Kazakhstan and the Global Nuclear Order

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Abstract

Kazakhstan's advanced nuclear industry and active foreign nuclear policy make it a significant player on the global nuclear scene. This article sets the stage by addressing Kazakhstan's nuclear inheritance from the Soviet period. It then provides an overview of the country's nuclear sector with an emphasis on the nuclear fuel cycle and on prospects for introducing nuclear energy into Kazakhstan's energy mix. The article's final section analyzes Astana's nuclear diplomacy on the international global nuclear scene.

Keywords

Kazakhstan – nuclear nonproliferation – nuclear disarmament – nuclear energy – nuclear industry – uranium

Kazakhstan's role in the global nuclear order is far from minor. Blessed with abundant uranium resources, it is the world's largest uranium producer. Kazakhstan's nuclear sector made a major comeback after facing collapse in the early 1990s when the Soviet Union disintegrated. The state-owned company Kazatomprom has been gradually pursuing an advanced nuclear fuel cycle, including the capacity to produce nuclear fuel. Further, Kazakhstan is the only country in Central Asia that has made a firm commitment to developing nuclear energy.

On the international scene, Kazakhstan's nuclear diplomacy is rather ambitious as well. The country hosted Iranian nuclear talks in 2013 and will host the international nuclear fuel bank expected to be launched in 2015. These are just a couple of recent examples that confirm that Kazakhstan is seeking a greater role for itself in global nuclear politics.

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The country represents an interesting case for a discussion about the global nuclear order, which suffers from intensifying divisions between nuclear-weapons states and non-nuclear-weapon states. While there is growing tension between nuclear-weapon states that promote nonproliferation and non- nuclear-weapon states that emphasize disarmament, Kazakhstan is uniquely attuned to both nonproliferation and disarmament values.

This article sets the stage by addressing Kazakhstan's nuclear inheritance from the Soviet period. It then provides an overview of the country's nuclear sector with an emphasis on the nuclear fuel cycle and on prospects for introducing nuclear energy into Kazakhstan's energy mix. The article's final section analyzes Astana's nuclear diplomacy on the international global nuclear scene.[1]

Soviet Nuclear Inheritance

Kazakhstan's contemporary nuclear policy cannot be analyzed without looking back at the country's past. The Soviet nuclear weapons program relied heavily on Kazakhstan's uranium resources and its land. At the height of the Cold War's nuclear arms race, the Soviet military-industrial complex operated a plant in Kazakhstan to produce nuclear material, a testing site in Semipalatinsk to test nuclear weapons, and numerous other facilities to sup- port the Soviet weapons complex.

When the Soviet Union collapsed in 1991, Kazakhstan was left to deal with its nuclear inheritance: more than a thousand nuclear warheads, thousands of kilograms of nuclear material, multiple nuclear facilities, and significant technical expertise. The newly independent country faced enormous environmental and health consequences from decades of nuclear testing. More than a million people were affected by the 456 nuclear tests conducted in Semipalatinsk.

Kazakhstan's nuclear inheritance created two major strands of challenges: international and domestic. The main concern of the international community revolved around potential nuclear proliferation risks. The alarm bells in

1 The article builds upon author's previous work which appeared in Togzhan Kassenova "Kazakhstan's 'Nuclear Renaissance'," St. Antony's International Review, Volume 4, Number 2, February 2009, pp. 51–74; Stephen F. Burgess and Togzhan Kassenova, "The Rollback States: South Africa and Kazakhstan" in Tanya Ogilvie-White and David Santoro, eds., *Slaying the Nuclear Dragon: Disarmament Dynamics in the Twenty-First Century*, University of Georgia Press, 2012; Togzhan Kassenova, "Iran Nuclear Talks in Kazakhstan: Remember When Diplomacy Worked," Carnegie Endowment for International Peace, February 25, 2013.

the United States rang loud. Would Kazakhstan attempt to hold on to nuclear weapons and nuclear material? Would the new government be in a position to protect nuclear assets from unauthorized diversion? What would happen to scientists, engineers, and technical talent previously engaged in weapons efforts? Would they be tempted to work for countries aspiring to acquire nuclear capabilities?

Domestically, the challenge for Kazakhstan's young government centered on finding the best way to deal with a very complex set of problems brought by the presence of nuclear weapons and material on its territory. In the early 1990s, the situation in the disintegrating Soviet Union was extremely fluid. Republics, including Kazakhstan, were undergoing major political, social, and economic transformations. The fundamental question for the Kazakh leaders was: which course of action would contribute to strengthening Kazakhstan's statehood and sovereignty?

