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*Responding to the
Challenge of
Proliferation*

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U.S. FOREIGN POLICY A G E N D A

Responding to the Challenge of Proliferation

U. S. FOREIGN POLICY AGENDA

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“We are rededicating ourselves to aims that are both essential and enduring: To ensure that the atom’s power will be unleashed solely for purposes of peace. To keep deadly arms out of dangerous hands. To bring closer the day when nations are respected not for the weapons they have, but for the promises they keep — to other countries, and their own people.”

Secretary of State Madeleine Albright
April 1, 1999

This issue of *U.S. Foreign Policy Agenda* examines the U.S. response to the challenge posed by the proliferation of weapons of mass destruction (WMD) and their missile delivery systems. Key U.S. officials outline U.S. initiatives for addressing and preventing proliferation; explore the threats posed by nuclear, chemical, and biological weapons; and review U.S. policy on conventional arms issues including landmines, small arms, and levels of military equipment and manpower in Europe. A leading scholar looks at the U.S. experience with WMD, and a congressional expert outlines the status of arms control legislation in the U.S. Congress. A U.S. senator examines the dismantlement of WMD in the former Soviet Union, while Defense Department and National Security Council officials focus on arms proliferation in India, Pakistan, Iraq, and Iran.

U.S. FOREIGN POLICY A G E N D A

*An Electronic Journal of the
U. S. Information Agency*

RESPONDING TO THE CHALLENGE OF PROLIFERATION

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STRENGTHENING NONPROLIFERATION: ESSENTIAL TO GLOBAL SECURITY

By Samuel R. Berger



As the risk increases that terrorists may seek to acquire or use weapons of mass destruction (WMD), Berger says the Clinton administration is pursuing three key priorities: strengthening the nonproliferation regime, addressing pressing regional WMD threats, and bolstering defenses against the use of WMD. Berger is the National Security Adviser to President Clinton.

Slowing the spread of weapons of mass destruction (WMD) has been a key priority for President Clinton. The reason why is clear: allowing more and more countries, including bitter regional rivals and even terrorist groups, to develop nuclear, chemical, and biological weapons, and allowing the development of more and more destructive weapons, would make the world a much more dangerous place. So the United States will continue to work hard to strengthen global nonproliferation agreements and efforts.

Recent troubling developments have underscored the urgency of this task.

In May 1998, India, and then Pakistan, conducted nuclear tests that blew the lid off South Asia's long-simmering nuclear rivalry. These explosions have threatened to trigger a full-fledged nuclear and missile race in the region. And this year's confrontation over the Kargil border area, in Kashmir, reaffirmed the continuing danger of violent conflict between these two rivals.

In July 1998, Iran's test of the Shahab-3 missile extended Tehran's capability to strike at targets in the Middle East. Combined with Iran's continued pursuit of nuclear weapons, this missile development poses a threat to stability in the region.

In August 1998, North Korea tested its Taepo-Dong missile over Japan. This test, and signs that North Korea is preparing for a second test of a long-range missile, threaten to undermine efforts to build peace and security in that region.

Meanwhile, Russia's continuing economic difficulties have heightened the challenge for Moscow to control the leakage of sensitive weapons-related materials and technology beyond its borders. Scientists and institutes involved in weapons development have faced increased financial pressures to sell their wares to whoever is in the market, including rogue states.

Finally, in December 1998, Iraqi leader Saddam Hussein once again broke his commitments to cooperate with UN inspectors, ignoring the warnings of the international community. The United States, together with Great Britain, responded with force, attacking Iraq's program to develop and deliver WMD and its capacity to threaten its neighbors. But we have not eliminated the danger, and our resolve to curb the threat Saddam poses will not diminish.

In addition to these specific developments, two broad and dangerous trends have emerged.

First, as the President has repeatedly warned, the risk is increasing that terrorists will acquire and seek to use chemical or biological weapons as weapons of terror.

Second, ballistic missile proliferation has intensified, as demonstrated by the Iranian and North Korean missile tests and advances in the missile programs of India and Pakistan. While the technology to develop intercontinental-range missiles remains out of reach for a large number of countries, shorter-range missile capabilities — based on liquid-fueled SCUD technology — are widely available. The Missile Technology Control Regime (MTCR) helps to limit

the spread of missile technology, but several key suppliers, such as North Korea, are outside the MTCR. Unfortunately, in regions like the Middle East and South Asia, political dynamics still weigh against agreements to limit these missiles.

Not all recent news on nonproliferation has been bad. There have been several encouraging developments. The multilateral Conference on Disarmament has agreed to arrangements for negotiations on a global Fissile Material Cutoff Treaty, which would halt the production of additional material for nuclear weapons. Brazil has ratified the Comprehensive Test Ban Treaty and joined the Non-Proliferation Treaty, completing a remarkable process that has almost eliminated the threat of nuclear proliferation in Latin America. Russia has taken steps to halt the spread of weapons technologies from its borders. And the U.S. Congress passed critical legislation to implement the Chemical Weapons Convention.

Also encouraging has been the global reaction to the nuclear tests by India and Pakistan: They were condemned in nearly every corner of the world. Here was an issue where the United States, China, and Russia found a common voice; where major powers agreed with many nations of the developing world. Far from demonstrating the death of international norms against proliferation, the international reaction to the tests showed the resilience of these norms.

But these positive signs have been overshadowed by the mounting challenges. More than ever, the nations of the world need to come together to build a safer future. Let me outline U.S. policy initiatives for preventing and addressing proliferation as we reach a new century.

First, we are moving aggressively to strengthen the nonproliferation regime, by which I mean the international consensus and the international agreements and structures aimed at curbing WMD and ballistic missiles.

Bolstering this regime is critical if we are to give nations greater confidence that they can forego or limit WMD and ballistic missiles without finding themselves at a disadvantage against rivals brandishing such weapons. The regime is also essential for isolating nations outside

the regime and pressuring them to restrain their programs and eventually to join.

With respect to strengthening the regime, President Clinton continues to stress that obtaining the U.S. Senate's advice and consent to ratification of the Comprehensive Test Ban Treaty (CTBT) is one of his top foreign policy goals. The President has called the CTBT the "longest-sought, hardest-fought prize in the history of arms control." The people of the United States overwhelmingly support the treaty, as they have consistently since President Dwight Eisenhower proposed it more than 40 years ago.

The treaty bans all nuclear explosive tests. We should pause and contemplate this development: 152 nations — including the United States, the United Kingdom, France, Russia, and China — have signed an accord to never, or never again, test a nuclear device. Forty-one countries, including many of our allies, have already ratified it. We must not let this extraordinary opportunity slip away.

By its terms, the CTBT cannot enter into force until the United States and other key designated nations ratify it. As the President has argued, if we fail to ratify, we will undercut our own efforts to curb further nuclear arms development, including in South Asia, where India and Pakistan each have announced an intention to adhere to the CTBT.

The President has stressed to U.S. audiences that the treaty is in the U.S. national interest. Four former chairmen of the U.S. Joint Chiefs of Staff — John Shalikashvili, Colin Powell, William Crowe, and David Jones — as well as the current chairman, Henry Shelton, are among the many U.S. leaders who agree on that. The United States already has stopped testing nuclear weapons. Nuclear experts affirm that we can maintain a safe and reliable deterrent without testing. The question now is whether we will adopt — or whether we will lose — a verifiable treaty that will bar other nations from testing nuclear weapons.

The treaty will constrain the development of more advanced nuclear weapons by nations that already have them — and limit the possibilities for other states to acquire them. It will also enhance the ability of nations

to detect and deter suspicious activities by other nations. With or without a CTBT, we must monitor such activities. The treaty gives us new tools to pursue this vital mission: a global network of sensors to supplement national intelligence capabilities and the right to request short-notice, on-site inspections in other countries.

In addition to the CTBT, the United States wants to make rapid progress on a treaty to ban further production of fissile materials. In the fall of 1998, we called on all countries that have tested nuclear devices to adhere to a voluntary production moratorium. The United States, the United Kingdom, France, Russia, and China have stopped producing fissile material. We hope that all of these countries, along with India and Pakistan, will formally join this moratorium while we seek a treaty through the Conference on Disarmament.

We also will work to strengthen other components of the nuclear nonproliferation regime, including the safeguards applied by the International Atomic Energy Agency. And we will implement the initiative Presidents Clinton and Yeltsin announced in Russia in 1998 under which the United States and Russia each would dispose safely of 50 tons of plutonium that is no longer needed by their military programs. One hundred tons of plutonium would be enough to make literally thousands of nuclear weapons.

Another strong catalyst for persuading nations to forego nuclear weapons would be continued progress in the START (Strategic Arms Reduction Treaty) process — the effort by the United States and Russia to reduce their nuclear arsenals. Meeting in June 1999 in Cologne, Presidents Clinton and Yeltsin reaffirmed their joint commitment to securing START II's entry into force. We hope the Russian Duma will promptly ratify START II this fall, which will clearly benefit Russia's security, as well as the United States'. And during their follow-up meeting in July in Washington, then-Prime Minister Stepashin and Vice President Gore agreed that discussions on START III and the 1972 Anti-Ballistic Missile (ABM) Treaty would begin in August. We seek to conclude a START III Treaty for even deeper cuts based on the agreement reached by Presidents Clinton and Yeltsin at Helsinki in 1997.

Our commitment to strengthening the global nonproliferation regime extends, of course, beyond nuclear weapons. The United States ratified the Chemical Weapons Convention in 1997. We continue to pursue aggressively another key priority announced by President Clinton in his 1998 State of the Union address: strengthening our ability to determine whether nations are complying with the Biological Weapons Convention. We are committed to securing over the next year international agreement on declaration and inspection measures that will make it much more difficult for nations to violate their obligations under the convention.

The chemical and biological conventions are vital not only to preventing states from acquiring WMD but also, in combination with law enforcement and intelligence, to keeping these weapons away from terrorists. Though the conventions are focused on the obligations of states, not sub-state actors, virtually every state on our State Department's list of terrorism sponsors has WMD programs. As potential suppliers of such weapons to terrorists, there is no more worrisome source than these state sponsors. Under a strong nonproliferation regime, states that fail to join or comply with the conventions will be isolated, constrained from obtaining weapons materials, and thus hindered from assisting terrorists with WMD activities.

Our second set of priorities focuses on the most pressing regional proliferation challenges.

With respect to South Asia, we have pressed for a strong international response to deter India and Pakistan from additional testing. President Clinton, Secretary of State Albright, Deputy Secretary of State Strobe Talbott and other officials have engaged in intense diplomatic efforts to move India and Pakistan away from nuclear confrontation and further escalation of tensions. We will continue to encourage the Indo-Pakistani dialogue that began so encouragingly in Lahore in February 1999. We will also encourage these South Asian nations to pursue concrete results on nonproliferation goals: adherence to the CTBT, establishment of strong export controls, and restraint on fissile materials production and ballistic missile development and deployment.

Dealing with North Korea is a delicate balancing act that requires a judicious mix of deterrence, diplomacy, and aggressive nonproliferation efforts. The Agreed Framework, reached in 1994, halted North Korean production of fissile material for nuclear weapons. The successful inspection of the Kumchang-ni nuclear site in North Korea in the spring of 1999 has resolved our concerns about underground nuclear activity at this location. However, we remain very concerned about the possibility of another long-range missile test by Pyongyang. As Secretary of Defense Cohen and South Korean Defense Minister Cho stated in Seoul on July 29, 1999, North Korea will have more to lose than to gain by firing a new missile.

We have a full and important agenda of arms control and nonproliferation issues to address with China. We will continue to seek China's entry into the Missile Technology Control Regime, a step that in June 1998 China agreed to study seriously. Our dialogue with China on nuclear nonproliferation has produced concrete progress: China has ceased all cooperation with unsafeguarded nuclear facilities; pledged to engage in no new nuclear cooperation with Iran, including for peaceful purposes; promulgated national nuclear export laws controlling export of dual-use items with nuclear applications; and joined the Zangger Committee (the multilateral group which coordinates efforts to control nuclear exports).

We are working with China to conclude new verification provisions to strengthen the Biological Weapons Convention. And we would like to see Beijing expand its export control coverage to all of the chemical precursors listed by the Australia Group (the multilateral body which coordinates exports to prevent the spread of chemical and biological weapons).

On Iraq, we will maintain sanctions until Iraq fully complies with its commitments under the relevant UN Security Council resolutions, especially its obligation to eliminate its WMD programs entirely. We remain steadfast in our determination that disarmament under these resolutions is the only pathway to sanctions relief. It is up to Saddam Hussein to decide whether he wants sanctions relief by giving up his WMD. In the meantime, we will be ready to act decisively — including with force — if we see Iraq rebuilding a WMD capability.

