Attachment A

Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 July Through 31 December 2002

The Director of Central Intelligence (DCI) hereby submits this report in response to a Congressionally directed action in Section 721 of the FY 1997 Intelligence Authorization Act, which requires:

"(a) Not later than 6 months after the date of the enactment of this Act, and every 6 months thereafter, the Director of Central Intelligence shall submit to Congress a report on

> (1) the acquisition by foreign countries during the preceding 6 months of dual-use and other technology useful for the development or production of weapons of mass destruction (including nuclear weapons, chemical weapons, and biological weapons) and advanced conventional munitions; and
>
> (2) trends in the acquisition of such technology by such countries."

At the DCI's request, the DCI Weapons Intelligence, Nonproliferation, and Arms Control Center (WINPAC) drafted this report and coordinated it throughout the Intelligence Community. As directed by Section 721, subsection (b) of the Act, it is unclassified. As such, the report does not present the details of the Intelligence Community's assessments of weapons of mass destruction and advanced conventional munitions programs that are available in other classified reports and briefings for the Congress.

Acquisition by Country

As required by Section 721 of the FY 1997 Intelligence Authorization Act, the following are country summaries of acquisition activities (solicitations, negotiations, contracts, and deliveries) related to weapons of mass destruction (WMD) and advanced conventional weapons (ACW) that occurred from 1 July through 31 December 2002. We have excluded countries that already have established WMD programs, as well as countries that demonstrated little WMD acquisition activity of concern.

Iran

Iran continued to vigorously pursue indigenous programs to produce WMD—nuclear, chemical, and biological—and their delivery systems as well as ACW. To this end, Iran continued to seek foreign materials, training, equipment, and know-how. During the reporting period, Iran focused particularly on entities in Russia, China, North Korea, and Europe.

Nuclear. The United States remained convinced that Tehran pursued a nuclear weapons program, counter to its responsibilities as a party to the Nuclear Nonproliferation Treaty (NPT). To bolster its efforts to establish domestic nuclear fuel-cycle capabilities, Iran sought technology that can support fissile material production for a nuclear weapons program.

Iran tried to use its civilian nuclear energy program to justify its efforts to establish domestically or otherwise acquire assorted nuclear fuel-cycle capabilities. In August 2002, an Iranian opposition group disclosed that Iran was secretly building a heavy water production plant and a "nuclear fuel" plant. Press reports later in the year confirmed these two facilities using commercial imagery and clarified that the "fuel" plant was a large uranium enrichment facility located at Natanz. Imagery showed that Iran was burying the enrichment facility presumably to hide it and harden it against military attack. Following the press disclosures, Iran announced at the International Atomic Energy Agency (IAEA) September 2002 General Conference that it had "ambitious" nuclear fuel cycle plans and intended to develop all aspects of the entire fuel cycle. By the end of 2002, the IAEA had requested access to the enrichment facility at Natanz, but despite Iran's agreement in principle, the IAEA visit had yet to occur. The IAEA planned to investigate the newly disclosed facilities, including a verification of whether Iran has violated its NPT-required IAEA safeguards agreement in developing these facilities and the related technologies.

Although Iran claimed that its nascent enrichment plant is to produce fuel for Bushehr and other future power reactors, we remained convinced that Iran's true purpose was to develop fissile material production capabilities for nuclear weapons. Even if Iran allowed intrusive IAEA safeguards inspections at Natanz, there is serious risk that Iran could use technology developed there to build a separate covert facility. Although Iran claimed its heavy water plant was for peaceful purposes, Iran has no

large heavy water reactors for which it would need such amounts of heavy water. We believe Iran was pursuing the heavy water option in hopes of eventually building a heavy water reactor to produce plutonium for nuclear weapons. We also suspect that Tehran was interested in acquiring fissile material and technology from foreign suppliers to support its overall nuclear weapons program.

Despite Bushehr being put under IAEA safeguards, Russia's provision of expertise and manufacturing assistance helped Iran to develop its own nuclear technology infrastructure. In addition, facing economic pressures, some Russian entities showed a willingness to provide assistance to other nuclear projects within Iran. For example, an institute subordinate to the Russian Ministry of Atomic Energy (MINATOM) agreed to deliver in late 2000 equipment that was clearly intended for atomic vapor laser isotope separation, a technology capable of producing weapons-grade uranium. As a result of US protests, the Russian Government halted the delivery of some of this equipment to Iran.

Chinese entities continued to assist a zirconium production facility at Esfahan that will enable Iran to produce cladding for reactor fuel. As an adherent to the NPT, Iran is required to accept IAEA safeguards on its nuclear material. The IAEA's Additional Protocol required states to declare production of zirconium fuel cladding and gave the IAEA the right of access to resolve questions or inconsistencies related to the declarations, but Iran has made no moves to sign the Additional Protocol. Zirconium production was not subject to declaration or inspection.

