

NONPROLIFERATION STATUS REPORT 2001

BRIEFING BOOK ON NONPROLIFERATION

by **Stephen LaMontagne**



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COVER PHOTO: Giant concrete blocks are used to protect plutonium stored beneath them at the Mayak plant in Russia. The security measures are part of ongoing U.S.-Russian nonproliferation efforts.

SOURCE: Department of Energy

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INTRODUCTION

The proliferation of nuclear, chemical, and biological weapons and the means to deliver them is one of the most serious threats to U.S. security and global stability. A decade after the fall of the Soviet Union, Russia still possesses some 20,000 nuclear weapons and hundreds of tons of fissile materials that remain susceptible to theft or diversion. A majority of Russian nuclear and missile specialists suffer from low morale and financial hardship, forcing some to consider working for potential proliferators.

In South Asia, India and Pakistan continue to fight over the disputed Himalayan region of Kashmir. The two countries conducted tit-for-tat nuclear tests in the summer of 1998, and Pakistani officials have said that they would not rule out the use of nuclear weapons in response to a conventional military attack. A mid-July summit between Indian Prime Minister Atal Behari Vajpayee and Pakistani President Prevez Musharraf ended with little progress toward the goal of reducing nuclear dangers.

Negotiations with North Korea on its missile and nuclear programs have lost considerable momentum since former President Clinton nearly completed an agreement in the fall of 2000 that would have ended Pyongyang's development and export of ballistic missiles. Iraq continues to turn away weapons inspection teams and conceal the status of its weapons of mass destruction programs.

The U.S. faces several decisions that will have a profound impact on the proliferation problem. Foremost among them is how best to accelerate and improve programs to ensure that potential bomb materials do not leak out of the former Soviet Union. Equally controversial is whether or not to deploy a costly and unproven missile defense system that would entail changing, or scrapping, the 1972 Anti-Ballistic Missile Treaty. Missile defenses may also derail much-needed nuclear weapons reductions and jeopardize nuclear security cooperation in Russia while at the same time fueling a Chinese nuclear buildup that could spill over into a regional arms race involving India and Pakistan.

Other decisions and challenges include making reductions in the U.S. nuclear stockpile, deciding whether the U.S. should ratify the Comprehensive Test Ban Treaty (CTBT), considering whether to design and build a new type of low-yield nuclear warhead, and devising an acceptable verification protocol for the Biological Weapons Convention.

The purpose of this briefing book is to provide a short and substantive overview of key nonproliferation issues for Members of Congress and their staff, the media, and the general public. It details developments in key countries and regions of the world, and reviews options on how best to deal with the challenges they pose to U.S. security. The briefing book also summarizes treaties, agreements, programs, and legislation relevant to nonproliferation.

COUNTRY UPDATES

RUSSIA

LOOSE NUKES AND BRAIN DRAIN

In January 2001, a bipartisan task force chaired by former Senator Howard Baker (R-TN) and former White House counsel Lloyd Cutler concluded that the dangers posed by Russia's Cold War nuclear leftovers represent "the most urgent unmet national security threat to the United States today." Russia still possesses some 20,000 deployed and "hedge" nuclear weapons, over 1,000 metric tons of highly enriched uranium (HEU), and more than 160 tons of separated, weapons-usable plutonium. The fissile material stockpiles are enough to make more than 40,000 additional nuclear weapons.

In addition, Russia possesses the world's largest stockpile of chemical weapons agents — some 40,000 metric tons of blister, choking and nerve agents — as well as thousands of tons of biological weapons agents. Russia has ratified both the Chemical Weapons Convention (CWC) and the Biological Weapons Convention (BWC) and is now working to destroy these stockpiles.

DEPLOYED RUSSIAN STRATEGIC FORCES

ICBMs	NUMBER	FIRST DEPLOYED	RANGE (km)	TOTAL WARHEADS
SS-18 Satan	174	1979	11,000-15,000	1,740
SS-19 Stiletto	150	1980	10,000	900
SS-24 (Silo) Scalpel	6	1987	10,000-11,000	60
SS-24 (Rail Mobile) Scalpel	36	1987	10,000-11,000	360
SS-25 Sickle	360	1985	10,500	360
SS-27M (Topol-M)	24	1997	10,500	24
SLBMs	NUMBER	FIRST DEPLOYED	RANGE (km)	TOTAL WARHEADS
SS-N-8 Sawfly	48	1978	9,100	48
SS-N-18 Stingray	176	1978	6,500	528
SS-N-20 Sturgeon	100	1983	?	1,000
SS-N-23 Skiff	112	1986	8,300	448
BOMBERS	NUMBER	FIRST DEPLOYED	RANGE (km)	TOTAL WARHEADS
Tu-160 Blackjack	15	1987	10,500-14,000	120
Tu-95 Bear	65	1984	6,500-10,500	506
TOTAL				6,094

Sources: "Start I Aggregate Number of Strategic Offensive Arms," U.S. State Department, Bureau of Arms Control Fact Sheet, April 1, 2001; Federation of American Scientists

Russia does not have an accurate inventory of how much fissile material it possesses and at which sites. Materials are scattered throughout Russian territory and stored in facilities with inadequate physical security, thus making them vulnerable to theft or sale to would-be proliferators. Furthermore, Russian nuclear and missile specialists have strong financial incentives to sell their expertise to proliferators or act as inside agents in nuclear theft. According to a 2001 study released by the Carnegie Endowment for International Peace, the majority of Russian nuclear and missile specialists earn less than \$50 a month. Eighty percent of nuclear city employees and one in five missile experts said they would work in the military industry of a foreign country.¹ Although salaries have increased since the surveys were taken, the study illustrates the problem of Russian brain drain as it relates to proliferation.

PLANNED NUCLEAR REDUCTIONS

In April 2000, the Russian Duma ratified START II and the Comprehensive Test Ban Treaty (CTBT). Last August the Russian Security Council decided to reduce Russia's strategic nuclear arsenal down to 1,500 warheads, and Russian officials have indicated that they would be willing to negotiate even further reductions — down to 1,000 or perhaps fewer warheads.

While a new wave of Russian nuclear reductions is a welcome development, it would create additional proliferation challenges that both Russia and the U.S. should anticipate. Nuclear warheads removed from missiles would have to be safely transported to storage locations and kept secure until they can be disassembled. Likewise the fissile material from these warheads would require secure transport, storage and eventual disposition.

FACTORS AFFECTING FUTURE COOPERATION

Missile Defense: U.S. deployment of a controversial anti-ballistic missile system could force Russia to reverse its earlier decision to make deep cuts in its nuclear arsenal. Speaking at a June 18th press conference, Russian President Vladimir Putin warned that Russia might reinforce its nuclear capability by placing multiple warheads on existing intercontinental ballistic missiles (ICBMs) as a response to U.S. missile defense. Russia backed up this warning recently by testing an SS-19 missile and, according to the Washington Times, an SS-25 ICBM with a modified, jet-propelled final stage designed to defeat missile defenses.²

At the G-8 summit in July 2001, Presidents Bush and Putin agreed to hold joint consultations on strategic offensive and defensive systems. National Security Advisor Condoleezza Rice stressed that these consultations should not be viewed as "negotiations," hinting that the U.S. does not want to replace the 1972 Anti-Ballistic Missile (ABM) Treaty with a new agreement. However, Russia would likely only consent to scrapping the ABM Treaty if it can be succeeded by a new, verifiable agreement obligating the U.S. to reduce its nuclear arsenal to a specific number and imposing specific limitations on the scope of U.S. missile defense plans. Thus far, successive rounds of consultations have not brought the two sides any closer to an agreement.

Nuclear Assistance to Proliferating Countries: Russia is assisting Iran in building a nuclear power reactor at Bushehr. Although the reactor will be subject to International Atomic Energy Agency (IAEA) safeguards, critics argue that the project will benefit Iran's nuclear weapons program. Earlier this year Russia, under heavy U.S. pressure, suspended a deal to provide Iran with low-power lasers for uranium enrichment that, while not in themselves capable of enriching material for a bomb, contravened Russia's commitments

not to provide enrichment technology to Iran, and might have contributed to Iran building up sufficient expertise to build more powerful systems on its own.

India is another beneficiary of Russian nuclear assistance. In October 2000, Putin signed a contract to deliver 58 tons of low-enriched uranium to India’s Tarapur nuclear reactor, a clear violation of Russia’s commitments as a member of the Nuclear Suppliers Group, which prohibits nuclear assistance to non-NPT countries that do not accept IAEA safeguards. Russia also has a contract to construct two 1,000 Megawatt nuclear reactors at Koodankulam, a site that is not under IAEA safeguards.

Missile defenses and continued Russian nuclear assistance to countries such as Iran and India could also sap Congressional enthusiasm for funding cooperative security programs between the U.S. and Russia and threaten the spirit of cooperation essential to the success of these programs. Other impediments include mutual distrust and secrecy, resulting in severe constraints on access to sensitive facilities; widespread Russian corruption; and bureaucratic infighting and lack of high-level leadership in both countries.

SOUTH ASIA

South Asia is a region of the world with growing economic and strategic significance, but it is also fraught with nuclear dangers. Both India and Pakistan maintain active nuclear and missile programs, and both are producing fissile materials for nuclear weapons. Neither country has signed the Non-Proliferation Treaty (NPT) or the CTBT, although both declared testing moratoriums after conducting tit-for-tat nuclear tests in May 1998. Tensions over the disputed territory of Kashmir remain high, and in May 2001 India’s military conducted large-scale war games that included nuclear attack scenarios. Given this combination of nuclear buildups, security tensions, and mistrust, the possibility that an armed skirmish over a territory such as Kashmir could escalate to the nuclear level — either intentionally or by accident — remains dangerously high.

INDIAN NUCLEAR-CAPABLE FORCES*

BALLISTIC MISSILES	NUMBER	FIRST DEPLOYED	RANGE (km)
Prithvi	75	1995	150/250
Agni I	0	Program suspended	2,500
Agni II	0	Began Production in 2001	2,500-3,000
Agni III	0	Development?	3,500
GROUND ATTACK AIRCRAFT	NUMBER	FIRST DEPLOYED	RANGE (km)
Su-30	10	1997	1,500
Mirage 2000H	35	1980s	1,850
Jaguar	88	?	2,600
Mig-27	147	1986	1,100

Sources: *The Military Balance 2000/2001*, International Institute for Strategic Studies; Indian Air Force

* Although the Prithvi and Agni missiles are considered nuclear-capable, it is believed that India does not possess warheads specifically tailored for these missiles. Rather, India has consistently stated that its Prithvi missiles will only be armed with conventional warheads. The most likely means of delivery for an Indian nuclear bomb would be by aircraft. Although none of the aircraft in India’s inventory were specifically designed for nuclear missions, they could be easily converted for such missions.