As to Russia, we will continue to work with the Russian leadership to halt dangerous proliferation activity on the part of Russian entities — particularly those that might cooperate with Iran's missile and nuclear weapons programs. This issue remains at the top of our agenda with the Russian government and has been addressed by President Clinton and Vice President Gore in recent discussions with President Yeltsin and former Prime Minister Stepashin.

We will continue to work with Russia to strengthen its export control system and to take effective actions against companies and individuals who are violating Russian laws and putting personal gain over Russia's own national interests. We have developed incentives to encourage responsible behavior. We have established and, where appropriate, imposed tough penalties against Russian entities that violate international nonproliferation standards.

In the end, though, the most effective shield against proliferation from Russia is not U.S. penalties, but a Russian export control system that is designed to work and does so. Only Russia can police its own borders, factories, and technology institutes.

Recent positive developments suggest our strategy is beginning to show results. Over the past two months, Moscow has strengthened the foundations of Russia's nonproliferation policy and strengthened Russia's export control system. Russian agencies have been directed to implement a work plan designed in cooperation with the United States and aimed at a number of our most pressing concerns on the proliferation front. In July, President Yeltsin signed a robust export control law that introduces criminal and civil liability for companies and individuals who engage in activities of proliferation concern. Finally, the Russians are working with U.S. experts to install effective export control systems at Russian aerospace companies. These internal compliance units, which are common in other industrialized countries, will form the first line of defense and carry out important oversight functions to help keep sensitive technologies from falling into the wrong hands.

Now that these tools are in place, we are encouraging the Russian government to take visible steps to enforce Russia's export controls and to deter potential violators.

Progress in this area in coming months is essential, and we will be watching Russian actions closely. Our effort in this area also includes programs designed to address the very real need for seeing to it that scientists with expertise related to WMD are gainfully employed. That is why we are funding the International Science and Technology Center in Moscow and other initiatives to help thousands of these scientists apply their skills to civilian endeavors. It is why we are seeking funding for the Nuclear Cities Initiative to help Russia convert its nuclear weapons production facilities to peaceful uses.

It is also why President Clinton announced the Expanded Threat Reduction Initiative (ETRI) in January 1999. Under this effort, we seek to expand existing threat reduction programs, which have proven successful in eliminating hundreds of missiles, silos, launchers, and bombers, and in securing dangerous weapons-grade nuclear materials. The ETRI would allow us to continue to work together with Russia to secure and dispose of dangerous materials, convert WMD resources to peaceful use, tighten export controls, and help ensure that Russian scientists are engaged in work that in no way involves proliferation activities. We have asked our Congress to give the ETRI its full support.

Our third set of priorities recognizes that, despite our efforts to strengthen the international regime and resolve regional issues, we cannot prevent all forms of proliferation in all cases. Weapons of mass destruction already are out there in the hands of dangerous actors. So we must devote sufficient resources to develop defensive capabilities to protect people in the event these weapons are used.

To deal with the spread of ballistic missile technology in key regions, we have stepped up our Theater Missile Defense programs, including with Israel and Japan.

And in 2000, we will determine whether to move from research to deployment of a limited National Missile Defense (NMD) to counter the emerging ballistic missile threat from rogue nations. We will make our decision after reviewing the results of developmental efforts, considering cost estimates, and evaluating the threat. We will also review progress in achieving our arms control objectives, including negotiating any amendments to the ABM Treaty that may be required to accommodate a possible NMD deployment.

We also are strengthening efforts to protect people from the threat of terrorist use of WMD. We have launched a robust program under our National Coordinator for Security, Infrastructure Protection, and Counterterrorism. We have created a National Domestic Preparedness Office to train and equip fire, police, and medical personnel across the United States to deal with chemical, biological, or nuclear emergencies. We are working to improve our public health surveillance system — so that if a biological weapon is released, we can detect it and save lives. As President Clinton has said, if we prepare to defend against these emerging threats, we will show terrorists that assaults on innocent people “will accomplish nothing but their own downfall.”

All of these efforts — strengthening the nonproliferation regime, addressing regional threats, and bolstering defenses — are essential. And the United States will continue to work hard on each front.

As President Clinton’s continuing focus on these matters — in talks with world leaders, meetings with experts, policy-making with his national security team, and speeches to the public — makes plain, the United States will continue to be vigilant and determined against the spread of weapons of mass destruction. It is essential to global security — now and for future generations — that we do so. ●

THE PROLIFERATION OF WEAPONS OF MASS DESTRUCTION: CHALLENGES AND RESPONSES

By John D. Holum



The challenge presented by the proliferation of weapons of mass destruction is great, but the international community is “resolutely determined to contain it,” Holum says. “A strong, comprehensive nonproliferation strategy will remain a centerpiece of U.S. foreign policy as we advance America’s interests and global security into the next century.” Holum is Senior Adviser to the Secretary of State for Arms Control and International Security.

INTRODUCTION

Current trends in weapons of mass destruction (WMD) and missile proliferation are mixed. The past two years have presented some of the most difficult challenges the nonproliferation community has faced. Yet these same challenges afford opportunities to intensify awareness that such threats are real and require high-level and sustained attention.

The interlocking web of multilateral treaties, regimes, and initiatives to address and to redress proliferation problems is growing ever tighter. Current and would-be proliferators are meeting strong opposition at every turn. For its part, the United States employs a variety of tools in its efforts to prevent the spread of WMD and missiles, including strengthened global regimes, diplomacy, sanctions, and enhanced regional security. Most other countries hold similar nonproliferation values and are steadily strengthening enforcement.

THE NATURE OF THE THREAT

The WMD proliferation threat is not a new phenomenon. Concerns about WMD date back at least to 1925, when the Geneva Protocol was negotiated to respond to the use of poison gas during World War I. Over the years, the threat to international security posed by WMD has steadily increased. Events in recent years illustrate the terror impact and destabilizing effects of such weapons: the use of chemical weapons in the Iran-Iraq war; the sarin

gas attack in the Tokyo subway; Iraqi SCUD missile attacks during the Gulf War; North Korean and Iranian missile tests; and the nuclear weapon and missile tests conducted by India and Pakistan. These and further such acts pose immediate dangers to U.S. allies, to American troops abroad, and to civilians at home.

States seek to acquire WMD for a variety of reasons. For some, they represent prestige and power. In a world where civilian technology is growing vastly more useful and respected, some still view WMD as an avenue to demonstrate technological prowess and obtain international status. Some states seek WMD to deal with perceived regional threats or to gain an edge in future conflicts, realizing too late that the likelier outcome is a neighborhood arms race and international isolation. Chemical and biological weapons (CBW) are sometimes called “the poor man’s nuclear weapon,” and states that cannot obtain nuclear weapons have pursued CBW programs as a “second best option.”

These are faulty and dangerous rationales that ignore the vastly destabilizing impact of WMD and missiles on regional and global security. Those few who are pursuing WMD capability contravene the virtually global sentiment against WMD proliferation. Such global opposition is manifest in the Nuclear Non-Proliferation Treaty (NPT), the Chemical Weapons Convention (CWC), and the Biological Weapons Convention (BWC) — treaties that represent critical Proliferation barriers and that must be sustained and strengthened further.

A corollary to the WMD acquisition and demand side is the supply side. Even in the face of growing international recognition that WMD and missile proliferation is destabilizing, a number of states continue selling missiles, nuclear technology, and other WMD-related components to would-be or active proliferators. Their motivation is usually pure economics — hard currency for sales is a strong and, unfortunately, too often irresistible lure.

An inescapable reality is that some of the most horrifying scenarios spun about WMD proliferation involve not state actors, but terrorists and other non-state actors. Obtaining and deploying WMD with a devastating impact — especially biological weapons — remains far too easy for those with enough money and moral corruptness. International efforts to detect and thwart such actions are constantly being challenged by advances in technologies that make detection more difficult and by the relative ease with which certain WMD can be developed, hidden, and transported.

PROLIFERATION CHALLENGES

While the global community's commitment to nonproliferation and related efforts remains steadfast, estimates are that more than two dozen countries may have or are seeking WMD capabilities. The following illustrate some of the more current and significant proliferation challenges facing the international community.

A. Nuclear Weapons

Iraq's nuclear weapon program was discovered after the Gulf War. For six years, the UN Special Commission (UNSCOM) labored to determine the extent of this program and dismantle it. While UNSCOM destroyed virtually all of Iraq's facilities and equipment, Iraq continues to hide documentation and some equipment relating to key aspects of its past nuclear activities. Moreover, the Iraqi government has yet to demonstrate that it no longer has nuclear weapon ambitions.

North Korea's nuclear weapon program was revealed in 1994 after International Atomic Energy Agency (IAEA) inspectors found discrepancies in spent fuel reporting by the DPRK (Democratic People's Republic of Korea). North Korea agreed, in the context of a

bilateral Agreed Framework arrangement, to work with the United States toward full compliance with its nuclear nonproliferation obligations. However, delays in implementing the Agreed Framework and the emergence of other proliferation concerns with the DPRK make it unclear when the desired end point with the DPRK will be reached.

Iran, a party to the NPT, continues a procurement pattern for nuclear technologies and equipment inconsistent with a civilian nuclear program and is pursuing a nuclear weapon capability under the guise of a complete nuclear fuel cycle.

In May 1998, first India and then Pakistan defied global nonproliferation standards by testing nuclear weapons. India and Pakistan continue efforts through a variety of means to advance their nuclear weapon capabilities.

B. Chemical Weapons (CW)

Since the end of the Gulf War, Iraq has rebuilt key portions of its chemical production infrastructure for industrial and commercial use. In 1998, UNSCOM discovered that Iraq had weaponized the nerve agent VX, further reinforcing suspicions that Iraq retains a chemical weapons capability. Iran, a member of the CWC, has manufactured and stockpiled a variety of chemical weapons and continues efforts to procure equipment and materials designed for a more advanced and self-sufficient CW infrastructure.

Syria maintains an active chemical weapons program and has stockpiles of several nerve agents, but remains dependent on foreign suppliers for key elements of its CW program. Libya wants a CW capability and an indigenous CW-production capability, but remains heavily dependent on outside suppliers for precursor chemicals and other key CW-related equipment. Sudan has also been developing the capability to produce CW.

C. Biological Weapons (BW)

Iraq has admitted to an active and extensive BW program, but has not disclosed fully the extent of its BW efforts, indicating that Baghdad almost certainly intends to reconstitute its capability when

circumstances permit. Iran began a biological warfare program during the Iran-Iraq war and may have a limited BW stockpile.

D. Missiles

The DPRK is the most active missile proliferator. It is developing missiles of increasingly longer range — missiles eventually capable of striking parts of the United States. North Korea also actively exports missiles and missile production capability to Egypt, Iran, Pakistan, and Syria. Iraq likely retains a number of SCUD-type missiles and launchers and is developing two missiles that could be converted for longer ranges once UN sanctions are lifted.

Iran has a very active missile program, building SCUDs with North Korea's assistance, developing the No-Dong-based Shahab-3 medium-range ballistic missile, and seeking still more capable systems. India and Pakistan each are developing short- and medium-range ballistic missiles (in Pakistan's case with extensive Chinese and DPRK assistance). Libya continues to seek missiles and missile technology to augment its Soviet-supplied SCUDs, and Syria is building DPRK-designed SCUDs.

MEETING THE PROLIFERATION CHALLENGES

The nonproliferation efforts of the United States and other nations involve a number of reinforcing elements that together delay proliferators' efforts, narrow their choices, and channel and confine the potential threat.

Strengthening Regimes: The U.S. government works hard to strengthen global norms against proliferation, which are critical to creating the confidence other governments need to forego such options for themselves. Achieving entry into force of the Comprehensive Test Ban Treaty (CTBT), strengthening the BWC, negotiating a Fissile Material Cutoff Treaty, enhancing IAEA safeguards, and reinforcing the Nuclear Physical Protection Convention are among the major initiatives the United States is pursuing to strengthen further the global nonproliferation regime. These initiatives will complement existing agreements and treaties, such as the NPT and the CWC, as well as

informal nonproliferation regimes, such as the Missile Technology Control Regime (MTCR), the Australia Group (AG), and the Nuclear Suppliers Group (NSG). The standards established by these agreements have made and will continue to make an important difference to the success or failure of our nonproliferation strategy. Adherence to agreements can impede problem behavior by creating legally binding constraints, by justifying sanctions, or by drying up sources of supply.