Missile. Ballistic missile-related cooperation from entities in the former Soviet Union, North Korea, and China over the years helped Iran move toward its goal of becoming self-sufficient in the production of ballistic missiles. Such assistance during the second half of 2002 continued to include equipment, technology, and expertise. Iran, already producing Scud short-range ballistic missiles (SRBMs), was in the late stages of developing the Shahab-3 medium-range ballistic missile (MRBM), and announced its development of a new solid-propellant SRBM, the Fateh-110. In addition, Iran publicly acknowledged the development of follow-on versions of the Shahab-3. It originally said that another version, the Shahab-4, was a more capable ballistic missile than its predecessor but later characterized it as solely a space launch vehicle with no military applications. Iran's Defense Minister has also publicly mentioned a "Shahab-5." Such statements strongly suggested that Tehran intends to develop a longer-range ballistic missile capability.

Chemical. Iran is a party to the Chemical Weapons Convention (CWC). Nevertheless, during the reporting period it continued to seek chemicals, production technology, training, and expertise from Chinese entities that could further Tehran's efforts at achieving an indigenous capability to produce nerve agents. Iran already stockpiled blister, blood, and choking agents—and the bombs and artillery shells to deliver them—which it previously had manufactured. It probably also had made some nerve agents.

Biological. Even though Iran is part of the Biological Weapons Convention (BWC), Tehran probably maintained an offensive BW program. Foreign dual-use biotechnical materials, equipment, and expertise--primarily, but not exclusively, from entities in Western Europe and Russia--featured prominently in Iran's procurement efforts. While such materials had legitimate uses, Iran's biological warfare (BW) program also could have benefited from them. It is likely that Iran has capabilities to produce small quantities of BW agents, but has a limited ability to weaponize them.

Advanced Conventional Weapons. Iran continued to seek and acquire conventional weapons and production technologies, primarily from Russia, China, and North Korea. Since Russia announced in November 2000 that it was abrogating the Gore-Chernomyrdin Agreement, the Russian and Iranian Governments and firms have engaged in high-level discussions on a wide variety of military services and equipment--including air defense, naval, air and ground weapons, and technologies.

Contract negotiations, which may take years to complete, continued in the months after the signing of a military-technical cooperation agreement in October 2001. Various Russian officials and academicians suggested that sales under this new agreement could, in the next few years, make Iran Russia's third-largest arms customer, after China and India. Until that agreement is concluded, Russia will continue to deliver on existing contracts. Estimates of conventional arms sales to Iran of $300 million per year would put Iran's share of Russian sales worldwide at roughly 10 percent, compared to more than 50 percent going to China and India.

Iran's search for conventional weapons was global. In particular, Iran capitalized on the specialized weapons services and lower prices that China and North Korea have offered. Elsewhere, Iran sought out products, particularly weapons components and dual-use items, that are superior in quality to those available from Russia or that proved difficult to acquire through normal government channels.

Iraq

After four years in which it refused UN weapons inspections, on 16 November 2002, Iraq agreed to inspection by the United Nations Monitoring, Verification, and Inspection Commission (UNMOVIC) and the IAEA, and inspections commenced on 27 November 2002. On 7 December 2002, Iraq submitted a 12,200-page weapons declaration under United Nations Security Council Resolution 1441. In that declaration, Iraq still maintained that it possessed no WMD, including BW or CW. A full assessment or verification of that declaration was not completed by the end of 2002, but much of the declaration was a repeat of previous submissions, and in some instances disagreed with what UNMOVIC already knew. On 5 February 2003, US Secretary of State Powell briefed the UN Security Council that US intelligence indicated Iraq actively concealed prohibited activities and materials prior to and during UN weapons inspections.

UNSCR 1441, passed unanimously by the UN Security Council on 8 November 2002, declared Iraq in material breach of its disarmament obligations. Iraq never gave up completely on almost all aspects of its previous WMD and missile programs, and

continued to pursue ever more elaborate schemes for denial and deception. Between late 1998 and late November 2002, Baghdad denied UN inspectors entry into Iraq, and interfered with automated video monitoring systems previously installed by the UN at known and suspected WMD facilities in Iraq. Also, in recent years and during this reporting period, Baghdad diverted goods contracted under the Oil-for-Food Program for military purposes and increased solicitations and dual-use procurements--outside the Oil-for-Food process--some of which almost certainly went to prohibited WMD, missile, and other weapons programs. Baghdad doubtless also used some of the money it gained through its illicit oil sales to support its WMD efforts.