PAKISTAN NUCLEAR-CAPABLE FORCES*

BALLISTIC MISSILES	NUMBER	FIRST DEPLOYED	RANGE (km)
Shaheen	34-80	1995	300
Shaheen-II	some?	?	2,000
Ghauri-III	some?	?	1,500
GROUND ATTACK AIRCRAFT	NUMBER	FIRST DEPLOYED	RANGE (km)
Mirage III	16	1968	685
Mirage 5	52	1973	1,200
A-5 Fantan	42	1983	2,000

Sources: Pakistan Institute for Air Defense Studies; *Military Balance 2000/2001*, International Institute for Strategic Studies

* Like India, Pakistan's most likely means of delivery for a nuclear weapon is by aircraft.

NUCLEAR FORCES

India is believed to have enough weapons-grade plutonium for 45-95 nuclear weapons.³ However, the number of fully assembled weapons is likely smaller, and weapons are currently stored separately from aircraft and missile delivery systems.

India's missile force consists of approximately 50 short-range, liquid-fueled Prithvi missiles and a limited number of solid-fueled Agni-I missiles. In January 2001, India tested the medium-range Agni-II, which according to *Jane's Missiles and Rockets* has entered full-scale production.⁴ In addition, a naval version of the Prithvi is under development, as is the 3,500 kilometer-range Agni-III, which will be able to hit targets deep inside Chinese territory. In April 2001, India successfully launched an experimental satellite into space using rocket booster technology that could also be incorporated into an ICBM. However, it is believed that most of India's nuclear weapons are intended for delivery by aircraft. For this purpose, India possesses several types of ground attack aircraft — including Russian Su-30s — that could be converted to carry nuclear payloads.

Pakistan is believed to have enriched enough uranium for 30-50 nuclear weapons, and now has a facility in Rawalpindi capable of reprocessing enough plutonium for approximately two weapons per year. Unlike India, Pakistan is thought to have used much of its fissile material to manufacture nuclear weapons.

Pakistan possesses between 30 and 80 short and medium-range ballistic missiles. The liquid-fueled Ghauri-I and II are most likely derived from the North Korean No-Dong, while the solid-fueled, 600 kilometer-range Shaheen-I borrows Chinese technology. Two other medium-range missiles, the Ghauri-III and Shaheen-II, are under development. Pakistan's force of nuclear-capable aircraft includes A-5 fighters of Chinese origin and Mirage fighters from France.

DEPLOYMENT STATUS

Neither India nor Pakistan has deployed nuclear weapons. Instead, they are stored separately from aircraft and missile delivery systems because deployment would require massive expenditures on sophisticated nuclear command, control, communications and intelligence (C3I) infrastructure as well as critical decisions regarding nuclear policies and doctrines. In 1999, India released a "draft" nuclear doctrine that expressed commitment to the principles of no-first use of nuclear weapons, credible minimum deterrence, and development of

an effective triad of nuclear forces on land, in the air, and under the sea. However, the doctrine does not constitute official policy. It only establishes a broad outline for a future policy, and does not preclude India from significant buildups in nuclear forces.

Pakistan has repeatedly rejected Indian proposals for a treaty of no-first-use of nuclear weapons, and has said that it would consider using nuclear weapons if it felt its existence to be threatened. Pakistan relies on this threat of first-use because of the superiority of India's conventional forces. Defense spending in India grew by 13.8% in 2001 and 28% in 2000. In addition, India is buying weapons from Israel and inked a \$10 billion arms deal with Russia in June 2001. This expansion of Indian conventional forces only heightens Pakistan's perceived need to rely on its nuclear weapons for security.

In February 2001, Pakistani officials stated that they would consider putting nuclear-armed missiles on submarines in the future. However, Pakistan is years away from developing either a submarine-launched ballistic missile (SLBM) or a warhead small and powerful enough to be placed on an SLBM.

DEVELOPMENTS IN KASHMIR

India and Pakistan have fought three wars since 1947 — two of them over Kashmir. Pakistan nearly ignited a fourth war in 1999 after its troops crossed the disputed line of control in Kashmir's Kargil Mountains. In addition, groups of militant Kashmiri separatists — some supported by Pakistan — have been waging a violent rebellion against Indian rule that has claimed more than 50,000 lives since 1989.

In November 2000, India declared a unilateral cease-fire in the Indian-controlled section of Kashmir. Pakistan responded by urging its troops to exercise "maximum restraint" along the contested line of control established by the 1972 Simla Agreement. India extended the cease-fire for three additional months in February 2001, but neither side took any additional steps towards peace. The two countries disagreed over the format of peace talks — both Pakistan and Kashmiri militants insisted on tripartite dialogue, while India refused to include Pakistan in any discussions as long as cross-border terrorism continued. In May 2001, India softened its position, declaring an end to the cease-fire and inviting Pakistani military leader Pervez Musharraf to participate in discussions on a whole range of issues affecting relations between their two countries.

The Musharraf-Vajpayee summit was held in Agra, India on July 14-16, 2001. While the two sides arrived at an impasse over the sensitive Kashmir issue that ultimately sank plans to issue a joint declaration, they did begin a process of dialogue that will hopefully carry over to future meetings. Vajpayee accepted an invitation to visit Pakistan for further discussions, although no date has been set.

NORTH KOREA

NUCLEAR AND MISSILE PROGRAMS

North Korea may have separated enough fissile material to build one or two nuclear weapons before suspending its nuclear weapons program under the 1994 U.S.–DPRK Agreed Framework. Pyongyang possesses as many as 500 short-range Scud-derivative missiles and between 12 and 36 medium-range No-Dong missiles. Development and testing of the Taepo Dong-1, a medium-range missile, and the intercontinental range Taepo Dong-2 were underway until North Korea agreed to a missile test moratorium in September 1999. In May 2001, North Korean leader

NORTH KOREAN BALLISTIC MISSILES

TYPE	NUMBER	FIRST DEPLOYED	RANGE (km)
Scud B	100?	1981	280-330
Hwasong-5*	150?	1984	280-330
Hwasong-6	250?	1989	500-700
No-Dong	12-36	1999	1,350-1,500
Taepo Dong-I	0	2000?	2,000-2,200
Taepo Dong-II	0	Under Development	ICBM

Source: Federation of American Scientists

* The Hwasong-5 and Hwasong-6 are Scud derivatives

Kim Jong Il declared that the moratorium would last until at least 2003. However, reports surfaced in July 2001 that Pyongyang is continuing work on its missile program by conducting missile engine tests.

The North Korean missile program is cited as one of the main threats driving U.S. pursuit of a costly and controversial national missile defense system. North Korea has also been a major supplier of missile components and technical assistance to Iran and Pakistan.

MISSILE AGREEMENT

In 2000, the U.S. came close to reaching an agreement with North Korea that would have ended its development and export of ballistic missile components and technologies. Proposals included launching North Korean satellites on foreign launchers and providing humanitarian aid packages, although the U.S. rejected the idea of giving North Korea space launch vehicle technology or direct cash payments. However, the Clinton administration was unable to conclude an agreement before the end of its term.

Initially, the Bush administration seemed divided on its policy towards North Korea. A day after Secretary of State Colin Powell told reporters that the Bush administration would pick up where President Clinton left off in engaging Pyongyang, President Bush told South Korean President Kim Dae Jung that the U.S. was in no hurry to resume negotiations. President Bush eventually changed his mind, announcing on June 6 that the U.S. would resume dialogue with North Korea on a broad range of issues including missile proliferation, nuclear issues, conventional force deployments, and humanitarian concerns. However, little progress has been achieved thus far as North Korea has reacted negatively to what it perceives as a hard-line approach from the Bush Administration.

1994 AGREED FRAMEWORK

Another agreement with North Korea — the 1994 Agreed Framework — is the subject of renewed scrutiny. Under the pact, North Korea pledged to dismantle a five-Megawatt nuclear power reactor and plutonium reprocessing facility at Yongbyon while the U.S., South Korea, and Japan agreed to provide North Korea with two light-water nuclear power reactors that would be subject to IAEA safeguards. In addition, the U.S. promised to provide up to 500,000 tons of heavy fuel oil per year to meet North Korea's energy needs until the first reactor begins operation. A special organization, the Korean Peninsula Energy Development Organization (KEDO) was established to implement the agreement.

The framework has encountered numerous problems, causing construction of the reactors to fall several years behind schedule. For example, North Korea has yet to provide a complete history and accounting of its nuclear activities, thus falling short of full compliance with its safeguards agreement with the IAEA. The price of heavy fuel oil has skyrocketed, making U.S. contributions increasingly expensive. In addition, critics of the framework argue that the promised light-water reactors will contribute to North Korea's nuclear weapons program — even though the reactors will be safeguarded and it will be extremely difficult for North Korea to clandestinely extract plutonium from the spent reactor fuel.

The Bush administration's review of North Korea policy examined the option of supplying North Korea with conventional coal-fired power plants instead of the two nuclear reactors. However, altering the framework without thorough consultation with North Korea and other KEDO partners could result in its abandonment altogether — and a resumption of North Korean nuclear weapons development. Thus, the review concluded that the U.S. will continue to abide by the Agreed Framework provided that North Korea does the same. According to Charles Pritchard, Special Envoy for Negotiations with North Korea and U.S. Representative to KEDO, the U.S. will not deliver key components of the light water reactors until Pyongyang cooperates fully with the IAEA.⁵

DIPLOMATIC OPENING

Despite concerns that arose after North Korea test-fired a Taepo Dong-I missile over Japan in August 1998, Pyongyang has made a concerted effort to shed its reputation as an irrational and unpredictable rogue state. In addition to attending an historic summit with South Korean President Kim Dae Jung that revived hope for reunification of the peninsula, North Korean leader Kim Jong Il has pursued closer ties with the rest of his country's Asian neighbors, including Russia and China. This flurry of diplomacy culminated in former Secretary of State Madeleine Albright's historic visit to North Korea in October 2000 as well as the country's induction into the Association of Southeast Asian Nations (ASEAN) Regional Forum. In May 2001, the European Union officially opened diplomatic ties with North Korea.

CHINA

NUCLEAR FORCES

China possess approximately 20 ICBMs capable of delivering nuclear warheads to U.S. territory. In addition, Chinese missile forces include approximately 20 intermediate-range ballistic missiles, 88 medium-range ballistic missiles, and 12 submarine launched ballistic missiles (SLBMs). China's strategic modernization plans include development and testing of two new ICBMs, the DF-31 and an as-yet unnamed ICBM, as well as a new SLBM that would be deployed on a new class of Chinese submarines.

MIXED RECORD ON NONPROLIFERATION

In the past, Chinese firms have supplied chemical weapons production equipment and technology to Iran, in addition to a small nuclear research reactor and a zirconium production facility. However, China joined the IAEA in 1984 and signed the NPT in 1992. In 1996, China signed the CTBT — which it still has not ratified — and a year later agreed to suspend its aid to Iran's nuclear program. It also joined the Zangger Committee, which articulates nuclear export rules under the NPT.

