

Testimony of Joseph Cirincione
Senior Fellow and Director of Nuclear Policy
Center for American Progress

Committee on Foreign Affairs
U.S. House of Representatives
Washington, DC

May 10, 2007

Mr. Chairman and Members of the Committee, thank you for the opportunity to testify before you today. It is an honor to be on the same panel as one of my heroes, Senator Sam Nunn, and my innovative colleague, Henry Sokolski. I believe the Foreign Affairs Committee can and should play the lead role in the House of Representatives in developing and shaping the next nonproliferation policy of the United States.

The nation's current policy is in transition, as we learn through bitter experience that there are no easy solutions to the spread of nuclear weapons. Further innovations will come, particularly with the election next year of a new American president. But ours is not the only electoral change in the next two years.

We are entering a period of dramatic political transition. By early 2009, four of the five permanent members of the UN Security Council will have new leaders. France has already made the change, the United Kingdom will follow shortly and the United States and Russia will do so by early 2009. Other key states, including Japan, Iran and Israel, may as well. Several made the switch earlier, such as Germany and Italy. International organizations, too, will refresh their leadership, with a new Secretary-General now installed at the United Nations and possibly a new head of the International Atomic Energy Agency in two years.

Rarely have the political stars re-aligned so dramatically. The group portrait at the 2009 G-8 summit may not have a single leader from the 2006 photo. This is a unique opportunity to advance new policies that can dramatically reduce and even eliminate many of the nuclear dangers that keep the Members of this Committee awake at night.

I am delighted that Members of the Committee, led by Chairman Lantos, are already swinging into action. Your introduction of H.R. 885, the International Nuclear Fuel for Peace and Nonproliferation Act of 2007, is an important step to resolving one of the most significant problems with the existing regime. The legislation shows the kind of new perspectives and new strategies that can help mobilize global support for more effective policies before it is too late. ¹

The Good News about Proliferation

There is nothing about nuclear weapons that is easy. Not inventing them, not making them, not getting rid of them. But none of these problems are insolvable. We have actually made remarkable progress in the past two decades in reducing many nuclear dangers—progress often overlooked in the rush of daily headlines.

The number of nuclear weapons in the world has been cut in half over the past 20 years, from a Cold War high of 65,000 in 1986 to about 26,000 today. These stockpiles will continue to decline for at least the rest of this decade.

There are far fewer countries that have nuclear weapons or weapon programs today than there were in the 1960s, '70s, or '80s. In the 1960s, 23 countries had weapons or were pursuing programs, including Australia, Canada, China, Egypt, India, Japan, Norway, Sweden, Switzerland and West Germany. Today, nine countries have weapons (China, France, India, Israel, North Korea, Pakistan, Russia, United Kingdom, and the United States). Iran may be pursuing a weapons program under the guise of peaceful nuclear power, but no other nation is believed to be doing so.

In fact, more countries have given up nuclear weapons or weapons programs in the past 20 years than have started them. These were not easy cases. South Africa, Belarus, Kazakhstan and Ukraine all gave up weapons in the 1990s. Similarly, civilian governments in Brazil and Argentina in the 1980s stopped the nuclear weapon research military juntas had started. We now know that United Nations inspection and dismantlement programs ended Iraq's nuclear weapon program in 1991. In December 2003, Libya became the most recent nation to abandon a secret program.

The Non-Proliferation Treaty itself is widely considered one of the most successful security pacts in history, with every nation of the world a member except for Israel, India, Pakistan, and North Korea. Most of the 183 member states that do not have nuclear weapons believe what the treaty says: we should eliminate nuclear weapons. Most of the American public agrees. An Associated Press poll of March 2005 showed that 66% of Americans believe that no country should be allowed to have nuclear weapons, including the United States. In fact, when asked if the United States and its allies should be allowed to have nuclear weapons and all other nations prevented from doing so, only 13% agreed--though that is essentially what U.S. policy is today.

Until North Korea tested, no nation had exploded a nuclear weapon in a test for eight years--the longest period in the atomic age. The outrage that greeted the test shows how strong this anti-nuclear sentiment has become.

There is more good news. The ballistic missile threat that dominated national security debates in the late 1990s was greatly exaggerated. The danger is declining by most measures: There are far fewer nuclear-tipped missiles capable of hitting the United States today than there were ten or twenty years ago. Agreements negotiated by Presidents Ronald Reagan, George H.W. Bush and George W. Bush have slashed the former Soviet arsenal by 71 percent from 1987, while China has retained about 20 missiles that could reach U.S. shores. No other country can strike the United States from its own soil. Most of the news about missile tests in Iran, North Korea or South Asia are of short- or medium-range missiles that threaten those nations' neighbors but not

America.² The threat today is a limited one that is confined to a few countries whose political evolution will be the determining factor in whether they emerge as, or remain, threats to global security.³

Finally, thanks to treaties negotiated by Presidents Richard Nixon and George H.W. Bush, chemical and biological weapons have been largely eliminated from state arsenals—including ours.