Nuclear. More than ten years of sanctions and the loss of much of Iraq's physical nuclear infrastructure under IAEA oversight have not diminished Saddam's interest in acquiring or developing nuclear weapons. Iraq's efforts to procure tens of thousands of proscribed high-strength aluminum tubes were of significant concern. All intelligence experts agreed that Iraq remained intent on acquiring nuclear weapons and that these tubes, if modified, could be used in a centrifuge enrichment program. Most intelligence specialists assessed this to be the intended use, but some believed that these tubes were probably intended for use as casings for tactical rockets.

Before the 1991 Gulf War, Iraq had an advanced nuclear weapons development program that focused on building an implosion-type weapon using highly enriched uranium. Baghdad attempted a variety of uranium enrichment techniques, the most successful of which were the electromagnetic isotope separation (EMIS) and gas centrifuge programs. After its 1990 invasion of Kuwait, Iraq initiated a crash program to divert IAEA-safeguarded, highly enriched uranium from its Soviet- and French-supplied reactors, but the onset of hostilities ended this effort. Defector reports provided tipoffs and IAEA inspectors (prior to 1998) made significant strides toward dismantling Iraq's pre-1991 nuclear weapons program, but Baghdad still has not provided complete information on all aspects of its nuclear program. In the absence of inspections from 1998 to late 2002, however, most analysts assessed that Iraq had reconstituted its nuclear program--unraveling the IAEA's hard-earned accomplishments. Since inspections restarted in late 2002, IAEA/INVO inspectors had not uncovered evidence of a reconstituted nuclear weapons program.

Iraq withheld significant details relevant to its nuclear program, including procurement information, technical documents, experimental data, accounting of materials, foreign assistance, and weapons design, and the role of Iraqi security services in concealing its nuclear facilities and activities.

Iraq largely retained its cadre of nuclear scientists and technicians, its program documentation, and sufficient dual-use manufacturing capabilities to support a reconstituted nuclear weapons program. Iraqi media reported numerous meetings between Saddam and nuclear scientists over the past two years, which signaled Baghdad's continued interest in reviving a nuclear program.

During the last half of 2002, Iraq's international trade expanded and provided growing access to nuclear-related technology and materials, and potential access to

foreign nuclear expertise. An increase in dual-use procurement activity in recent years might have supported a reconstituted nuclear weapons program. The acquisition of sufficient fissile material remained Iraq's principal hurdle in developing a nuclear weapon. Iraq was unlikely to produce indigenously enough weapons-grade material for a deliverable nuclear device for five to seven years. Baghdad could have produced a nuclear weapon within a year if it had procured weapons-grade fissile material abroad.

Missile. Iraq developed ballistic missiles that have flown beyond the 150-kilometer range limitation established under UNSCR 687. During the 1970s and 1980s, Iraq purchased 819 Scud B missiles from the USSR. Hundreds of these 300-km range missiles were used to attack Iranian cities during the Iran-Iraq War. Beginning in 1987, Iraq converted many of these Soviet Scuds into extended-range variants, some of which were fired at Tehran; some were launched during the Gulf war, and others remained in Iraq's inventory at war's end. Iraq admitted filling at least 75 of its Scud warheads with chemical or biological agents and deployed these weapons for use against Coalition forces and regional opponents, including Israel in 1991. UNSCOM also discovered that some missiles had been armed with biological agents.

Most of the approximately 90 Scud-variant missiles Saddam fired at Israel, Saudi Arabia, and Bahrain during the 1991 Gulf war were al-Husayn variants that the Iraqis modified by decreasing the payload weight and lengthening the airframe to increase propellant capacity, which extended the range to 650 km.

Baghdad developed other longer-range missiles based on Scud technology, including the 900-km al-Abbas. Iraq designed follow-on multi-stage and clustered medium range ballistic missile (MRBM) concepts with intended ranges up to 3,000 km. Iraq also had a program to develop a two-stage missile, called the Badr-2000, using a large solid-propellant motor first stage with an estimated range of 750 to 1,000 km.

Based on discrepancies in Baghdad's declarations and in numerous intelligence reports over the past decade from sources inside Iraq, we assessed that Iraq retained a small force of up to a few dozen Scud-variant missiles and an undetermined number of launchers and warheads. Further, Iraq never explained the disposition of advanced missile components, such as guidance and control systems, that it could not produce on its own and that would be critical to developmental programs.

Iraq continued to work on shorter-range ballistic missiles, the liquid-propellant al-Samoud-II and the solid-propellant al-Fat'h short-range ballistic missiles (SRBMs). The al-Fat'h was formerly known as the Ababil-100. Iraq admitted and we know from intelligence that the al-Samoud-II and the al-Fat'h SRBMs both flew beyond the 150-km UN limit. Both missiles were tested aggressively and deployed to military units. In advance of UN inspections, Iraq moved components and support equipment of the al-Fat'h missile from the al-Musayyib rocket test facility and from the Ibn al Haytham facility in November 2002.

