

Dismantling the Cold War

**U.S. and NIS Perspectives
on the Nunn-Lugar
Cooperative Threat Reduction Program**

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Chapter 10

Implementing the CTR Program in Kazakhstan

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Kazakhstan played a critical role in the Soviet nuclear weapons program and in the Soviet Union's overall nuclear strategy during the Cold War. Uranium, beryllium, and other strategic materials were mined and processed for use in Soviet reactors and in the Soviet weapons complex in Kazakhstan. Nuclear research was carried out in Kazakhstani facilities that supported Soviet reactor design and development. Hundreds of nuclear weapons tests were carried out at Semipalatinsk, in eastern Kazakhstan, and hundreds of heavy intercontinental ballistic missiles (ICBMs), armed with nuclear warheads, were deployed at missile fields in various parts of the republic.

Kazakhstan is now laboring to dismantle the weapons legacy left behind by the Soviet Union and redirect the country's strategic resources and talents to peaceful purposes. Although Kazakhstan has received assistance in this effort from a number of sources, the U.S. Nunn-Lugar Cooperative Threat Reduction (CTR) Program remains the most serious effort to date to address these problems. The program is viewed as an extremely important initiative in Kazakhstan. However, there is a growing sense of skepticism regarding its effectiveness, and attempts by legislators in the U.S. Congress in Fiscal Year (FY) 1995 to reduce the program's funding by nearly half met with great concern in Almaty. It is worth emphasizing that since the CTR Program was first introduced, its purpose and implementation mechanisms were well understood in Kazakhstan, and officials there never viewed it as a means of reaping financial reward.

Kazakhstan shares the U.S. goals of nonproliferation and nuclear risk reduction, and it was in the spirit of these goals that Kazakhstan actively joined the CTR Program and is successfully implementing its main tasks, removal of nuclear weapons from Kazakhstan's territory and dismantlement of the infrastructure that supported development of nuclear weapons and other weapons of mass destruction. Criticism of

the program in the United States and periodic calls for reducing or eliminating it have perhaps been inspired by the illusion that the denuclearization process is simple and virtually cost-free. However, reduction or elimination of this vital program would have several negative consequences. Besides its direct impact on Kazakhstan's denuclearization plans, reductions in CTR funding at this critical juncture would reduce Kazakhstan's basic trust in the policies of the United States.

The Status of CTR Projects in Kazakhstan

According to assessments by Kazakstani government officials and technical experts, prior to 1996, the CTR Program was implemented slowly in almost every area, with the exception of its most basic projects, such as establishing a government-to-government communication link between Washington and Almaty to facilitate data reporting for arms control agreements. Although the CTR Program has been in effect for more than four years, the rate at which specific projects have been implemented has been quite slow. In fact, several CTR projects only began implementation in 1994. However, since the spring of 1995, some promising changes have been instituted in the program to improve its implementation in significant ways.

In April 1995, Kazakhstan fulfilled its main obligation under the START I agreement when the last of Russia's nuclear warheads—more than 1,400 in total—were removed from Kazakstani territory and transferred to Russia.¹ Among the CTR projects being implemented in

1. This was officially confirmed by the Kazakstani Foreign Ministry on May 24, 1995. See Doug Clarke, "Kazakhstan Free of Nuclear Weapons," *OMRI Daily Digest*, April 26, 1995, p. 2-3; Doug Clarke, "Kazakhstan Confirms It Is Nuclear Free," *OMRI Daily Digest*, May 25, 1995, p. 3. At the time that the last of these warheads were transferred back to Russia, one undetonated nuclear device with a yield of approximately 0.4 kilotons remained buried in Degelen Mountain at Kazakhstan's Semipalatinsk nuclear test site. The device, which was to be used in a 1991 physical irradiation experiment, had been buried in a 592-meter-long tunnel approximately 130 meters from the surface. In August 1991, the test range was closed, the test was never conducted, and the undetonated bomb was left buried. A joint Russian-Kazakstani commission had considered dismantling the device and shipping it to the Chelyabinsk-70 nuclear center for further disassembly. Concern over a possible accident, however, led the commission to recommend that the device be destroyed by conventional explosives. The device was subsequently destroyed in this manner.