There are four core problems, however, that are more difficult to resolve. They require forging a consensus of expert opinion, focusing the attention of senior officials, securing the necessary funding, and, above all, presidential leadership. None of these problems can be solved from the bottom up. The president of the United States and leaders of the other nuclear-weapon states and other key countries must be committed to working together on these core issues. If they are, then the lessons learned from the sixty-two-year history of nuclear weapons and theories developed from that history provide us with a robust set of policy options for solving the three most difficult nuclear threats: terrorism, fuel technology, new weapon states and existing arsenals.

Solving Problem Number One: Preventing Nuclear Terrorism

It is common sense that national security policy should be oriented towards the main danger to the United States and other nations. Today, that does not come from a nation intentionally attacking with nuclear weapons. Even a nuclear-armed North Korea or Iran would know that the use of any weapon would be regime suicide. The most urgent threat is a terrorist attack, and our number one goal should be to ensure that any such attack is non-nuclear.

Given the difficulties of a terrorist acquiring or making a nuclear bomb, the actual risk of such an attack are still low.⁴ But they are not zero, and the consequences would be enormous. Hurricane Katrina provided some idea of what it would mean to have a U.S. city disappear from the national grid. Many, in fact, compared the storm to Hiroshima. But Hiroshima was much worse. The bomb, small by today's standards, killed 140,000 people and destroyed or damaged 70,000 of the 76,000 buildings in the city.

Like the known risk to New Orleans, the government response to the nuclear threat has been inadequate. Representative David Hobson argues, "If we really believe a nuclear 9/11 is the most serious thing facing us, then we haven't even begun to scratch the surface."⁵

Nuclear terrorism is not a new threat. The danger was obvious to many even at the very beginning of the nuclear age. Over sixty years ago, Manhattan Project Director J. Robert Oppenheimer was asked by a Congressional committee whether three or four men couldn't smuggle units of an atomic bomb into New York and blow up the whole city. He replied, "Of course it could be done, and people could destroy New York."⁶ What is different today is the existing of large, well-organized groups intent on acquiring nuclear weapon capabilities.

It is now possible to shore up the nuclear security dams and levees that can prevent this ultimate disaster. A broad expert consensus already exists on the core elements of such a plan: secure all weapon-usable materials (highly enriched uranium and plutonium) against theft or diversion; end the production of these materials; end the use of these materials in civilian research, power reactors, and naval reactors; and eliminate the large surplus stockpiles of these materials held by the United States, Russia and other nations.⁷

Many of the programs to secure these materials are now in place. Lacking is the high-level political commitment and adequate funding to fully implement them. That is, though these are tough problems and there are often national bureaucratic obstacles to overcome, these programs work. As numerous independent studies have found, they need presidential leadership to energize them.

For example, since 1991, Congress has funded significant technical and financial assistance to Russia under the Nunn-Lugar programs to help Moscow secure stored nuclear warheads, to guard warheads in transport, and to improve tracking and accounting procedures. Two of these are a joint program between Russia and the United States to dispose of 34 tons of plutonium (enough for more than 6,000 nuclear bombs) and a program to convert highly enriched uranium to low enriched uranium for sale to an American nuclear energy corporation.

This latter program, dubbed “Megatons to Megawatts,” now powers one out of ten light bulbs in the United States. The United States has bought 500 tons of highly-enriched uranium from Russia, extracted from disassembled warheads. Mixed with natural uranium, it is converted into fuel rods that account for half the nuclear power produced in the United States, or 10 percent of the total electricity generated every year. It works, it is free to the American taxpayer, and it could quickly be accelerated. The program could fairly easily buy up an additional 500 tons from Russian warheads, rather than continue at its current pace.