CHINESE NUCLEAR FORCES

ICBMS	NUMBER	FIRST DEPLOYED	RANGE (km)	TOTAL WARHEADS
DF-5	~20	1981	13,000	~20
DF-31	0	Development	8,000	0
DF-41	0	Development	?	0
IRBMS	NUMBER	FIRST DEPLOYED	RANGE (km)	TOTAL WARHEADS
DF-4	20	1980	5,000	20
MRBMS	NUMBER	FIRST DEPLOYED	RANGE (km)	TOTAL WARHEADS
DF-3	40	1971	2,800	40
DF-21	48	1986	1,800	48
SLBMS	NUMBER	FIRST DEPLOYED	RANGE (km)	TOTAL WARHEADS
Julang-1	12	1986	1,700	12
BOMBERS	NUMBER	FIRST DEPLOYED	RANGE (km)	TOTAL WARHEADS
B-6	120	1965	3,100	120
A-5	30	1970	400	30
Additional Tactical Warheads				120
Total				~410

Source: Carnegie Endowment for International Peace

The CIA alleges that Chinese firms have provided ballistic missile-related items and technologies to Pakistan, Iran, Libya, and North Korea. As part of a deal to end sanctions imposed after China transferred missile technology to Pakistan in 1992, China agreed to follow the guidelines for the Missile Technology Control Regime (MTCR). However, a February 2001 Central Intelligence Agency report stated that from January to June 2000, China continued to provide technical assistance to Pakistan's missile program. The report also revealed that "firms in China provided missile related items, raw materials, and/or assistance to several countries of proliferation concern — such as Iran, North Korea, and Libya."

In November 2000, China promised that it "has no intention to assist, in any way, any country in the development of ballistic missiles that can be used to deliver nuclear weapons." China also pledged to take steps to improve its system of export controls, including publishing a list of missile-related items and dual-use components that will be subject to export restrictions. In return, the U.S. agreed to lift sanctions against Chinese entities suspected of earlier proliferation activity and to consider the licensing of Chinese companies to launch U.S. satellites. This was China's most explicit pledge to date and provided fresh hopes that, in conjunction with a deal to end North Korean missile exports, the problem of ballistic missile proliferation could be largely under control.

Director of Central Intelligence George Tenet testified before the Senate Select Committee on Intelligence on February 7, 2001 that the CIA had not uncovered any evidence that China had broken its November 2000 pledge. "We believe that they continue to make good on those pledges," said Tenet. However, the Washington Times reported on August 6, 2001 that, according to U.S. intelligence sources, a Chinese company recently shipped missile components to Pakistan in violation of Chinese export control pledges.

TIMELINE OF CHINESE PROLIFERATION ACTIVITY AND NONPROLIFERATION PLEDGES

Condensed from "China's Proliferation Record Timeline," Carnegie Endowment for International Peace

- 1977:** China and Pakistan begin to work together on nuclear development.
- 1984:** China joins the IAEA and accedes to the BWC.
- 1990:** Iran and China ink a 10 year military technology transfer agreement, sparking concerns about Chinese assistance to Iran's nuclear program.
- 1991:** The U.S. announces that Pakistan received an M-11 missile from China, triggering MTCR sanctions.
- 1992:** China joins the NPT and agrees to abide by MTCR "guidelines and parameters." In return the U.S. lifts MTCR sanctions. Later in the year, Pakistan reportedly receives 34 additional M-11 missiles from China.
- 1993:** China signs the CWC and promises to report transfers of nuclear materials and equipment to the IAEA. The U.S. again applies MTCR sanctions on China.
- 1994:** China agrees not to transfer any "ground to ground" missiles "inherently capable of delivering 500kg payload to at least 300km."
- 1995:** China suspends the sale of two nuclear reactors to Iran and announces a cessation of nuclear cooperation between China and Iran.
- 1996:** Amid allegations of Chinese transfers of ring magnets to Pakistan and assistance to Pakistan in completing an unsafeguarded reactor at Khushab, China agrees not to "provide assistance to unsafeguarded nuclear facilities." China also agrees to improve export controls, and in September signs the CTBT.
- 1997:** China joins the Zangger Committee. The U.S. imposes sanctions on seven Chinese entities suspected of aiding Iran's chemical weapons program, although later concluding that the Chinese government was not involved in any transfers. China again promised not to engage in any nuclear further nuclear cooperation with Iran.
- 1998:** Amid U.S. protests, China delivers telemetry equipment to Iran.
- 1999:** According to reports, China provides missile guidance equipment to North Korea.
- 2000:** In a November 21 statement, China promises that it "has no intention to assist, in any way, any country in the development of ballistic missiles that can be used to deliver nuclear weapons." China also pledges to take steps to improve its system of export controls, including publishing a list of missile-related items and dual-use components whose export will be restricted. In return, the U.S. agrees to lift sanctions against Chinese entities suspected of earlier proliferation activity and to consider the licensing of Chinese companies to launch U.S. satellites.
- 2001:** A February 2001 CIA Report accuses firms in China of providing "missile-related technical assistance" to Pakistan, Iran, North Korea, and Libya during the first half of the year 2000.

FACTORS AFFECTING FUTURE COOPERATION

Missile Defense: Chinese Foreign Ministry Spokesman Sun Yuxi warned on May 16 that missile defense would undermine China's interests and "endanger strategic balance and stability, and will also trigger a new global arms race." An August 2000 National Intelligence Estimate reportedly concluded that China's strategic nuclear arsenal could swell to ten times its current size as a response to U.S. deployment of anti-ballistic missile systems.⁶

U.S. Policy Towards Taiwan: China also links its participation in nonproliferation efforts to U.S. policy towards Taiwan. Many Bush administration officials, including Under Secretary of State for Arms Control and International Security John Bolton, strongly support Taiwanese independence. This pro-Taiwan tilt was also evident in President Bush's statement on April 26, 2001 — later retracted — that the U.S. would do "whatever it took" to defend Taiwan. In 2001, President Bush approved a robust package of arms sales to Taiwan, including submarines, improved Patriot anti-missile systems, and four Kidd-class destroyers, but excluded more sophisticated and controversial Aegis destroyers. If Sino-U.S. relations further deteriorate, pressure will increase to approve an Aegis sale next year, pushing China and Taiwan closer to military confrontation. Moreover, China may resume missile exports and sensitive technology transfers to proliferating states.

IRAN

MISSILE PROGRAM

During the year 2000, Iran performed two flight tests of its medium-range Shahab-3 ballistic missile, only one of which was successful. Research continues on the Shahab-4 and Shahab-5 missiles, the latter of which may be an intended ICBM.

Iran receives most of its ballistic missile technology, materials and expertise from Russia, North Korea, and China. It is believed that the Shahab-3 is a derivative of the North Korean No-Dong missile, though Iran may now possess at least a limited indigenous production capability.

IRAN'S BALLISTIC MISSILES

TYPE	NUMBER	FIRST DEPLOYED	RANGE (km)
Shahab-1	250-300	1995	300-350
Shahab-2	200-450	1995	500
Shahab-3*	0	Under Development	1,350-1,500

Source: Federation of American Scientists

* The Shahab-3 is derived from the North Korean No-Dong missile.

NUCLEAR, CHEMICAL AND BIOLOGICAL WEAPONS PROGRAMS

Even after two public calls for a nuclear-free Middle East in 2000, Iran may still seek a nuclear weapons capability. Russia is significantly aiding Iran in its construction of a nuclear power plant at Bushehr that will be subject to IAEA safeguards. The Bushehr plant is currently over half complete with its first phase, though it will not be completed before 2004 — five years behind schedule. A contract between Russia and Iran for a

second nuclear power plant is expected immediately after the Bushehr reactor is finished, and Russia has indicated that it will contribute up to five nuclear energy plants to Iran in the future. Russia also planned to export laser equipment to Iran, but froze the transfer in September 2000 under heavy pressure from the United States, which considered the sale of the lasers to be a violation of Russia's nonproliferation commitments even though the equipment would have been of essentially no value to nuclear weapons production.

Bushehr has benefitted from the expertise of at least 200 nuclear specialists from Ukraine, which voluntarily gave up its nuclear weapons in the mid-1990s. Ukrainian opposition to the brain drain of its nuclear workers has had little effect, as many workers beyond the 200 at Bushehr have relocated to Iran to take advantage of the high salaries Iran offers.

Although Iran has ratified both the CWC and the BWC, the Department of Defense believes that Iran is actively pursuing biological and chemical warfare agents and may already have small quantities of usable agents.⁷

SANCTIONS

The U.S. maintains sanctions against Iran under the 1996 Iran-Libya Sanctions Act (ILSA), sponsored by former Senator Al D'Amato (R-NY). ILSA imposes sanctions on any international firm that does \$40 million in oil or gas business with Iran or Libya. Although ILSA has come under attack from business and oil interests, the Senate recently voted 96-2 to extend the sanctions for five years. The Bush administration sought only a two-year extension.

POLITICAL REFORM

Iran's moderate President, Mohammad Khatami, was re-elected on June 8, 2001 for a second four-year term with over 75 percent of the popular vote. Voters turned out in droves to support the reformist President, who has shown a willingness to improve relations with America in return for an easing or lifting of sanctions. However, Khatami's emphasis on human rights and individual freedom has produced little change in the Iranian government in the last four years, mostly due to the overarching power that the conservative religious establishment holds in the government. All elected officials are subject to Iran's supreme religious leader, Ayatollah Ali Khamenei, whose conservative clerics have veto power over legislation and control the judiciary, military, and security forces.

IRAQ

NUCLEAR, CHEMICAL AND BIOLOGICAL WEAPONS PROGRAMS

It is highly likely that Iraq still actively seeks nuclear weapons. Iraqi defectors have reported that Saddam Hussein's team of nuclear experts has relaunched Iraq's nuclear weapons program, and the German intelligence organization BND reported that Iraq could acquire nuclear weapons and the means to deliver them within five years if sanctions are lifted. The profits reaped from illegally exporting oil to countries such as Syria, Turkey and Jordan may finance Iraq's drive for weapons of mass destruction.

A four-member team from the IAEA spent four days in Iraq in January 2001 to verify that 1.8 tons of natural uranium were still sealed as left more than two years ago. As a signatory to the NPT, Iraq consented to IAEA

inspection of its only declared nuclear site. All 1.8 tons of material were untouched, though the team said that the routine check was no substitute for UN arms inspections. The inspectors were the first allowed in Iraq since Saddam expelled weapons inspectors in December 1998.

Iraq acceded to the BWC, but produced significant biological warfare agents prior to the Persian Gulf War and admitted in 1995 to having a biological weapons program. In the absence of UN inspections, Iraq may be reconstituting this program. Iraq may also be building a chemical weapons production infrastructure and has not signed the CWC. In 1998, the United Nations Special Commission (UNSCOM) discovered traces of VX nerve agent in Iraqi missile warheads.