The most pressing concern for Kazakhstan, a new country with fragile sovereignty, was security: an unstable geopolitical environment in Central Asia and potential threats from more powerful neighbors loomed.

Kazakhstan saw the lack of legally binding negative security assurances—a guarantee by a nuclear-weapon state not use or threaten to use nuclear weapons against non-nuclear weapon states—as one of the key weaknesses of the Nuclear Non-Proliferation Treaty (NPT). It sought more substantive guarantees of its sovereignty and security from nuclear powers in exchange for giving up its nuclear weapons. Receiving security commitments from nuclear weapon states was at the top of Kazakhstan's objectives, and it succeeded in receiving them.

The United States, the United Kingdom, and Russia signed a 1994 Memorandum on Security Assurances in Connection with Kazakhstan's Accession to the NPT. They reaffirmed their commitment not to use nuclear weapons against Kazakhstan and to respect Kazakhstan's independence and sovereignty. They also provided positive security assurances by pledging to seek UN Security Council assistance for Kazakhstan should the country be attacked or be threatened by an attack with nuclear weapons. France and China assured Kazakhstan of their commitment to its security in similar statements.

Kazakh officials also worried about safe and secure dismantlement and removal of nuclear weapons from their territory. Lacking resources and expertise in that area, an offer from the United States and other countries to help, most notably under the Nunn-Lugar Cooperative Threat Reduction program, made it easier for Kazakhstan to commit to denuclearization.

The red thread that ran through all the discussions on nuclear inheritance was Kazakhstan's international standing. The decisionmakers realized that Kazakhstan's choices on the fate of its nuclear inheritance would determine

the country's access to foreign investment, new technologies, and international institutions. Kazakhstan's leadership did not want to be a "Central Asian North Korea".2

The tragic effects of Soviet nuclear testing produced a domestic environment conducive to getting rid of nuclear weapons and material. Plus, there were no strong groups that could be pro-nuclear: the nuclear industry was bankrupt, military forces were not even formed yet, and there was hardly any political opposition.

Gradually Kazakhstan signed all relevant international agreements to officially become a non-nuclear-weapons state and committed itself to removing or dismantling all nuclear weapons present on its territory. By the mid-1990s all nuclear weapons had been either dismantled or removed while work on securing and removing nuclear material continued.

In 2006 together with its neighbors it established a nuclear-weapon-free zone in Central Asia. By becoming a member of the nuclear-weapon-free zone, Kazakhstan accepted additional nonproliferation responsibilities and obligations, including adherence to the International Atomic Energy Agency's Additional Protocol, the Comprehensive Test Ban Treaty, and the Convention for the Physical Protection of Nuclear Material. Since 2010, Kazakhstan also joined the Nuclear Security Summit process, an initiative of the United States to promote the security of nuclear material.

The international discourse has traditionally focused on Kazakhstan's decision to give up Soviet nuclear weapons, but that attention—while not in any way unwarranted—often glosses over the fact that Kazakh authorities never had access to command and control over these weapons. Throughout the whole period Moscow and the Russian military controlled them. What is much more important, especially with a view of the future, is that Kazakhstan never seriously considered utilizing nuclear material and infrastructure present on its territory for developing its own indigenous nuclear program.

Kazakhstan's past is relevant to the country's present nuclear policy for a number of reasons. First, the absence of any ambition to pursue an indigenous nuclear weapons route serves as an important marker for today's dis- course on development of nuclear energy. Development of nuclear energy in non-nuclear-weapon states, whether fairly or not, often generates concerns in advanced Western countries about potential proliferation threats. Kazakh- stan's clear lack of interest in weaponization provides it with additional non- proliferation credibility, which is important, given that Kazakhstan has

2 Author's interview with a former senior Kazakh official, Almaty, Kazakhstan, 2009.

ambitious plans in the field of nuclear energy and nuclear fuel cycle development. Second, Kazakhstan's experience with Soviet nuclear testing and the environmental and health consequences that the population suffered as a result help explain the antipathy toward anything nuclear-related today. Finally, the impact of the Soviet nuclear weapons program on Kazakhstan was not entirely negative. In its pursuit of advanced nuclear industry, Kazakhstan benefits from the infrastructure and expertise that came as a direct result of the Soviet period.