There are also programs underway to eliminate or secure all of the dangerous nuclear material outside of Russia. The program could achieve a global cleanout of all these vulnerable sites in dozens of nations in the next four years, instead of the 10 to 15 years currently planned, if the president so desired. Most of the work is fairly straight forward, but often it requires maneuvers worthy of “Mission Impossible.” Here are two examples:

- November 1994: 581 kg of weapons-usable uranium were secreted out of Kazakhstan to the United States in a top-secret operation codenamed “Project Sapphire.” Racing against the impending winter blizzards and possible attempts by terrorists or Iranians to obtain this highly-valuable material, U.S. and Kazakh technicians repackaged the HEU into 1,300 steel containers.⁸ All materials were then loaded onto two Air Force C-5 transport planes and whisked away to Oak Ridge National Laboratory in Tennessee.⁹ This massive undertaking was the first operation of its kind under the Nunn-Lugar program and was only possible because then-Kazakh President Nursultan Nazarbayev trusted the United States enough to call for help in removing the fissile materials, having built up this level of trust through a host of cooperative projects.¹⁰

- September 2005: After midnight, a heavily-armed special police force led a cargo truck from the Czech Technical University in Prague to a waiting Russian cargo plane. The truck carried 14 kg of weapons-grade uranium.¹¹ The Prague airlift was the eighth successful repatriation of fissile material to Russia from low-security civilian facilities under the recently-created U.S. Global Threat Reduction Initiative (GTRI). Its mission is to specifically “identify, secure, recover and/or facilitate the disposition of high-risk, vulnerable nuclear and radiological materials around the world that pose a threat to the United States and the international community.”¹² Approximately 495kg of HEU, enough to make about 20 bombs, have been safely transferred from Serbia, Romania, Bulgaria, Libya, Uzbekistan, the Czech Republic, Latvia, Poland and Germany.¹³ GTRI continues its work towards complete repatriation of Russian- and U.S.-origin fissile material and is also working to upgrade security at targeted facilities and support conversion of research test reactors from running on HEU to LEU.¹⁴

With increased funding and presidential commitment, all these efforts could be accelerated to secure or eliminate the vast majority of nuclear weapons and materials by 2012.¹⁵

The final report of the 9/11 Public Discourse Project (an extension of the 9/11 Commission), gave the U.S. government failing grades in this area. Commission Chairman Thomas Kean questioned why more high-level attention hadn’t been given to preventing nuclear terrorism: “Why isn’t the President talking about securing nuclear materials? ...The President should make this goal his top national security priority.”¹⁶ This would make it nearly impossible for a terrorist group to threaten any nation with the “ultimate catastrophe.”¹⁷ As former Assistant Secretary of Defense Ashton Carter puts it, “We *can* envision the eradication of nuclear terrorism.”¹⁸

Solving Problem Number Two: Preventing Nuclear Fuel Rods from Becoming Nuclear Bombs

The core problem with the spread of nuclear technology is not nuclear reactors; it is what goes into and comes out of the reactors. The same facilities that enrich uranium to low levels for fuel can be used to enrich uranium to high levels for bombs. The same facilities that reprocess spent reactor fuel rods for disposal can be used to extract plutonium for weapons.

Over 40 countries have nuclear reactors. Very few of them make their own fuel. They purchase it from one of the 3 countries that make and export fuel (France, Russia, and the United States) or from the one existing international consortium, the Uranium Enrichment Corporation (URENCO) run by Germany, the Netherlands and the United Kingdom. (China, Japan, and Pakistan currently enrich uranium in significant quantities, but not for export).

Today, the fuel problem is growing more serious as several new nations seek fuel production capabilities and as the technological barriers to acquiring them shrink. Iran is the most urgent example of this larger problem. The Iranian government insists that Iran

needs to develop nuclear power and indigenous fuel cycle capabilities. Many countries are understandably suspicious that the program is a cover for obtaining the technologies needed to make nuclear weapons. As several experts point out, it does not make economic sense for any nation to build their own indigenous enrichment and reprocessing facilities if their national nuclear power output is less than 25,000 megawatts.¹⁹ Iran, however, insists that it must forge ahead with enrichment plants even though it has yet to put its first 1,000 megawatt reactor into operation.

In addition to Iran, Brazil plans to open an enrichment facility in this decade and other countries, such as South Korea and Ukraine have indicated interest in developing their own facilities. Japan's new reprocessing plant at its \$20 billion Rokkasho-muro facility will add to the mountains of plutonium it has already reprocessed in European plants.

From the very beginning of the nuclear age, scientists and policy makers tried to control the production of fuel. Scientists believed in 1945 that the rationing of uranium ores could be the simplest way to control nuclear technology. Under an international agreement, uranium would be accounted for, and there would be a check on the conversion of natural uranium into fissile material, they argued. Thus, the American plan Bernard Baruch presented to the United Nations in 1946 sought to establish an International Atomic Development Authority that would own and control all "dangerous" elements of the nuclear fuel cycle, including all uranium mining, processing, conversion, and enrichment facilities.