MISSILE PROGRAM

Since its Gulf War defeat, Iraq has begun rebuilding its ballistic missile program, which culminated in a series of short-range ballistic missile flight tests between May 1999 and July 2000. The Al-Samoud liquid-fueled missile is capable of carrying chemical and biological weapons as well as conventional explosives, although recent tests reveal that the missile is not yet ready for deployment. While the range of the Al-Samoud is less than 150 kilometers and thus does not violate UN restrictions on Iraq, the missile shows that production plants and research labs destroyed in the Gulf War have been rebuilt and work has resumed in them. Reports that Iraq had manufactured missiles capable of targeting Israel in September 2000 have generally been discounted.

SANCTIONS

International support for the current sanctions regime against Iraq has eroded. The sanctions, which were extended for five additional months in July 2001, are losing a propaganda battle that portrays the oil-for-food program as inhumane while failing to achieve its objective of preventing military imports into Iraq. Russia, China, and France have expressed serious reservations about the current sanctions regime, although all five members of the UN Security Council agreed that the sanctions could not be entirely lifted until UN weapons inspectors regain access to Iraq. In response, the U.S. and the U.K. are trying to win support for a plan to allow more civilian and dual-use goods into Iraq while tightening restrictions on military goods. However, these so-called “smart sanctions” have temporarily been shelved. Iraq strongly opposes the sanctions framework, and has threatened retaliation on neighbors who comply with it.

Nuclear Arsenals of States Possessing or Suspected of Seeking Nuclear Weapons

	STRATEGIC WARHEADS ¹				TACTICAL WARHEADS ²	HEDGE ³	TOTAL WARHEADS
	ICBM	SLBM	Bomber	Total			
United States	2,151	3,616	1,528	7,295	1,670 ⁴	1,624	10,589
Russia	3,444	2,024	626	6,094	~4,000	~12,000	~22,094
China	~20	0	0	20	~390	0	~410
France	0	384	60	444	20	0	~464
United Kingdom	0	185	0	185	0	0	185
Israel	0	0	0	0	0	0	~200?
India	0	0	0	0	0	0	~60?*
Pakistan	0	0	0	0	0	0	~30?*
North Korea	0	0	0	0	0	0	2?*
Iran	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0
Libya	0	0	0	0	0	0	0
Total	~5,615	6,209	2,214	~14,038	~6,080	~13,624	~34,000

Sources: "START I Aggregate Numbers of Strategic Offensive Arms,"; Department of State, Bureau of Arms Control Fact Sheet, April 1, 2001; NRDC Nuclear Notebook; Carnegie Endowment for International Peace; Federation of American Scientists

1 Strategic nuclear weapons include warheads carried on intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), air-launched cruise missiles (ALCMs), and long-range bombers.

2 Tactical nuclear weapons refer to warheads carried on short and intermediate range ballistic missiles and bombers.

3 Nuclear weapons classified as "hedge" refer to warheads in storage or reserve but not disassembled.

4 This includes tactical bombs in storage in the U.S. and approximately 150 bombs at air bases in seven NATO countries.

* India, Pakistan, and North Korea are believed to possess enough fissile material to make these numbers of nuclear weapons. India may actually possess as few as 10 assembled warheads.

GLOBAL NUCLEAR FORCES

Intercontinental Ballistic Missiles (ICBMs) Range > 5,500km						
Intermediate-Range Ballistic Missiles (IRBMs) Range 3,000-5,500km						
Medium-Range Ballistic Missiles (MRBMs) Range 1,000-3,000km						
Short-Range Ballistic Missiles (SRBMs) Range < 1,000km						
Submarine-Launched Ballistic Missiles (SLBMs)						
Ballistic Missile Submaries (SSBNs)						
STATES POSSESSING NUCLEAR WEAPONS						
	ICBMs	IRBMs	MRBMs	SRBMs	SLBMs(SSBNs)	BOMBERS
United States	601	0 ⁵	0	0	448 (18)	295
Russia	750	0	0	0	436 (26?) ⁶	80
China	~20	20	88	200-300?	12 (1)	150
France	0	0	0	0	64 (2) ⁷	45
United Kingdom	0	0	0	0	48 (4)	0
Israel	0	0	some	50-100?	0	0
India	0	0	0	75	0	some ⁹
Pakistan	0	0	some?	34-80?	0	some ⁹
STATES SUSPECTED OF PURSUING NUCLEAR WEAPONS						
	ICBMs	IRBMs	MRBMs	SRBMs	SLBMs(SSBNs)	BOMBERS
North Korea	0	0	12-36	500?	0	0
Iran	0	0	0	100-750?	0	0
Iraq	0	0	0	6-50?	0	0
Libya	0	0	0	some? ⁸	0	0

Sources: "START I Aggregate Numbers of Strategic Offensive Arms," Department of State, Bureau of Arms Control Fact Sheet, April 1, 2001; NRDC Nuclear Notebook; Federation of American Scientists

5 The United States has 325 Tomahawk sea-launched cruise missiles in storage.

6 In June 2000, the Russian Navy claimed to operate 26 strategic nuclear submarines. However, NRDC reports in the May/June 2001 Bulletin of the Atomic Scientists that only 17 or perhaps fewer of these submarines are seaworthy.

7 A third French nuclear missile submarine, Le Vigilant, may be ready in 2001.

8 According to the January 2001 Department of Defense report "Proliferation: Threat and Response," Libya has a small, aging, and operationally ineffective force of Scud-B short range missiles. Libya has been unable to develop an indigenous ballistic missile production capability.

9 Both India and Pakistan possess several types of ground attack aircraft that can be converted to carry nuclear payloads.

SUMMARY OF MAJOR U.S. NONPROLIFERATION PROGRAMS

DEPARTMENT OF DEFENSE PROGRAMS	FY 2001 APPROP.	FY 2002 REQUEST	% CHANGE
Cooperative Threat Reduction Program			
Strategic Offensive Arms Elimination in Russia	\$177,800,000	\$133,400,000	-25%
Nuclear Weapons Storage Security in Russia	89,700,000	56,000,000	-37.5%
Storage Facility for Russian Fissile Material	57,400,000	0	-100%
Nuclear Weapons Transportation Security in Russia	14,000,000	9,500,000	-32%
Warhead Dismantlement Processing in Russia	9,300,000	0	-100%
Elimination of Weapons-Grade Plutonium	32,100,000	41,700,000	+30%
Strategic Nuclear Arms Elimination in Ukraine	29,100,000	51,500,000	+77%
WMD Infrastructure Elimination in Ukraine	0	6,000,000	NA
WMD Infrastructure Elimination in Kazakhstan	0	6,000,000	NA
Chemical Weapons Destruction	0	50,000,000	NA
Biological Weapons Proliferation Prevention	12,000,000	17,000,000	+41.6%
Defense and Military Contacts	9,000,000	18,700,000	+107%
Management and Administrative Support	13,000,000	13,200,000	+1.5%
Total Cooperative Threat Reduction	\$443,400,000	\$403,000,000	-9.1%

DESCRIPTION OF DEFENSE DEPARTMENT PROGRAMS

Cooperative Threat Reduction Program

Initiated in 1991 by Senator Richard Lugar (R-IN) and former Senator Sam Nunn (D-GA), the Cooperative Threat Reduction (CTR) Program assists the states of the former Soviet Union in dismantling nuclear, chemical, and biological weapons and strategic delivery systems, securing and storing nuclear weapons and materials, and downsizing the former Soviet nuclear weapons complex.

As of February 2001, CTR had deactivated 5,336 nuclear warheads, destroyed 422 ICBMs, eliminated 367 ICBM silos and 83 bombers, eliminated 308 SLBM launchers and 184 SLBMs, destroyed 48 ballistic missile submarines, and sealed 194 nuclear test tunnels.⁸ Ukraine, Kazakhstan and Belarus are now nuclear weapons free and have joined the NPT as non-nuclear weapon states.

1. STRATEGIC OFFENSIVE ARMS ELIMINATION IN RUSSIA: This program dismantles and destroys Russian ballistic missile submarines, SLBMs, land-based ICBMs, and ICBM silos, as required by START I. In fiscal year

Cooperative Threat Reduction Scorecard (current numbers as of February 15, 2001)

CTR BASELINE		CURRENT	2004	2007
13,300	Warheads Deactivated	5,336	8,568	9,881
1,473	ICBMs Destroyed	422	742	1,037
831	ICBM Silos Eliminated	367	430	565
442	ICBM Mobile Launchers Destroyed	0	142	250
167	Bombers Eliminated	83	87	93
487	Long-Range Nuclear ALCMs Destroyed	425	487	487
728	SLBM Launchers Eliminated	308	480	612
936	SLBMs Eliminated	184	503	661
48	SSBNs Destroyed	18	32	41
194	Nuclear Test Tunnels/Holes Sealed	194	194	194

Source: Defense Threat Reduction Agency

2002, the Defense Threat Reduction Agency (DTRA) hopes to transport, dismantle, and eliminate 117 liquid-fueled SLBMs, 16 liquid-fueled ICBMs, and 70 solid-fueled ICBMs and SLBMs. The program also plans to eliminate 48 mobile ICBM launchers and construct a facility to dispose of solid propellant.

2. NUCLEAR WEAPONS STORAGE SECURITY IN RUSSIA: In 2002, DTRA plans to procure 10 suites of security equipment to be installed at nuclear weapons storage sites and install an additional five suites procured with fiscal 2001 dollars. In addition, this program will continue to operate the Automated Inventory Control and Management System for tracking nuclear weapons scheduled for dismantlement.

3. STORAGE FACILITY FOR RUSSIAN FISSILE MATERIAL: In fiscal 2001, Congress approved \$57.4 million for completing the first wing of the Mayak Fissile Material Storage Facility, which was expected to open in 2002 and will ultimately have the capacity to store fissile material from approximately 6,250 dismantled Russian warheads. Transparency measures at the facility will confirm that the material is weapon-grade plutonium metal, and that it remains safe and secure.

The fiscal 2002 CTR budget requests no funds for fissile material storage in Russia, although the Department of Defense is considering building a second wing of the Mayak storage facility.

4. NUCLEAR WEAPONS TRANSPORTATION SECURITY IN RUSSIA: This project maintains high-security transportation services for moving nuclear warheads from deployed locations to storage sites and dismantlement facilities. The U.S. also provides training for Russian security forces in use of high-tech communications and diagnostic equipment.

5. WARHEAD DISMANTLEMENT PROCESSING IN RUSSIA: In fiscal 2001, this program provided safe and secure storage and transport containers for plutonium and HEU from dismantled Russian warheads before delivery to the Mayak storage facility. The initial contract for 32,000 storage containers and 1,000 transport containers has been fulfilled, so no new funds for this activity have been requested for fiscal 2002. However, DTRA may seek funds for more containers if Russia declares additional excess plutonium or decides to store additional HEU at Mayak.

