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The Logic of Zero

Toward a World Without Nuclear Weapons

Ivo Daalder and Jan Lodal

U.S. NUCLEAR WEAPONS were born nearly 65 years ago with the purpose of winning a worldwide war against Nazi Germany and imperial Japan. They grew up to deter a massive Soviet army that threatened to invade and dominate all of Europe. With the disappearance of that threat almost 20 years ago, nuclear weapons entered middle age in search of a new mission—a search that continues to this day. Some suggest nuclear weapons are necessary to deter, or even preempt, the proliferation of nuclear weapons and other weapons of mass destruction. Others believe they are needed to destroy deeply buried, hardened targets in hostile states. But the reality is that only one real purpose remains for U.S. nuclear weapons: to prevent the use of nuclear weapons by others.

That reality has yet to sink in. U.S. nuclear policies remain stuck in the Cold War, even as the threats the United States faces have changed dramatically. Today, the gravest threat comes from the possibility of terrorists bent on delivering a devastating blow against the United States acquiring the capacity to do so with nuclear weapons. This threat is compounded by the dangers of nuclear proliferation, as more and more countries hedge against potentially negative developments

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in their regions by acquiring the wherewithal to build the bomb. Then there is the increasing global demand for nuclear energy, which will spread the infrastructure necessary to produce fissile nuclear materials still wider. The world, in short, is on the verge of entering an age of more nuclear weapons states, more nuclear materials, and more nuclear facilities that are poorly secured—making the job of the terrorists seeking the bomb easier and the odds that a nuclear weapon will be used greater.

The grave nature of these growing threats has motivated a widespread rethinking of the U.S. approach to nuclear weapons. The most dramatic example is the vision of a world free of nuclear weapons articulated by former Secretary of State George Shultz, former Secretary of Defense William Perry, former Secretary of State Henry Kissinger, and former Chair of the Senate Armed Services Committee Sam Nunn in a January 2007 *Wall Street Journal* op-ed. Their vision has since been endorsed by no less than two-thirds of all living former secretaries of state, former secretaries of defense, and former national security advisers. Both Barack Obama (D-Ill.) and John McCain (R-Ariz.) have expressed support for it as well. Given this remarkable bipartisan consensus, the next president will have an opportunity to make the elimination of all nuclear weapons the organizing principle of U.S. nuclear policy.

Setting a vision of this kind is vitally important, but it is not enough. What is also needed is a strategic logic that explains how the world can get there from here. It involves four major steps, each difficult but feasible. First, Washington must establish as official policy the limited purpose of U.S. nuclear forces: to prevent the use of nuclear weapons by others. Other purposes are no longer realistic or necessary for the United States. Second, given this limited purpose of its nuclear weapons, the United States should reduce its nuclear arsenal to no more than 1,000 total weapons. This would be more than enough to convince anyone that the United States possesses the capacity to respond to any use of nuclear weapons with devastating effect. Third, the United States must work to put in place a comprehensive international nuclear-control regime that goes well beyond the present nonproliferation regime's accounting and monitoring of nuclear materials. It must include all fissile materials and provide an

airtight verification system to enable the world to move from thousands of nuclear weapons to hundreds, to tens, and ultimately to zero.

Finally, Washington must launch a vigorous diplomatic effort to convince the world of the logic of zero—and of the benefits of taking the difficult steps necessary to get there. This effort should start with its closest and most important allies, then include other nonnuclear states who have long called for such an initiative, and ultimately encompass all nuclear states. U.S. leadership of this international effort will be crucial. And a willingness to act boldly to reduce its own reliance on nuclear weapons and drastically cut its own arsenal can give Washington the credibility necessary to succeed.

THE NUCLEAR LEGACY

THE MAGNITUDE of this challenge is enormous—not least because the world today is awash in nuclear weapons and nuclear-bomb-making materials. There are still more than 25,000 nuclear weapons in the world, with Russia and the United States accounting for over 95 percent. There are also nearly 3,000 tons of fissile material—enough to produce over 250,000 nuclear bombs—stored in more than 40 countries. This nuclear legacy is the result not only of the Cold War but also of the failed nuclear policies that successive U.S. administrations have pursued since the Cold War ended. The United States' force posture and deployments have changed greatly in the past 20 years, but its nuclear policies and thinking have remained essentially unchanged.