Nuclear Policy Today

After an initial turbulent post-collapse period, Kazakhstan's nuclear sector had bounced back by the mid-to-late 1990s, and over the last decade became a profitable, highly technological industry.

Nuclear Fuel Cycle

The multistage nuclear fuel cycle, a process of producing nuclear fuel, includes uranium mining and milling, conversion, enrichment, and production of fuel pellets and fuel assemblies. Kazakhstan's state-run company, Kazatomprom, runs all facilities relevant to the nuclear fuel cycle. Kazatomprom's ultimate objective is to become a "transnational vertically integrated company" that produces value-added nuclear fuel products (fuel assemblies instead of just natural uranium). Behind the term "transnational vertically integrated company" is Kazatomprom's objective to have access to all stages of the nuclear fuel cycle with help for some stages from other nations.

Kazakhstan is well positioned when it comes to the first stage of the nuclear fuel cycle—uranium mining and milling. With 20 uranium mines in operation, the country remains the largest producer of uranium in the world. In 2012 Kazakhstan produced 11,931 metric tons of uranium. Its reserves are estimated at 1.7 million metric tons.3

Currently Kazakhstan does not have uranium conversion capacity, and Kazatomprom is seeking to obtain relevant technology from foreign partners. Kazatomprom is continuing its negotiations with the Canadian firm Cameco on the transfer of conversion technology and on building a uranium conversion plant.4

3 *2012 Annual Report*, Kazatomprom, p. 9, http://www.kazatomprom.kz/sites/default/files/KAP_AR_2012_eng.pdf (accessed on June 16, 2014).

4 Ibid., p. 22.

Kazakhstan seeks to have guaranteed access to uranium enrichment ser- vices but, unlike with uranium conversion technology, it does not profess a desire to possess such technology. Since the Soviet collapse Kazakhstan has continued to rely on Russia for enrichment services. In 2012 Kazakhstan acquired 25% + 1 shares in Russia's Uralsk Electrochemical Plant, which pro- vided it with access to uranium enrichment services.5

The final stage in production of nuclear fuel is bundling fuel pellets into fuel assemblies. Kazatomprom produces fuel pellets and relevant products at its facility at the Soviet-era Ulba Metallurgical Plant. During Soviet times Kazakhstan could produce fuel elements for Soviet/Russian-type reactors, while recently it began production of fuel pellets for Western-type reactors.

With no fuel assembly capacity of its own, Kazatomprom established a joint venture with the French areva—the Kazakh Company for Production of Fuels (JSC KFFC)—to work on producing fuel assemblies (400 metric tons per year). Kazatomprom and areva anticipate that the main market for the joint venture's products will be Southeast Asia.6

At this point, Kazakhstan does not have plans for engaging in the final stage of the nuclear fuel cycle, spent fuel reprocessing.

Two stages of the nuclear fuel production process are sensitive from the nonproliferation point of view: uranium enrichment and spent fuel reprocessing. Spent fuel reprocessing presents a potential proliferation risk because it can allow the country to separate plutonium from highly radioactive waste and, as such, make it suitable for a weapon. As mentioned, Kazakhstan does not plan to reprocess spent fuel.

Uranium enrichment technology is inherently dual-use because it can be used to enrich uranium to produce nuclear fuel both for peaceful use (nuclear power plants) and for producing nuclear weapons. Unlike countries such as Iran or Brazil that place considerable value on domestic enrichment capability, quoting goals of self-sufficiency and technological independence, Kazakhstan views the shares it bought in a Russian uranium enrichment plant as "enrichment under a Kazakh flag." From a nonproliferation point of view, such an arrangement minimizes proliferation risk because Kazakhstan does not possess sensitive technology *per se* but rather enjoys access to it under "black box" conditions.

The trajectory of Kazakhstan's moves in the nuclear field so far points at a strategy designed to maximize the economic value of uranium-based products. The country is moving away from exporting uranium as raw material to

5 Ibid., p. 7.

6 Ibid.

gradually building capacity to produce and sell a value-added product—nuclear fuel and fuel elements.

Development of Nuclear Energy

For now Kazakhstan is the only Central Asian state with an interest in developing nuclear energy. Despite being rich in energy resources, some of Kazakhstan's neighbors must import electricity from neighboring countries. The electricity generation and distribution grid, dating back to Soviet times, is not designed for the electricity self-sufficiency of independent republics. Proponents of nuclear energy in Kazakhstan argue that placing nuclear power plants in such regions would exacerbate the problem of electricity supply and also reduce reliance on oil and gas. Kazakhstan's leadership believes development of nuclear energy will fuel the country's economic growth and stimulate high- tech industrialization.