6. ELIMINATION OF WEAPONS-GRADE PLUTONIUM: The goal of this project is to end production of weapons-grade plutonium at Russia's three remaining plutonium production reactors. Originally, the U.S. intended to convert the reactor cores so that they would not produce weapons-usable material. However, it is unclear that the reactor cores can be converted safely, so in fiscal 2002 the project will focus on providing alternatives such as fossil fuels to meet the energy needs of the local populations supplied by the reactors.

7. STRATEGIC NUCLEAR ARMS ELIMINATION IN UKRAINE: This project will continue efforts to eliminate SS-24 ICBMs in Ukraine, store 163 rocket motors and eliminate another 60, and construct a facility to dispose of solid missile propellant.

8. WMD INFRASTRUCTURE ELIMINATION IN UKRAINE, KAZAKHSTAN: The fiscal 2002 request for CTR includes \$6 million for eliminating ICBM liquid propellant facilities, strategic airbases and nuclear weapon storage facilities in Ukraine. An additional \$6 million is requested for similar activities in Kazakhstan.

9. CHEMICAL WEAPONS DESTRUCTION: Although the U.S. provides safety and security upgrades at Russian chemical weapons storage sites, section 1305 of the fiscal 2000 Defense Authorization Act prohibits funding for planning or construction of a chemical weapons destruction facility at the Russian site of Shchuch'ye. In fiscal 2001, the Defense Department sought the repeal of this law, and requested funding that would support preliminary work on a destruction facility such as site preparation and procurement planning. However, Congress did not overturn the prohibition.

During fiscal 2001, Russia itself made substantial progress in organizing its chemical weapons destruction program and allocated \$25 million towards the construction of the Shchuch'ye facility. Several other countries, including Canada, Italy, the Netherlands, Norway, Sweden, Switzerland, and the EU promised substantial contributions contingent upon U.S. involvement. The fiscal 2002 CTR request therefore seeks \$50 million for chemical weapons destruction in Russia, including \$35 million for the Shchuch'ye facility and \$15 million for dismantlement of former chemical weapons production infrastructure.

10. BIOLOGICAL WEAPONS PROLIFERATION PREVENTION: In 2002, DTRA will continue efforts to enhance the safety and security of dangerous biological agents, dismantle biological weapons production infrastructure, and engage in collaborative research projects with former Soviet biological weapons scientists.

11. DEFENSE AND MILITARY CONTACTS: The overall objectives of this program are to encourage denuclearization and nonproliferation, enhance stability through regular exchanges between militaries, assist Russia and the former Soviet states in restructuring and downsizing their militaries, and facilitate democratic reform. Types of exchanges include joint search and rescue exercises, disaster relief exercises, and joint staff talks. The fiscal 2002 request for defense and military contacts is \$18.7 million — more than twice the fiscal 2001 level of funding. During fiscal 2002 DTRA hopes to conduct nearly 500 exchanges with Russia.

12. MANAGEMENT AND ADMINISTRATIVE SUPPORT: The overhead CTR programs represent 3.3% of the total fiscal 2002 budget request, making it one of the most efficient programs within the Pentagon budget.

DEPARTMENT OF ENERGY PROGRAMS	FY 2001 APPROP.	FY 2002 REQUEST	%CHANGE
Nonproliferation and Verification R&D	\$244,515,000	\$206,102,000	-15.7%
Material Protection, Control, and Accounting	169,707,000	138,800,000	-18%
International Nuclear Safety and Cooperation	19,386,000	13,800,000	-28.8%
Arms Control and Nonproliferation			
Policy and Analysis	22,701,000	20,701,000	-8.8%
Reduced Enrichment Research and Test Reactor	6,643,000	6,643,000	0
International Safeguards	16,739,000	16,739,000	0
Nuclear Cities Initiative	26,600,000	6,616,000	-75%
Initiatives for Proliferation Prevention	24,143,000	22,143,000	-8.2%
Export Control Operations	11,226,000	10,628,000	-5.3%
Second Line of Defense	2,400,000	4,000,000	+66%
International Security	34,985,000	10,895,000	-68.9%
Treaties and Agreements	3,135,000	3,135,000	0
Highly Enriched Uranium (HEU) Transparency	14,592,000	13,950,000	-4.4%
Fissile Materials Disposition			
U.S. Fissile Materials Disposition	116,863,000	130,089,000	+11.3%
U.S. MOX Fuel Fabrication Facility	25,900,000	63,000,000	+143%
Plutonium Immobilization Plant	3,000,000	0	-100%
Pit Disassembly and Conversion Facility	19,956,000	16,000,000	-19.8%
HEU Off-Spec. Blend Down Project	20,886,000	24,000,000	0.149
Plutonium Disposition in Russia	39,507,000	15,000,000	-62%
Program Direction	51,459,000	51,459,000	0
TOTAL DEPARTMENT OF ENERGY	874,343,000	773,700,000	-11.5%

DESCRIPTION OF ENERGY DEPARTMENT PROGRAMS

Nonproliferation and Verification R&D

This program aims to develop and improve technologies to detect proliferation, monitor nuclear explosions, and respond to chemical and biological weapons attack. The fiscal 2002 decreases come from programs to respond to chemical or biological terrorism, programs that support remote detection technologies, and ground-based nuclear explosion monitoring. Satellite monitoring technologies receive a small increase, and funding for construction of a Nonproliferation and International Security Center at Los Alamos National Laboratory more than doubles.

Material Protection, Control, and Accounting (MPC&A)

The principal goals of the MPC&A program are to improve physical security at Russian fissile material storage sites and to consolidate weapons-usable material into fewer buildings at fewer sites. In addition, the program blends down HEU at civilian sites, strengthens trucks and rail cars used to transport nuclear materials, conducts training courses on nonproliferation and materials control, and conducts compliance inspections of nuclear sites.

The National Nuclear Security Administration has identified 95 nuclear sites in the former Soviet Union that may require security upgrades. The sites, including 53 Navy nuclear sites, 11 Russian Ministry of Atomic

Energy (MINATOM) weapons complex facilities, and 31 civilian nuclear sites, contain roughly 850 metric tons of weapons-usable material (the GAO estimate is 603 metric tons⁹). According to the Department of Energy budget justification for fiscal 2002, comprehensive upgrades have already been completed at 13 Navy sites and 24 civilian sites.

By the end of fiscal 2002, MPC&A proposes to complete comprehensive security upgrades at a total of 50 sites and to have begun rapid upgrades to secure at least 67% of at-risk material. Efforts will focus on MINATOM nuclear complex sites and civilian sites due to increased access negotiated during 2001 and to the large amount of weapons-attractive material at these sites. However, the fiscal 2002 request for MPC&A reflects an 18% cut from fiscal 2001 funding levels. The majority of the decrease comes from activities at Russian Navy sites and efforts to ensure the sustainability of MPC&A security upgrades over time.

The House version of the Fiscal 2002 Energy and Water Appropriations Bill would add \$47.2 million to the administration request for MPC&A, while the Senate version would add only \$5 million.¹⁰

International Nuclear Safety and Cooperation

The objectives of this program are to improve the safety of 66 former Soviet nuclear power reactors and to support the shutdown of the most dangerous reactors.

Arms Control and Nonproliferation

This office conducts programs to engage former weapons scientists in non-military research, strengthen international nonproliferation regimes, promote transparent nuclear reductions, limit fissile material production, reduce the size of the Russian nuclear weapons complex, and control the export of sensitive materials.

1. POLICY AND ANALYSIS: The mission of the policy and analysis function is to work with Russia and other countries to negotiate treaties and other binding agreements that facilitate and confirm nuclear weapon reductions. Under the U.S.-Russian Plutonium Production Reactor Agreement, the two countries will conduct nine monitoring visits to deactivate U.S. and Russian reactors. The fiscal 2002 request will also support confidence building and stability in South Asia and on the Korean peninsula. The decrease in funding reflects the uncertain future of a third START treaty with Russia, the suspension of efforts to prepare the Pantex plant for warhead elimination, and the elimination of some studies on inspections at Russian nuclear facilities.

2. REDUCED ENRICHMENT RESEARCH AND TEST REACTOR (RERTR): This program supports development of low-enriched uranium fuels to further convert research and test reactors. The Russian Research Reactor Spent Fuel Acceptance Program helps reduce nuclear proliferation threats posed by uranium fuel at former Soviet research reactors outside of Russia.

3. INTERNATIONAL SAFEGUARDS: The International Safeguards program supports IAEA and other efforts to detect clandestine nuclear activities and safeguard declared nuclear material. Fiscal 2002 funds will be used to implement a verification regime at the Mayak fissile material storage facility in Russia and to provide the IAEA and the United Nations Monitoring, Verification, and Inspection Commission (UNMOVIC) with technical assistance for inspections and monitoring in Iraq.

4. NUCLEAR CITIES INITIATIVE (NCI): The goal of NCI is to create civilian sector jobs for 30,000-50,000 Russian weapons scientists, engineers, and technicians at ten “closed cities” in order to prevent a brain drain of weapons expertise to proliferating states or terrorists. Through NCI, the U.S. works with MINATOM to diversify

the economies of the nuclear cities in order to create opportunities for commercial business development. The U.S. and Russia also conduct exchanges in medical, educational, and women's professional leadership training programs.

The fiscal 2002 budget request for NCI cuts the program by 75%, from \$26.6 million to \$6.6 million. The funding will meet commitments in only one of Russia's nuclear cities and not provide for any new commercial ventures.

5. INITIATIVES FOR PROLIFERATION PREVENTION (IPP): Similar to NCI, this program engages weapons scientists, engineers, and technicians in the states of the former Soviet Union in long-term, peaceful, commercial activities. The goal is to achieve close, one-on-one working relationships between DOE scientists and their colleagues in the former Soviet Union in order to promote openness and transparency. Over 120 projects are underway, including 40 in three closed cities. The decrease in the fiscal 2002 IPP budget request reflects a reduced number of projects that will be funded.

The House version of the Fiscal 2002 Energy and Water Appropriations Bill would combine NCI and IPP into a new program called "Russian Transition Assistance," and would increase the budgets for NCI and IPP to \$10 million and \$30 million, respectively. The Senate bill would provide NCI and IPP with \$21.1 million and \$37.1 million, respectively.¹¹

6. EXPORT CONTROL OPERATIONS: Export Control efforts will focus on improving and implementing controls under the Nuclear Suppliers Group and the Zangger Committee.

7. SECOND LINE OF DEFENSE: The Second Line of Defense program assists the former Soviet states in establishing effective nuclear material and export control systems through training and equipping customs and border police to detect and deter nuclear smuggling. The fiscal 2002 increase will provide high-priority sites in Russia, Ukraine and Kazakhstan with equipment to improve radiation detection capabilities.

The House version of the Fiscal 2002 Energy and Water Appropriations Bill would transfer management of the Second Line of Defense program to the MPC&A office.

8. INTERNATIONAL SECURITY: This program will support efforts to maintain, secure and store spent fuel in North Korea, and at the BN-350 Aktau reactor in Kazakhstan. The substantial fiscal 2002 decrease results from the decision to reprogram funds for separated civil plutonium efforts at the Mayak facility in Russia and the lengthening of the time required to complete long-term storage of spent fuel from the Aktau reactor.