Diplomacy is a key part of nonproliferation efforts, particularly when dealing with the early stages of a proliferation threat. U.S. diplomatic activities range from quiet but concerted diplomatic communications, to sustained bilateral dialogue, to direct involvement of the most senior levels of the U.S. government. The United States looks to other governments to undertake similar diplomatic activity reinforcing shared nonproliferation standards.

In the case of North Korea, the United States encourages the DPRK to adopt responsible nonproliferation behavior, abide by the Agreed Framework on nuclear issues, curb its indigenous missile programs, and refrain from exporting missiles. With Russia and China, the United States has a sustained and high-level dialogue to press them both firmly to cease cooperating with or supplying materials to countries of proliferation concern. Following the nuclear tests by India and Pakistan, the United States initiated high-level bilateral talks with both governments aimed at CTBT ratification, a cutoff in fissile material production, adoption of comprehensive export controls, and restraint in their nuclear and missile programs. The United States also raises international awareness of proliferation concerns by actively speaking out at the United Nations and other multilateral venues where these issues are addressed.

Sanctions and Other Inducements: Where diplomacy and dialogue are not an option, or to supplement diplomatic efforts, the United States, often in coordination with other countries, employs sanctions or otherwise identifies negative and positive inducements to alter countries' problem behaviors. This is the case with proliferation threats in Iraq, Libya, and Sudan. Sanctions are often criticized, but they

have proven to be an effective tool and to play a key role in allowing the United States and other nations to make clear that proliferation entails costs — political and economic.

Enhancing Regional Security: Recognizing that countries may be motivated to pursue WMD because of perceptions of regional security imbalances, the United States participates actively in a range of regional security initiatives in the Middle East, Latin America, Africa, and Asia. The combination of dialogue and cooperation and implementation of additional measures to enhance confidence and security among regional states can reduce further the incentives countries may have to acquire WMD or missiles.

Defense and Deterrence: Recognizing that best efforts to prevent proliferation will not always succeed, the United States also has under way an extensive counter-proliferation strategy that focuses on ensuring that U.S. troops abroad and other U.S. national security interests are protected if nonproliferation efforts do not fully succeed. Defensive planning is critical and can itself deter states from undesirable courses of action. Depending on the circumstances, counterforce or preemption might be appropriate responses. In between fall active defense measures, most prominently now, a national missile defense system.

CONCLUSION

While WMD proliferation presents a significant challenge to the United States, the challenge is being addressed. Our nonproliferation strategy will continue to combine efforts to reduce incentives to acquire WMD, convince those on the supply side that threats from proliferation dramatically outweigh economic benefits, and remind proliferators that their actions come with a high price. The key remains to identify proliferation threats at an early stage before costly countermeasures are needed, keep focused on reducing WMD and missile programs to zero, and control access to key technologies. There will be circumstances where nonproliferation efforts will not succeed, and in those cases active counter-proliferation and defense initiatives must be maintained.

Those who work to address proliferation challenges recognize the task can be daunting and that efforts to prevent proliferation are more important than ever before and also more difficult. The challenge is great, but the international community is increasingly focused on the threat and resolutely determined to contain it. A strong, comprehensive nonproliferation strategy will remain a centerpiece of U.S. foreign policy as we advance U.S. interests and global security into the next century. ●

SMALL ARMS USE AND PROLIFERATION: STRATEGIES FOR A GLOBAL DILEMMA

By Eric David Newsom



Small arms proliferation is a symptom of increased intrastate conflicts and is “a problem that is not amenable to simple or quick solution and will be with us for the long term,” says Newsom, Assistant Secretary of State for Political-Military Affairs. “The United States and the international community must therefore address the root causes of intrastate conflict and, at the same time, try to stem the supply of these weapons and contain the devastation that they cause.”

While most arms control efforts focus on weapons of mass destruction (WMD) and heavy conventional weapons, small arms and light weapons designed for military use are responsible for most of the killing and injuries, especially of civilians, in the increasing number of intrastate conflicts that have occurred since the end of the Cold War. These weapons include assault rifles, light and heavy machine guns, rocket-propelled grenades, and individually portable mortars and missiles.

Small arms and light weapons claim hundreds of thousands of lives and displace millions every year, mostly in sub-Saharan Africa. Small arms were the only weapons used in 46 of the 49 regional conflicts that have occurred since 1990. Angola, the Democratic Republic of Congo, Sierra Leone, and the Great Lakes region in Africa provide dismaying evidence of the ease with which these weapons can be obtained in large quantities, and the horrific consequences that can ensue. Although Africa is the hardest hit by the problem, in Latin America, large parts of Asia, and the Balkans small arms have exacerbated and prolonged conflicts, undermined peace agreements and complicated peace-building efforts, as well as contributed to regional instability, facilitated crime, and ultimately hindered economic and political development.

Nobody knows how many of these weapons currently circulate worldwide. Estimates range up to 500 million. Small arms are difficult to count, partly because they are easy to conceal and transport, but also because they endure so long. Many of the arms found in Africa, for

example, date from World Wars I and II. Small arms also are cheap. In some parts of Africa, an AK-47 can be purchased for as little as six dollars, or traded for a chicken or goat. Because these weapons are easy to use, manufacture, transport, conceal, and maintain, just understanding the scope of the problem, let alone finding solutions, poses a great challenge.

Moreover, the sources of small arms are diverse. Many countries lack adequate export control systems and end-use restraints; even those with respectable systems of control must confront the determined efforts of corrupt officials and others who are willing to divert legally sold weapons to illegal ends. Smugglers and rogue suppliers also continue to have access to old stocks and supplies left over from civil and international wars. Excess production capacity of small arms and ammunition in the developed world and indigenous production in zones of conflict, particularly in Africa, also contribute to proliferation.

Governments all over the world are becoming increasingly aware of the scale of the small-arms problem and of the urgent need to develop policies to combat it. The United States has become a leader on the issue. Secretary of State Albright has delivered three speeches on small arms — in September and November of 1998, and most recently on July 13 to the NAACP (National Association for the Advancement of Colored People). U.S. initiatives include expanding the nation's own “best practices,” such as adopting model regulations on legal trade drafted by the Organization of American States (OAS), and working through other fora to encourage states to criminalize UN embargo

violations, institute strict end-use and arms-brokering controls, promote greater transparency by sharing information on transfers and violations, and curb re-transfers of weapons.

At the global level, various initiatives are under way. The subject of small arms has figured prominently on the agenda of the UN General Assembly for a number of years. This has led to, among other developments, the establishment of the Group of Governmental Experts on Small Arms. Its report to the 54th General Assembly will serve as input for an international conference on the "Illicit Trade of Arms in All Its Aspects," to be convened no later than 2001. This conference will be used to galvanize international attention, to draw up a plan for global action to address the problem, and to carry out other objectives.

The focus of U.S. policy is to achieve agreement by next year on a Protocol on Illicit Firearms and Ammunition Trafficking to the UN Transnational Organized Crime Convention. This protocol is modeled on the InterAmerican Convention Against the Illicit Trafficking in Firearms, Ammunition, and Other Related Materials initiated by the OAS. Seven OAS member states have ratified the convention (Mexico, Belize, Bahamas, Bolivia, El Salvador, Peru, and Ecuador), and all but four OAS members have signed it. In June 1998 the President transmitted the convention to the U.S. Senate for its advice and consent.

In addition to the OAS, many other regional and international organizations have raised the issue in some way. Valuable initiatives at the regional level include the moratorium by the Economic Community of West African States (ECOWAS) on the importation, exportation, and manufacture of small arms and light weapons, and efforts by the Organization for Security and Cooperation in Europe (OSCE), NATO's Euro-Atlantic Partnership Council (EAPC), the ASEAN (Association of Southeast Asian Nations) Regional Forum (ARF), and the Southern African Development Community (SADC). These efforts include building enforcement and legal capacities, providing training on export control and customs, discouraging irresponsible exports, and enhancing stockpile security.

The European Union has developed a Code of Conduct on arms transfers, a Program for Preventing and Combating Illicit Trafficking in Conventional Arms, and a Joint Action on Small Arms. The Group of Eight and the Wassenaar Arrangement also are addressing aspects of the issue. In particular, the United States is working within the context of Wassenaar to complete an agreement by the year 2000 to control shoulder-fired missiles.

The United States also is keenly interested in promoting the destruction of excess stocks of weapons, especially in areas of conflict and post-conflict. In many countries, stocks are often stolen for use by indigenous criminal gangs, paramilitaries, or insurgents, or sold off for use in zones of conflict. Measures to secure active stocks and destroy excess weapons are cheap, often costing pennies a weapon for large stocks, and would result in great dividends by decreasing crime and insecurity, reducing the threat to development, and permitting the reconstruction of societies attempting to recover from civil war and ethnic conflict. Given the huge quantities of these weapons, until these stocks are reduced, our attempts to control international transfers will produce little benefit in those areas where civilians are suffering the most from the adverse impact of the weapons.

In a larger sense, small arms proliferation is one of many symptoms of increased intrastate conflicts since the end of the Cold War. The proliferation and use of these weapons in such conflicts is a problem that is not amenable to simple or quick solution, and it will be with us for the long term. The United States and the international community must therefore address the root causes of intrastate conflict and, at the same time, try to stem the supply of these weapons and contain the devastation that they cause. This will require us to begin to integrate small arms concerns into the fabric of our diplomatic relations, as we now do with democracy and human rights. Without sustained, creative attention to both aspects of the problem of intrastate conflict, many of the other problems that we strive to mitigate will become worse. ●

A LANDMINE-SAFE WORLD BY 2010: NOT AN IDLE DREAM

By Ambassador Donald K. Steinberg and Laurie B. Zimmerman



The United States is engaged in a concerted effort to eliminate the threat that landmines pose to civilians worldwide by the end of the next decade, say Steinberg and Zimmerman. They believe the United States can achieve this goal by “working with governments, international agencies, non-governmental organizations, and private citizens around the world.” Steinberg, former U.S. Ambassador to Angola, is the Special Representative of the President and Secretary of State for Global Humanitarian Demining. Zimmerman is a Harold W. Rosenthal Fellow working in the President’s Office of Global Humanitarian Demining; she is now completing her graduate studies at the Monterey Institute of International Studies.

No one who has lived in a country plagued by landmines can be immune to the terror of these weapons. In the war-torn country of Angola, for example, one witnesses daily the tragedy caused by millions of landmines planted by a dozen separate armies over three decades of conflict. Throughout Angola, there are about 80,000 amputees from landmine accidents, hundreds of thousands of displaced persons driven from their homes and fertile fields, and millions of people suffering the adverse economic and psychological effects.

Around the world, from Afghanistan to Zimbabwe, from Cambodia to Kosovo, the 70 million mines planted in some 70 countries pose a threat not only to individuals — 300,000 of whom have suffered landmine accidents — but also to the political, economic, and social stability in mine-affected countries. Landmines are a barrier to peace and democracy; they prevent refugees from returning to their homes after conflict; and they hinder the transition from relief to recovery and development.

Our government is firmly committed to ending the humanitarian crisis caused by landmines. The goal of President Clinton’s “Demining 2010 Initiative” is to eliminate the threat of landmines to civilians around the world by the end of the next decade.

We are taking key steps toward this goal. Our government is financing programs in about 28 heavily mined countries to eradicate their worst minefields by providing equipment, financial support, and training

for deminers. In fact, the U.S. Defense Department has trained about 3,000 humanitarian deminers around the world, about one-third of the total number. We are working with UNICEF (U.N. Children’s Fund) and other organizations on mine awareness programs to help children and their parents identify and avoid these weapons. We are conducting extensive research into new demining technologies. Under USAID’s (U.S. Agency for International Development’s) Leahy War Victims Fund, we are funding the work of private groups to assist the survivors of landmine accidents with prosthetics, rehabilitation, and social reintegration programs.

In sum, we have spent \$250 million on these and similar programs over the past five years, and are expanding our efforts to more than \$100 million in 1999.

Despite the immensity of this challenge, the situation regarding landmines is not as hopeless as it often seems. Working with the United Nations and other foreign donors, Cambodia, for example, has cut its landmine accident rate by 90 percent since 1992. In Afghanistan, tens of thousands of hectares of previously mined farmlands are back into cultivation. In Mozambique, 6,400 kilometers of roads have been cleared, allowing thousands of displaced persons to return to their homes. There is welcome news as well from Laos, Namibia, Rwanda, and other countries.

To create other success stories, we are working with the United Nations, including the UN Mine Action

Service, the UN Development Program, and UNICEF; non-governmental organizations (NGOs); other foreign donors; and, most important, mine-affected countries themselves. Private Americans are doing their part as well, pooling their creative talents and resources on imaginative partnerships.