Initially the government announced its plans to build a nuclear power plant near Lake Balkhash in 1998. Strong public opposition forced the government to shelve these plans. Only in 2006 did it restart discussions on nuclear energy while suggesting Aktau, the site of Soviet-era nuclear facilities and a shuttered fast-breeder reactor, as a potential location for a nuclear power plant. Partly because the local population had experience with Soviet-era nuclear industry, local opposition to a new nuclear power plant was not strong. Kazakhstan and Russia, with whom the Kazakh government established a joint venture to build its first nuclear power plant, were expected to complete a feasibility study by 2009; however, schedules slipped due to negotiations on the issues of intellectual property. Since 2006, three potential locations for Kazakhstan's first nuclear power plant have been brought up: Lake Balkhash, Aktau, and Kurchatov (another location familiar with nuclear industry due to Soviet-era experience).

In early 2014 Kazakh President Nursultan Nazarbaev requested that the government finalize nuclear power plans by the first quarter of the year. In May 2014 Kazakhstan and Russia signed a memorandum on construction of a nuclear power plant in Kazakhstan.7

The government expects that by 2030 4.5% of all electricity will come from a nuclear source.8

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7 "Rossiya i Kazakhstan podpisali memorandum o stroitel'stve aes," Interfax-Kazakhstan, May 29, 2014, http://www.interfax.kz/?lang=rus&int_id=10&news_id=9581 (accessed June 16, 2014).

8 "K 2030 godu kazakhstantsy 8% elektroenergii budut poluchat' ot aes," Kazinform, June 5, 2013, http://www.inform.kz/rus/article/2563836 (accessed June 16, 2014).

Like any country choosing nuclear power, Kazakhstan will face a number of universal challenges. Key among them are financing, nuclear safety, nuclear security and nonproliferation, and spent fuel management. As a rule, construction of nuclear power plants turns into a more expensive project than initially planned. Delays due to budget problems, sometimes decades long, are not uncommon.

Any nuclear facility, and nuclear power plants are no an exception, poses inherent nuclear safety, nuclear security, and nuclear proliferation risks. The 2011 tragedy in Fukushima (Japan) and earlier accidents in Three Mile Island (the United States) and Chernobyl (the Soviet Union) demonstrate that nuclear accidents can happen even in countries with extremely well established nuclear programs and decades of experience in managing nuclear power. Developing countries, new to nuclear energy, including Kazakhstan, would be wise to proceed with extreme caution.

Kazakhstan's exemplary nonproliferation record mutes any concerns that there might be an authorized misuse of nuclear technology for non-peaceful purposes. However, since nuclear technology is inherently dual-use, Kazakhstan will need to invest additional efforts into ensuring that the risk of unauthorized diversion of any nuclear material and nuclear technology in its possession is minimized.

Another common challenge faced by all countries relying on nuclear power for producing electricity is the issue of spent fuel and nuclear waste management. Reprocessing of spent fuel allows countries to minimize the amount of nuclear waste. However, from the nonproliferation point of view, reprocessing carries inherent proliferation risks, as discussed earlier. Kazakhstan does not have plans to reprocess spent fuel. As for nuclear waste, not a single country in the world has succeeded in building a permanent repository so far.

Countries new to nuclear energy often argue that by the time they would need permanent storage for accumulated spent fuel or nuclear waste, they would come up with good storage options. In Kazakhstan's case, it already maintains significant amounts of spent fuel from a shut-down Soviet-era bn-350 fast-breeder reactor and nuclear waste accumulated during the Soviet period as a result of uranium production.

The bn-350 fast-breeder reactor generated electricity and desalinized water for nearby towns and bred plutonium for the Soviet weapons program. Spent fuel from bn-350 contained ten metric tons of highly enriched uranium and three metric tons of plutonium, both types of material suitable for a bomb. Since the material presented a proliferation risk, the us Department of Energy assisted Kazakhstan with removing spent fuel from the reactor site and trans- porting it for long-term storage at a better-protected site. Spent fuel was placed

in 60 specially designed dry casks that were initially placed on site. The casks weighed 100 metric tons each, and it took twelve shipments to transport all of the spent fuel to the Baikal-1 fuel storage site at the former nuclear testing site in Semipalatinsk.9 Eventually Kazakhstan will need to think of permanent storage for the spent fuel it already has and spent fuel it will generate if its builds nuclear power plants.