As the Soviet Union came apart at the start of the 1990s, there was some hope that new thinking about nuclear policy might emerge in its wake. President George H. W. Bush understood that the disappearance of a mortal enemy meant that nuclear weapons could play a much smaller role, and he ordered the unilateral elimination of 5,000 short-range nuclear weapons deployed in Europe and Asia and aboard the U.S. Navy's surface fleet. He also drastically cut back the number and readiness of U.S.-based strategic weapons, including taking all bombers off alert. Soviet and then Russian leaders committed to matching these reductions, and Moscow and Washington agreed to negotiate further drastic cuts in strategic weapons.

When Bill Clinton came into office, the stage had been set for a fundamental rethinking of U.S. nuclear policy. The means to that end was supposed to be the top-to-bottom Nuclear Posture Review. Unfortunately, the review proved a disappointment. Although further reductions in U.S. strategic forces were possible, the Pentagon concluded that the United States needed to maintain a huge number of non-deployed weapons as a hedge against the possibility of political and strategic reversals in Russia. Moreover, rather than further limiting the declared purpose of nuclear weapons, the Clinton administration expanded it by stating explicitly, for the first time, that U.S. nuclear weapons would be used to deter or respond to chemical or biological attacks on the United States or its allies.

On the campaign trail in 2000, George W. Bush promised to “leave the Cold War behind [and] rethink the requirements for nuclear deterrence.” But once in office, he did so in a way that sought to expand, rather than contract, the role of nuclear weapons in U.S. national security strategy. His administration abandoned the decades-long effort to maintain a “firewall” between nuclear and conventional weapons. It reconceptualized the nuclear triad that had long distinguished between the ground-, air-, and sea-based legs of the strategic force so that it now consisted of nuclear and conventional offensive strike systems, defensive systems, and a revitalized defense infrastructure. To support the offensive leg, the administration sought to develop new types of nuclear weapons to target deeply buried sites and reduce collateral damage. And although it committed to reducing U.S. strategic forces to 1,700–2,200 operationally deployed weapons, the Bush administration also argued that the United States needed to retain a reserve force of many thousands more nuclear weapons.

Now, nearly two decades after the end of the Cold War, the United States still has a nuclear force posture that, even with fewer nuclear weapons, retains all of the essential characteristics it had during the Cold War. Thousands of weapons remain deployed, many ready to be used at a moment’s notice. Many more weapons are retained in reserve. Official doctrine still assigns nuclear weapons “a critical role” in the nation’s defense, describing them as providing “credible military options to deter a wide range of threats, including [weapons of mass destruction] and large-scale conventional military forces.”

The problem with this policy is that it fails to deal with the real threats the United States now faces—nuclear terrorism and the further spread of nuclear weapons and technology. If anything, it makes those threats more dangerous. A nuclear arsenal of many thousands of weapons will do nothing to deter terrorists from using a nuclear bomb should they acquire one; indeed, the more nuclear weapons there are in the world, the more likely it is that terrorists will get their hands on one. Nor does current U.S. nuclear policy do anything to discourage further proliferation. After all, how can Washington expect to persuade other countries to forgo the very capabilities that the U.S. government itself trumpets as “critical” to national security? The nuclear status quo is clearly untenable. The United States needs to change its nuclear thinking and policies and bring them into line with the changed threats it now confronts.

THE UNITED STATES MUST LEAD

THE FIRST step on the road to zero is simply recognizing that U.S. nuclear weapons policy must change. The next president should announce that from here on out, the sole purpose of U.S. nuclear weapons will be to prevent the use of nuclear weapons by others. Many Americans already assume that the United States retains nuclear forces only to prevent a nuclear war. But in reality, such a policy pronouncement would represent a radical departure. Throughout the nuclear age, the United States has deployed nuclear forces for many additional purposes as well: winning wars, destroying difficult targets, deterring superior conventional forces, preventing the proliferation of nuclear weapons. But with the end of the Cold War and the development of new conventional technologies, these purposes have become increasingly irrelevant. The United States no longer faces the existential threat to its security that the Soviet Union once posed. And its current conventional military power is more than sufficient to defeat any other conventional military force.