Further, the best scientific talents throughout the United States and the world are working to find better techniques for mine detection and clearance. The Defense Department's Night Vision Laboratory, the Defense Advanced Research Projects Agency, and 15 universities around the nation are researching promising technologies, often applying space age technologies such as those used to detect life on Mars to the protection of life on earth.

Regrettably, these efforts are sometimes obscured by the fact that the United States has not signed the Ottawa Convention. Our government welcomes the global commitment to eliminate the humanitarian crisis caused by anti-personnel landmines (APLs), but we have not signed the Ottawa Convention because of the President's concern for the safety of our men and women in uniform and our unique responsibilities around the world in support of our friends and allies, including the defense of South Korea.

In negotiations on the convention, we sought two changes that would have allowed us to sign. First, we sought an adequate transition period to allow us time to identify and field alternatives to APLs needed to protect U.S. troops. Second, we sought a provision permitting continued use of our self-destructing and

self-deactivating mixed anti-tank systems, which are classified as APLs under the convention, but in no way contribute to the humanitarian crisis. Regrettably, these changes were not accepted.

Still, the United States will sign the convention by 2006 provided we can identify and field suitable alternatives to our APLs and mixed anti-tank systems by then. While there is no guarantee we will meet this goal by 2006, we are aggressively pursuing these alternatives.

Meanwhile, we have destroyed 3.3 million APLs. We will end the use of all APLs outside the Republic of Korea by 2003. In 1997, the President permanently banned the export or transfer of APLs, and we are seeking to universalize such a ban in the multilateral Conference on Disarmament in Geneva. We are pleased that the Senate recently ratified the amended Mines Protocol to the Convention on Conventional Weapons, which contains key restrictions on landmine use and has gained acceptance by important APL-producing and exporting countries that have not signed the Ottawa Convention.

Together with our humanitarian demining efforts, these steps are a serious, pragmatic approach toward landmines. Working with governments, international agencies, NGOs, and private citizens, we can achieve the goal of eliminating the threat of landmines to civilians around the world by the year 2010. The children of the new millennium deserve nothing less than to walk the earth without fear.

PUBLIC-PRIVATE PARTNERSHIPS TO FIGHT LANDMINES

— The U.N. Association of the USA and the Humpty Dumpty Institute launched in March 1999 the “Adopt a Minefield” program, which helps the United Nations and host governments demine the most dangerous minefields in Afghanistan, Bosnia, Cambodia, Croatia, and Mozambique. Already, schools, civic organizations, and companies from 13 states are raising money under this program. The U.S. government and the UN Foundation are providing substantial funding for this initiative.

— DC Comics, the U.S. Defense Department, and UNICEF have produced about 1.5 million comic books for Bosnia, Central America, and Kosovo, in which Superman and Wonder Woman teach children how to identify and avoid landmines. Next up is a Portuguese-language version for Africa.

— The Marshall Legacy Institute has initiated an “Adopt-a-Dog” campaign to purchase, train, and deploy mine-detecting dogs. The U.S. Humane Society strongly supports this effort, in part because landmines kill up to a half million animals around the world each year. The U.S. government has provided seed money for this initiative.

— Groups such as Vietnam Veterans of America Foundation (VVAFA), World Rehabilitation Fund, World Vision, Physicians Against Landmines, CARE, and the Landmine Survivors Network are helping accident survivors rebuild their lives through programs to provide prosthetics, rehabilitation, and social reintegration. Many of these groups receive USAID assistance under the Leahy War Victims Fund.

— VVAFA is leading a UN project to survey the extent of the mine problem in a dozen highly mined countries. This program — supported by the State Department, the UN Foundation, and Canada — will help plan new strategies and allow us to measure the success of our projects.

— The Rockefeller Foundation and other organizations are producing a comprehensive CD-ROM to educate students, civic organizations, and other entities around the world about the reality of landmines. Similarly, many schools in the United States are incorporating landmine-related issues into their curricula.

ADAPTING THE CFE TREATY TO NEW REALITIES AND CHALLENGES

By Craig Gordon Dunkerley



Since its inception, “CFE (Conventional Armed Forces in Europe) has become both a process and a venue for continuous dialogue on the security concerns of its participants and, whenever possible, cooperative solutions,” says Dunkerley, Special Envoy for CFE. “This dynamic within CFE — between reinforcing stability and addressing change — will remain one of its greatest strengths.”

“AT A TIME WHEN WE ARE TRYING TO END A PATTERN OF ESCALATING INSECURITY, BRUTALITY, AND ARMED CONFLICT IN THE BALKANS, I AM GRATIFIED THAT THESE 30 COUNTRIES, COMPRISING THE VAST MAJORITY OF EUROPEAN NATIONS, ARE MOVING IN A DIFFERENT DIRECTION. TOGETHER, WE ARE BUILDING A EUROPE IN WHICH ARMIES PREPARE TO STAND BESIDE THEIR NEIGHBORS, NOT AGAINST THEM, AND SECURITY DEPENDS ON COOPERATION, NOT COMPETITION.”

President Bill Clinton

Since early 1997, negotiations have been under way in Vienna to update the CFE Treaty to take account of dramatic changes throughout Europe since the treaty was originally signed in 1990. These negotiations, taking place among the 30 States Parties within the CFE Joint Consultative Group (JCG), are intended to preserve the treaty’s critical benefits, even while establishing a new structure of limitations providing increased stability and transparency.

Conceived and concluded during the final years of the Cold War, the CFE Treaty has been a landmark in defining Europe’s post-Cold War military environment. Under CFE, conventional force levels in Europe are at their lowest levels in decades. The treaty has capped the ground and air combat equipment holdings of the major conventional armies in Europe, those of the members of NATO and of the former Warsaw Pact within the treaty’s area of application, running from the Atlantic Ocean to the Ural Mountains. Through its

ceilings and extensive information exchange, CFE has ensured unprecedented predictability and transparency with regard to future military holdings. To accomplish the substantial reductions required by this treaty, the States Parties have completed the destruction, or conversion to non-military uses, of more than 53,000 pieces of heavy military equipment, including tanks, armored combat vehicles, artillery pieces, combat aircraft, and attack helicopters. To verify this process, these countries have conducted and accepted, on short notice, nearly 3,000 intrusive on-site inspections.

But during this time fundamental political change has continued as well. Since signature of the CFE Treaty in November 1990, the Warsaw Pact has disappeared, the Soviet Union has dissolved, and the North Atlantic Alliance has been transformed and enlarged. The number of parties to the treaty has grown from the original 22 signatories to 30 sovereign states, as a result of the dissolution of the USSR. Not least, the nature of the immediate security challenges that Europe faces has evolved significantly since the past period of Cold War confrontation, even as new opportunities for cooperative action among nations in meeting these challenges have multiplied.

And so the foremost task for policymakers and negotiators in recent years has become both to maintain and to modernize CFE for the coming new century — or in the words of NATO’s North Atlantic Council, to ensure the treaty’s longer-term effectiveness by adapting it to new security realities.

On March 30, 1999, negotiators in Vienna took a major step forward in that effort. In a special decision, the CFE Joint Consultative Group agreed on solutions to some of the toughest adaptation problems. The substance of this agreement, and of earlier progress within the negotiations, was based in large part on proposals that NATO members have put forward over the past two years to update and strengthen all major aspects of the treaty. These have included:

— Replacement of the current two-group structure within the treaty, originally established to maintain a balance of forces between NATO and the Warsaw Pact, by a system of individual national ceilings on major ground and air combat equipment, more appropriate to today's European security landscape.

— Replacement of the current treaty's structure of geographical zones with a more constraining series of nationally based territorial ceilings on ground combat equipment, together with the necessary flexibilities for each State Party to temporarily exceed those limits for peace support operations mandated by the United Nations or the Organization for Security and Cooperation in Europe (OSCE), exercises, or temporary deployments.

— Reconciliation with this new treaty structure of the legally binding substantive constraints of the "Flank" regime within CFE, aimed at preventing destabilizing concentrations of forces in both the North and South of the treaty's area of application, even while allowing for modest flexibilities in light of changing circumstances in the region.

— Reinforcement of the right of States Parties to decide whether to permit foreign military forces on their territory through the workings of the treaty's new structure of limits and flexibilities. (This will, among other things, require withdrawal of Russian military forces from Moldova and reductions in their troop levels now in Georgia).

— Enhancement of the treaty's provisions for verification and information exchange to enable the States Parties to have undiminished confidence in future compliance with these new and more demanding limits.

— Opening the adapted treaty, upon its entry into force, to voluntary and case-by-case accession by other European states. (Europe's traditional "neutrals," the Baltic states, and the successor states of the former Yugoslavia are not currently party to the original CFE.)

At the same time, individual States Parties have set out projected levels for their future national and territorial ceilings under an adapted CFE Treaty. For many of them, this would involve reductions in their permitted levels in two or more categories of Treaty-Limited Equipment. (In light of the drastic change in circumstances from the 1980s to the present, for example, the United States proposes to cut by more than 50 percent the number of tanks it has been permitted to have in Europe under the treaty. This does not imply a major change to the United States' actual military presence, but rather recognition that original CFE-permitted levels need to adjust to a new security environment.)

Additionally, some States Parties are prepared to commit politically, through national statements, to additional individual obligations or restraints in the context of a satisfactorily adapted treaty and comparable restraint from other Parties. Such Central European countries as the Czech Republic, Hungary, Poland, and Slovakia, as well as Germany, Ukraine, and Belarus, are prepared to forego use of treaty mechanisms to increase their future territorial ceilings under such circumstances. In addition to its other treaty obligations, the Russian Federation is likewise prepared to pledge additional restraint with regard to its future levels and deployments in regions immediately bordering the Baltic States.

For the United States and its allies, this approach will preserve NATO's ability to fulfill its post-Cold War political and military responsibilities, while keeping the alliance free to pursue enlargement as well as deeper engagement with cooperation partners, including the Russian Federation and others. While preserving necessary operational flexibility — such as the right to deploy equipment temporarily to the territory of an ally in a crisis — the emerging agreement's web of new national and territorial limits will be significantly more constraining than the structure of the current treaty. For all countries, including the Russian Federation, an

adapted treaty along these lines will bring greater predictability, transparency, and restraint to the overall military picture.

That this critical negotiating progress on the future rules of Europe's conventional military environment was achieved in the spring of 1999 — even in the midst of sharp political disagreement between members of NATO and the Russian Federation over events in Kosovo — reflects the importance that all participating states attach to maintaining and strengthening CFE. It is also evidence of the degree to which adaptation is seeking to address the legitimate security concerns of all States Parties.

On the basis of this JCG Decision on March 30, the immediate goal of the negotiators in Vienna is to have an adapted treaty ready for signature by the OSCE Summit in Istanbul in mid-November — a target first advanced by President Clinton with President Yeltsin in the fall of 1998 and subsequently endorsed by all 30 CFE States Parties in December 1998.

But much still needs to be done. There are tough decisions ahead for all parties. Translating the work done thus far, and the underlying political agreements, into legal treaty text is a major task. Important details are still open — especially if we are to secure the necessary transparency this future CFE regime will require. No less critical are the continued efforts of the United States and its allies to ensure the full and timely implementation of all existing CFE obligations under the current treaty and its associated documents. Implementation is the foundation on which successful adaptation can go forward.

Looking further ahead, work on CFE will not end at Istanbul. From its inception, CFE has become both a process and a venue for continuous dialogue on the security concerns of its participants and, whenever possible, cooperative solutions. This dynamic within CFE — between reinforcing stability and addressing change — will remain one of its greatest strengths. ●

WEAPONS OF MASS DESTRUCTION: THE U.S. EXPERIENCE

By Lawrence Korb



The United States has renounced the use of chemical and biological weapons and has reduced both its conventional and nuclear forces substantially since the end of the Cold War, says Korb. However, as long as some nations continue to try to develop weapons of mass destruction, “the United States will need some form of nuclear deterrent,” he says. Korb is Director of Studies at the Council on Foreign Relations. He served as Assistant Secretary of Defense in the Reagan administration.

During the Cold War, from 1950 through 1990, the United States maintained a large standing military establishment principally to contain Soviet Communist expansionism. The effort was ultimately very successful. Not only did the Soviet empire collapse in the late 1980s, but by 1991 the Soviet Union itself had disintegrated.

However, this effort was extremely costly in both blood and treasure. Not only did some 100,000 Americans lose their lives fighting Soviet proxies in North Korea and Vietnam, but another 50,000 service men and women died in accidents as the U.S. military tried to maintain the state of readiness necessary to blunt any Soviet expansion attempts through military force.