Kazakstan, four are of particular importance: destruction of strategic delivery systems; creation of an export control system; improvement of management and control of nuclear materials; and conversion of the Kazakstani defense industry.

Several governmental organizations in Kazakstan participate in the negotiation and implementation of these CTR projects. Destruction of missile systems and missile silos involves the Ministry of Defense, the Committee for Defense Industry, the Kazakstan State Corporation for Nuclear Energy (KATEP), and a number of other state bodies. A governmental commission coordinates this work. Several ministries and agencies are involved in developing a national system of export controls, including the Ministries of Internal Affairs, Defense, Industry and Trade, and Economics, the Committee for Defense Industry, the Atomic Energy Agency, and the Customs Committee. Moreover, a Government Commission for Export Control has been established that eventually will be the main agent setting policy in the export control area.

Defense conversion projects are overseen by the Committee for Defense Industry and the Ministry of Economics, in consultation with other experts, particularly members of the International Executive Service Corps (IESC), an association of retired U.S. industry officials. Joint U.S.-Kazakstani organizations, working with the IESC and others, also play a role in CTR defense conversion projects. Details of ongoing work in each of these areas and the success with which CTR projects are being implemented are outlined below.²

on May 31, 1995, at 13:16 Almaty time. See Douglas Busvine, "Kazakstan to Blow Up Four-Year-Old Nuclear Device," Reuters, May 25, 1995; Bruce Pannier, "Kazakstan to Explode Nuclear Device," *OMRI Daily Digest*, May 24, 1995, p. 2.

2. In addition to the projects outlined below, which are of greater long-term interest to Kazakstan and for which work has been proceeding for some time, the United States and Kazakstan have reached agreement on a multiyear cooperative effort to permanently seal the Degelen Mountain nuclear test tunnel complex at the Semipalatinsk site. The cooperative project, signed in October 1995, will demilitarize the complex using environmentally sound methods to close and seal its tunnels. The complex was the site of Soviet nuclear tests from 1961 to 1969. The project, to be executed by the Defense Nuclear Agency and the National Nuclear Center of Kazakstan, is targeted for completion in 1999, with a minimum of 60 tunnels sealed each year. Six million dollars were designated to cover the project's first phase, a geological and radiological survey of the complex, to determine the most appropriate means of sealing the tunnels there.

MISSILE SILO DESTRUCTION

Strategic offensive arms elimination represents the largest share of Nunn-Lugar obligations in Kazakhstan, but until very recently, it has been one of the slowest projects to be implemented, measured in terms of dollars disbursed compared to dollars obligated to this project. The major task under this Nunn-Lugar project is to provide assistance in destroying SS-18 ballistic missile silos in Kazakhstan, in accordance with START requirements.³

This project began in the summer of 1994. However, it was only in February 1996 that the U.S. Department of Defense (DOD) awarded a contract for destroying the silos to a joint-venture team composed of the Swedish-Swiss industrial group ABB and the Houston-based construction company Brown and Ruth. Under the terms of the \$31 million contract, these companies are to destroy 148 missile silos located in four different missile fields in Kazakhstan. Kazakhstan has taken upon itself the responsibility for destroying the command and control apparatus for these ICBMs under the terms of a previous agreement with the United States.⁴

A key factor that has slowed implementation of this project is the need to coordinate work plans with Russia, which is understandably concerned with preserving sensitive or secret information about the unique construction of its silos in Kazakhstan. These security concerns have been resolved, but they delayed the project by several months. Some delays in work schedules also arose because of unfavorable winter weather conditions at these sites.