President Dwight D. Eisenhower picked up parts of these ideas in his Atoms for Peace Program in 1953. In the decades that followed, there were several major efforts that either studied or recommended the creation of multi-national fuel supply centers. These included the International Nuclear Fuel Cycle Evaluation, the United Nations Conference for the Promotion of International Co-operation in the Peaceful Uses of Nuclear Energy, and the Committee on the Assurances of Supply.

There is again today broad agreement that a comprehensive nonproliferation solution must include the reform of the ownership and control of the means of producing fuel for nuclear reactors. Proposals for doing so have been advanced by President George Bush, IAEA Director-General Mohamed ElBaradei, Russian President Vladimir Putin and by leading non-governmental experts.

All these proposals seek to end the further production of materials for use in nuclear weapons and stop—at least temporarily—construction of new facilities for enriching uranium or separating plutonium. Some propose that all such enrichment or separation take place only in facilities owned and operated by multi-national entities, others seek tougher export controls to prevent the development of new fuel factories, others propose new contractual and commercial means of control. But all recognize that preventing new nations such as Iran or Brazil from entering the uranium enrichment business will require more than a country-specific approach.

On February 11, 2004, President Bush said:

The world must create a safe, orderly system to field civilian nuclear plants without adding to the danger of weapons proliferation. The world's leading nuclear exporters should ensure that states have reliable access at reasonable cost to fuel for civilian reactors, so long as those states renounce enrichment and reprocessing. Enrichment and reprocessing are not necessary for nations seeking to harness nuclear energy for peaceful purposes.²⁰

Little progress has been made in furthering President Bush's proposed reform, in part due to a lack of U.S. follow-up, and in part to wide resistance to the needed changes. There are concerns among developing nations that a supplier cartel would unduly restrict their access to nuclear technology and a broader reluctance among non-nuclear weapon states to accept more stringent nonproliferation obligations when nuclear weapon states are seen as failing in their commitments to disarmament.

ElBaradei agrees with President Bush's assessment of the problem. "The wide dissemination of the most proliferation-sensitive parts of the nuclear fuel cycle ... could be the 'Achilles' heel' of the nuclear non-proliferation regime," he warned in March 2004. He disagrees with the President, however, in how the problem could be solved: "It is important to tighten control over these operations, which could be done by bringing them under some form of multilateral control, in a limited number of regional centers."

H.R. 885, the International Nuclear Fuel for Peace and Nonproliferation Act of 2007, would be an important step in building the needed consensus for a new international arrangement that would guarantee fuel cycle services (supply and disposal of fuel) to states that do not possess domestic capabilities. The mechanisms outlined in the resolution could provide a credible international guarantee of fresh reactor fuel and removal of spent fuel at prices that offer an economic incentive to the recipient state. Such an arrangement would reduce, if not eliminate, the economic or energy security justification for states to pursue their own fuel cycle facilities, and in so doing would test states' commitment to a non-weapons path. States that turn down reliable and economically attractive alternatives to costly new production facilities would engender suspicion of their intentions, inviting sanctions and other international pressures.

The measures proposed in H.R. 885 are likely to enjoy broad international support. As the resolution notes, in January 2005 Russian President Vladimir Putin proposed the creation of a global infrastructure "to offer nuclear fuel cycle services, including [uranium] enrichment under the control of the IAEA" to all countries, provided that they observe the nonproliferation regime.²¹ "Its backbone element will include a network of centres providing services in nuclear fuel cycle, including uranium enrichment, and they will be controlled by the International Atomic Energy Agency and will operate on the basis of nondiscriminatory access," Putin said.²²

As the H.R. 885 further notes, the six fuel-exporting countries (United States, France, Germany, the United Kingdom, Russian and the Netherlands) proposed in 2006 a "Concept for a Multilateral Mechanism for Reliable Access to Nuclear Fuel" that could also create the missing international mechanism for guaranteed fuel supply.

The key is to get these initiatives moving. H.R. 885 provides a critical push through its findings, statement of policy, reporting requirement and authorization of funds.

Why are these efforts needed? Promising non-nuclear weapon states access to nuclear technology was critical to forging the grand bargain that allowed the Non-Proliferation Treaty to enter into force. Today, any efforts to restrict or deny access to that technology (especially when many in the West are calling nuclear power essential to solving the world's energy shortages and reducing the greenhouse effect from carbon emissions) are resisted by states unwilling to cede any ground on their access to nuclear technology, particularly when they believe that other existing nonproliferation obligations, including those associated with disarmament, are going unimplemented. Meanwhile, states with nuclear fuel capabilities are reluctant to place them under international control.