Other evidence strongly suggested that Iraq modified missile testing and production facilities to produce even longer-range missiles. The Al-Rafah-North Liquid Propellant Engine Research, Development, Testing, and Evaluation (RDT&E) Facility was Iraq's principal site for the static testing of liquid propellant missile engines. Baghdad had been building a new test stand there that was much larger than the test stand associated with al-Samoud engine testing and the defunct Scud engine test stand. A plausible explanation for this test facility was that Iraq intended to test engines for longer-range missiles prohibited under UNSCR 687. We also had separate information that suggested that Iraq pursued a longer-range liquid-propellant missile capable of flying beyond 1,200 km.

The Al-Mutasim Solid Rocket Motor and Test Facility, previously associated with Iraq's Badr-2000 solid-propellant missile program, was rebuilt and expanded in recent years. The Al-Mutasim site supported solid-propellant motor assembly, rework, and testing for the UN-authorized Ababil-100, but the size of certain facilities there, particularly those newly constructed between the assembly rework and static test areas, suggested that Baghdad was preparing to develop systems that are prohibited by the UN.

At the Al-Mamoun Solid Rocket Motor Production Plant and RDT&E Facility, the Iraqis, since the December 1998 departure of inspectors, rebuilt structures damaged during the Gulf war and dismantled by UNSCOM that originally were built to manufacture solid-propellant motors for the Badr-2000 program. UNMOVIC reported that this reconstruction included a building and two casting chambers that UNSCOM had dismantled because they were used to cast Badr-2000 motors. Also at Al-Mamoun, the Iraqis rebuilt two structures used to house the solid- propellant mixers for the Badr-2000 missile.

Iraq managed to rebuild and expand its missile development infrastructure under sanctions. Iraqi intermediaries sought production technology, machine tools, and raw materials, in violation of the arms embargo. UNMOVIC reported that Iraq illegally imported 380 SA-2/Volga engines. These were the same engines used in the al-Samoud 2 SRBM, and some were imported as recently as December 2002--when UNMOVIC inspectors were already in Iraq. The Iraqis completed a new ammonium perchlorate production plant at Al-Mamoun that supported Iraq's solid propellant missile program. Ammonium perchlorate is a common oxidizer used in solid-propellant missile motors. Baghdad would not have been able to complete this facility without technical and material assistance from abroad. In August 1995, Iraq was caught trying to acquire sensitive ballistic missile guidance components, including gyroscopes originally used in Russian strategic nuclear submarine-launched ballistic missiles, which demonstrated that Baghdad had pursued proscribed, advanced, long-range missile technology for some time. Iraqi officials admitted that, despite international prohibitions, they had received a similar shipment earlier that year.

Chemical. Renewed UN inspections in Iraq produced no substantial evidence of continued efforts on Iraqi CW during 2002. However, it was likely that Iraq sanitized the

ammunition dump at Taji for chemical weapons in November and December 2002, in anticipation of UN inspections. Iraq also bulldozed earth from large portions of the al-Musayyib chemical complex in July 2002, possibly in order to conceal evidence of CW.

We believed that, since December 1998, Iraq increased its capability to pursue chemical warfare (CW) programs. After both the Gulf war in 1991 and Operation Desert Fox in December 1998, Iraq rebuilt key portions of its chemical production infrastructure for industrial and commercial use, as well as former dual-use CW production facilities and missile production facilities. Iraq attempted to purchase numerous dual-use items for, or under the guise of, legitimate civilian use. The suspension of UN inspections in December 1998 increased the risk of diversion of such equipment. In addition, Iraq admitted in December 2002 to repairing and installing equipment that had previously been destroyed under UNSCOM supervision. The equipment was reinstated at a civilian chemical plant and was also used at CW-related facilities, which produced chlorine and other chemicals. Some of these facilities could have been converted fairly quickly for production of CW agents.

UNSCOM reported to the UN Security Council in December 1998 that Iraq also continued to withhold information related to its CW program. For example, an Iraqi Air Force document--previously seized from UNSCOM inspectors but subsequently handed back over to UNMOVIC--indicated that Iraq had not used as many CW munitions during the Iran-Iraq war in the 1980s as had been declared by Baghdad. The discrepancy indicated that Iraq may have hidden an additional 6,000 CW munitions.

Biological. The last part of 2002 that saw UN inspections renewed inside Iraq neither proved ongoing Iraqi BW work nor satisfactorily addressed any of the many outstanding BW concerns, but Baghdad continued to pursue a BW program during the second half of 2002. For example, imagery indicated that Iraq moved material out of the Amiriyah Serum and Vaccine Institute in November 2002 in anticipation of UN inspections.