Both the House and Senate versions of the Fiscal 2002 Energy and Water Appropriations Bill would add \$7 million to the administration's request in order to maintain the schedule for completing the BN-350 project in Kazakhstan.¹²

9. TREATIES AND AGREEMENTS: This program supports negotiation and implementation of nonproliferation and international security initiatives, agreements and treaties.

Highly Enriched Uranium Purchase Agreement Transparency

In February 1993, the U.S. agreed to buy 500 tons of low-enriched uranium derived from highly-enriched uranium taken from Russian nuclear weapons. The HEU Transparency program is intended to provide confidence that the low-enriched uranium sold to the U.S. is indeed from dismantled Russian nuclear weapons.

Fissile Materials Disposition

This program conducts activities in both the U.S. and Russia to eliminate surplus weapons-grade fissile materials.

- 1. U.S. FISSILE MATERIALS DISPOSITION:** Eliminate surplus U.S. plutonium and HEU by immobilizing plutonium or converting it into mixed oxide (MOX) fuel for use in reactors, and by downblending HEU into LEU.
- 2. U.S. MOX FUEL FABRICATION FACILITY (CONSTRUCTION):** MOX technology disposes of weapons-grade plutonium by converting it into reactor fuel. For fiscal 2002, the administration is requesting a 143% increase in funding for construction of a U.S. MOX facility, from \$25.9 million to \$63 million.
- 3. PLUTONIUM IMMOBILIZATION PLANT (CONSTRUCTION):** The plutonium immobilization plant would dispose of weapons-grade plutonium by converting it into an unusable form that can then be stored. The administration's fiscal 2002 budget request eliminates funding for this project.
- 4. PIT DISASSEMBLY AND CONVERSION FACILITY (CONSTRUCTION):** This facility, scheduled to begin operation in 2007, will be used to disassemble plutonium pits taken from nuclear weapons, extract the plutonium metal, and convert it into a plutonium oxide powder suitable for later conversion into MOX fuel.
- 5. HEU OFF-SPEC. BLEND DOWN PROJECT:** Under this project, the U.S. plans to blend down 33 metric tons of off-speculation (not for sale on the open market) HEU for use in Tennessee Valley Authority (TVA) nuclear reactors. The project will entail capital improvements at the Savannah River Site.
- 6. PLUTONIUM DISPOSITION IN RUSSIA:** This program facilitates the final disposition of 34 tons of excess Russian and U.S. weapons grade plutonium. The U.S. also assists Russia in constructing a facility to disassemble and convert nuclear warheads and a MOX fuel fabrication facility.

The fiscal 2002 budget request reflects only \$15 million in new appropriations for Russian plutonium disposition, a 62% decrease from fiscal 2001. However, the fiscal 1999 Emergency Supplemental Appropriations Act committed \$200 million to assist Russia in constructing plutonium disposition facilities upon the completion of a disposition agreement between the U.S. and Russia. Such an agreement was inked in June 2000 by former President Clinton and Russian President Vladimir Putin. An additional \$42 million from the 1999 supplemental will therefore be made available for plutonium disposition efforts, bringing the available total to \$57 million for fiscal 2002.

DESCRIPTION OF STATE DEPARTMENT PROGRAMS

International Science and Technology Centers

Two centers, the International Science and Technology Center (ISTC) in Moscow and the Science and Technology Center of Ukraine, provide grants and contracts that enable former Soviet weapons experts to engage in civilian research projects. As of March 2001, the science centers have funded 1,250 projects engaging over 40,000 former Soviet scientists and engineers. The fiscal 2002 budget request of \$37 million for the centers is \$2 million above the fiscal 2001 level, an increase that will finance additional activities in Ukraine, Uzbekistan, and Kyrgyzstan, and engage approximately 170 additional weapons scientists.

A program to redirect former Soviet biological weapons expertise, implemented by the Departments of State, Agriculture, and Health and Human Services through the ISTC, creates opportunities for scientists from former Soviet biological weapons facilities to perform commercial, agricultural, and public health work.

STATE DEPARTMENT PROGRAMS	FY 2001 APPROP.	FY 2002 REQUEST	%CHANGE
International Science and Technology Centers	\$35,000,000	\$37,000,000	+5.7%
Nonproliferation and Disarmament Fund	14,967,000	14,000,000	-6.5%
IAEA Voluntary Contribution	47,000,000	49,000,000	+4.3%
CTBT Preparatory Commission	21,056,000	20,000,000	-5%
Export Control Assistance	19,100,000	17,000,000	-11%
Korean Peninsula Energy Development Organization (KEDO)	54,879,000	95,000,000	+73%

The State Department also provides grants to the Civilian Research and Development Foundation (CRDF), a non-governmental, non-profit foundation created by the U.S. government to accelerate the redirection of former Soviet weapons scientists to civilian work. CRDF received a \$14 million grant from the State Department in 2001 and is requesting a similar amount for 2002.

Nonproliferation and Disarmament Fund

This is a contingency fund meant to meet unanticipated proliferation challenges and disperse funds quickly in support of urgent nonproliferation objectives.

IAEA Voluntary Contribution

The voluntary U.S. contribution to the International Atomic Energy Agency supports strengthened nuclear safeguards and technical assistance. The fiscal 2002 increase will fund the development of technologies relevant to verifying North Korea's nuclear inventory.

CTBT Preparatory Commission

The commission funds the U.S. share of the costs for the ongoing work of the Provisional Technical Secretariat, including development and implementation of the International Monitoring System (IMS) to detect nuclear explosions.

Export Control and Border Security Assistance

This program provides training and equipment to establish or enhance export controls in the former Soviet states, Central and Eastern Europe, and other key states. Smuggling detection and interdiction capabilities are also enhanced.

Korean Peninsula Energy Development Organization (KEDO)

KEDO is responsible for implementing the 1994 Agreed Framework between the U.S. and North Korea by financing and constructing the two light-water reactors and providing annual shipments of heavy fuel oil to North Korea until the first reactor begins operation. The increase in the U.S. contribution to KEDO for fiscal 2002 reflects higher prices for heavy fuel oil on world markets.

SUMMARY OF MAJOR NONPROLIFERATION TREATIES, AGREEMENTS AND REGIMES

TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS (NPT)

STATUS: Entered into force on March 5, 1970. Signed and ratified by 187 countries. Holdouts include Israel, India, Pakistan, and Cuba.

Key provisions:

- ▶ The five nuclear weapons states (the U.S., Russia, U.K., France, and China) agree not to transfer nuclear weapons to any non-nuclear weapon state as well as not to assist any non-nuclear weapon state in the manufacture of nuclear weapons. Non-nuclear weapon states in turn agree not to seek or receive any nuclear weapons or assistance from the nuclear weapon states (Articles I, II).
- ▶ Non-nuclear weapon states must submit all nuclear facilities to safeguards imposed by the IAEA, while nuclear weapons states must share all information relevant to the peaceful development of nuclear energy technology (Articles III, IV, V).
- ▶ “Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.” (Article VI)

NOTES: The NPT was extended indefinitely and without condition at the 1995 NPT Review and Extension Conference in New York. States Party also developed a set of “Principles and Objectives for Nuclear Non-Proliferation and Disarmament” that included an affirmation of the disarmament pledge made by the nuclear weapons states and completion of a Comprehensive Test Ban Treaty.

At the 2000 NPT Review Conference, the five nuclear weapon states again declared their “unequivocal commitment to the ultimate goals of a complete elimination of nuclear weapons and a treaty on general and complete disarmament under strict and effective international control.”

ANTI-BALLISTIC MISSILE (ABM) TREATY

STATUS: Entered into force on October 3, 1972

Key provisions:

- ▶ The United States and the Soviet Union agree “not to deploy ABM systems for a defense of the territory of its country and not to provide a base for such a defense...” (Article I)

- ▶ The United States and the Soviet Union are each allowed to deploy two individual ABM systems [later reduced to one], either around their respective capital city or an ICBM launch site. Each ABM system must be limited to 100 interceptors, a 150km radius, and together can not constitute a capability to defend the country's entire territory (Article III).
- ▶ "Each Party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based." (Article V)
- ▶ The United States and the Soviet Union can not give existing missiles, space-launchers, or radars any ABM capabilities, nor can they transfer any ABM system or components to any other state. (Articles VII and IX)

NOTES: The Bush administration intends to walk out of the ABM Treaty if Russia refuses to agree to a new framework that would allow the U.S. to deploy anti-ballistic missile systems. Russia, China, and several of America's allies including the U.K. and France consider the ABM Treaty a cornerstone of strategic stability, and oppose U.S. national missile defense on the grounds that it would ignite a new arms race.

COMPREHENSIVE TEST BAN TREATY (CTBT)

STATUS: Opened for signature on September 24, 1996. To date, 160 countries have signed the treaty and 75 have ratified. In order for the CTBT to enter into force, the 44 nuclear-capable states must sign and ratify it. Among the requisite 44 states, key holdouts include India, Pakistan, and North Korea (which have not signed) and China, Iran, and the United States (which have signed but not ratified).

Key provisions:

- ▶ "Each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control." (Article I)
- ▶ "Each State Party undertakes, furthermore, to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion." (Article I)
- ▶ The CTBT also establishes an extensive verification and inspection regime that includes an International Monitoring System consisting of a network of seismological monitoring, radionuclide monitoring, hydroacoustic monitoring, and infrasound monitoring facilities.

NOTES: The U.S. Senate rejected the CTBT in October 1999, and the Bush administration does not intend to ask for its ratification in the foreseeable future. A CTBT Entry into Force Conference will be held in September 2001.

STRATEGIC ARMS REDUCTION TREATIES (START I, START II, START III)

STATUS: The United States and the Soviet Union signed START I on July 31, 1991 but the treaty did not enter into force until December 5, 1994. The U.S. ratified START II on January 26, 1996, but Russia did not ratify the treaty until April 14, 2000. START II will not enter into force until the U.S. Senate ratifies a 1997 Protocol to the treaty as well as a package of agreements related to the preservation of the ABM Treaty. START III negotiations are pending.

Key Provisions:

- ▶ START I calls for the United States and the Soviet Union to cut their strategic nuclear arsenals to 6,000 “accountable” warheads and 1,600 strategic nuclear delivery vehicles. No more than 4,900 warheads may be placed on ballistic missiles.
- ▶ Under START II, the U.S. and Russia must reduce their deployed strategic nuclear arsenals to between 3,000 and 3,500 warheads, none of which may be deployed on ICBMs with multiple independent re-entry vehicles (MIRVs). Furthermore, heavy ICBMs such as the Russian SS-18 must be eliminated, and no more than 1,700-1,750 warheads can be deployed on SLBMs, which may be MIRVed.
- ▶ START III proposes a ceiling of 2,000-2,500 warheads, although Russia would be willing to go down to 1,500 or fewer.