A more fundamental problem that has affected progress on silo destruction is the lack of enthusiasm for the project in Kazakhstan, a result of the CTR Program's requirement that most technical work in this area be conducted by U.S. and other foreign companies and non-Kazakstani personnel. Use of mostly American labor is unjustified considering its relatively high cost. Enterprises in Kazakhstan are

3. According to the January 1996 START Memorandum of Understanding, 22 SS-18 ICBMs and 24 associated silos remain deployed in Kazakhstan. Under START rules, ICBMs remain accountable until they are removed from their silos and their bases, and silos remain accountable until they are destroyed. See U.S. Arms Control and Disarmament Agency, *START Treaty Memorandum of Understanding Data for Republic of Kazakhstan*, January 1, 1996, Annex A, p. 7.

4. Francis Williams, "Foreign Companies Will Help Kazakhstan Dismantle Missile Silos," *Finansovye izvestia*, No. 20, February 23, 1996, p. 1.

particularly interested in working with American firms in significant stages of the project, which would give them desperately needed work as well as opportunities to develop contacts with U.S. technical experts and industrial managers. Instead, Kazakstani specialists have been limited to participating in only the low-technology and low-skill aspects of silo destruction.

EXPORT CONTROLS

As with other aspects of its economic and security policies, Kazakhstan began work on establishing a viable system of export and border controls almost from the moment of its independence from Moscow in December 1991. One of its first actions in the area of nuclear export controls, for example, was to sign the Minsk Accord of June 1992, whereby Kazakhstan, along with other former Soviet signatories, agreed to abide by Nuclear Suppliers Group guidelines in controlling exports of nuclear materials and nuclear-related dual-use materials.⁵

Almaty has made a high-level commitment to controlling the flow of technology, personnel, and strategic commodities across its borders. Kazakhstan's interest in rigorous supervision of exports is a component of its wider and long-standing concern for strengthening controls along its borders as a defense against the free movement of criminal or subversive elements into its territory. Kazakstani officials have repeatedly stressed that illegal exports and technological or economic espionage are among the country's most crucial domestic problems. A January 1996 presidential edict confirmed Almaty's commitment to this issue by outlining a menu of organizational and technical improvements that should be achieved by the year 2000. Crucial factors cited in this edict for developing stronger border controls include the implementation of more advanced technologies for detecting intruders and the development of a clearer, more organized and efficient Kazakstani infrastructure for its border control forces.⁶

5. Under the terms of the Minsk Accord, whose formal title is the "Agreement on the Basic Principles of Cooperation in the Field of Peaceful Use of Nuclear Energy," Commonwealth of Independent States (CIS) member signatories agree to follow the requirements of INFCIRC/209 (Zangger Committee) and INFCIRC/225 (NSG trigger list), Articles 1 and 5.

6. Oleg Khe, "Concept and Program of the Strengthening and Development of the Border Forces Drafted," *Panorama*, No. 3 (January 26, 1996), p. 15; this article is translated and reproduced in FBIS-UMA-96-040-S, January 26, 1996.

Kazakstan's export control system is still evolving, but the government has made significant progress building safeguards against technology proliferation. Enforcing controls over exports of strategic commodities and technologies is a formidable challenge for the republic, given its size and terrain and its common border with many Asian states. Moreover, following its independence from Moscow, Kazakstan lacked the legal framework for a national export control system as well as the robust administrative and technical infrastructure needed to maintain and enforce these controls.

The first step in this process was to develop the legal framework for controls over exports. For the first four years of Kazakstan's independence, export controls were based on executive decrees rather than national legislation.⁷ However, an export control law has now been developed that will put such controls on a much firmer legal basis and provide emerging Kazakstani enterprises with clearer, more stable procedures for exporting dual-use or other sensitive items. Nunn-Lugar assistance played an important role in supporting this legislative process. In the spring of 1995, Kazakstani officials conferred with U.S. legal and technical experts in a monthlong series of meetings in Washington, D.C., funded in part by the Nunn-Lugar Program. U.S. experts assisted these Kazakstani officials in developing early drafts of an export control law, using similar legislation already developed in Russia as a legal point of departure.