Only high-level attention to this difficult issue can forge the international agreement necessary to push a solution over the finish line. The United States should be the natural leader of this effort, but this will require a departure from current priorities. It will mean placing reform of the fuel cycle as a top national security priority, joining with the urgent task of securing weapon-usable fissile materials. H.R. 885 is an excellent place for Congress to start this process.

Solving Problem Number 3: Preventing New States

Most of the news, debate and discussion of nonproliferation problems have focused in recent years on the two or three states suspected of developing new weapon programs. In part, this is because the overthrow of these governments, particularly in the Middle East, has overlapped with other political and security agendas. The war in Iraq was only partially about eliminating Saddam Hussein's weapons capability, though that was the major justification for the war.

The crises with Iran and North Korea are serious, but proliferation problems cannot be solved one country at a time. As the 2005 Carnegie study *Universal Compliance* notes:

Attempting to stem nuclear proliferation crisis by crisis—from Iraq, to North Korea, to Iran, etcetera—ultimately invites defeat. As each deal is cut, it sets a new expectation for the next proliferator. Regime change by force in country after country is neither right nor realistic. The United States would bankrupt and isolate itself, all the while convincing additional countries that nuclear weapons would be their only protection. A more systematic approach that prevents states within the NPT from acquiring the nuclear infrastructure needed to produce nuclear weapons is the only real sustainable option.²³

While the specifics and politics vary from country to country, all of the threats we face from new nations acquiring weapons – North Korea and possibly Iran today, others

tomorrow should either consolidate as a new nuclear weapon state – share the same need for a comprehensive, multi-dimensional approach. Iran, by far the more difficult of the cases, can serve as a model of how such an approach could work.

Think for a moment what it will take to convince the current or future Iranian government to abandon plans to build between six and twenty nuclear power reactors and all the facilities needed to make and reprocess the fuel for these reactors. As I detail with my co-author Andrew Grotto in our new study from the Center for American Progress, *Contain and Engage: A New Strategy for Resolving the Nuclear Crisis with Iran*, plans to do so pre-date the Islamic Republic. The United States, in fact, provided Iran with its first research reactor in the late 1960s (still operating at the University of Teheran) and encouraged Iran in its nuclear pursuits. Then-ruler Shah Reza Pahlevi developed plans to build 22 nuclear power reactors with an electrical output of 23,000 megawatts.

Whatever its true intentions, convincing Iran that while it could proceed with construction of power reactors, the country must abandon construction of fuel manufacturing facilities will not be easy. It will likely require both threats of sanctions (and as a last resort, military action), and promises of the economic benefits of cooperation.

This is the package of carrots and sticks that comprised the negotiations between the European Union and Iran. Calibrating the right balance in this mix is difficult enough, but the package itself is probably not sufficient to seal a deal. The hard-line government of President Mahmoud Ahmadinejad further complicates the issue with its harsh rhetorical insistence on proceeding with the nuclear plans and pointed threats to Israel. While the rhetoric may eventually fade, at the core, Iran or any country's reasons for wanting its own fuel cycle capabilities are similar to the reasons some countries want nuclear weapons: security, prestige and domestic political pressures. All of these will have to be addressed in order to craft a permanent solution.

Part of the security equation can be addressed by the prospect of a new relationship with the United States that ends regime change efforts. Iran would need some assurances that agreements on nuclear programs could end efforts by the United States and Israel to remove the current regime. The United States has told North Korea that it has no hostile intentions toward the state and that an end to that country's program would lead to the restoration of diplomatic relations. Similar assurances will be needed for Iran.

But there is also a regional dimension. Ending the threat from an Iranian nuclear program will require placing the Iranian decision in the context of the long-standing U.S. goal of a Middle East free of nuclear weapons. It will be impossible for a country as important as Iran to abstain permanently from acquiring the technologies for producing nuclear weapons—at least as a hedge—if other countries in the region have them. This dynamic has been noted in the very first National Intelligence Estimates of the proliferation threats done in 1958 and 1961 and is still true today.

Iran's leaders will want some assurances that there is a process underway that can remove what they see as potential threats from their neighbors, including Israel. For domestic political reasons, they will want to present their nuclear abstinence as part of a movement towards a shared and balanced regional commitment.

Members of the Committee might throw up their hands at this point. “Israel, give up its nuclear weapons? Impossible!” But such nuclear free zones have been created in other regions which, though not as intensely contested as the Middle East, still had to overcome substantial rivalries and involved the abandonment of existing programs (in South America) and the dismantlement of actual weapons (in Africa and Central Asia). Little diplomatic effort has been put behind the declared U.S. policy in recent years—certainly nothing on the scale of the effort Republican and Democrats needed to create the nuclear Non-Proliferation Treaty and its support mechanisms in the 1960s and 1970s.