The problem of nuclear waste, including uranium tailings, remains unresolved for Kazakhstan. In 2001 Kazatompom suggested that Kazakhstan could import foreign nuclear waste and use the income to dispose of (bury) all waste—Kazakhstan's own and imported—at once. Public opposition muted those plans.10 When Kazakhstan signed the agreement on establishing a nuclear-weapon-free zone in Central Asia in 2006, it accepted an obligation not to import foreign nuclear waste. That means Kazakhstan will need to use other ways to finance its nuclear waste disposal.

Kazakhstan's Nuclear Diplomacy

Tensions in the Global Nuclear Order

The foundation of the global nuclear order largely rests on the Nuclear Non-Proliferation Treaty (NPT). NPT recognizes five countries—France, China, Russia, the United Kingdom, and the United States—as nuclear-weapon states. All other members of the NPT joined it as non-nuclear-weapon states. The main premise of the treaty rests on the following principles: non-nuclear- weapon states take an obligation not to develop or acquire nuclear weapons and, in return, receive access to nuclear technology for peaceful purposes; nuclear-weapon states take an obligation to work toward nuclear disarmament. The legal implications, the exact nature of parties' obligations, and the conditions of the NPT "bargain" remain a matter of heated discussion largely driven by the countries' status vis-à-vis the treaty.

In general, the nuclear-weapon states emphasize the nonproliferation obligations of the non-nuclear-weapon states and frame the discussion around *progress toward* disarmament. Meanwhile, the non-nuclear-weapon states

9 Shaiakhmet Shiganakov, "BN-350 Reactor Spent Fuel Handling," presentation, April 26–28, 2006, http://www.IAEA.org/OurWork/ST/NE/NEFW/WTS-Networks/URF/documents/Status/2005/MS/KAZAKHSTAN.pdf (accessed on August 18, 2014).

10 Margarita Sevcik, "Kazakhstan's Proposal to Initiate Commercial Imports of Radioactive Waste," nti, January 1, 2003, http://www.nti.org/analysis/articles/kazakhstans-proposal-waste/ (accessed June 16, 2014).

contend that nuclear-weapon states should *achieve* disarmament not just *progress toward* it. They also argue that the non-nuclear-weapon states accepted an obligation not to acquire nuclear weapons of their own *in exchange for* access to nuclear technology for peaceful purposes and the eventual *disarmament* of nuclear-weapon states.

As a developing non-nuclear-weapon state, Kazakhstan can relate to concerns shared by many countries around the world about the "double standards" of the existing global nuclear order. Its diplomats share the frustration of many non-nuclear-weapon states that disarmament does not progress at an accept- able pace while access to peaceful nuclear technology is limited, and Kazakhstan sees flaws in the NPT that divide the countries into nuclear "haves" and "have nots." In the official statement during the 2014 NPT PrepCom, Kazakhstan's representative noted: "Despite the claims of commitment to nuclear disarmament, the world still keeps a huge number of nuclear weapons that are enough to destroy life on Earth several times […] there are still barriers in obtaining advanced technologies in the field of nuclear energy."[11]

Yet, at the same time, Kazakhstan's leadership promotes nonproliferation objectives. It readily takes on nonproliferation obligations and attempts to make practical contributions to the nonproliferation regime.

Nuclear diplomacy aimed at promoting disarmament and nonproliferation remains at the top of Kazakhstan's foreign policy agenda. In one of the notable examples of active nuclear diplomacy, Kazakhstan offered to host the IAEA LEU bank on its territory.

The IAEA Low-Enriched Uranium Bank

In 2006, the us-based Nuclear Threat Initiative (NTI) and us billionaire Warren Buffett committed $50 million toward establishing a reserve of low-enriched uranium (LEU) to be readily available to countries around the world. The thinking behind the proposal was that the availability of LEU on a commercial basis would reduce incentives for countries to pursue indigenous nuclear fuel cycles. This could minimize the spread of sensitive nuclear technologies that could be utilized for weapons development.