U.S.-Kazakstani collaboration helped to develop comprehensive legislation that established a system of export controls, limited export destinations, and designated government agencies responsible for monitoring and enforcement. A great deal of effort was devoted to coordinating emerging Kazakstani export control legislation with

7. Prior to the adoption of formal export control legislation in the spring of 1996, two presidential decrees formed the legal basis for export controls in Kazakstan: Decree No. 2021 (January 11, 1995) On Liberalization of Foreign Trade Activities, and Decree No. 66 (January 19, 1995) On the Order of Export and Import of Goods (Works, Services) on the Territory of the Republic of Kazakstan. These decrees stated that all goods except "goods of national importance" could be exported by any economic entity in Kazakstan. "Goods of national importance" included weapons, nuclear materials, production technology, and expertise, other military technologies, and certain dual-use commodities (e.g., radioactive isotopes), and could be exported only with the authorization of the Cabinet of Ministers. Cabinet of Ministers' Decree No. 183 (March 9, 1993) has also been a key component of Kazakstan's export control system.

similar laws in Belarus and Russia.⁸ The new law, *On Export Control of Weapons, Military Equipment, and the Production of Dual-Use Materials*⁹ was subsequently passed by the Mazhilis and the Senate (the lower and upper chambers of the Kazakstani Parliament) on May 3 and June 3, 1996, respectively. Nunn-Lugar funds have thus directly helped to lay a legislative foundation for export controls.

The second major task on the export agenda is to establish the organizational basis for monitoring and enforcing controls. On March 24, 1995, Resolution No. 338 of the Cabinet of Ministers, "On Measures for Further Development of the System of Export Control in the Republic of Kazakstan," created the Governmental Commission on Export Control (GCEC). The commission was given top-level status and is headed by First Vice Prime Minister Garry Shtoiik. Supervising agencies will be created within the commission to oversee particular categories of controlled commodities and products.

A final component of improved export controls is to train the personnel who will actually monitor and enforce these restrictions and to equip them with the technology appropriate to their tasks. It is in this aspect of export control development that the Nunn-Lugar Program has perhaps made the greatest contribution. Efforts to train export control personnel are continuing, with significant Nunn-Lugar assistance. Under one such project, U.S. technical experts participated in an export control training seminar held in July 1995 at the Kazakstan Institute of Strategic Studies.

8. Oleg Khe, "Law Prepared on Exports Controls of Military Products," *Panorama*, No. 7 (February 23, 1996), p. 3.

9. The law, which consists of 13 articles, specifies the export control responsibilities of the Cabinet of Ministers and the executive. It identifies items subject to export controls: weapons, including conventional weapons; materials used in weapons production; nuclear materials; dual-use materials, technology, and equipment; chemical materials and technology that can be used to produce chemical weapons; and disease agents that can be used to produce biological weapons. The law forbids the re-export of such items by recipient states to third countries once they are exported from Kazakstan. The law supports Kazakstan's participation in economic sanctions against states that violate international export control agreements. See "Mazhilis odobril zakonproyekt ob exportnom kontrole vooruzheniy, voennoy tekhniki, i produktsii dvoynogo naznacheniya" (Parliament adopts bill on export control of weapons, military technology, and dual-use items), *Panorama*, No. 17 (May 3, 1996), p. 2.

The United States and other foreign governments have pledged several million dollars to assist Kazakhstan with the technical aspects of export controls, particularly in the nuclear sphere. For example, the U.S. Department of Defense (in coordination with the Commerce Department and other agencies) has obligated more than \$7 million as of mid-1996 under the CTR Program for export control training, technical assistance, and equipment. Officials and experts of the U.S. Customs Service have helped Kazakstani specialists complete an assessment of Kazakstani export control procedures, automation efforts, and technical requirements, and have assisted development of a marine patrol program for the Caspian littoral. Some Nunn-Lugar funds have gone toward the purchase of six new coastal patrol boats on the Caspian Sea. The U.S. Energy and Commerce Departments have provided similar assistance.