Ridding the region of nuclear weapons will, of course, be difficult, but it is far better than the alternative of a Middle East with not one nuclear power (Israel) but two, three or four nuclear weapon states—and with unresolved territorial, religious and political disputes. This is a recipe for nuclear war.

This is not a distant fear. In just the past six month, a dozen Muslim nations have expressed their interest in starting their own nuclear power programs. In the entire 62-year history of the nuclear age there has been exactly one nuclear power reactor built in the Middle East (the one under construction in Iran) and two in Africa (in South Africa). Suddenly, ten states have begun exploring nuclear power programs. This is not about energy; it is about hedging against a nuclear Iran.

The key to stopping this process is to get a counter-process going. States in the region must have some viable alternative to the pessimistic view that the Middle East will eventually be a nuclear free-for-all. A distinguished group of 20 nuclear experts representing a cross-section of national and political views recommended in 2005 that part of the solution to a “nuclear-ready Iran” was to encourage Israel to initiate a “Middle East nuclear restraint effort” that would begin by shutting down the Israeli production reactor at Dimona. The group, convened by the Henry Sokolski at the Nonproliferation Policy Education Center, said Israel should then that it was willing to take further steps, including dismantling all its fissile producing facilities and handing over control of its weapons usable fissile material to the IAEA, as long as other states in the region did the same.²⁴

In order for this plan or any similar plan to succeed, there will have to be a concurrent effort to change fundamentally the way nuclear fuel is produced and reprocessed, as detailed above. Doing so would satisfy a nation’s security considerations that it does not have to build its own facilities in order to have a secure supply of fuel for its reactors. Some Iranians see the current negotiations as a new effort by the West to place them, once again, in a dependent relationship. This time the West would not control their oil, they say, but the energy of the future, nuclear fuel. Iran, indeed any nation, will not permanently acquiesce to a discriminatory regime that adds to the existing inequality allowing some countries to have nuclear weapons while others cannot, by now allowing some countries to make nuclear fuel while others cannot.

A comprehensive approach operating at several levels is the only sure way to prevent more and more nations from wanting and acquiring the technology that can bring them—legally—right up to the threshold of nuclear weapons capability.

Solving Problem Number Four: Reducing Existing Arsenals

Finally, as Senator Nunn so eloquently notes, none of these efforts will succeed absent dramatic reductions in the deadly arsenals of nuclear weapons held primarily by the United States and Russia. These discussions must take place in a world where nuclear weapons are being devalued as measures of security, status and technical achievement. Just as it is fruitless for parents to try to convince their children not to smoke while they have a two-pack-a-day habit and are constantly extolling the benefits of tobacco to their friends, it will be impossible for other nations to refrain permanently from acquiring nuclear weapons while they remain the currency of great power status.

As we concluded in our Carnegie study:

The nuclear-weapon states must show that tougher nonproliferation rules not only benefit the powerful but constrain them as well. Nonproliferation is a set of bargains whose fairness must be self-evident if the majority of countries is to support their enforcement . . . The only way to achieve this is to enforce compliance universally, not selectively, including the obligations the nuclear states have taken on themselves. . . The core bargain of the NPT, and of global nonproliferation politics, can neither be ignored nor wished away. It underpins the international security system and shapes the expectations of citizens and leaders around the world.”²⁵

Nuclear weapons are more highly valued by national officials than chemical or biological weapons ever were, but that does not mean they are a permanent part of national identity. We may be seeing the beginning of a move to recapture the vision of a nuclear-free world, dramatically heralded in the January 4, 2007 oped co-authored by George Shultz, Henry Kissinger, William Perry and Sam Nunn.

Breaking the nuclear habit will not be easy, but there are ways to minimize the unease some may feel as they are weaned away from dependence on these weapons. The United States and Russia account for over 96 percent of the world’s nuclear weapons. The two nations have such redundant nuclear capability that it would not compromise any vital security interests to quickly reduce down to several hundred warheads each. Further reductions and the possibility of complete elimination could then be examined in detailed papers prepared by and for the nuclear-weapon states. If accompanied by reaffirmation of the ban on nuclear testing, removal of all weapons from rapid-launch alert status, establishment of a firm norm against the first use of these weapons, and commitments to make the reductions in weapons irreversible and verifiable, the momentum and example generated could fundamentally alter the global dynamic.