Iraq in 1995 admitted to having an offensive BW program, but UNSCOM was unable to verify the full scope and nature of Iraq's efforts. UNSCOM assessed that Iraq was maintaining a knowledge base and industrial infrastructure that could be used to produce quickly a large amount of BW agents at any time. In addition, Iraq continued dual-use research that could improve BW agent R&D capabilities. On 5 February 2003, US Secretary of State Powell presented to the UN Security Council information from multiple human sources that indicated the existence of mobile biological agent production units.

Advanced Conventional Weapons. During the last six months of 2002, Iraq aggressively continued to seek advanced conventional warfare (ACW) equipment and technology. A thriving gray arms market and porous borders allowed Baghdad to acquire smaller arms, combat support equipment, maintenance services, and components for larger arms, such as spare parts for aircraft, air defense systems, and armored vehicles. Iraq also acquired some dual-use and production items that have application in the ACW arena through the Oil-For-Food program. Iraq developed and

tested unmanned aerial vehicles (UAVs) smaller than the full-size jet aircraft it previously tried to use. Some of these smaller UAVs were well suited for dispensing chemical and biological agents.

North Korea

Nuclear. The United States had been suspicious that North Korea has been working on uranium enrichment for several years. However, we did not obtain clear evidence indicating that North Korea had begun acquiring material and equipment for a centrifuge facility until mid-2002.

In 2001, North Korea began seeking centrifuge-related materials in large quantities. It also obtained equipment suitable for use in uranium feed and withdrawal systems. North Korea's goal appeared to be a plant that could produce enough weapons-grade uranium for two or more nuclear weapons per year when fully operational. We continued to monitor and assess North Korea's nuclear weapons efforts which, given the North's closed society and the obvious covert nature of the program, remains a difficult intelligence collection target.

In December 2002, North Korea announced its intention to resume operation of nuclear facilities at Yongbyon, which had been frozen under the terms of the 1994 US-North Korea Agreed Framework. IAEA seals and monitoring equipment were removed and disabled, and IAEA inspectors expelled from the country.

Missile. North Korea also has continued procurement of raw materials and components for its extensive ballistic missile programs from various foreign sources. In the second half of 2002, North Korea continued to abide by its voluntary moratorium on flight tests, but announced it may reconsider its September offer to extend the moratorium beyond 2003. The multiple-stage Taepo Dong-2—capable of reaching parts of the United States with a nuclear weapon-sized payload—may be ready for flight-testing. The North probably also worked on improvements to its current design. North Korea was nearly self-sufficient in developing and producing ballistic missiles and demonstrated a willingness to sell complete systems and components that enabled other states to acquire longer range capabilities earlier than would otherwise have been possible and to acquire the basis for domestic development efforts.

Chemical. North Korea is not a party to the Chemical Weapons Convention (CWC). Pyongyang has acquired dual-use chemicals that could potentially be used to support Pyongyang's long-standing chemical warfare program. North Korea's chemical warfare capabilities included the ability to produce bulk quantities of nerve, blister, choking and blood agent, using its sizeable, although aging, chemical industry. During the last half of 2002, North Korea possessed a sizeable stockpile of these agents and weapons, which it could have employed in a variety of delivery means.

Biological. North Korea has acceded to the Biological and Toxin Weapons Convention, but nonetheless has pursued biological warfare (BW) capabilities since the 1960s. Pyongyang acquired dual-use biotechnical equipment, supplies, and reagents

that could be used to support North Korea's BW efforts. As of the last half of 2002, North Korea was believed to have possessed a munitions production infrastructure that would have allowed it to weaponize BW agents, and may have such weapons available for use.

Libya

Nuclear. An NPT party with full-scope IAEA safeguards, Libya continued to develop its nuclear infrastructure. The suspension of UN sanctions provided Libya the means to enhance its nuclear infrastructure through foreign cooperation and procurement efforts. Tripoli and Moscow continued talks on cooperation at the Tajura Nuclear Research Center and a potential power reactor deal. Such civil-sector work could have presented Libya with opportunities to pursue technologies also suitable for military purposes. In addition, Libya participated in various technical exchanges through which it could have tried to obtain dual-use equipment and technology that could have enhanced its overall technical capabilities in the nuclear area. Although Libya made political overtures to the West in an attempt to strengthen relations, Libya's continued interest--as Qadhafi stated in a televised speech in March 2002--in nuclear weapons and nuclear infrastructure upgrades raised concerns.

Missile. The suspension of UN sanctions in 1999 allowed Libya to expand its efforts to obtain ballistic missile–related equipment, materials, technology, and expertise from foreign sources. Outside assistance—particularly from Serbian, Indian, Iranian, North Korean, and Chinese entities—remained critical to its ballistic missile development programs. Libya's capability might still be limited to its Scud-B missiles, but we could not have ruled out that Libya might have extended-range Scuds. With continued foreign assistance, Libya will likely achieve an MRBM capability—a long-desired goal—possibly through direct purchase from North Korea or Iran.