Although export control legislation has been adopted, more work will be required before an effective system of export control is fully in place in Kazakhstan. The most important thing now is to train export control specialists in every ministry and government agency involved in this area. The difficulty here is to ensure that the financial incentives for lax oversight of exports from Kazakhstan—particularly of sensitive nuclear materials and technology—do not outweigh the goals of nonproliferation.

Another important issue that will affect future U.S.-Kazakstani cooperation in this area will be the evolving economic and political relationship between Kazakhstan and other newly independent states (NIS) of the former Soviet Union. In January 1995, Kazakhstan reached an agreement with Belarus and Russia to establish a customs union whereby customs controls along their common borders would be abolished.¹⁰ Russia and Kazakhstan have eliminated tariffs and trade

10. Kazakstani Resolution No. 367 and Resolution No. 381, passed on September 6, 1995, and September 19, 1995, respectively, established the legislative basis in Kazakhstan for the customs union. In turn, a December 1995 Moscow meeting between Kazakstani First Deputy Prime Minister Nigmatzhan Isingarín and Russian Under-Secretary Aleksei Bolshakov defined formal mechanisms to implement a customs union and strengthen bilateral economic collaboration. See "On the Affirmation of the Protocol of the Meeting of the Government Delegations from the Russian Federation and the Republic of Kazakhstan About the Conclusion of the First Stage in the Realization of the Agreement on a Customs Union," signed by the Republic of Belarus and the Russian Federation with the Republic of Kazakhstan in Moscow on January 20, 1995, from August 19, 1995, *Sobranie aktov*

volume restrictions and no longer operate most major customs checkpoints along their common border.¹¹ This is a quite natural outgrowth of the growing need to forge economic ties and develop economic opportunities with Kazakhstan's neighboring states. Measures such as these will be essential if the republic is to fulfill its economic and industrial potential and carry out its fledgling economic reforms. Russia was slow to formally ratify the customs union, which caused some concern in Kazakhstan's business community.¹² Nationalist political forces in Kazakhstan have also assailed the treaty, creating additional obstacles to its implementation.¹³ Nonetheless, the long-term trend is likely to be one of closer economic integration and cooperation among the NIS.

That such cooperation is increasing should not obscure the fact that Kazakhstan has made a strong, high-level commitment to controlling the illegal flow of technology and materiel, particularly in the nuclear sphere, across its frontiers. The United States should not let fears of economic collaboration among former Soviet states erode its support for Kazakhstan's export control improvements and other reforms. Nor should U.S. officials or lawmakers allow problems in the U.S. bilateral relationship with Russia to pollute the spirit of cooperation that has been built up with Kazakhstan since its independence.

presidenta Respubliki Kazakstan i pravitelstva Respubliki Kazakstan, November 30, 1995, pp. 53-55; and "On the Abolishment of Customs Control Along the Border of the Republic of Kazakstan and the Russian Federation," *Sobranie aktov presidenta Respubliki Kazakstan*.

11. "Derbisov on Customs Affairs, Security," *Kazakstanskaia pravda*, August 30, 1995, in FBIS-SOV-95-173, August 30, 1995.

12. According to Moukhtar Ablyazov, president of the company Astana-Kholding, delayed ratification reflected Moscow's attitude that the agreement was not established between "equal partners." See "They Do Not Give the 'OK' to the Customs House," *Pravda*, January 14, 1996, p. 1.

13. For example, upon returning from a February 1995 meeting in Moscow that included discussion of the union, Kazakstani Prime Minister Akezhan Kazhegeldin was assailed by nationalists for "betrayal of national interests." See "A New Trend In CIS Integration?" *The Monitor*, Vol. 1, No. 2 (Spring 1995).