Such an effort would hearken back to President Harry Truman’s proposals which coupled weapons elimination with strict, verified enforcement of non-proliferation. Dramatic reductions in nuclear forces could be joined, for example, with reforms making it more difficult for countries to withdraw from the NPT (by clarifying that no state may withdraw from the treaty and escape responsibility for prior violations of the treaty or retain access to controlled materials and equipment acquired for “peaceful” purposes).²⁶

It would make it easier to obtain national commitments to stop the illegal transfer of nuclear technologies and reform the fuel cycle. The reduction in the number of weapons and the production of nuclear materials would also greatly decrease the risk of terrorists acquiring such materials.

Conclusion

Ultimately, reducing the risks from nuclear weapon in the 21st century cannot be just a military or nuclear energy strategy. At the beginning of the nuclear age, it was already clear that unless we solved the underlying political conflicts that encourage some states to seek security in nuclear arms, we would never prevent nuclear competition. Oppenheimer said, “We must ask, of any proposals for the control of atomic energy, what part they can play in reducing the probability of war. Proposals which in no way advance the general problem of the avoidance of war, are not satisfactory proposals.”²⁷

Thus, nuclear-weapon-specific efforts should be joined by focused initiatives to resolve conflicts in key regions. A quick look at the map should make clear that nuclear weapons have not spread around the world uniformly. It has not been like a drop of ink diffusing evenly in a glass of water. Vast areas of the world—entire continents—are nuclear-weapon free. There are no nuclear weapons in South America, Africa, Australia or Southeast Asia. Rather, the states of proliferation concern are in an arc of crisis that flows from the Middle East through South Asia up to Northeast Asia. In other words, in regions within which unresolved territorial, political and religious disputes give rise to the desire to gain some strategic advantage by acquiring nuclear weapons.

Countries have given up nuclear weapons and programs in the past only when these disputes have been resolved. The pattern of the past should be the template for the future. Avoiding nuclear war in South Asia requires continuing the progress in normalizing relations between India and Pakistan and achieving a permanent resolution of the Kashmir issue. Ridding the Middle East of nuclear weapons and new nuclear programs requires normalization of relations between Israel and other regional states and groups based on a just resolution to the Israeli-Palestinian conflict.

Resolution of some of these may come more quickly than most imagine. Even ten years ago it was inconceivable to many that Ian Paisley, the leader of the militant Protestant Democratic Union Party would ever share power with Martin McGuinness, a leader of the militant Catholic IRA. Both called the other terrorist. Both swore to wipe each other’s groups from the face of the earth. Yet, this week they shook hands and were sworn into office as the joint leaders of a united Northern Ireland.

Others conflicts may take more time to resolve, but as history teaches us, it is the direction in which we are moving that informs national attitudes and shapes each state’s security decisions. The more arrows we can get pointed in the right direction, the easier it becomes to make progress on all fronts.

Former U.S. State Department official Robert Einhorn and former Defense Department official Kurt Campbell note that the wisdom of societies and states that have

gone without nuclear weapons is reinforced by “a world in which the goals of the NPT are being fulfilled--where existing nuclear arsenals are being reduced, parties are not pursuing clandestine nuclear programs, nuclear testing has been stopped, the taboo against the use of nuclear weapons is being strengthened, and in general, the salience of nuclear weapons in international affairs is diminishing.”²⁸

There is every reason to believe that in the first half of this century the peoples and nations of the world will come to see nuclear weapons as the “historic accident” Mohamed ElBaradei says they are. It may become clearer that nations have no need for the vast destructive force contained in a few kilograms of enriched uranium or plutonium. These weapons still appeal to national pride but they are increasingly unappealing to national budgets and military needs. It took just sixty years to get to this point in the nuclear road. If enough national leaders decide to walk the path together; it should not take another sixty to get to a safer, better world.

¹ This testimony is based in large part on my new book, *Bomb Scare: The History and Future of Nuclear Weapons* (Columbia University Press, 2007)

² In 1987 the Soviet Union deployed 2380 long-range missiles and China approximately 20. The number declined to 689 by 2007 (669 Russian; 20 Chinese)

³ See Joseph Cirincione, “Get Smart on Ballistic Missiles,” May 8, 2007, Center for American Progress, Washington, DC, available at <http://www.americanprogress.org/issues/2007/05/missiles.html>

⁴ For an excellent discussion of why nuclear terrorism is unlikely, see Robin M. Frost, “Nuclear Terrorism After 9/11,” Adelphi Paper 378, International Institute for Strategic Studies (London: December 2005).