Chemical and Biological. Libya also remained heavily dependent on foreign suppliers for CW precursor chemicals and other key related equipment. Following the suspension of UN sanctions, Tripoli reestablished contacts with sources of expertise, parts, and precursor chemicals abroad, primarily in Western Europe. Tripoli still appeared to be working toward an offensive CW capability and eventual indigenous production. Evidence suggested that Libya also sought the capability to develop and produce BW agents.

Advanced Conventional Weapons. Following the suspension of UN sanctions, Libyan and Russian firms entered into contracts for conventional weapons, munitions, and upgrades and refurbishment for Libya's existing inventory of Soviet-era weapons.

Syria

Nuclear. Syria—an NPT signatory with full-scope IAEA safeguards—has a nuclear research center at Dayr Al Hajar. Russia and Syria have continued their long-standing agreements on cooperation regarding nuclear energy. In principle, broader

access to Russian expertise provided opportunities for Syria to expand its indigenous capabilities to pursue nuclear weapons.

Missile. During the second half of 2002, Damascus continued to receive help from abroad to establish a solid-propellant rocket motor development and production capability. Syria's liquid-propellant missile program had and will continue to depend on essential foreign equipment and assistance—primarily from North Korean entities. Damascus also continued its efforts to assemble—probably with North Korean assistance—liquid-propellant Scud missiles. In addition, Syria might be developing longer-range missile programs such as a Scud D or variants with probable assistance from North Korea and Iran.

Chemical and Biological. Syria sought CW-related expertise from foreign sources during the reporting period. Damascus already held a stockpile of the nerve agent sarin, but apparently tried to develop more toxic and persistent nerve agents. Syria remained dependent on foreign sources for key elements of its CW program, including precursor chemicals and key production equipment. It is highly probable that Syria also continued to develop an offensive BW capability.

Advanced Conventional Weapons. Syria continued to acquire relatively small quantities of ACW—mainly from Russia and other former Soviet-bloc suppliers. But Damascus' outstanding debt to Russia and inability to fund large purchases combined to hamper negotiations for the large quantity of equipment Syria needed to revitalize its aging defense forces. Damascus wanted Russian SA-10 and SA-11 air defense systems, MiG-29 and Su-27 fighters, and T-80 or T-90 main battle tanks, as well as upgrades for the aircraft, armored vehicles, and air defense systems already in its inventory. No breakthroughs in the sales or debt issue were noted, although high-level delegations continued to discuss weapons trade.

Sudan

Chemical and Biological. Sudan has aspired to develop a chemical warfare capability since the 1980s and probably received technical assistance from Iraq. Allegations of CW activities in Sudan were not confirmed. Sudan is a party to the CWC, but has only declared the possession of riot control agents. Sudan may be interested in a BW program as well.

Advanced Conventional Weapons. During the reporting period, Sudan sought a variety of military equipment from various sources. In the long-running civil war, as well as for a general military modernization campaign, Khartoum is generally sought older, less expensive ACW and conventional weapons that nonetheless offered more advanced capabilities than the weapons of its opponents and their supporters in neighboring countries. We remained concerned that Sudan might seek a ballistic missile capability in the future.

Chemical, Biological, Radiological, and Nuclear Terrorism

The threat of terrorists using chemical, biological, radiological, and nuclear (CBRN) materials continued to rise—particularly in the aftermath of the attacks on 11 September 2001. Many of the 33 designated foreign terrorist organizations and other nonstate actors worldwide have expressed interest in CBRN. Although terrorist groups probably will continue to favor long-proven conventional tactics such as bombings and shootings, arrests in Europe during the second half of 2002 indicate that international mujahidin terrorists were actively plotting to conduct chemical attacks.

Increased publicity surrounding the anthrax incidents since the September 11 attacks has highlighted the vulnerability of civilian and government targets to CBRN attacks.

One of our highest concerns is al-Qa'ida's stated readiness to attempt unconventional attacks against us. As early as 1998, Usama Bin Ladin publicly declared that acquiring unconventional weapons was "a religious duty."

Terrorist groups worldwide have ready access to information on chemical, biological, radiological, and to some extent, even nuclear weapons, via the Internet, publicly available scientific literature, and scientific conferences, and we know that al-Qa'ida was working to acquire some of the most dangerous chemical agents and toxins. A senior Bin Ladin associate on trial in Egypt in 1999 claimed his group had chemical and biological weapons. Documents and equipment recovered from al-Qa'ida facilities in Afghanistan show that Bin Ladin had a more sophisticated unconventional weapons research program than was previously known.

International mujahidin who undertook poison training at al-Qa'ida camps in Afghanistan have implemented what they learned. French police seized a chemical contamination suit and arrested a terrorist cell in December 2002 that allegedly was planning an attack using chemical agents. We know that at least one related group had ricin toxin in London at that same time for a future terrorist attack.