FISSILE MATERIAL PROTECTION, CONTROL, AND ACCOUNTING

An important aspect of the growing problem of economic and technological espionage in Kazakhstan is the fact that much of the attempted illegal exports reported to date have involved nuclear-related commodities.¹⁴ A natural corollary to improvements in export and border controls, therefore, are enhancements to safeguards of fissile material at Kazakstani nuclear facilities, such as the BN-350 breeder reactor at Aktau and the research reactors at Almaty and Semipalatinsk. Kazakhstan is acutely aware of the implications of fissile material security for global efforts to control the proliferation of nuclear weapons. The republic has a strong economic interest in maintaining its nuclear industries and participation in worldwide commercial nuclear markets. It has thus taken a number of steps to be a responsible nuclear supplier and be in complete conformance with international nuclear safeguards and guidelines. Although as of mid-1996, Kazakhstan has not yet been accepted as a member of the Nuclear Suppliers Group, it has embraced, in a series of government decrees, the NSG guidelines for controlling exports of fissile and dual-use nuclear materials. Adoption by the parliament in June 1996 of export control legislation that includes the NSG control list represents another step toward formal compliance with all international norms of nuclear commerce.

Kazakhstan acceded to the Nuclear Non-Proliferation Treaty in February 1994; IAEA inspections are being implemented at all relevant Kazakstani nuclear facilities. However, the most important effort to secure Kazakhstan's fissile material is the on-going technical cooperation with the United States and other countries to improve material protection, control, and accounting (MPC&A). The United States and the Republic of Kazakhstan signed an MPC&A implementing agreement in December 1993. However, in 1994 and early 1995, while these activities remained under DOD stewardship, work on improving MPC&A at Kazakstani facilities proceeded at an exceedingly slow pace. The pace of activity accelerated considerably in 1995 when manage-

14. In a January 1995 interview, for example, Kazakhstan's State Security Committee Chairman Jenisbek Jumanbekov lamented the problem of economic espionage and outright theft, particularly of nuclear technology. Jumanbekov reported 406 cases of attempted illegal exports of raw materials for the year and said that his bureau was attempting to halt such thefts. See "Corrupt Business Rampant in Kazakhstan," *Post-Soviet Nuclear & Defense Monitor*, January 31, 1995, p. 11.

ment of these improvements was transferred, on the U.S. side, to the Department of Energy (DOE).

Thus far, the bulk of CTR MPC&A assistance has been in the form of training Kazakstani nuclear personnel in the principles of physical protection and material control and accounting. Representatives from the Almaty research reactor, the Kazakstani Atomic Energy Agency (KAEA), the Institute of Atomic Energy at Semipalatinsk, and the Aktau BN-350 reactor received MPC&A training from DOE specialists over a period of several months in late 1995 and early 1996. This, fortunately, has set the stage for more significant technological improvements to these facilities. DOE technical experts conducted site surveys at both Aktau and Almaty in early 1996 to lay the basis for designing potential MPC&A measures. DOE plans to install a spent fuel gate monitor at Aktau, and the Japanese government is cooperating with DOE in this effort. DOE has also provided MPC&A training and equipment (including a computer system) to personnel at the nuclear fuel fabrication plant overseen by the Ulba State Holding Company. Nuclear material security upgrades are also under discussion with officials at Semipalatinsk.

The Kazakstani government and specialists at Kazakstani nuclear facilities have welcomed MPC&A cooperation with the United States, particularly once this cooperation moved to a series of concrete, practical measures after 1995. Personnel on both sides have developed a solid rapport, and it appears likely that nuclear cooperation will continue to bear fruit. However, as in other areas of Nunn-Lugar cooperation, this program in the future must begin to make greater use of local expertise and locally available materials and supplies. Greater use of local resources may help to alleviate the financial burden facing the CTR Program, particularly in the nuclear field. Compared to Russia, the number of nuclear facilities in Kazakhstan is small, but this obscures the enormity of the MPC&A problem facing Kazakhstan. The full cost of bringing Kazakstani nuclear facilities up to date in terms of MPC&A should not be underestimated. The effort is likely to require resources that are well beyond those currently obligated under the program.