In today’s dollars, the United States spent an average of \$320 billion a year on defense or a total of about \$13 trillion to win the Cold War. For four decades, spending on national security consumed about eight percent of the nation’s economic output (Gross Domestic Product or GDP) and 30 percent of all federal government expenditures.

The Cold War also meant that about 25 million Americans spent time in the military. Until 1973, some 500,000 men a year were compelled to serve their country because of the military draft. For the last 17 years of the Cold War, the United States maintained its forces on an all-volunteer basis. The costs in economic and human terms of maintaining a military that averaged about 2.5 million people a year on active duty were considerable.

Seventy percent of military spending from 1950 through 1990 was on conventional forces. The remaining 30 percent, or nearly \$4 trillion, was spent on developing and maintaining the nuclear arsenal. This figure does not include some \$320 billion in estimated future costs for storing and disposing of more than five decades’ worth of accumulated toxic and radioactive wastes, and another \$20 billion for dismantling nuclear weapons systems and disposing of surplus nuclear materials. These costs, plus an additional \$2 billion to treat persons contaminated by nuclear bomb production, are still to be paid. For example, the U.S. government estimates that 26,000 federal workers were exposed to beryllium (a metallic element used in nuclear bombs) at federal nuclear sites and will be aided by the government if they develop berylliosis, an allergic reaction that can lead to permanent scarring of the lungs.

The size and scope of the U.S. nuclear weapons’ program provoked considerable debate in this country during the Cold War. Many wanted to outlaw these weapons altogether on moral grounds. Others objected to the size of the U.S. arsenal, which grew to 15,000 strategic weapons in the mid-1970s. Still others tried to stop specific delivery systems, like the B-1 bomber and the MX missile, from being funded. Presidents responded to this public pressure in a number of ways. President Eisenhower declared a moratorium on testing; President Kennedy negotiated a test ban treaty with the Soviets; President Nixon agreed to limits on the number of nuclear warheads; and Presidents Reagan and Bush negotiated actual reductions in the number of strategic nuclear weapons.

The United States maintained the large and expensive nuclear arsenal for two reasons. First, these strategic and tactical nuclear weapons, which by 1990 still numbered in excess of 10,000, deterred the Soviet Union, and to a lesser extent China, from using or threatening to use nuclear weapons. Second, they enabled the United States and its allies to contain the Soviet empire without maintaining a conventional force as large as the Soviet's. For example, in 1985, the United States had only 2.1 million people on active duty while the Soviet Union had 5.3 million. The United States made sure that this strategy would be effective by never embracing the no-first use of nuclear weapons policy proposed by the Soviet Union and China.

The ability of the United States to prevail in the Cold War was a direct result of its reliance on nuclear weapons. The Soviet Union not only outspent the United States on defense, but because it had a much smaller economy, the Soviet Union had to devote a much larger share of its GDP to national security. Some estimates put the share of Soviet GDP consumed by defense at 30 percent. This meant that the Soviets had far fewer resources to put into their civilian economy and that by the 1980s their economic growth had stagnated to such an extent that they had to give up their empire and allow the Soviet Union itself to break up.

For the first half of the Cold War, the United States also maintained an arsenal of biological and chemical weapons for deterrence purposes. But, beginning in the Nixon administration, the U.S. government renounced their use under any circumstances and began to dismantle them. In addition, the United States entered into international conventions that banned their production.

Since the end of the Cold War, the United States has reduced both its conventional and nuclear forces substantially. In 1990, more than two million Americans were serving on active duty. Today, there are slightly more than 1.3 million, a 30 percent decline. The number of active Army divisions has dropped by 44 percent from 18 to 10, the number of combatant ships by 32 percent from 312 to 212, and the number of active fighter wings by 46 percent from 24 to 13.

The United States also reduced its nuclear arsenal considerably. In 1990, there were about 10,000 U.S. land- and sea-based warheads placed on some 1,560 long-range missiles. Today the total has dropped to some 7,500 warheads on 982 missiles. In that same time frame, the U.S. Air Force cut the number of heavy bombers capable of delivering nuclear bombs from 324 to 115. Within the next decade, if the Russian Duma ratifies the second Strategic Arms Reduction Treaty (START II), the U.S. arsenal will have 836 missiles with about 3,500 warheads, a 65 percent reduction in the number of warheads from 1990 levels.

These force reductions since the end of the Cold War have allowed the United States to reduce the level of defense spending as well as the portion of its economic resources devoted to national security. In 1990, the U.S. defense budget, in today's dollars, was \$375 billion and consumed six percent of the nation's GDP and 20 percent of its federal budget. Defense spending has fallen by \$100 billion or 27 percent, and now consumes only 3 percent of the nation's economic output and 15 percent of its federal budget.

But the end of the Cold War did not result in world peace or the end of regional confrontation. The breakup of the Soviet empire allowed long simmering ethnic conflicts to break out into the open and permitted other nations to try to fill the vacuum left by the Soviet Union's demise. As the world's remaining military and economic superpower, the United States has become the reluctant sheriff trying to maintain stability in the international arena.

Throughout the past decade, war has raged between Serbs, Croats, and Muslims in Slovenia, Croatia, Bosnia, and Kosovo. India detonated a nuclear bomb and Pakistan followed suit. China allegedly stole nuclear weapon's technology from the United States and exploded a neutron bomb. Without its Soviet patron, North Korea found it necessary to develop nuclear weapons and long-range missiles. The Russians themselves, starved for cash, have sold nuclear and missile technology to Iran, and so, too, have the North Koreans. The U.S. government estimates Iran will have a nuclear weapon in five years. Finally a number of other rogue states, like Libya, Iraq, Syria, and Sudan, are trying to develop weapons of mass destruction. To maintain order in this unstable international system,

the United States has been active on the military and diplomatic fronts. The Department of Defense still maintains 250,000 troops around the world, and in the past decade, it has conducted military operations in the Persian Gulf, Somalia, Haiti, and the Taiwan straits. Moreover, absent ratification of START II by the Russian Duma, the Pentagon has kept 7,500 strategic nuclear weapons in its arsenal at the annual cost of \$30 billion. Moreover, even if Russia should ratify START II and move on to START III, the United States still plans to maintain 2,000 strategic nuclear weapons in its arsenal indefinitely as a deterrent.

This unstable international environment has meant that the United States has had to halt the decline in defense spending that occurred in the 1990s. Beginning with its fiscal year 2000 budget, the Pentagon expects defense spending to increase in real terms for the first time since 1985. By the year 2005, U.S. defense spending will be back to 90 percent of its Cold War level.

The United States has also been active on the diplomatic front. President Clinton has not only asked the Duma to ratify START II, but has proposed that both sides unilaterally move to a START III Treaty, which would reduce U.S. and Russian strategic weapons from 3,500 to 2,000. In addition, the Clinton administration, working with other nations, has extended the Nuclear Non-Proliferation Treaty indefinitely, ratified the Chemical Weapons Convention, submitted to the Senate the Comprehensive Test Ban Treaty, and provided oil and peaceful nuclear reactors to North Korea on condition that Pyongyang give up its weapons-grade nuclear material. The United States has repeatedly attacked Iraq's chemical and biological production facilities and warned Iraq to expect strong retaliation if it uses these weapons of mass destruction.

However, the U.S. diplomatic efforts to fight the spread of chemical, biological, and nuclear weapons are still unwieldy and overlapping. A panel set up by the Congress and headed by former Director of Central Intelligence John Deutch recently recommended that the White House appoint a national coordinator to

direct a streamlined defense against this grave threat to the United States.

With the end of the Cold War and the decline of defense spending, the U.S. economy grew rapidly during the 1990s. By the end of the decade, the U.S. GDP exceeded \$8 trillion, unemployment was at 4.3 percent, and inflation was below 2 percent. Maintaining stability in the international system, while not cheap, will not place as much of a burden on the U.S. economy or the American people as the Cold War did.

There will, of course, continue to be debates about how much is enough for defense. There are many, like former head of the Strategic Air Command, General Lee Butler, and former commander of the space command and commander of the air component of the Gulf War, General Charles Horner, who argue that the United States should eliminate nuclear weapons altogether. These Air Force generals feel that precision-guided U.S. conventional weapons are now so powerful that they can deter use of weapons of mass destruction by themselves. Moreover, they argue that by eliminating nuclear weapons, the United States can seize the moral high ground in the nonproliferation debate.

Others, like Admiral Stansfield Turner, former head of the CIA (Central Intelligence Agency), argue that the United States needs no more than 1,000 strategic nuclear weapons for deterrence and should adopt a no-first use policy. This would not only free up resources (about \$15 billion a year) but would enhance the U.S. moral position in the debate about weapons of mass destruction.

But, like the debates during the Cold War, these debates will not lead to the elimination of all U.S. nuclear weapons. Unfortunately, some nations have tried and will continue to try to develop weapons of mass destruction, and as long as they do, the United States will need some form of nuclear deterrent, particularly since it has given up its chemical and biological weapons. ©

ARMS CONTROL IN THE 106TH CONGRESS

By Amy F. Woolf



Although many Members of Congress continue to support arms control efforts, they may have difficulty mustering the support needed to win approval for far-reaching new agreements, Woolf says. "Only a relatively small number of Members focus on formal arms control agreements, and a growing proportion of that small number tends to view these agreements as detrimental to U.S. security interests." Woolf is a Specialist in National Defense in the Foreign Affairs, Defense and Trade Division of the Congressional Research Service. She also has worked in the Office of the Assistant Secretary of Defense for International Security Policy.

CONGRESS AND ARMS CONTROL

Members of the 106th Congress hold a wide range of views on the role of arms control in U.S. national security and on the advisability of individual arms control agreements.

Several factors help shape those views. First, the demise of the Soviet Union reduced both the level of interest and the priority given to arms control as a component of U.S.-Russian relations and as a contributor to nuclear stability. Second, the proliferation of ballistic missiles and weapons of mass destruction, along with a sense that the United States is facing growing challenges from regional adversaries and rogue nations, have led many in Congress to conclude that military responses or economic sanctions, not negotiated limits on arms, can better address the emerging threats to U.S. security. Finally, many Republican Members who have held positions of leadership since 1995 opposed arms control efforts during the Cold War and remain suspicious of arms control. Consequently, only a relatively small number of Members focus on formal arms control agreements, and a growing proportion of that small number tends to view these agreements as detrimental to U.S. security interests.

SENATE CONSIDERATION OF TREATIES

The U.S. Constitution states that the President "shall have power, by and with the Advice and Consent of the Senate, to make Treaties, provided two-thirds of the Senators present concur." Currently, the

Comprehensive Test Ban Treaty (CTBT) is the only arms control treaty awaiting advice and consent in the Senate. President Clinton submitted the CTBT to the Senate in September 1997. Senate Foreign Relations Committee Chairman Jesse Helms, a North Carolina Republican, has refused to schedule hearings on the treaty. He and other critics consider the treaty to be unverifiable, harmful to the U.S. nuclear stockpile and U.S. national security, and irrelevant to nuclear nonproliferation efforts because nations seeking their own nuclear weapons could simply refuse to sign the treaty. (India and Pakistan are frequently cited as examples.)

Several Senators who support the CTBT recently called for action and vowed to press the Senate leadership to move the treaty forward. This group argues that a ban on nuclear testing will serve U.S. interests by slowing nuclear proliferation, and they fear the United States will not act in time to participate in the September 1999 conference that will consider how to bring the treaty into force. It is unclear at this time whether 67 Senators would consent to ratification of the CTBT.

Senator Helms stated, in a January 1998 letter to President Clinton, that he would not address the CTBT until the Senate had a chance to debate the ABM (Anti-Ballistic Missile) Treaty Demarcation and Succession Agreements, which were signed in September 1997. These amendments to the 1972 Anti-Ballistic Missile Treaty require the advice and consent of the Senate for ratification. The Agreed Statements on Demarcation outline the dividing line

between theater missile defense systems, which are not limited by the ABM Treaty, and strategic ballistic missile defense systems, which are limited by the ABM Treaty. The Memorandum of Understanding on Succession names Russia, Ukraine, Belarus, and Kazakhstan as successors to the Soviet Union for the ABM Treaty.

The Clinton administration has stated that it will submit these agreements, along with a protocol to the second Strategic Arms Reduction Treaty (START II), to the Senate after the Russian parliament approves START II, something it has so far refused to do. But Senator Helms would like to address these agreements immediately, in part because he reportedly believes their defeat would cement the demise of the ABM Treaty. Many in Congress believe that this treaty stands in the way of U.S. efforts to deploy a nationwide ballistic missile defense system to protect against long-range missiles from rogue nations or regional adversaries. They also argue that the ABM Treaty expired when the Soviet Union disbanded. Others, however, argue that the ABM Treaty continues to serve U.S. national security interests, contributes to stability between the United States and Russia, and permits deeper reductions in U.S. and Russian strategic offensive nuclear weapons. Many observers believe the new agreements would not muster the necessary two-thirds vote, so the ABM Treaty could falter if a vote were held in the 106th Congress.