Preventing the use of nuclear weapons by other countries is far from a trivial purpose for U.S. nuclear weapons. There is no way to defend reliably against a nuclear attack from the missiles or aircraft of a hostile state; such an attack can only be deterred through the certainty

of devastating retaliation. Accordingly, so long as others have nuclear weapons, the United States must maintain a viable nuclear deterrent.

But deterring a nuclear strike requires many fewer weapons than a nuclear “war-fighting” force, provided the delivery systems can survive a surprise attack. Indeed, if the United States were to adopt a policy that explicitly limited the purpose of nuclear weapons to preventing their use by others, then it could drastically reduce its nuclear inventory to a total of 1,000 weapons—down from the 7,000 or so weapons it has today. This total should include all nuclear weapons—no matter whether they are deployed or held in reserve, carried by long-range missiles or short-range fighters, have high yield or low yield. Regardless of these distinctions, if one of them were ever to go off, the consequences for the course of world history would be profound, even incalculable.

Why 1,000 total weapons and not some other number? One thousand weapons would be sufficient to leave no one in doubt that the United States retains the ability of devastating retaliation in the case of a nuclear attack. The most significant such possibility would be Russia’s threatening to strike the United States, as it did during the Cold War. But even then it was widely agreed that 400–500 weapons on target would assuredly destroy the Soviet Union’s vast economic and military potential. Today, 1,000 weapons—of which close to two thirds could be deployed, on station, and survivable against any attack—would provide such a retaliatory capability in extremis.

The United States also needs to rethink the planning process for using nuclear weapons and to restructure its nuclear operations. There has long been great concern about U.S. and Russian nuclear forces being on hair-trigger alert, ready to fire at a moment’s notice. It is indeed critical that the risk of accidental use or miscalculation be eliminated, but the alert rate is less the problem than are plans to launch a nuclear strike quickly during a crisis, including on receiving warning of an attack, in order to ensure the survivability of the forces or deny an opponent the ability to launch additional strikes.

To eliminate the need to ever make a decision to launch nuclear weapons before the situation is completely clear, the bulk of U.S. nuclear forces should be deployed at sea, where they are invulnerable while on patrol and could ride out any attack. The United States

should also retain a few weapons for delivery by aircraft, both because such weapons can be more flexibly and quickly targeted than missiles and because they can be deployed in ways that demonstrate the continued U.S. commitment to the security of others. But the United States no longer needs land-based missiles, which, because of their inherent vulnerability, confront the president with a use-them-or-lose-them dilemma he can do without. Instead of preparing to launch weapons on warning, when under attack, or in prompt retaliation, the United States needs forces and planning that would enable any president to decide on retaliating at a time of his or her choosing. Rather than having just minutes or hours, the president should have days or weeks to make that decision.

Washington should make these changes in its nuclear force posture regardless of whether Russia agrees to adopt the same path. Despite some of its more recent actions, such as its ruthless invasion of Georgia, Russia is not a military threat to the United States. Its conventional forces are years behind U.S. technology. And in the worst case of a severe escalation of tensions, 1,000 weapons would provide a powerful deterrent and adequate time to make any necessary enhancements to U.S. military capabilities. Nuclear parity may have made sense during the Cold War, when Washington faced the daunting challenge of deterring an armored attack on Europe by a superior Soviet conventional force. It makes no strategic sense today.

REGIME CHANGE

SUCH A DRAMATIC change in U.S. nuclear weapons policy would help restore the credibility of Washington's efforts to combat the proliferation of nuclear weapons and materials. This newfound credibility should make it possible to achieve much-needed progress on the non-proliferation agenda: negotiating a verifiable end to the production of fissile material for weapons purposes, securing the early ratification and entry into force of the Comprehensive Nuclear Test Ban Treaty, and strengthening the inspections provisions of international safeguards agreements undertaken by the International Atomic Energy Agency (IAEA). Still, these steps, even taken together, would not be sufficient to start on a path to zero. That would require putting in place a

comprehensive nuclear-control regime that could effectively account for and monitor all fissile and weapons-grade materials (whether used for military or civilian purposes) during the many years it would take to get to zero—and then after all nuclear weapons had been eliminated.