We also know that al-Qa'ida has ambitions to acquire or develop nuclear weapons and was receptive to any outside nuclear assistance that might become available. In February 2001, during the trial on the al-Qa'ida bombings of the American Embassies in Tanzania and Kenya, a government witness—Jamal Ahmad Fadl—testified that al-Qa'ida pursued the sale of a quantity of purported enriched uranium (which in fact probably was scam material) in Sudan in the early 1990s.

We assessed that terrorist groups were capable of conducting attacks using radiological dispersal devices, at least in their cruder versions--i.e., ones that would not cause large-scale casualties, even though they could have caused tremendous psychological effects, particularly on an ill-informed public, and possibly created considerable economic disruption as well. This type of threat first appeared in November 1995 when Chechen rebels placed a package containing radioactive cesium on a bench in Moscow's Izmailovo Park. In addition, we were alert to the very real possibility that al-Qa'ida or other terrorist groups might have also tried to launch

conventional attacks against the chemical or nuclear industrial infrastructure of the United States to cause panic and economic disruption.

Key Suppliers

Russia

Russia's cash-strapped defense, biotechnology, chemical, aerospace, and nuclear industries continued to be eager to raise funds via exports and transfers. In addition, some Russian universities and scientific institutes showed a willingness to earn much-needed funds by providing WMD or missile-related teaching and training for foreign students. Given the large potential proliferation impact of such exports, transfers, and training, monitoring the activities of specific entities as well as the overall effectiveness of the Russian Government's nonproliferation regime remained a high priority.

Nuclear. During the second half of 2002, Russia continued to play a key role in supporting civilian nuclear programs in Iran, primarily the Bushehr Nuclear Power Plant project. The ostensible purpose of Russian assistance to Iran's nuclear infrastructure was for civilian applications, but we assessed that such support enhanced Tehran's ability to support a nuclear weapons development effort.

President Putin in May 2000 amended the presidential decree on nuclear exports to allow Russia in exceptional cases to export nuclear materials, technology, and equipment to countries that do not have full-scope IAEA safeguards. For example, Russia supplied India with material for its civilian nuclear program in 2001.

Missile. Russian entities during the reporting period continued to supply a variety of ballistic missile-related goods and technical know-how to countries such as Iran, India, and China. Iran's earlier success in gaining technology and materials from Russian entities helped to accelerate Iranian development of the Shahab-3 MRBM, and continuing Russian entity assistance most likely supported Iranian efforts to develop new missiles and increase Tehran's self-sufficiency in missile production.

Chemical and Biological. During the second half of 2002, Russian entities remained a key source of dual-use biotechnology equipment and expertise for Iran. Russia's biological and chemical expertise made it an attractive target for Iranians who sought technical information and training on BW and CW agent production processes.

Advanced Conventional Weapons. Russia continued to be a major supplier of conventional arms. Following Moscow's abrogation of the Gore-Chernomyrdin agreement in November 2000, Russian officials stated that they saw Iran as a significant source of potential revenue from arms sales and believed that Tehran could become Russia's third-largest conventional arms customer after China and India. In 2001, Russia was the primary source of ACW for China, Iran, Libya, and Sudan, and one of the largest sources for India. As an example, Russia actively marketed its thermobaric weapons at international arms shows.

Russia continued to be the main supplier of technology and equipment to India's and China's naval nuclear propulsion programs. In addition, Russia discussed leasing nuclear-powered attack submarines to India.

Export Controls. The Duma enacted new export control legislation in 1999, and Putin in 2000 and 2001 reorganized the export control bureaucracy to establish an interdepartmental export control coordinating body, the Export Control Commission of the Russian Federation. This organization was to establish federal oversight over export control, including compliance with international export control standards. Further, in 2001, Putin signed into effect several of the new law's implementing decrees, which updated export control lists for biological pathogens, chemicals, missiles, and related dual-use technologies and equipment. In May 2002, Russia amended its criminal code to allow for stricter punishment for violations involving the illegal export of material, equipment, and scientific-technical information that may be used in creating WMD or military equipment. The Code of Administrative Violations was also updated and became law as of July 2002. This enactment provided the Department for Export Control (under the Ministry of Economic Development and Trade) with significant administrative enforcement authority.

Despite progress in creating a legal and bureaucratic framework for Russia's export controls, lax enforcement remained a serious concern. To reduce the outward flow of WMD and missile-related materials, technology, and expertise, top officials must make a sustained effort to convince exporting entities—as well as the bureaucracy whose job it is to oversee them—that nonproliferation is a top priority and that those who violate the law will be prosecuted.