AUTHORIZING LEGISLATION

Congress also evaluates arms control agreements and their effects on U.S. security when it authorizes and appropriates funds for U.S. military programs and arms control implementation. It frequently requests reports from the administration on the implications of existing or potential arms control agreements. For example, in the Fiscal Year 2000 Defense Authorization Bill, the Congress has requested a report on the advantages of a two-site national missile defense system, which, if deployed, would require amendments to the ABM Treaty. It has also requested a report on the effects that a prospective START III Treaty, which might reduce U.S. strategic nuclear forces to around 2,000 to 2,500 warheads, might have on strategic stability between the

United States and Russia and between the United States and other potential nuclear adversaries, such as China. The 106th Congress also has legislated how the United States should structure its strategic nuclear forces while it awaits Russian ratification of START II. For the past several years, Congress has mandated that the United States maintain its forces at START I levels until START II enters into force; specifically, it has precluded the use of any funds to dismantle systems that would otherwise be retained under START I. But this restriction could require large expenditures for the Navy to refuel, modify, and retain four Trident submarines, for a total of 18, that it would otherwise dismantle under START II. Hence, this year, the Congress would permit the Defense Department to eliminate those submarines before START II enters into force if the President certifies that this would not undermine the U.S. deterrent or arms control efforts.

The Senate gave its advice and consent to ratification of the Chemical Weapons Convention (CWC) in April 1997 and the 105th Congress passed implementing legislation for this treaty in October 1998. Some observers had expected the 106th Congress to revisit this legislation. The implementing legislation sets the requirements for the chemical weapons and production facilities the United States must declare under the CWC and outlines civil and criminal penalties for activities that violate the convention. But it also would permit the United States to block, on national security grounds, challenge inspections for verification and would prohibit sending chemical samples outside the United States for analysis. Treaty supporters argue that these provisions could place the United States in violation of the CWC, and many hoped Congress would alter them. The 106th Congress has not yet addressed any legislation dealing with the CWC. President Clinton issued an Executive Order implementing the existing legislation on June 25, 1999. Because the United States has been slow to implement the CWC, many observers argue that the United States is not in compliance with the convention.

ADDITIONAL ARMS CONTROL ITEMS

— The Senate consented to ratification of the START II Treaty in January 1996; it will also have to vote on

the ratification of the protocol that extends the treaty's elimination period — the time available to both sides to draw down their deployed warheads to START II levels — when the President submits that document for Senate consideration.

— The United States has not signed the Ottawa Treaty banning anti-personnel landmines. In May 1999, however, the Senate consented to the ratification of the Amended Mines Protocol to the Convention on Conventional Weapons, which tightens humanitarian constraints on the use of landmines.

— Verification protocols to the Biological Weapons Convention and a Fissile Material Cutoff Treaty remain under discussion in international fora, but they do not yet appear on the Senate's agenda.

CONCLUSION

Most international arms control issues have generated little attention or debate in the 106th Congress. Some vocal Members believe that certain agreements could

possibly harm U.S. security interests. Some Members also argue that the United States would be better served by taking unilateral actions, such as building ballistic missile defenses or imposing sanctions on nations that contribute to proliferation concerns, than by participating in diplomatic efforts to limit emerging threats to the United States. Hence, although many Members continue to support arms control efforts, they may have difficulty mustering the broad and deep support needed to win approval for far-reaching new agreements that would limit U.S. military capabilities. ●

(The views expressed in this article are those of the author and do not reflect positions held by the Congressional Research Service or the Library of Congress.)

NUNN-LUGAR: AN IMPRESSIVE RECORD ON SOVIET NUCLEAR ARMS DISMANTLEMENT

By Senator Richard Lugar



The Nunn-Lugar Cooperative Threat Reduction Program has made impressive progress in its efforts to dismantle and prevent the proliferation of nuclear, chemical, and biological weapons in the former Soviet Union, says Senator Lugar, an Indiana Republican. "The administration's plan to increase funding for Nunn-Lugar and its companion programs by some 65 percent over the next five years is a testament to its value and its contributions to U.S. national security," he says. Lugar is the Senior Republican Member of the Senate Foreign Relations and Intelligence Committees and Chairman of the Senate Agriculture, Nutrition, and Forestry Committee.

When the Soviet Union collapsed just over eight years ago, a new era in world history began. Many suggested that the dangers of nuclear war had been dispelled by the dissolution of the Soviet Union. Instead, nearly eight years later, we face a world that is more turbulent, unpredictable, and, in some respects, more violent than the one we left at the beginning of this decade.

As a consequence of the collapse of the Soviet totalitarian command and control society, a vast supermarket of weapons and materials of mass destruction has become accessible. The disintegration of the Soviet Union and the subsequent decay of the custodial system guarding the Soviet nuclear, chemical, and biological legacy has created a new threat to our security.

Rogue states and terrorist groups can now seek to buy or steal what they previously had to produce on their own. Indeed, the defining danger of proliferation is not Iran's purchase of civilian nuclear reactors that may assist Iranian nuclear ambitions a decade hence. It is the threat, today or tomorrow, that Iran, Libya, or a radical group like Hamas, will purchase nuclear, chemical or biological weapons, or delivery vehicles from some fragment of the current or former Russian military.

The Western press has documented the extremely low morale of Russian troops. Stories of Russian soldiers unpaid for months on end and without food rations are commonplace. There are widespread incidents of desertion and suicide throughout the Russian military

forces. Reports indicate that many units have sold valuable military equipment for currency. Others point to a barter system in which troops trade equipment and ammunition for food. In some cases troops have left valuable military equipment unprotected and unguarded in the field as the unit forages for food.

The terrifying reality is that the threat of nuclear, chemical, or biological weapons as a terrorist tool is no longer far-fetched. Technically, the world has already experienced an incident of nuclear terrorism. In November 1995, Chechen rebels placed a 30-pound package of radioactive material in a Moscow park. Although the container was not equipped with the explosives needed to disperse the cesium, the Chechens demonstrated a credible terrorist capability to employ nuclear material.

The Japanese "Doomsday Cult," the Aum Shinrikyo, recruited scientists and technical experts in Japan, Russia, and elsewhere to develop weapons of mass destruction. They succeeded in producing chemical weapons and attacked the Japanese subway system with sarin gas in 1995. We have since learned how much more devastating the attacks could have been if the cult had perfected their delivery systems.

In Prague, local police acted on an anonymous phone tip in 1994 by seizing almost three kilograms of nuclear material from the back seat of a car parked on a busy street in the Czech capital. Police arrested the Czech owner of the car and his two companions from Ukraine and Belarus. All three had worked in nuclear power

stations and had quit their jobs because of unpaid or low wages.

In another alarming case, inspectors from the Russian Defense Ministry reportedly discovered an unattended SS-25 missile battery. The SS-25 is a mobile intercontinental ballistic missile carrying a nuclear warhead. Its crew had left the site for several hours to find food.

Similar situations are reported in Russia's scientific community and the facilities where nuclear, chemical, and biological weapons and related materials are manufactured and stored. The scientists and engineers employed in these fields often are not paid, and, in some cases, their government has abandoned them entirely.

Because desperate people do desperate things, we should pay attention to any region of the world where hunger and economic hopelessness are prevalent. But when desperate people have access to weapons of mass destruction, we must do more than pay attention.

As I have explored the threat of proliferation of weapons of mass destruction, one point has become increasingly clear. If we are to have any chance of stopping the detonation of a weapon of mass destruction, prevention and deterrence must start at the source — the weapons and materials depots and research institutes of the former Soviet Union.

As the Soviet Union began to break apart in 1991, mutual acquaintances on the Russian side, including some from the military, came to former Senator Sam Nunn of Georgia and me and pointed out the dangers of the dissolution of a nuclear superpower. The viability of their entire weapons custodial system was in doubt. Hundreds of tons of nuclear weapons material were spread across multiple sites in Russia and other former Soviet states. Russian leaders requested our cooperation in securing and protecting Russia's nuclear arsenal and weapons-usable materials. This was the genesis of the Nunn-Lugar Cooperative Threat Reduction Program, which provides funding to dismantle weapons of mass destruction in the former Soviet Union.

While much more remains to be done, the Nunn-Lugar scorecard is impressive. Nunn-Lugar has facilitated the

destruction of 365 ballistic missiles, 343 ballistic missile launchers, 49 bombers, 136 submarine missile launchers, and 30 submarine-launched ballistic missiles. It also has sealed 191 nuclear test tunnels. Most notably, 4,838 warheads that were on strategic systems aimed at the United States have been deactivated.

When the Soviet Union collapsed, Ukraine, Kazakhstan, and Belarus became the third, fourth, and eighth largest nuclear powers in the world. The addition of three more nuclear weapons states would have completely changed the geo-strategic landscape. Without Nunn-Lugar, these countries would still have thousands of nuclear weapons. Instead, all three countries are now nuclear weapons-free.

To put this into perspective, Nunn-Lugar has dismantled more nuclear weaponry than the countries of Great Britain, France, and China currently possess in their combined stockpiles and arsenals. All of this work has been done at a cost of less than one-third of one percent of the annual U.S. defense budget.

But nuclear weapons are not the only proliferation threat from Soviet arsenals. During the Cold War, the United States and the Soviet Union manufactured enormous stockpiles of chemical weapons. The Russian stockpile is stored in seven sites across that country and its security is affected by the Russian economic crisis.

We cannot permit these weapons to be stolen or sold to the highest bidders.

Nunn-Lugar is addressing this threat. It is scheduled to begin construction of Russia's first chemical weapons destruction facility at one of that nation's largest storage sites where 5,500 metric tons of VX and other nerve agents are stored in artillery rounds. We hope the Nunn-Lugar destruction plant will be completed by 2003. When operational, it will be capable of destroying 500 metric tons of chemical weapons per year. In addition to chemical weapons destruction, Nunn-Lugar is also dismantling the facilities that produced the chemical weapons.

Over the past few years, we have begun to learn more and more about the former Soviet biological weapons

program. Last November, I participated in a three-hour discussion with the directors of 13 former civilian biological weapons facilities from across Russia. These men were intimately involved in the Soviet biological weapons program. They communicated their current predicament of unpaid wages and abandonment by Moscow and their hopes of entering into cooperative relationships with their counterparts in the West. Nunn-Lugar is currently engaged in eight pilot projects at these civilian biological research institutes. Our efforts must continue and expand to prevent the emigration of the finest minds who have been involved in the most deadly weapons programs.

Our programs will not be perfect. The sheer size and scope of our endeavors will negate the possibility of a perfect batting average in this regard. We may lose some of the thousands of people involved in these programs. Some may immigrate to rogue nations and continue their former work. But we owe it to the American people and the world to do everything in our power to reduce these threats.

Nunn-Lugar is not foreign aid. It utilizes American firms to dismantle former Soviet weapons. Eighty-four percent of Nunn-Lugar funds have been awarded to American firms to carry out dismantlement operations in the former Soviet Union. To ensure that Nunn-Lugar funds are being utilized for the proper purposes, more than 70 audits and examinations have been completed. They all report that funds are being used for approved dismantlement operations.

The administration's plan to increase funding for Nunn-Lugar and its companion programs by some 65 percent over the next five years is a testament to its value and its contributions to U.S. national security. The reason for these increases is clear. Conditions in Russia are worse. The Russian economic collapse in August 1998 has exacerbated many problems.

The fundamental question is whether there exists sufficient political will in Western capitals, particularly in the U.S. Congress, to devote requisite resources to these programs. If we are not willing to devote the requisite resources, the time, and the international leadership necessary to control, regulate, and otherwise circumscribe this threat, then the task of defense at home is made far more difficult and probably ultimately impossible.

I believe the United States and its allies have a window of opportunity to reduce the danger of former Soviet weapons of mass destruction falling into the hands of rogue states and terrorist groups. We must not squander this opportunity. In the past, great powers have never possessed the opportunity to work with a former adversary to remove a threat that confronts them. With bipartisan vision, statesmanship, and patience we can do that, and ensure a safer world for ourselves and our children. ●

THE COSTS OF NUCLEAR WEAPONS IN SOUTH ASIA

By Peter R. Lavoy



With continued fighting in Kashmir, “the risk of another India-Pakistan conventional war seems higher than ever before,” says Lavoy. “Even if India and Pakistan do manage to establish nuclear deterrence, the effect will be that every Indian and Pakistani will live under the threat of nuclear annihilation.” Lavoy is Director of Counterproliferation Policy in the Office of the Secretary of Defense.