The Nuclear Nonproliferation Treaty (NPT) was intended to serve this role, but it has proved inadequate in a number of respects. India, Israel, and Pakistan never accepted the treaty, and they were therefore able to sidestep the world's nuclear-control system with relative ease. North Korea and Iran signed the treaty but then used their safeguarded nuclear power and research programs to develop the wherewithal to make the bomb. Pyongyang withdrew from the treaty in 2003 and then made the remaining short leap to testing a nuclear device. Tehran has been caught working on a weapons program and is enriching uranium, defying the demands of the IAEA and the UN Security Council to suspend these activities. There is no doubt that Iran has the capability to develop a nuclear weapon within the next few years.

The fundamental weakness of the NPT is that it permits a country to produce enriched uranium and plutonium, the only two materials from which a nuclear weapon can be fashioned, as long as it does so as a declared part of its civilian nuclear program. For many years, this was thought to be acceptable because the technical challenges involved in moving from possessing the capacity to operate a power plant to being able to build a nuclear weapon were substantial (and kept largely secret by the established nuclear powers). But all this has changed. Centrifuge enrichment of uranium and the separation of plutonium from the spent fuel produced by a nuclear power plant are technologies that are now widely understood and publicized. Once a few kilograms of the necessary material, whether enriched uranium or plutonium, are available, fashioning it into a device that could explode with catastrophic consequences is not beyond the capacity of any determined group of individuals with access to substantial resources.

Accounting for and controlling the fissile materials that are produced or otherwise available is therefore the only secure method of ensuring

A dramatic change in U.S. nuclear policy would help restore the credibility of efforts to combat proliferation.

that new bombs will not be developed—and this is about to become even more difficult. Increased pollution, rising gas prices, depleted sources of oil supply, and global warming are fueling a growing demand for nuclear energy, including in many countries where antinuclear sentiment has long been very strong. The International Energy Agency has called for 1,400 new nuclear power reactors by 2050. As new reactors are built, more nations will insist on developing their own nuclear fuel cycle to enrich uranium for the sake of self-sufficiency. Facilities built to enrich uranium to the level needed to power a civilian reactor are essentially the same as those needed to produce weapons-grade uranium. Plutonium, the other bomb-making material, is a natural byproduct of producing nuclear energy, and it can be separated from power-plant waste (“spent fuel”) through reprocessing—a practice that is permitted under the NPT so long as it is done under IAEA safeguards. Once the facilities necessary to produce highly enriched uranium or separate plutonium are in place, only months are necessary to turn a permitted peaceful nuclear capability into a nuclear weapons capability.

Currently, the international accounting and verification systems that are mandated by the NPT can detect even small diversions of nuclear bomb material from civilian facilities. This was demonstrated by the success of UN weapons inspectors in Iraq after the 1991 Gulf War. Within a year, they had uncovered a highly sophisticated and diverse nuclear weapons program. More recently, microscopic traces of highly enriched uranium were detected on documents provided by North Korea—presumably as a result of the documents merely being in the proximity of the material.

But whatever its technical capabilities, the IAEA is understaffed and woefully underfunded, has limited authority to inspect suspect sites, lacks jurisdiction over much of the world’s fissile material, and has no mandate to control the “breakout” capability derived from peaceful uses. The five declared nuclear states (China, France, Russia, the United Kingdom, and the United States), which possess the vast bulk of the world’s fissile material, are not subject to international inspections (although the last two have voluntarily placed a few of their civilian sites under IAEA safeguards). Nor are the nuclear programs of the four nuclear states that do not accept the NPT regime (India, Israel, North Korea, and Pakistan) adequately safeguarded. Iran’s nuclear

program is technically under safeguards, but Tehran is not fully cooperating with the IAEA. There is also a very large amount of fissile material remaining in nuclear weapons themselves, as well as smaller amounts of material used in medical and research facilities, which is not covered by IAEA safeguards.