NOTES: Both Russia and the U.S. have reduced their strategic arsenals down to START I levels. However, section 1302 of the 1998 National Defense Authorization Act bars the U.S. from making any reductions below START I levels. The Bush administration may secure the repeal of this provision in 2002. President Putin of Russia has threatened to walk out of the START process if the U.S. unilaterally abrogates the ABM Treaty.

CHEMICAL WEAPONS CONVENTION (CWC)

STATUS: Entered into force April 29, 1997 for unlimited duration. 174 nations have signed, ratified, or otherwise acceded to the CWC. Notable non-signatories include Egypt, Iraq, Libya, North Korea, and Syria.

Key Provisions:

- ▶ The CWC bans the development, production, stockpiling, transfer and use of chemical weapons by all signatories, and requires them to destroy all their chemical weapons and chemical weapons production facilities.
- ▶ The CWC restricts the export of certain chemicals to non-adherents.
- ▶ The CWC regime monitors commercial facilities that produce, process or consume dual-use chemicals to ensure they are not diverted for prohibited purposes.
- ▶ The CWC creates a three-tiered verification system implemented by the Organization for the Prohibition of Chemical Weapons (OPCW) that includes inspections at declared sites and facilities, monitoring, and short notice challenge inspections with no right of refusal.

BIOLOGICAL AND TOXIN WEAPONS CONVENTION (BWTC or BWC)

STATUS: Entered into force March 26, 1975 for unlimited duration. 162 nations have signed, ratified, or otherwise acceded to the BWC. Notable non-signatories include Algeria, Israel, Kazakhstan, and Sudan.

Key Provision:

- ▶ The BWC bans the development, production, stockpiling, transfer, and use of biological weapons by all signatories, and requires them to destroy all their biological weapons and biological weapons production facilities.

NOTES: The BWC has no formal verification regime to monitor compliance. In 1995, the U.S. and other nations undertook negotiations to draw up a verification protocol to the convention by November 2001. A draft protocol was finally completed in 2001, but in July the U.S. rejected the protocol, effectively nullifying seven years of work.

MISSILE TECHNOLOGY CONTROL REGIME (MTCR)

STATUS: Voluntary agreement established April 16, 1987

Key Provisions:

- ▶ The members of the MTCR adopt a common export policy restricting the export of delivery systems and related technology for systems capable of carrying a 500kg payload at least 300km.
- ▶ The regime also prohibits the export of all systems intended to deliver chemical, biological, or nuclear weapons. MTCR applies to ballistic missiles, space-launch vehicles, sounding rockets, unmanned air vehicles, cruise missiles, drones, and remotely-piloted vehicles.

Members: Argentina, Australia, Austria, Belgium, Brazil, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, The Netherlands, New Zealand, Norway, Poland, Portugal, the Russian Federation, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States.

NOTES: South Korea and China have agreed to abide by MTCR guidelines.

ZANGGER COMMITTEE (ZAC)

STATUS: Informal and non-binding limited-membership committee established in 1971

Key Provisions:

- ▶ Members of ZAC compiled and update a “trigger list” of source or special fissionable materials and equipment for processing, production or use of fissionable materials.
- ▶ When an item on the trigger list is exported to a non-nuclear weapons state that is not a signatory to the NPT, three conditions are required: an assurance that the item is for a non-explosive use, IAEA safeguards, and a retransfer provision that applies the same conditions to any re-export attempted.

Members: Argentina, Australia, Austria, Belgium, Bulgaria, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Republic of Korea, Latvia, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, Slovakia, South Africa, Spain Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States.

NUCLEAR SUPPLIERS GROUP (NSG or London Club)

STATUS: Limited-membership group established November 1975.

Key Provisions:

- ▶ NSG has outlined guidelines for nuclear exports (materials, reactors, components, equipment, technology, etc.) and nuclear-related exports (dual-use items and technologies).
- ▶ NSG seeks to ensure that nuclear and dual-use exports do not contribute to nuclear weapons or explosive devices by requiring IAEA safeguards (usually full-scope), physical protection against theft, control of re-transfer, and acceptance of the ZAC trigger list.

Members: Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Canada, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Republic of Korea, Latvia, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, the Russian Federation, Slovak Republic, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States. Permanent Observer: European Commission.

AUSTRALIA GROUP (AG)

STATUS: Voluntary, informal, limited membership association established 1985.

Key Provisions:

- ▶ Maintains a list of chemical precursors, chemical and biological weapons equipment, and biological agents and organisms.
- ▶ Places agreed export controls (licensing and monitoring) on list items to counter chemical and biological weapon proliferation. Also holds information exchanges.

Members: Argentina, Australia, Austria, Belgium, Canada, Czech Republic, Republic of Cyprus, Denmark, European Union Commission, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Republic of Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland, Republic of Turkey, the United Kingdom, and the United States.

HIGHLY ENRICHED URANIUM PURCHASE AGREEMENT

On February 18, 1993, the U.S. agreed to buy 500 tons of low-enriched uranium derived from HEU taken from Russian nuclear weapons. The 500 tons are to be purchased by the United States Enrichment Corporation (USEC) over a period of 20 years and will be used in commercial power reactors. The agreement benefits the U.S. both by eliminating HEU in Russian nuclear weapons and providing a source of reactor fuel. Russia receives much-needed money that can in turn be used to secure its remaining nuclear materials. As of May 2001, 115 metric tons of HEU had been blended down for sale to the U.S.

PLUTONIUM DISPOSITION AGREEMENT

Under an agreement signed on June 4, 2000 by former President Bill Clinton and Russian President Vladimir Putin, the U.S. and Russia each pledged to dispose of at least 34 metric tons of weapons-grade plutonium by immobilizing it or converting it into reactor fuel. Both Russia and the United States now place a lower priority

on immobilization, and will accelerate their work on construction of new industrial-scale facilities for conversion of the plutonium and its fabrication into fuel. The Agreement requires each Party to seek to begin operation of such industrial-scale facilities by 2007, to achieve a disposition rate of at least 2 metric tons of weapons-grade plutonium per year and, working with other countries, to identify additional capacities to double that disposition rate.

NOTES: The future of U.S.–Russian plutonium disposition efforts is very much in doubt. On August 21, 2001, the New York Times reported that a recent Bush administration review of U.S.–Russian cooperative security programs was highly critical of current plutonium disposition proposals. If the administration concurs with the review, it would effectively give up on getting started with disposition efforts anytime soon.

FISSILE MATERIAL CUTOFF TREATY (FMCT)

STATUS: The Conference on Disarmament established a committee to negotiate the FMCT on August 11, 1998.

Key Provision:

- ▶ The FMCT would ban production of fissile material for nuclear weapons or other nuclear explosive devices, though it will not apply to existing fissile material stockpiles, plutonium and HEU for non-explosive purposes, or non-fissile materials such as tritium. Thus far, little progress has been achieved in FMCT negotiations.

PRIORITIES FOR CONGRESS AND THE ADMINISTRATION

De-alert U.S. nuclear forces and pursue nuclear reductions down to the lowest possible level

In order for nonproliferation efforts to succeed, the U.S. must do its part to lead by example. Two of the most important actions the Bush administration can take are to de-alert all U.S. nuclear forces and to make deep cuts in the U.S. nuclear arsenal down to no more than 1,000 warheads.

During the Cold War, keeping nuclear forces on high alert ensured that the U.S. could mount a quick and devastating retaliatory attack in response to a massive Soviet nuclear strike. Today the threat of a massive first strike no longer exists. In the words of President Bush during his campaign, "Preparation for quick launch within minutes after warning of an attack was the rule during the era of superpower rivalry. But for today, for two nations at peace, keeping so many weapons on high alert may create unacceptable risks of accidental or unauthorized launch."¹³

The size of the U.S. nuclear arsenal is another dangerous vestige of the Cold War. The U.S. currently maintains roughly 7,300 nuclear weapons on ICBMs, ballistic missile submarines, and strategic bombers. President Bush has called for significant reductions below the START II ceiling of 3,000-3,500 warheads, vowing to stay committed to "achieving a credible deterrent with the lowest possible number of nuclear weapons consistent with our national security needs, including our obligations to our allies."¹⁴ In an effort to fulfill this pledge, the fiscal 2002 budget request for the Department of Defense calls for the elimination of the MX Peacekeeper missile force (50 missiles), reduction of the B-1B bomber force by one third (from 93 to 60 located at two bases), and conversion of two Ohio-class submarines to carry conventional weapons instead of nuclear weapons.

By following through with de-alerting and nuclear reductions, the Bush administration can show that the U.S. is serious about fulfilling its NPT commitment to eventual nuclear disarmament. Reductions would also reassure countries that have grown skeptical of the nonproliferation regime, especially after the Senate's defeat of the CTBT in October 1999.

Ratify the Comprehensive Test Ban Treaty

The CTBT is an essential component of an integrated strategy to prevent nuclear proliferation. By prohibiting nuclear explosions, the treaty would place significant technical constraints on the development and improvement of nuclear weapons. States with civilian nuclear programs would not be able to demonstrate a nuclear

deterrent capability. States with nascent nuclear weapons programs would be prohibited from testing more sophisticated weapons such as thermonuclear devices or warheads light and powerful enough to be delivered on ballistic missiles. Advanced nuclear weapon states such as Russia and the U.S. would find it more difficult to develop a new generation of nuclear weapons.

Critics of the CTBT claim that the treaty is not verifiable and that it would prevent the U.S. from maintaining a safe and reliable nuclear stockpile while doing nothing to deter countries determined to acquire nuclear weapons. Special Advisor to the President and Secretary of State General John Shalikashvili released a report in January 2001 that addressed these and other concerns. General Shalikashvili wrote, "The nation's nuclear arsenal is safe, reliable, and able to meet all stated military requirements. For as far into the future as we can see, the U.S. nuclear deterrent can remain effective under the Test Ban Treaty..."

On the issue of verification, the report concludes that the full suite of detection capabilities that will be available to the U.S. once it ratifies the CTBT constitutes a multi-layered system that will be able to detect almost any significant nuclear blast. These layers include the U.S. Atomic Energy Detection System; the International Monitoring System with seismic, hydroacoustic, infrasound, and radionuclide networks; and on-site inspections. The types of experiments and activities that could evade detection are unlikely to significantly improve a proliferator's nuclear weapons program.

In sum, the advantages of the CTBT outweigh its minimal risks and U.S. security is better served by ratifying the treaty than by not ratifying it. Once the U.S. ratifies the treaty, we will be in a better position to secure international cooperation on export controls, sanctions, and other multilateral responses to proliferation. On the other hand, the longer the U.S. waits to ratify, the more time we offer countries that want to renounce their NPT obligations a convenient excuse for doing so.