The nuclear tests conducted by India and Pakistan in May 1998 received wide and vocal support in each country. Patriotic Indians and Pakistanis had much to celebrate: their scientists had surmounted high political, financial, and technical barriers to achieve what only five other states had done: develop and detonate nuclear bombs. That their leaders authorized these tests in spite of strong international political pressures, including the threat of economic sanctions, only spurred the nationalist fervor in India and Pakistan. A year and a half after the Pokhran and Chagai Hills explosions, however, public confusion and anxiety have supplanted euphoria. Military clashes bordering on open warfare in Kashmir make even ardent nuclear advocates question the utility of nuclear deterrence, or whether it actually exists in South Asia. And in the face of deep poverty, outdated economies, and teetering governments, Indians and Pakistanis now prudently ask whether they can afford their growing arms competition.

Government officials in New Delhi and Islamabad insist that no expense should be spared to achieve national security. The development of nuclear weapons and missiles, they contend, is required to deter foreign hostility and coercion. This claim could be correct: nuclear deterrence might foster peace and security in South Asia. But then again, it might fail. India and Pakistan could be drawn into a fourth conventional war — one that could go nuclear. Or, as the Soviet experience reveals, the cost of creating and maintaining a credible nuclear deterrent could climb so high as to bankrupt the governments and societies supporting the development of weapons of mass destruction. The

inescapable conclusion is that India and Pakistan could be threatening their future prosperity, prestige, and security for questionable gains.

THE ECONOMIC BURDEN OF NUCLEAR DETERRENCE

It is not easy to calculate the costs or benefits of the Indian and Pakistani nuclear programs. Citing the need for secrecy, New Delhi and Islamabad refuse to reveal what they spend on nuclear weapons or delivery systems. Based on likely labor, facility, and material costs, however, one can estimate that each state has allocated more than \$1 billion to design and manufacture a small number of nuclear-capable missiles (Prithvi and Agni for India, Ghauri and Shaheen for Pakistan). Each side is likely to have spent five times that figure for the production of fissile materials and the manufacture of a few nuclear weapons. These are only some of the costs involved in their emerging nuclear and missile programs. Of greater concern is the price Islamabad and New Delhi must pay to establish credible and secure nuclear deterrent forces in the future.

Indian defense expert K. Subrahmanyam reveals that in 1985 the Indian military tasked several officers and scientists to calculate the expenditure required for a “balanced deterrent program.” They estimated that a force of warheads “in low three digit figures” with aircraft and missile delivery systems would cost 70 billion rupees (180 billion in 1999 rupees, or \$5 billion). Prime Minister Rajiv Gandhi evidently rejected this option because of the expense. Ironically,

the current government's decision to create a minimum deterrent will cost considerably more. Indian analysts calculate that New Delhi must spend \$1 billion a year for the next 10 years to field a nuclear deterrent force like the one contemplated in 1985. The cost for Pakistan to assemble a similar deterrent arsenal would be slightly less owing to its greater reliance on foreign suppliers.

This level of public expenditure might seem reasonable when compared to the more than \$400 billion the United States reportedly paid from 1940 to 1996 to manufacture nuclear weapons. But building bombs consumed just seven percent of the total cost of the U.S. nuclear weapons program. Washington reportedly spent over \$3 trillion on weapons deployment, nearly \$1 trillion on nuclear targeting and command-and-control, another \$1 trillion on defenses against nuclear threats, and about \$400 million on dismantling old bombs, managing nuclear waste, and cleaning up the environment. India and Pakistan clearly are embarking on a course of enormous — and partially hidden — financial costs.

India and Pakistan might be able to finance their deterrent programs, lavish as they may be, but at what opportunity cost? Although they have relatively modern industrial sectors with expertise in nuclear energy, missile development, and armaments production (and space, satellite communications, and software design for India), India and Pakistan are afflicted by some of the world's worst poverty. Widespread unemployment, outdated infrastructure, rising food prices, and low living standards beset each society. India's 1998 per capita GDP (Gross Domestic Product) of \$390 ranks in the bottom fifth worldwide; Pakistan's is only slightly better. According to one Indian estimate, a single Agni missile costs as much as the annual operation of 13,000 health care centers. More than 3,000 public housing units could be built for the price of one nuclear warhead. The expenditures required to develop India's "minimum" deterrent could meet 25 percent of the yearly costs of sending every Indian child to school. Nearly all Pakistani children could be educated and fed for the cost of the nuclear and missile arsenal that is being created for their "protection."

The energy sectors suffer directly from the nuclear arms race. If India and Pakistan abandon their nuclear deterrent programs, sign the Nuclear Non-Proliferation Treaty (NPT) as non-nuclear weapon states, and accept full-scope safeguards on their civilian nuclear power industries, the energy benefits could be tremendous. Fifteen years ago Indian Atomic Energy officials planned on producing 10,000 megawatts of installed nuclear power by the year 2000. India's 10 aging reactors now produce one fifth of that amount. Although nuclear power production has tapped scarce resources for more than four decades, it generates less than three percent of India's power consumption. In Pakistan, where energy shortfalls have slowed economic growth for years, the situation is worse. China recently built a 300-megawatt reactor at Chashma, but if this facility is used for military purposes, Pakistan's only nuclear energy source will remain the 34-year-old Karachi nuclear power plant, which produces less than 100 megawatts of electricity annually. As NPT members in good standing, Pakistan and India could draw critical infusions of capital and technology to jump-start their ailing nuclear power industries. This investment could stimulate economic growth and lessen dependence on foreign energy sources, thereby enhancing national security.

CONVENTIONAL MILITARY COSTS ALSO ARE RISING

The guns-versus-butter tradeoff is one way to assess the costs of South Asia's nuclear arms competition. The guns-versus-guns tradeoff is another. Indian and Pakistani nuclear hawks argue that developing nuclear deterrent forces will make conventional military buildups unnecessary and reduce overall defense costs. However, Indian defense spending rose 11 percent after the tests; Pakistan's rose, also. And recent experience suggests that conventional military expenditures are likely to soar even higher alongside rising nuclear and missile costs.

During the summer of 1999, Indian and Pakistani troops (and pro-Pakistan rebels) have fought the fiercest military battles ever waged in the mountains of Kashmir. Journalists report that each side has lost more than 1,000 lives. In financial terms, local media place

the daily expense of Indian military operations at \$3 million to \$6 million. While Pakistani costs probably are lower because of smaller force commitments, they too are onerous. To offset the expense of staging military operations around Kargil, India's parliament authorized an emergency grant of \$135 million to purchase ordnance, hardware, and high-altitude clothing. The cost of the Kashmir conflict is still climbing. Fighting has abated since its peak in the summer of 1999, but it has not ended. Indian and Pakistani politicians state that they will meet the financial needs of their militaries to replenish equipment and ammunition and to prepare for more conflict.

The fighting in Kargil shows that nuclear deterrence is unstable between India and Pakistan, if it exists at all. The economic costs of this conflict also suggest the serious damage to both economies of a general war. The large military spending increases that a broader war would cause would trigger higher interest rates and inflation, and the war-time destruction of industrial and infrastructure facilities would reduce productivity and drain already limited foreign exchange reserves. The threat of follow-on hostilities or the breakdown of domestic order in parts of India or Pakistan would discourage foreign investment and financial assistance that is crucial for the long-range economic growth and development in each country. In short, a conventional war could ruin India and Pakistan. The human and economic costs of a nuclear war are beyond calculation.

MOUNTING DOMESTIC AND INTERNATIONAL POLITICAL COSTS

The political expense that India and Pakistan will pay to become nuclear powers might rival the economic burden. Ironically, the domestic standing of the Indian and Pakistani governments is lower than it was before the tests. Considering the outbursts of pride and support that swept South Asia last May, it is noteworthy that the coalition government led by India's Bharatiya Janata Party (BJP) fell in less than a year after the tests.

The BJP lost support because it failed to implement crucial economic reforms and curb rising food prices. Opposition leaders criticized the diversion into the

nuclear program of resources that could better be used for basic human needs. Predictably, nuclear deterrence is less salient to India's population than clean water and affordable food.

The same holds true in Pakistan where opposition to Prime Minister Nawaz Sharif rose in the wake of the tests and the Kargil fiasco. Pakistan People's Party leaders now question the need for carrying out nuclear tests if a balance of terror cannot be achieved. In the province where the tests were conducted, the Baluchistan National Party criticizes the government's nuclear policy for diverting scarce resources from development to defense. The majority party in Pakistan's Northwest Frontier Province also condemns these policies.

Internationally, the nuclear tests produced outrage in most parts of the world and spurred costly sanctions. The five permanent UN Security Council states have criticized the nuclear policies of India and Pakistan, as have the Group of Eight industrial nations, key nonaligned states, and many others. The United States, Japan, Australia, and other nations imposed costly economic sanctions and trade restrictions against the two South Asian countries. With new restrictions on U.S. trade with all entities "involved in nuclear and missile activities," the dual-use and conventional military efforts of scores of Indian and Pakistani firms will suffer. While the overall economic impact of these sanctions is uncertain, international investor confidence in and the flow of capital to India and Pakistan have plummeted. If India and Pakistan had expected the nuclear tests to improve their international standing and prestige, the results must be disappointing.

RISING MILITARY RISKS

Continued fighting over Kashmir and the downing of aircraft in other areas indicate that nuclear deterrence has not yet emerged in South Asia. The risk of another India-Pakistan conventional war seems higher than ever before and India's relations with China also have deteriorated. Added to these problems are new risks of inadvertent or accidental nuclear use because of unsophisticated nuclear command-and-control systems and poorly defined nuclear doctrines. And, even if India and Pakistan do manage to establish nuclear

deterrence, moreover, the effect will be that every Indian and Pakistani will live under the threat of nuclear annihilation. Welcome to the nuclear club.

SECURITY AND PROSPERITY WITHOUT NUCLEAR WEAPONS

As U.S. Deputy Secretary of State Strobe Talbott has stated, "India and Pakistan need security, deserve security, and have a right to determine what is necessary

to attain security." Are there ways for India and Pakistan to enhance their security without deploying nuclear weapons and missiles? Considering the dangerous and expensive record of the Soviet-American arms race, the enormous political and economic costs of Indian and Pakistani deterrent programs, and the growing risk of nuclear war in South Asia, India and Pakistan should make every effort to pursue non-nuclear sources of security. And, all concerned states should help them to achieve that security. ●

PREVENTING THE SPREAD OF DANGEROUS WEAPONS TO IRAQ AND IRAN

By Bruce O. Riedel



Allowing weapons of mass destruction to spread to Iraq and Iran “undermines security and stability” throughout the Middle East, says Riedel. “Working in close cooperation with our friends and allies, and adopting a long-term, patient approach, the United States will achieve its goal of curbing the proliferation of weapons of mass destruction, changing the behaviors of dangerous states, and thus securing our vital interests in one of the most strategically important regions of the world.” Riedel is Special Assistant to the President and Senior Director for Near East and South Asian Affairs of the National Security Council.

When President Clinton was elected in 1992, his administration immediately recognized the strategic importance of the Persian Gulf region and identified two central threats to stability and security there — Iran and Iraq. In the past two decades, both countries have aggressively sought to build their arsenals of nuclear, chemical, and biological weapons, and this drive has created greater instability and uncertainty in a volatile region of the world. One of the most important objectives of U.S. foreign policy in the Middle East has been to prevent the spread of weapons of mass destruction (WMD) to Iraq and Iran.

IRAQ

Under President Saddam Hussein, Iraq remains one of the most dangerous countries in the world. In the past two decades, it started two wars that took hundreds of thousands of lives in an effort to dominate the Persian Gulf. In both of these wars, it launched ballistic missiles against five of its neighbors, and over the past two decades, it has repeatedly used chemical weapons against its own people and neighbors. Saddam Hussein’s Iraq has proven time and time again that it is incapable of being a responsible member of the international community.

At the end of the Persian Gulf war in 1991, the international community gave Iraq a chance to change its behavior. UN Security Council Resolution 687 laid out a series of requirements that would end the sanctions imposed in 1990 when Iraq invaded Kuwait. One of the most important requirements was that Iraq abandon its programs for developing weapons of mass

destruction and long-range missiles. To disarm and monitor this uniquely dangerous regime, the international community established the UN Special Commission (UNSCOM) in 1991.