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11 "Statement by Mr. Barlybai Sadykov, Ambassador-at-Large of the Ministry of Foreign Affairs of the Republic of Kazakhstan at the General Debate of the Third Preparatory Committee for the 2015 Review Conference of the Parties to the Treaty on Non-Proliferation of Nuclear Weapons (NPT)," Reaching Critical Will, http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/NPT/prepcom14/statements/30April_Kazakhstan.pdf (accessed June 16, 2014).

In 2009, the international community committed another $100 million to the IAEA for this purpose, and in 2010 the IAEA Board of Governors approved the establishment of the fuel bank.12 Kazakhstan's president formally announced his country's readiness to host a nuclear fuel bank on its territory during an April 2009 joint press conference with Iranian President Mahmoud Ahmadinejad in Astana, likely in a nod to the international community's hope that countries like Iran would make use of the fuel bank.13

Several factors made Kazakhstan a suitable host for the LEU bank. Kazakhstan has the necessary nuclear infrastructure and expertise thanks to its developed nuclear industry. It enjoys an excellent nonproliferation record. More important, as a developing non-Western country, it is thought to be more appealing to fellow developing countries that might benefit from access to LEU. Ultimately, Kazakhstan was the only country to offer itself as a host for the bank.

As of mid-2014, Kazakhstan and the IAEA were in the process of finalizing the technical details of the future LEU bank. The likely site of the bank is the Ulba Metallurgy Plant in Ust-Kamenogorsk, which produces low-enriched uranium and, as a result, has experience in storing the fuel. According to a Kazakh Ministry of Foreign Affairs official, Barlybai Sadykov, the Ulba Metallurgy Plant in the past stored up to 1,500 metric tons of LEU; currently it stores approximately 800 metric tons of LEU. According to him, the IAEA would contribute 60–80 metric tons of LEU for the purposes of the bank.14

Kazakh officials emphasize the nonproliferation value of establishing the LEU bank. "Creating a stock of low enriched uranium," Sadykov reiterated, "will allow the countries with no aspiration to build uranium enrichment facilities to have a stable and undisrupted supply of nuclear fuel, reduce the number of states seeking to develop a full nuclear cycle, and prevent the spread of nuclear weapon technology."15

Kazakhstan clearly sees the diplomatic value in being ready to host the LEU bank. As Sadykov remarked, "Choosing Kazakhstan as the hosting country is […] evidence of IAEA's confidence in the country's stability, political

12 "IAEA Board Agrees to Create International Fuel Bank, A "Breakthrough in Global Cooperation to Reduce Nuclear Dangers: Warren Buffet/NTI $50 Million Pledge Conditions Fulfilled," NTI, December 3, 2010, http://www.nti.org/c_press/release_fuel_bank_120310.pdf (Assessed on June 16, 2014).

13 "Kazakhstan in Nuclear Bank Offer," BBC, April 6, 2009.

14 "Nuclear Bank Project Will Enhance Regional and Global Security, Kazakh Official," Interfax-Kazakhstan, August 28, 2013.

15 Ibid.

commitment to nonproliferation, and a well-organized management of nuclear industry. The bank will also raise country's investment profile."16

As a host, Kazakhstan would further improve security at the Ulba Metallurgical Plant, the country's main nuclear fuel cycle facility. And, in general, it would push Kazakhstan to further modernize its nuclear sector.

The domestic reaction to the government's plans to host the LEU bank remains mostly negative. The explanation for that lies partly in the lack of awareness of the purpose and rationale for the bank and the government's desire to host it, but also, to a large extent, in the societal apprehension of any- thing nuclear due to traumatic experience with Soviet-era nuclear testing. Environmental and other public groups raise concern that the LEU bank would be used as a pretext for importing foreign nuclear waste or that hosting the bank would create additional potential risks for the population, such as accidents or a terrorist attack on a nuclear facility.

Kazakhstan and Iran Nuclear Talks

The standoff between the West and Iran over Tehran's nuclear program has remained at the center of global attention throughout the last decade. Kazakhstan sought to play a role in resolving the crisis within the confines of its limited ability to have a meaningful contribution. In addition to offering to host the IAEA LEU bank, which is largely aimed at countries like Iran, Kazakhstan hosted negotiations between the five permanent members of the UN Security Council and Germany (P5 + 1) and Iran on nuclear matters. It acted as a host on two occasions, in February and April 2013.