Expand and better coordinate DOE, DOD, and State Department non-proliferation programs in the former Soviet Union

Cooperative security programs with the former Soviet Union have achieved impressive results over their lifetimes. Over 5,000 former Soviet nuclear weapons and hundreds of ICBMs have been dismantled. Hundreds of missile silos and long-range bombers have been eliminated. Comprehensive security upgrades have been completed at 37 fissile material storage sites in Russia and are underway at several additional sites. Railcars and trucks used to transport nuclear materials have been made more secure. In the summer of 2000, the Nuclear Cities Initiative helped inaugurate the Avangard Technopark, a new industrial complex created on the site of the former Soviet nuclear weapons facility at Sarov.

Despite these successes, Russia still possesses some 20,000 deployed and "hedge" nuclear weapons, over 1,000 metric tons of HEU, and at least 160 metric tons of separated, weapon-usable plutonium. The stockpiles of fissile materials represent the equivalent of more than 40,000 potential nuclear weapons. Weapons experts and soldiers suffering from low morale or financial hardship may be tempted to sell nuclear weapons, weapon-usable materials, or expertise to would-be proliferators. Russian law enforcement officials have intercepted several such attempts.

In mid-January, a bipartisan task force led by former Senator Howard Baker (R-TN) and former White House Counsel Lloyd Cutler released a report echoing the need for an expansion of cooperative security programs in Russia. The report, "A Report Card on the Department of Energy's Nonproliferation Programs with Russia,"

BAKER/CUTLER REPORT ON NONPROLIFERATION PROGRAMS IN RUSSIA OUTLINE OF PROPOSED SPENDING

SECURING EXCESS RUSSIAN PLUTONIUM	TOTAL \$9 BILLION
Purchase and secure monitored storage of up to 100 MT:	\$3 billion
Conversion of plutonium pits to oxide:	\$1 billion
Immobilize or irradiate up to 100 MT:	\$5 billion
SECURING EXCESS RUSSIAN HEU (<i>rates established by HEU deal</i>)	TOTAL \$11 BILLION
Purchase additional 200 MT HEU:	\$4 billion
Downblend remaining excess HEU:	\$7 billion
IMPROVING SECURITY AND ACCOUNTING FOR NUCLEAR MATERIAL IN RUSSIA	TOTAL \$5 BILLION
MPC&A improvements would include material consolidation; equipment upgrades; training of operators, managers, and regulators; computerized inventory systems; upgrading security during transport, etc.	
DOWNSIZING AND RESTRUCTURING OF RUSSIA'S EXCESS NUCLEAR COMPLEX	TOTAL \$3 BILLION
Facility downsizing and preparation for civilian use:	\$2 billion
Employ knowledgeable nuclear personnel:	\$700 million
Replace Plutonium reactors:	\$300 million
ASSURE TRANSPARENCY IN RUSSIA AND VERIFY PROGRESS	TOTAL \$2 BILLION
TOTAL PROPOSED SPENDING	\$30 BILLION

Benchmark: 1 percent of current defense budget over an 8-10 year period.

concluded that the dangers posed by Russia's Cold War nuclear leftovers pose "the most urgent, unmet national security threat to the United States today"

The Baker/Cutler report found that the scope and funding of current nonproliferation programs in Russia fall well short of levels needed to address these continuing threats. Its major recommendation is that the U.S. should develop and implement an 8 to 10 year strategic plan to neutralize all nuclear weapons-usable materials in Russia and to prevent the outflow of Russian scientific expertise that could be used for nuclear or other weapons of mass destruction.

According to the task force, the strategic plan must include specific goals, criteria for success, and exit strategies, and will depend on increased transparency and access to Russian facilities. The plan should also take advantage of synergies between programs conducted by various departments in order to improve their overall effectiveness and implementation. Finally, the task force proposes establishing a high-level leadership position within the White House to improve government-wide coordination and support of these programs. Thus far, high-level leadership in these endeavors has been largely absent on the part of the Bush administration.

Secretary of Energy Spencer Abraham, in a hearing before the Senate Armed Services Committee in February 2001, stated that he would support cooperative threat reduction programs, and added that the Baker/Cutler report would "serve as a useful tool."

When asked by the Senate Committee on Foreign Relations for his opinion on the Baker/Cutler report, Secretary of State Colin Powell, replied: "I think they're right on...I agree with them entirely."

President Bush is also on record in support of these initiatives. In a November 19, 1999 campaign speech on foreign affairs, President Bush stated, "I will ask the Congress to increase substantially our assistance to dismantle as many of Russia's weapons as possible as quickly as possible."

During a February 16, 2000 Jim Lehrer News Hour interview, Bush reiterated his support, "We must continue to fund Nunn-Lugar and to dismantle those strategic and tactical nuclear weapons."

However, in a clear retreat from campaign pledges, the administration's fiscal 2002 budget included cuts in several crucial U.S. nonproliferation programs with Russia. Department of Energy nonproliferation programs suffered a \$100 million cut, and the Pentagon's Cooperative Threat Reduction Program was reduced \$40 million from fiscal 2001 levels.

It is imperative that Congress and the administration fully restore funding for cooperative threat reduction programs because they are the best line of defense against the serious threats posed by Russia's enduring nuclear weapon and fissile material stockpiles.

Pursue agreements with China and North Korea that curb their development and export of nuclear and ballistic missile technology

North Korea's moratorium on ballistic missile flight tests will remain in effect at least until 2003, and the Bush administration has signaled its intention to resume the process of negotiations begun by its predecessor. Last November China promised not to assist any country in the development of nuclear or ballistic missile capabilities, and pledged to draw up a list of dual-use components and technology that would be subject to strict export controls.

If the Bush administration acts on these opportunities quickly, it can effectively deal with two big pieces of the proliferation problem. Concluding a deal to end North Korea's missile program and exports would eliminate a major supplier of missile assistance to proliferating states. Assisting China in formulating and implementing its promised improvements in export controls would further handicap the nuclear and missile programs of proliferating states.

Make nonproliferation a key part of the policy agenda for South Asia

Nonproliferation should continue to be a key focus of the U.S. policy agenda for South Asia. Closer bilateral relations with India and Pakistan should be linked to progress on the following goals:

1. NON-DEPLOYMENT OF NUCLEAR WEAPONS

India and Pakistan currently lack sufficient financial and technological resources to put in place the sophisticated command, control, communications, and intelligence (C3I) mechanisms needed to support nuclear deployment. Thus, deploying nuclear weapons could dramatically increase the risk of accidental or unauthorized nuclear strike in South Asia. Allowing nuclear deployments would also signal acceptance of the nuclear weapon status of India and Pakistan, and could encourage other states to challenge the nonproliferation regime.

Finally, a decision to deploy could precipitate a return to nuclear testing. To be credible, nuclear weapons and delivery systems must work with a high degree of reliability and efficiency. India and Pakistan would almost

certainly require additional tests to perfect even a basic weapon design, let alone a warhead compact and sophisticated enough to be delivered on a ballistic missile. Although one of India's 1998 test explosions was reportedly a thermonuclear device, Indian officials have suggested and U.S. intelligence indicates that the test was at least a partial failure.

2. EXTENSION OF THE NUCLEAR TEST MORATORIUM AND SIGNATURE OF THE CTBT

Without the benefit of additional nuclear tests, India and Pakistan would be unable to field more sophisticated nuclear weapons, such as thermonuclear devices small enough to be launched on missiles. They would also not have enough confidence in weapon performance to permit large-scale deployments.

The U.S. should therefore encourage India and Pakistan to continue their moratorium on nuclear tests and pressure them to sign the CTBT. This will not be easy, especially since India and Pakistan are unlikely to sign unless the U.S. itself ratifies the treaty. Furthermore, Indian nuclear scientists have been pressuring their government not to sign the treaty.

However, whereas Pakistan previously refused to sign the CTBT on account of India's rejection of the treaty, its position is beginning to soften because of economic concerns. Japan has promised desperately needed aid amounting to over \$500 million if Pakistan signs the CTBT. In addition, several Pakistani officials have recently urged military leader Pervez Musharraf to sign. In June 2001, Pakistani Foreign Minister Abdul Sattar declared that Pakistan would not be the first country to resume nuclear testing on the subcontinent.

3. RESOLUTION OF THE KASHMIR DISPUTE

Efforts to prevent deployment must be complemented by high-level U.S. attention to the underlying security tensions that may create pressure to deploy, or worse, lead to the actual use of nuclear weapons. Specifically, the administration should continue to press India and Pakistan to achieve a peaceful and permanent resolution to the Kashmir dispute. This may prove to be a time-intensive and frustrating process, but it is crucial to long-term stability in South Asia.

4. STRONG EXPORT CONTROLS

The U.S. can cooperate with India and Pakistan to strengthen and better enforce controls on the export of nuclear and missile components and related technology. Both countries are already believed to have very good records on nonproliferation of sensitive technologies. In August 2000, the Pakistani government released a statement insisting that "Pakistan is unilaterally and unequivocally committed not to export any sensitive materials, equipment and technologies to any country," calling its record in this area "impeccable."

5. EVENTUAL ACCESSION TO THE NPT

Although India and Pakistan are unlikely to join the NPT anytime soon, the U.S. should continue to insist that the two countries eliminate their nuclear weapons and join the regime as non-nuclear weapon states. The goal of non-deployment only makes sense in this context of South Asian de-nuclearization. Moreover, paying lip service to the importance of nonproliferation while quietly tolerating India and Pakistan's nuclear programs could motivate other states to pursue nuclear capabilities and thus undermine the NPT.

Deny weapons of mass destruction to Iraq

The principal U.S. goal in Iraq should be to continue to thwart Saddam Hussein's attempts to reconstitute Iraq's nuclear, chemical, and biological weapons programs. The success of any sanctions regime will depend on full cooperation from Iraq's neighbors and support from states such as France and Russia that are growing increas-

ingly skeptical of sanctions in general. Moreover, any new sanctions regime will be tested early and often by Iraq, which may cut off oil supplies to other countries, or worse, threaten military action against them.

Do not deploy national missile defense

Nothing jeopardizes nonproliferation more than ballistic missile defense. Whereas President Bush and his national security team view anti-ballistic missile systems as a means to discourage proliferation, the reality may well be the opposite. Although Russian President Vladimir Putin agreed at the recent G-8 summit in Genoa to hold discussions with the U.S. on strategic offensive and defensive systems, he warned in a June 18, 2001 press conference that if the U.S. unilaterally withdraws from the ABM Treaty, Russia will augment its nuclear forces “multifold” by mounting multiple nuclear warheads on its ballistic missiles. It backed up this statement by testing an SS-19 missile capable of carrying six warheads.

An August 2000 national intelligence estimate reportedly predicted that China’s strategic nuclear arsenal could swell to ten times its present size — from 20 to 200 warheads — in response to NMD. A Chinese buildup would in turn create pressure in India to increase the size of its nuclear arsenal, and possibly even to consider deploying nuclear weapons. Pakistan would follow suit. Moreover, countries such as China and North Korea may resume missile exports to would-be proliferators.

Endnotes

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- ¹³ Press Conference at the National Press Club, May 23, 2000.
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