DEFENSE INDUSTRY CONVERSION

Conversion to civilian and commercial purposes of industrial enterprises devoted to military production under the Soviet system is of paramount importance to Almaty. Millions of dollars of CTR funding have been disbursed under the Defense Enterprise Fund toward

defense industry conversion in Kazakhstan. A nonprofit joint U.S.-Kazakstani Committee on Conversion has been established and is supported in its work by several entrepreneurial and nongovernmental organizations. Moreover, there has been an abiding interest in such conversion programs on the part of counterpart Kazakstani organizations. Yet, despite all of these positive forces at work and despite months of preliminary work, there are few successful examples of conversion.

The principal Kazakstani agency coordinating defense conversion work, the Committee for the Defense Industry under the Cabinet of Ministers, was created at the end of 1995. The Ministry of Science Academy of Sciences represents the Kazakstani side on the joint conversion committee with the United States. Considerable effort in implementing CTR projects for defense industry conversion has also been made by the International Executive Service Corps.

There have been several opportunities for U.S. officials and industry representatives to familiarize themselves with defense conversion opportunities in Kazakhstan. In 1994, for example, a Kazakstani delegation that included representatives from several of Kazakhstan's defense organizations visited the United States seeking American partners interested in joint defense conversion projects. In the spring of 1995, another seminar organized by the IESC for managers at Kazakstani defense industrial enterprises took place in Houston. The program was largely limited to the organizational aspects of conversion, that is, the allocation of resources for the establishment of industrial partnerships between Kazakstani and U.S. organizations. Occasions such as these have led Kazakstani officials to surmise that the United States is actively interested in conversion projects and that several such projects might be pending. However, fierce opposition in the U.S. Congress to NIS defense conversion initiatives and budget cuts in these programs have instead raised serious doubts in Kazakhstan as to the U.S. government's true intentions in this area.

Besides the erratic support of these efforts in the Congress, several factors can be identified that explain the lack of tangible progress on defense conversion in Kazakhstan. First, the economic crisis in Kazakhstan has prevented quick resolution of problems in the country's transportation, communication, and financial infrastructure, which is crucial to creating a stable environment for foreign investment and economic activity. Second, very little information has been provided to U.S. businesses and entrepreneurs about the possibilities of capital invest-

ment in Kazakhstan's economy. Nor is sufficient attention devoted to defense conversion issues in the Kazakstani media. Management of CTR defense conversion activities by the U.S. Department of Defense has also hampered progress. For example, DOD has engaged in the unfortunate practice of shifting from direct contracts signed with the Defense Special Weapons Agency to investments through the Defense Enterprise Fund (DEF), a private nonprofit corporation that underwrites U.S.-CIS joint business ventures. This has had critical impact in FY 1996, when the U.S. Congress chose to stop funding the DEF.

The decline in the volume of state-sponsored defense production has become a powerful stimulus for Kazakstani industrial enterprises to implement conversion plans. There are more than 130 organizations in Kazakhstan that were previously involved in defense programs of the Soviet Union and are now united under the aegis of the Committee on the Defense Industry. These organizations are structured as shareholder societies, government holding companies, and government shareholder companies, and they have at their disposal state-of-the-art equipment, technologies, and intellectual potential.

In order to revitalize Kazakhstan's defense conversion effort, U.S. and Kazakstani planners need to differentiate among the various types of industrial enterprises that exist in Kazakhstan from the Soviet era and to more carefully identify those that are the most promising candidates for conversion. This is especially true given the current mood regarding NIS defense conversion in the United States. Conversion programs must make better use of ever scarcer resources, and they must be able to demonstrate some key "successes" if momentum is to be built behind this effort.

