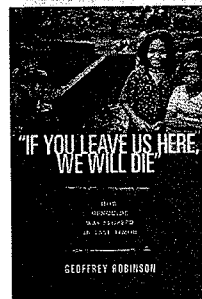
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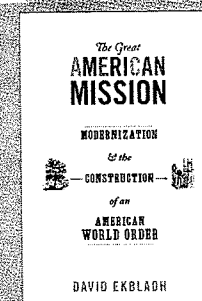
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programs, three major regional powers, and 22 other states on a rotating basis. Consequently, major nonnuclear weapons states (such as Germany, Japan, and South Korea) have continuing influence in shaping the IAEA's policies. Reforming the UN Security Council to admit nonnuclear weapons states that are regional powers, such as Brazil, Germany, Japan, and South Africa, would bestow greater legitimacy on this body.

IKE'S DOUBLE-EDGED SWORD

CONCERNS ABOUT climate change and the concomitant likelihood of a substantial expansion of nuclear energy throughout the world pose additional obstacles to achieving nuclear disarmament. This problem is not new. In his December 1953 "Atoms for Peace" speech to the UN General Assembly, U.S. President Dwight Eisenhower proposed helping nonnuclear countries obtain peaceful nuclear energy technologies. He pledged that the United States would put atomic energy "into the hands of those who will know how to strip its military casing and adapt it to the arts of peace . . . for the benefit of all mankind." This proposal led the United States, the Soviet Union, and a few other states to provide hundreds of research reactors and other nuclear technology to dozens of countries through what became known as the Atoms for Peace program. Eisenhower also proposed the creation of what eventually became the IAEA, which is charged with helping its member states obtain peaceful nuclear technology, developing safety standards for nuclear power programs, and making sure these programs are not misused to build weapons.

Peaceful nuclear energy has, however, been a double-edged sword. On the one hand, nuclear power now produces about 15 percent of the globe's electricity and emits far fewer greenhouse gases than other power sources. On the other hand, agreements on nuclear cooperation have often been a precursor to the development of nuclear weapons programs because such deals provide ready access to technologies useful for developing weapons. As the University of South Carolina political scientist Matthew Fuhrmann argued in the summer 2009 issue of *International Security*, the initiation of peaceful nuclear cooperation is so strongly correlated with the development of weapons programs that "from 1955 to 2000, no country began a nuclear

weapons program without first receiving civilian assistance" (although he also points out that the vast majority of states with nuclear energy have not developed weapons programs).

Nuclear aspirants tend to first buy research reactors, as was the case with India, Israel, and North Korea. This basic nuclear power infrastructure and the know-how absorbed by scientists can lay the foundation for a nuclear weapons program, especially if countries decide to develop uranium-enrichment plants or to reprocess spent fuel to make plutonium. Such facilities are inherently dual-use and can be employed to make either fuel for reactors or fissile material for bombs.

As countries today attempt to reduce their fossil-fuel consumption, many politicians, such as U.S. Senator McCain, Russian President Dmitry Medvedev, and French President Nicolas Sarkozy, are promoting the benefits of nuclear energy to counter climate change, increase energy security, and stimulate the economy. Since 2007, Sarkozy has traveled throughout the Arab world promoting nuclear power plants that would be built by the French nuclear giant Areva in exchange for commitments to purchase other French goods and services. This nuclear diplomacy has netted Sarkozy a deal to build a French military base in the United Arab Emirates, a state keenly interested in acquiring nuclear power plants. For France, exporting nuclear power is also big business—a single large reactor can cost several billion dollars.

The proliferation risk that comes with nuclear cooperation agreements does not mean that the supplier states should abandon them. Washington has already signed numerous such agreements, and even if it reversed course, other major suppliers, such as France and Russia, could easily continue to sign nuclear cooperation treaties to further their own commercial interests. Moreover, the United States would be accused of renegeing on the basic bargain of the NPT: that nuclear states will provide access to peaceful nuclear technology to non-nuclear states. Finally, Washington would be seen as creating a double standard by denying civilian nuclear power to states that do not have such capabilities while giving it to states that have not signed the NPT and already possess nuclear weapons, such as India.

Still, nuclear power is no panacea for the world's dependence on fossil fuels. In order to displace only one-seventh of the projected growth

in greenhouse gas emissions, the world would have to connect one large new nuclear reactor to the electrical grid every two weeks between now and 2050—a rate of growth not seen since nuclear energy's heyday, in the 1980s. Because it typically takes eight to ten years to build a nuclear power plant, and because of the rising demand for scarce nuclear parts and the shortage of qualified personnel to build and operate these plants, almost all nations seeking their first nuclear power plants will not acquire them until 2020 at the earliest. Countries will have to deploy other technologies to reduce greenhouse gas emissions long before 2020 to have a meaningful impact, according to climate-change experts.

Rather than denying nuclear technology to nonnuclear states or relying excessively on nuclear energy to curb climate change, the United States should begin working cooperatively with its allies to provide balanced energy assessments to all countries in need of such assistance. This would entail determining each country's availability of natural resources, examining its technological infrastructure, assessing the prospects for its employing energy-efficient technologies, and analyzing its financial resources. Title 5 of the 1978 U.S. Nuclear Non-proliferation Act called for the United States to lead in providing these assessments, but this law has until now never been implemented or properly funded.

Certain states with sunny climates would be well suited for the major development of solar energy projects, along the lines of the German-led Desertec Industrial Initiative in the Sahara Desert. Many Middle Eastern states could benefit from assistance in using their natural gas resources to produce electricity more efficiently, and others would profit from wind-energy projects or carbon-capture and carbon-storage programs. States that are genuinely well positioned to carry out nuclear power programs could pursue them so long as they agreed to meet strict safety, security, and nonproliferation guidelines. Some states could still develop nuclear power programs for duplicitous purposes, but their ulterior motives would become obvious if they were to reject the advice provided in comprehensive energy assessments. Were the United States to provide energy assistance to countries across the world, it would bolster U.S. economic competitiveness and help in the global fight against climate change.