In order for the world to get anywhere near the point at which those states that have nuclear weapons would be willing to give them up, it will be essential to have in place a system of airtight accounting and monitoring of all fissile material around the globe—no matter where it is located or what its purpose. A universal regime to account for and control fissile material of any kind would also have the added benefit of reducing the possibility that terrorists, who cannot build enrichment or reprocessing facilities of their own, could get their hands on the material necessary for manufacturing a nuclear device.

Once such a regime were in place and operating, the final steps in the process of abolishing all nuclear weapons would become, for the first time, not only feasible but also relatively straightforward. Since the regime would account for all fissile material either already fashioned into weapons or capable of being used to make a weapon, there would be complete transparency concerning all nuclear weapons inventories—actual and potential. If a state failed to eliminate a weapon and refashion the fissile material into a safe form, inspectors would know it. Catching cheating in the final reductions would be the same process as verifying compliance with the regime once all nuclear weapons had been eliminated.

To be sure, this regime would be unlike anything the world has ever attempted (although the verification procedures of the global ban on chemical weapons come close). The cost of operating an international organization tasked with enforcing such a regime (presumably built on the IAEA) would be many times what is being spent on inspections and safeguards today. The regime would have to cover not only those countries with declared nuclear facilities but all countries—whether they have nuclear weapons, facilities that produce fissile material, nuclear power plants, or none of these. And it would have to apply to both publicly and privately owned facilities. Its inspection mechanisms would seriously infringe on existing expectations of confidentiality and freedom of action, both for businesses and for governments (although fundamental rights must and could remain protected). Strong complaints

would come from industry regarding the costs of compliance and the risk to intellectual property, and the nuclear weapons states would initially insist on protecting their nuclear weapons secrets.

But these objections are small compared to the benefits of having a comprehensive regime. Even the direct economic costs are likely to be low in comparison to the economic savings resulting from the elimination of nuclear weapons—to say nothing of the overwhelming imperative of eliminating the risk of a nuclear weapon being used.

Putting this control regime in place should start with the United States' accepting its provisions. There would be no harm to U.S. national security from providing the full transparency required given the limited purpose and reduced numbers of U.S. nuclear weapons. The United Kingdom, which has in recent years called for active steps to promote nuclear disarmament, would also likely be a willing partner in starting the process. The technical capabilities and operational procedures could be developed, tested, and improved in just a few countries initially—with others following suit as confidence in the regime was built.

ACHIEVING UNIVERSAL ACCEPTANCE

ULTIMATELY, the effectiveness of a comprehensive nuclear-control regime will depend on universal adherence. It can only work if it works equally for all. (The lack of universality has been a major problem of the nonproliferation regime.) The fourth major step, therefore, is to use the shift in U.S. nuclear policy and the imperative of keeping nuclear weapons out of the hands of terrorists as the basis for a vigorous diplomatic effort to rally the entire world behind both the vision and the logic of zero.

The elimination of nuclear weapons is called for in Article 6 of the NPT, so it is not a new goal. Traditionally, two approaches have been stressed. One is to negotiate a treaty that would commit the nations of the world to nuclear disarmament by a certain date. This approach was championed by Indian Prime Minister Rajiv Gandhi 20 years ago, and it has long had many adherents in the UN Conference on Disarmament. Although such an effort can be useful in a normative sense, in practice it puts the cart before the horse. The problem is convincing countries to act in a way that makes a nuclear-weapons-free world possible.

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The second approach focuses on Russia, which alone possesses more than half of the world's nuclear weapons stockpile. If Washington and Moscow could agree to reduce their inventories and ultimately eliminate them, the argument goes, then the other nuclear powers would eventually follow suit. But Russia will likely be among the most difficult countries to convince of the logic of zero; these days, Moscow is in many ways moving in the opposite direction. A Russia-first diplomatic strategy would therefore almost certainly doom the effort from the start. An intensive dialogue between the United States and Russia would of course be useful, but it must not be the first condition for success.