Iraq refused to cooperate with the UNSCOM inspectors sent to destroy its WMD arsenal and instead created an elaborate concealment mechanism to hide its weapons. In spite of this deception campaign, UNSCOM forced Iraq to declare and destroy, among other things, almost 40,000 chemical weapons, almost 700 tons of chemical weapons agents, 48 operational missiles, 30 warheads fitted for chemical and biological weapons, a nuclear centrifuge program, and a massive plant designed to produce anthrax. UNSCOM destroyed more weapons than Desert Storm did.

Despite this success, the question of Iraq’s WMD capability remains an issue of great concern. The United States continues to support professional, expert weapons inspections as the only agreed means to establish Iraqi compliance with UN resolutions. But after two years of repeated crises and broken Iraqi promises in 1997 and 1998, in December 1998 it became clear that Iraq would not allow the inspectors to do their job the way it needs to be done. Inspectors without access, without required documents, without a cooperating partner, cannot do their job.

The United States will not support a spurious arms control regime, and until legitimate weapons inspections can be established, the United States will continue to maintain a powerful force posture in the region, which it is prepared to use should Iraq try to

reconstitute its weapons of mass destruction. In the meantime, we are working with our UN Security Council partners to craft a new weapons inspection and monitoring organization which, when Iraq is ready to cooperate, will be able to verify once and for all that Iraq has actually disarmed.

For the past nine years, the United States has led an international effort to press Iraq to comply fully with all UN Security Council resolutions, using a combination of sanctions, diplomacy, and force to keep this dangerous regime contained and to limit its ability to threaten the peace and stability of the region. As a result, Saddam Hussein is isolated, his regime is weaker, and the region is safer. But the job is not finished. The task ahead for the international community will be to keep this very dangerous regime contained and to prevent it from building an arsenal of dangerous weapons until Iraq has a government worthy of its people.

Indeed, because Saddam Hussein has made clear that he will not give up his proscribed weapons of mass destruction and that he will use them — against his neighbors and his own people — the United States is working to help those Iraqis who seek to change the regime in Baghdad. For nine years, Saddam Hussein's regime has cheated, lied, and dissembled to try to hold on to its WMD arsenal. During this time, Iraq has given up roughly \$120 billion in oil revenues because it refuses to surrender its proscribed weapons programs. Clearly, as long as Saddam Hussein rules in Baghdad, the vital Gulf region will never be free from the threat of weapons of mass destruction.

The goal of the United States is to see a strong and healthy Iraq return to the community of nations and see it play its appropriate role in international and regional affairs. America and Iraq have been close partners in the past, and they can be partners and friends again in the future. The United States will remain ready to work with a new government in Baghdad when it comes to power. If Saddam Hussein is replaced by a government ready to comply with the UN resolutions, disarm, and live in peace with its neighbors and its own people, the United States will seek sanctions relief. It will encourage American investment and work to find ways to relieve Saddam Hussein's \$100 billion war debts.

But until then, the United States will continue to lead efforts to prevent Saddam Hussein from threatening the stability and security of the Gulf region by building Iraq's arsenals of weapons of mass destruction.

IRAN

Like Iraq, Iran has also threatened stability and security in the region by attempting to build its arsenals of weapons of mass destruction. Despite its signature on the Nuclear Non-Proliferation Treaty and Chemical Weapons Convention, Iran has worked to develop an arsenal of nuclear, chemical, and biological weapons and the missiles to deliver them. The United States recognizes that Iran like all states has an interest in its security, but that does not provide a justification for developing weapons of mass destruction. Iran's drive to build these weapons has done nothing but lead to greater instability and an increased likelihood for a regional arms race.

Iran has made significant progress in its efforts. In 1998, Iran tested the Shahab III, a ballistic missile capable of delivering warheads 1,280 kilometers. There are reports that it is developing a missile with an even greater range. These developments pose significant potential threats to U.S. forces and to U.S. allies in the Middle East and could trigger even more dangerous arms races across the region. Iran's move to build its weapons of mass destruction and develop long-range ballistic missiles presents a significant challenge to the U.S. goal of creating a Middle East free of such weapons.

In addition to Iran's attempts to project its regional influence through the development of these weapons, the United States remains seriously concerned about Iran's continued support for terrorism and its sponsorship of violent opposition to the Middle East peace process. Despite assurances that Iran opposes terrorism, we continue to see evidence that Iran still provides arms, money, training, and safe haven to terrorist organizations such as Islamic Jihad, Hezbollah, and Hamas. That is why so many of Iran's neighbors remain wary of Iranian intentions despite the changes brought about by President Mohammad Khatami. The United States will continue its economic sanctions policy until Iran begins to change its policies that

violate international norms, threaten our interests, and undermine security and stability in the Gulf region and the Middle East. The intent of sanctions is to deprive Iran of resources to develop weapons of mass destruction and support terrorism. The sanctions also demonstrate to Iran's leaders that there is a serious price to be paid for pursuing such policies.

The United States also will enforce the laws passed by Congress intended to encourage other states to control technology transfers to Iran and to exercise greater care and discipline in what they trade with Iran. One of the highest priorities of the Clinton administration has been to block Iran's ability to acquire the technology and materials necessary to develop weapons of mass destruction and missile systems. We have made progress with China and Ukraine in restricting nuclear cooperation. The Russian government has taken some steps to shut down the cooperation Iran has received from Russian companies for its Shahab long-range missile program. But more needs to be done.

Developing weapons of mass destruction will not increase Iran's own security and it will not enhance

stability in the Persian Gulf — it will do the exact opposite. For this reason, the United States remains steadfast in its approach to prevent the spread of WMD to Iran.

CONCLUSION

Allowing weapons of mass destruction to spread to Iraq and Iran undermines security and stability throughout the region. Over the course of years of sustained diplomacy, the United States has developed a level of trust and confidence with key states in the Middle East. Working in close cooperation with our friends and allies, and adopting a long-term, patient approach, the United States will achieve its goal of curbing the proliferation of weapons of mass destruction, changing the behaviors of dangerous states, and thus securing its vital interests in one of the most strategically important regions of the world. ©

Responding To The Challenge of Proliferation:
ARTICLE ALERT

Almeida, Pedro; O'Hanlon, Michael. IMPASSE IN KOREA: A CONVENTIONAL ARMS-ACCORD SOLUTION? (Survival, vol. 41, no. 1, Spring 1999, pp. 58-72)

Noting that the Agreed Framework with North Korea "may not survive 1999," the authors propose a conventional arms reduction treaty loosely based on the Conventional Armed Forces in Europe (CFE) Treaty. The proposal calls for a suspension of North Korea's missile tests, complete compliance with the nuclear reactor agreement, and creation of a mechanism for on-site inspections. Pyongyang, then, would get considerable economic aid over 5-to-10-years (mostly Japanese), and U.S. sanctions would be lifted.

Graeves, Rebecca K. RUSSIA'S BIOLOGICAL WEAPONS THREAT (Orbis, vol. 43, issue 3, pp. 479-492)

There is evidence of ongoing research and development in the area of bacteriological weapons in Russia, says Graeves. She cites the possible export to Iraq and Iran of materials that may be used in biological weapons production and the danger of defection by Russian scientists with BW expertise to rogue regimes. The United States must verify conclusively the termination and dismantlement of Russia's biological weapons program, she says.

Krepon, Michael. MISSILE DEFENSE: NOT SUCH A BAD IDEA (Bulletin of the Atomic Scientists, vol. 55, no. 3, May/June 1999, pp. 31-33)

The end of the Cold War has brought with it a change in nuclear realities that Krepon argues should also change the terms of debate on the deployment of limited national missile defense systems. Krepon says such systems could "foster alliance cohesion, reinforce nonproliferation regimes, and counter coercive threats." He seeks to refute the arguments of those opposed to such systems, adding, "the crux of the problem...is an unchallenged, Cold War nuclear theology" that continues "to undermine efforts for deep cuts as well as effective defenses."

The annotations above are part of a more comprehensive Article Alert offered on the home page of the U.S.

Information Service:

"<http://www.usia.gov/admin/001/wwwhapub.html>".

Parachini, John V.; Birmingham, Tom. THE CTBT SPECIAL CONFERENCE ON ENTRY INTO FORCE (The Nonproliferation Review, vol. 6, no. 3, Spring/Summer 1999, pp. 108-121)

The upcoming Comprehensive Nuclear Test Ban Treaty (CTBT) Entry Into Force (EIF) Special Conference is designed to "kick-start" the EIF process by raising the treaty on the global priority list, the authors say. However, "making the conference a success will require making wise choices about venue, participants, alternative routes to EIF, and measures to broaden norms concerning nuclear weapons."

A Report of the Committee on Nuclear Policy. JUMP-START: RETAKING THE INITIATIVE TO REDUCE POST-COLD WAR DANGERS (Arms Control Today, vol. 29, January/February 1999, pp. 15-19)

The Committee on Nuclear Policy asserts that the Strategic Arms Reduction Talks (START) process "must be augmented with immediate, parallel, and reciprocal actions" to directly address the new nuclear realities of the post-Cold War period. The committee urges the Clinton administration to reduce nuclear forces to levels far lower than currently envisioned under a START III treaty. It also calls on the United States to "begin discussions among the five nuclear weapon states on verifiably removing all nuclear forces from hair-trigger alert."

Weiss, Kenneth G. DANGER AND OPPORTUNITY: THE UNITED STATES, NONPROLIFERATION, AND SOUTH ASIA (Comparative Strategy, vol. 18, no. 2, April/June 1999, pp. 137-151)

Nuclear testing by India and Pakistan presents both dangers and opportunities for the United States in South Asia, says Weiss. One danger is that "India and Pakistan could become sources for weapons of mass destruction (WMD) and related missile technology for other countries." This crisis, however, also creates opportunities for the United States to resolve festering nonproliferation problems in South Asia, strengthen nonproliferation and related export control regimes, and renew emphasis on arms control arrangements, he says. ◎

Responding To The Challenge Of Proliferation:
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Mendelsohn, Jack. MISSILE DEFENSE: AND IT STILL WON'T WORK (Bulletin of the Atomic Scientists, vol. 55, no. 3, May/June 1999, pp. 29-31)

Mueller, John; Mueller, Karl. SANCTIONS OF MASS DESTRUCTION (Foreign Affairs, vol. 78, no. 3, May/June 1999, pp. 43-53)
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Responding To The Challenge Of Proliferation: KEY INTERNET SITES

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ACADEMIC INSTITUTIONS

Center for International Security and Cooperation
<http://www.stanford.edu/group/CISAC/>

Center for Nonproliferation Studies, Monterey Institute of International Studies
<http://cns.miis.edu/>

The Harvard Sussex Program on CBW Armament and Arms Limitation
<http://fas-www.harvard.edu/~hsp/>

Nuclear Testing in India and Pakistan
<http://www.lib.berkeley.edu/SSEAL/SouthAsia/nuclear.html>

INTERNATIONAL ORGANIZATIONS

International Atomic Energy Agency
<http://www.iaea.org/>

The Organization for the Prohibition of Chemical Weapons
<http://www.opcw.nl/ptshome2.htm>

United Nations: Disarmament
<http://www.un.org/Depts/dda/index.html>

The United Nations Demining Database
<http://www.un.org/Depts/Landmine/index.html>

U.S. GOVERNMENT

Cooperative Threat Reduction Program
<http://www.dtra.mil/ctr/>

Nonproliferation and International Security Division
<http://www.lanl.gov/orgs/nis/>

Nuclear Material Management Homepage
<http://www.ca.sandia.gov/NMM/>

Office of Humanitarian Demining Programs (HDP)
<http://www.state.gov/www/global/arms/pm/hdp/index.html>

Office of Nonproliferation and National Security
<http://www.nn.doe.gov/default.htm>

U.S. Department of Energy: Office of Fissile Materials Disposition
<http://twilight.saic.com/md/mdmain.asp>

U.S. Department of State, Arms Control and International Security/Political Military Affairs
<http://www.state.gov/www/global/arms/index.html>

U.S. Information Agency: Arms Control and Non-Proliferation
<http://www.usia.gov/topical/pol/armsctrl/>

U.S. ORGANIZATIONS

The Arms Control Association
<http://www.armscontrol.org/>

Carnegie Endowment for International Peace: Non-Proliferation
<http://ceip.org/programs/npp/index.htm>

Chemical and Biological Arms Control Institute
<http://www.cbaci.org/>

Comprehensive Test Ban Treaty (CTBT) Site
<http://www.clw.org/pub/clw/coalition//ctbindex.htm>

East Asia Nuclear Policy Project (Nautilus Institute)
<http://www.nautilus.org/nukepolicy/index.html>

The Stimson Center
<http://www.stimson.org/>



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