North Korea

Missile. Throughout the second half of 2002, North Korea continued to export significant ballistic missile–related equipment, components, materials, and technical expertise to the Middle East, South Asia, and North Africa. Pyongyang attached high priority to the development and sale of ballistic missiles, equipment, and related technology. Exports of ballistic missiles and related technology were one of the North's major sources of hard currency, which supported ongoing missile development and production.

China

Over the past several years, Beijing improved its nonproliferation posture through commitments to multilateral arms control regimes, promulgation of export controls, and strengthened oversight mechanisms, but Chinese entities remained key suppliers of WMD and missile-related technologies to countries of concern.

Nuclear. In October 1997, China agreed to end cooperation with Iran on supplying a uranium conversion facility (UCF), not to enter into any new nuclear cooperation with Iran, and to bring to conclusion within a reasonable period of time the two existing projects. We were concerned that some interactions between Chinese and Iranian entities ran counter to Beijing's expressed bilateral commitments to the United States. China also made bilateral pledges to the United States that go beyond its 1992

NPT commitment not to assist any country in the acquisition or development of nuclear weapons. For example, in May 1996, Beijing pledged that it would not provide assistance to unsafeguarded nuclear facilities. We cannot rule out, however, some continued contacts subsequent to the pledge between Chinese entities and entities associated with Pakistan's nuclear weapons program.

Missile. In November 2000, China committed not to assist, in any way, any country in the development of ballistic missiles that could be used to deliver nuclear weapons, and in August 2002, as part of its commitment, promulgated a comprehensive missile-related export control system, similar in scope to the Missile Technology Control Regime (MTCR) Annex. China is not a member of the MTCR, but on several occasions has pledged not to sell MTCR Category I systems.

However, Chinese entities continued to provide Pakistan and Iran with missile-related technical and material assistance during the reporting period. Pakistan has also moved toward domestic serial production of solid-propellant SRBMs with the help of Chinese entities. Pakistan also needed continued Chinese entity assistance to support development of solid-propellant MRBMs. Ballistic missile-related assistance helped Iran move toward its goal of becoming self-sufficient in the production of ballistic missiles. In addition, firms in China provided dual-use missile-related items, raw materials, and/or assistance to several other countries of proliferation concern—such as Iran, Libya, and North Korea.

Chemical. Since 1997, the US imposed numerous sanctions against Chinese entities for providing material support to the Iranian CW program. Evidence during the current reporting period showed that Chinese firms still provided dual-use CW-related production equipment and technology to Iran. In October 2002, China promulgated new controls on biological items and updated chemical-related regulations, and now controls all major items on the Australia Group lists.

Advanced Conventional Weapons. China remained a primary supplier of advanced conventional weapons to Pakistan and Iran, and other countries. During the reporting period, Islamabad continued to negotiate with Beijing for China to build up to four frigates for Pakistan's navy.

Western European Countries

Iran and Libya continued to approach entities in Western Europe and the US to provide needed acquisitions for their WMD and missile programs. Proliferators and associated networks continued to seek machine tools, spare parts for dual-use equipment, and widely available materials, scientific equipment, and specialty metals. Although western European countries strove to tighten export control regulations, Iran continued to successfully procure dual-use goods and materials from Europe. In addition, several Western European countries remained willing to negotiate ACW sales to Libya, India, Pakistan, and other countries in order to preserve their domestic defense industries.

Western European countries were still an important source for the proliferation of WMD- and missile-related information and training. The relatively advanced research of European institutes, the availability of relevant dual-use studies and information, the enthusiasm of scientists for sharing their research, and the availability of dual-use training and education may have shortened development time for some WMD and missile programs, including those of terrorist organizations.

Emerging State and Non-State Suppliers

As nuclear, biological, chemical, and ballistic missile-applicable technologies continued to be more broadly available around the world, new sources of supply emerged that made the challenge of stemming WMD and missile proliferation even more complex and difficult. Nuclear fuel-cycle and weapons-related technologies have spread to the point that, from a technical view, additional states may be able to produce sufficient fissile material and to develop the capability to weaponize it. As developing countries expanded their chemical industries into pesticide production, they also advanced toward at least latent chemical warfare capability. Likewise, additional non-state actors became more interested in the potential of using biological warfare as a relatively inexpensive way to inflict serious damage. The proliferation of increasingly capable ballistic missile designs and technology posed the threat of more countries of concern developing longer-range missiles and imposing greater risks to regional stability.

In this context, there was a growing concern that additional states that have traditionally been recipients of WMD and missile-related technology might have followed North Korea's practice of supplying specific WMD-related technology and expertise to other countries or by going one step further to supply such expertise to non-state actors. Even in cases where states took action to stem such transfers, there were growing numbers of knowledgeable individuals or non-state purveyors of WMD- and missile-related materials and technology, who were able to act outside government constraints. Such non-state actors were increasingly capable of providing technology and equipment that previously could only be supplied directly by countries with established capabilities.