Instead, Washington's international diplomacy should aim to create an ever-growing coalition of countries that accept the logic of zero. Success on this will require that more and more countries subscribe to three principles: that a world without nuclear weapons is the only way of guaranteeing that such weapons will never be used, that in the interim the only valid purpose of nuclear weapons is to prevent their use by others, and that all fissile material must be subject to international comprehensive accounting and control. Once a nation has accepted these principles, it has accepted the logic of zero, which implies a willingness to give up its weapons when all others do so as well. A somewhat different diplomatic approach will be needed for each of three groups of countries: the United States' allies, many of which rely on Washington's commitment to their security and defense; those nonnuclear countries that have long sought a nuclear-weapons-free world; and the nuclear weapons states, both declared and undeclared.

The first diplomatic step must be to convince the United States' allies that no change in nuclear weapons policy (before zero is reached) will alter Washington's fundamental commitment to respond to a nuclear attack against an allied nation with a devastating nuclear response of its own. Similarly, it should be made clear that a nonnuclear attack—including with chemical or biological weapons—against any U.S. ally would trigger a response the consequences of which would far outweigh any benefits an attacker may have hoped to achieve. Once the clarity and certainty of the continued U.S. commitment to their security is clear, the United States' nonnuclear allies are likely to embrace the logic of the course Washington has laid out. Virtually all of them have the capacity to build nuclear weapons but have decided that they

would be more secure in a world with fewer, rather than more, nuclear powers. They have also strongly supported the NPT, including its Article 6 commitment to eliminate nuclear weapons. It should not be a big leap for them to accept the three principles behind the logic of zero and join the effort to move toward a world without any nuclear weapons.

Once U.S. allies are on board, Washington's diplomatic attention should shift to the nonnuclear states that have long clamored for greater progress in arms control and disarmament. Countries such as

Washington should aim to create an ever-growing coalition that accepts the logic of zero.

Brazil, Indonesia, Ireland, Mexico, South Africa, and Sweden are important players in the international disarmament field—and have long accepted the logic of zero—and they should be natural allies in this effort. Some of them seriously considered acquiring nuclear weapons (and in the case of South Africa actually did) only to conclude that even in the absence of having a formal alliance with a

nuclear weapons state, their security would be enhanced if they did not have them. Similarly, the proposed comprehensive nuclear-control regime ought to be attractive to nations that have long complained about the discriminatory nature of the current nonproliferation regime.

With U.S. allies and other nonnuclear countries on board, Washington will have created a broad-based, diverse, and global coalition consisting of the vast majority of the nations in the world. The final diplomatic target will be the nuclear weapons states not already behind the consensus. There is a good chance that two or even three of them will have joined the effort from the beginning. The United Kingdom has, in many ways, already bought into the logic. China and India have both adopted the formal position that they will not be the first country to use nuclear weapons—essentially an affirmation that they would consider their nuclear capabilities superfluous if others had no nuclear weapons to use against them.

More challenging will be to convince the other four long-standing nuclear powers—France, Pakistan, Israel, and, of course, Russia. France, which insists on retaining a nuclear force to protect its vital interests against any threat, has firmly embraced the logic of nuclear deterrence

rather than the logic of zero. But as other nuclear powers move in a different direction, Paris' ability to remain a holdout will diminish—as became clear in the 1990s when France finally decided to sign the NPT and, once again, after two last series of nuclear tests, when it signed on to the Comprehensive Nuclear Test Ban Treaty. A democracy like France can remain an international outlier only for so long.

Pakistan developed its nuclear weapons primarily to deter India's nuclear arsenal. (India first demonstrated its nuclear capability with a "peaceful nuclear explosion" in 1974.) Islamabad also relies on its nuclear capability to offset its larger neighbor's conventional forces. But if India were to agree to give up its nuclear weapons—not unrealistic if China were to agree to do so as well—Pakistan's need to retain the bomb would greatly diminish. Of course, given India's conventional advantage, Pakistan would be more likely to follow India's example if relations with its larger neighbor were to improve, their differences were settled peacefully, and confidence and trust were being built. But a fundamentally changed nuclear environment could help bring such progress about.