⁵ David Ruppe, “Republican Lawmaker Slams Bush Nuclear Plans,” *Global Security Newswire* (February 4, 2005), available at http://www.nti.org/d_newswire/issues/2005_2_4.html#88A200EA.

⁶ Kai Bird and Martin Sherwin, *American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer* (New York: Alfred A. Knopf, 2005): p. 349.

⁷ These recommendations are elaborated in George Perkovich, Jessica T. Mathews, Joseph Cirincione, Rose Gottemoeller and Jon B. Wolfsthal, *Universal Compliance: A Strategy for Nuclear Security* pp. 83-125.

⁸ “Kazakhstan: Project Sapphire” Nuclear Threat Initiative, available at <http://www.nti.org/db/nisprofs/kazakst/fissmat/sapphire.htm>

⁹ Ashton B. Carter and William J. Perry, *Preventive Defense: A New Security Strategy for America* (1999): p. 65.

¹⁰ *Ibid.*, p. 66-67.

¹¹ C.J. Chivers, “Prague Ships Its Nuclear-Bomb Fuel to Russian Storage.” *The New York Times* (September 28, 2005).

¹² “Acceleration of Removal or Security of Fissile Materials, Radiological Materials, and Related Equipment at Vulnerable Sites Worldwide,” Interim Report, Unclassified Summary, NNSA (2005).

¹³ U.S. Department of Energy, NNSA Newsletter, April 2007 (http://www.nnsa.doe.gov/docs/newsletters/2007/nl_2007Apr_NNSA_News.pdf)

¹⁴ Interim Report, Unclassified Summary, NNSA (2005).

¹⁵ The Baker-Cutler report of 2001 recommended that funding for nuclear threat reduction programs in Russia should be tripled in order to meet materials security goals. See Appendix A of Howard Baker and Lloyd Cutler, “A Report Card on the Department of Energy’s Nonproliferation Programs with Russia,” U.S. Department of Energy Russia Task Force (January 10, 2001), available at <http://www.stimson.org/ctr/pdf/BakerCutlerReport2001.pdf>.

¹⁶ “Opening Remarks of Thomas H. Kean and Lee H. Hamilton, Chair and Vice Chair of the 9/11 Public Discourse Project,” (November 14, 2005), available at http://www.9-11pdp.org/press/2005-11-14_remarks.pdf.

¹⁷ See Graham Allison, *The Ultimate Preventable Catastrophe* (New York: Times Books, 2004).

¹⁸ Ashton B. Carter, “Worst People and Worst Weapons,” Statement before the 9/11 Public Discourse Project’s Hearings on “The 9/11 Commission Report: The Unfinished Agenda,” (June 27, 2005), available at http://bcsia.ksg.harvard.edu/BCSIA_content/documents/Testimony9-11Commission-6-27-05.pdf.

¹⁹ John Deutch, Arnold Kanter, Ernest Moniz and Daniel Poneman, “Making the World Safe for Nuclear Energy,” *Survival* 46, no. 4 (Winter 2004-5): p. 69.

²⁰ George W. Bush, “Remarks by the President on Weapons of Mass Destruction Proliferation,” (Feb. 11, 2004), available at <http://www.whitehouse.gov/news/releases/2004/02/20040211-4.html>.

²¹ “Putin proposes access to nuclear energy for all countries,” RIA Novosti, January 25, 2006.

²² “Russia’s nuclear centre proposal solves global security problems,” ITAR-TASS, January 25, 2005.

²³ Perkovich et al, *Universal Compliance*, pp. 94,97.

²⁴ Henry Sokolski and Patrick Clawson, Editors, *Getting Ready for a Nuclear-Ready Iran*, (Carlisle, PA: U.S. Army War College Strategic Studies Institute 2005): pp. 16-17.

²⁵ George Perkovich, et al, *Universal Compliance: A Strategy for Nuclear Security*, p. 24, 34, and 39

²⁶ See for example, the excellent suggestions made by Sally Horn, a State Department representative to the NPT Review Conference in May 2005, summarized in Joseph Cirincione, “No Easy Out,” Carnegie Analysis (May 24, 2005), available at www.ProliferationNews.org.

²⁷ J. Robert Oppenheimer, “The International Control of Atomic Energy,” *Bulletin of the Atomic Scientists* (June 1946).

²⁸ Kurt M. Campbell, Robert Einhorn, and Mitchell Reiss, eds., *The Nuclear Tipping Point: Global Prospects for Revisiting Nuclear Renunciation* (Washington, D.C.: Brookings Institution Press, 2004), cited in *Universal Compliance*, p. 130