There are several candidates for conversion in Kazakhstan's defense industrial complex. Facilities that produced conventional arms are the most stable and most mobile assets with the best chance of survival, and they are already in an active phase of conversion. One of the conversion projects involves a \$5 million contract with AT&T to jointly develop communication lines. After an initial period of delays, experts believe the project is now being carried out effectively. Probably the most successful project underway is the conversion of the former Gidromash plant in Almaty. As a result of the project, the joint venture Byelkamit has been created. The facility will produce high tech cryogenic tanks for export. There are also a number of candidate firms that were formerly associated with the production of strategic weapons. These tend to be more unwieldy organizations, although the majority

of investments will be directed to them. The future of these facilities will depend greatly on how well the CTR Program is implemented.

A third category of defense industrial enterprises include high-technology nuclear facilities. Their survival as scientific and economic complexes will in large measure depend on cooperation with Russia. Defense conversion work at the Kazakhstan nuclear test site at Semipalatinsk, for example, is being implemented within the guidelines of the CTR Program, and is coordinated by the Kazakstani Ministry of Science Academy of Sciences. A U.S.-Kazakstani joint enterprise, Semtek, was also created at the Institute of Atomic Energy in Kurchatov for the further conversion and use of the experimental complex there.

The fourth category of potential conversion activity concerns Kazakhstan's "uranium empire," the diminishing but still significant network of mining and processing industries. Out of an original 12 Kazakstani ore mining companies, only five remain. This last category does not lend itself easily to structural and technological reform and conversion. The future of other, related industries and facilities in Kazakhstan, such as the reactor fuel fabrication facility at Ulba, will in many ways depend upon the fate of the uranium industry as a whole. This industry could become a source of new financial opportunities for Kazakhstan, but it could also become a source of concern in the area of nonproliferation.

Problems of Financing

The fundamental question in CTR implementation is financial. Neither the public at large nor specialists in the field have a clear understanding of the finances required for disarmament, conversion, and nuclear security in Kazakhstan or the role of the resources allocated from the CTR Program. This is further complicated by the fact that there are often conflicting reports on the U.S. and Kazakstani sides of the levels of funding being allocated. Contributing to this uncertainty is the ever-changing policy of the United States, a consequence of the volatile situation in Congress. Moreover, even when they are accurate, financial figures do not by themselves give a clear indication of the processes involved in CTR implementation. For example, CTR resources initially promised to Kazakhstan and allocated for disarmament activities were estimated at between \$70 and \$150 million. However, in 1994, Russian experts testified that a sum of \$99.96 million would be required for

denuclearization activities alone in Kazakhstan, including \$5 million for management and control of nuclear materials.

In addition to direct assistance from the United States, Kazakhstan will likely continue to receive help through other channels. A number of foreign governments and international organizations contribute to projects on conversion, disarmament, nuclear security, export controls, and addressing the "brain drain" of Kazakstani scientific expertise. The International Science and Technology Center (ISTC) has allocated \$11 million to support Kazakstani nuclear scientists and technicians formerly employed in Soviet weapons programs. Russia provides considerable direct assistance to demilitarization and nuclear security efforts. Ties with Russia in the nuclear field are understandably strong, and cooperation in this area will likely continue into the future. The International Atomic Energy Agency has obligated \$800,000 to the development of export controls. Japan has made direct contributions to material protection, control and accounting projects and to the dismantlement of certain strategic military capabilities in Kazakhstan. Discussions are also under way with foreign governments and industry on joint enterprises directed at converting Kazakstani defense industries.

Despite this promising potential, however, the linchpin of Kazakhstan's demilitarization plans, in both the near and long term, is successful implementation of the CTR Program. In light of this fact, doubts have arisen over how quickly and successfully and to what degree CTR projects in Kazakhstan can fulfill their purpose. Past implementation problems and funding uncertainties have raised serious concerns in Almaty. Given the promising preliminary work that has been accomplished in areas of critical interest to Kazakhstan, the voting record of the U.S. Congress and its suggestions of curtailing or eliminating the CTR Program have heightened Kazakstani concerns for the future.