Israel initially developed nuclear weapons out of the fear that its army could be overrun by the vastly larger Arab armies in the region. Today, Israel also faces the prospect of a nuclear-armed regime, Iran, that has openly called for its destruction—a critical reason to maintain a nuclear deterrent. But if strong pressure on Iran could succeed in reversing its nuclear program, Israel would have much less need for its nuclear weapons. Israel's peace treaties with Jordan and Egypt, for all of their disappointments, have largely eliminated any conventional military threat to Israel's existence, and Israel's own conventional forces, with significant and continuing help from the United States, are now dominant in the region. Israel has also consistently stated—as recently as this year—that it favors an agreement that would make the Middle East a zone free of all weapons of mass destruction. As with Pakistan, if Israel can be assured that it will not face any nuclear threat from another state, it should prove possible to convince it to see the merits of joining a global effort to eliminate nuclear weapons and thus deny terrorists any opportunity to get the bomb.

The final challenge is likely to be Russia, which possesses well over half the world's nuclear weapons and fissile material. Unfortunately, in

recent years Russia has begun to reemphasize the importance of its nuclear weapons, as a means both to exert its great-power status and to compensate for its greatly weakened conventional capabilities. Moscow is devoting more resources to modernizing its nuclear forces and increasing their operations, and it has openly declared that it might have to use its weapons in a variety of different circumstances. But getting Russia to reverse course is doable. With the vast majority of the countries in the world committed to a new path, and with the United States and other key nuclear powers very much part of that global commitment, remaining a holdout on this critical issue, especially if it can be linked to other matters of interest to Russia, will become more and more difficult. In the meantime, Washington and Moscow should intensify their dialogue on nuclear issues, avoiding linking the discussions to other disputes—much as was done with the Soviet Union during the Cold War. They should focus on reaching agreements to steadily reduce their nuclear inventories and to enhance verification and nuclear transparency, which would help slowly win Moscow's acceptance of the logic of zero. Over time, Moscow would come to see the benefits of going all the way, just as the United States and most other countries will have done.

As the United States works diplomatically to create a broad international coalition, it can use the emerging consensus to help convince nuclear aspirants and new nuclear powers that their drive for a nuclear option must come to an end. Active diplomacy with Iran and North Korea must of course continue, backed when necessary by additional pressure to convince both countries that the benefits of forgoing or ending the nuclear option outweigh those of building or retaining the bomb. The likelihood of success would be significantly enhanced if the United States and other nuclear powers were demonstrably committed to adhering to the same nonnuclear status and fissile-material oversight that they are demanding Iran, North Korea, and every other nuclear aspirant accept.

THE IMPERATIVE OF ZERO

NO NUCLEAR weapon has been used since the dawn of the nuclear age more than 60 years ago. That is a remarkable fact and one that few who witnessed the first nuclear explosions, in Alamogordo, New Mexico, and then over Hiroshima and Nagasaki, would have thought

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likely. Responsible nuclear stewardship, a relatively effective non-proliferation regime, and a good deal of luck have helped account for this achievement. But the world cannot continue to count on luck. Nor, as the nonproliferation system continues to fray and more countries acquire the capacity to build the bomb, can it count on states acting responsibly when it comes to these massively destructive capabilities. And in the age of nihilistic terrorism, the chance that a group of individuals united by their hatred for others and determined to inflict as much damage as possible will someday get their hands on the means to turn their dreams into a global nightmare is simply too great. That is why the fight against nuclear terrorism and proliferation must now be Washington's highest priority. The logic of zero is driven by this threat.

It will take a real commitment, at the highest levels and beginning with the United States, to turn the logic of zero into a practical reality. Many obstacles remain along this path, but it is important that Washington take the lead in setting out on that journey. The steps outlined here—limiting the purpose of nuclear weapons to preventing their use by others, reducing the U.S. nuclear stockpile to 1,000 total weapons, negotiating a comprehensive nuclear-control regime to account for and monitor all fissile material around the world, and pursuing a diplomatic strategy that seeks to build the largest possible coalition in favor of zero—will take time to implement. Each is useful in its own right, and they should be implemented as soon as is practical. Together, they will provide a good basis for success down the road. Many obstacles remain along this path. But not to start down it now, step by step, would mean accepting the increasingly grave risk that another nuclear weapon will one day be used. 🌐