Those two particular rounds of negotiations—held Kazakhstan's biggest city, Almaty—did not result in any immediate breakthroughs. They took place before a more moderate leader, Hassan Rouhani, came to power in Iran, and they suffered from the mutual mistrust of the parties involved that plagued interaction for years. Yet Kazakhstan's desire to host talks once again demonstrated that Kazakhstan viewed itself as a valuable player in the global nuclear arena. It believed its record in the nonproliferation and disarmament field and friendly relations with both the West and countries like Iran made it a perfect host. Indeed, while the parties did not agree on any issues of substance in Almaty, there was consensus that Kazakhstan did its best to create favorable conditions. As *New York Times* summarized at the time, "Negotiators find in Kazakhstan the perfect place to disagree."17

16 Ibid.

17 David Herszenhorn, "Negotiators Find in Kazakhstan the Perfect Place to Disagree," *New York Times*, April 7, 2013, http://www.nytimes.com/2013/04/08/world/asia/negotiators-find-in-kazakhstan-the-perfect-place-to-disagree.html (accessed June 16, 2014).

Lessons for Nuclear Diplomacy with Iran[18]

Aside from being a good host, Kazakhstan's own history and the experience with the international community in solving the challenge of Soviet nuclear inheritance provide valuable lessons. Strengthened security assurances from key powers described earlier were of critical importance to Kazakhstan's denuclearization process. Similarly, Iran's fundamental concern is that the United States will attempt to force a change of regime in Tehran. Minimizing the sense of vulnerability that Iran's leaders feel will increase the chances of a long-term negotiated solution.

Domestic concerns also matter. Kazakhstan's domestic situation was generally conducive to giving up Soviet nuclear weapons and materials. Nonetheless, there were also nationalist groups that had to be appeased on some level. For the sake of the domestic audience and its own national interests, the Kazakh government had to know it was not giving up its nuclear inheritance for nothing in return. Appropriate attention from key Western powers to domestic politics in Iran and easing the way for the Iranian leadership to make decisions favorable to the international community are key to any progress. In this respect, providing Iran with something that can be interpreted as a "concession" from the West would help.

P5 + 1 (and, later, us bilateral) negotiations with Iran on its nuclear program might benefit from attempts to normalize relations in other areas as well. For instance, negotiations on the fate of Kazakhstan's nuclear inheritance were part and parcel of a broader dialogue in the areas of trade, the Kazakh economy, and military-to-military cooperation. Those in Kazakhstan who dealt with the nuclear issue back in the 1990s note that the broad approach adopted by the United States to its engagement with Kazakhstan was critical. The les- sons from Kazakhstan's case are a reminder of the power of diplomacy and economic incentives at the disposal of the international community. And they underscore the importance of creating an environment in which an individual state's choices work both for the country and the global nuclear order.

Looking Ahead

Kazakhstan's economic and foreign policy ambitions will continue to sustain the country's active participation in the global nuclear market and politics.

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18 The discussion that follows previously appeared in "Iran Nuclear Talks in Kazakhstan: Remember When Diplomacy Worked," Carnegie Endowment for International Peace, http://carnegieendowment.org/2013/02/25/iran-nuclear-talks-in-kazakhstan-remember-when-diplomacy-worked/ (accessed August 16, 2014).

Domestically, Kazakhstan will need to approach the development of nuclear energy with extreme care. The economic, technological, and energy security benefits of nuclear power should not take attention away from inherent challenges that nuclear energy development presents for newcomers. Nuclear security and safety, even stronger nonproliferation measures, required financial investment, and spent fuel and waste management require serious consideration.

The country will likely continue to support both the nuclear disarmament and nonproliferation objectives of the international community. Kazakhstan has ambition, resources, and expertise to engage in initiatives integral to these processes. Based on their own experience of dealing with Soviet nuclear weapons, Kazakhstan's specialists can potentially be called upon to participate in exercises on verification of disarmament similar to the UK-Norway verification initiative observed by the UK nongovernmental organization vertic in 2010.19 In a similar vein, Kazakhstan's experts have experience in cooperative threat reduction projects designed to reduce nuclear dangers. These specialists can assist in implementing similar projects in other countries (e.g., North Korea, Pakistan). And while the IAEA LEU bank is not a panacea from the spread of sensitive nuclear technologies to more countries, it is a tool to minimize the spread, and Kazakhstan's readiness to host it serves as the country's contribution to the nonproliferation regime.

If Kazakhstan maintains a balanced nuclear policy, it will continue to play a positive role in the global nuclear order while achieving its own economic and foreign policy objectives.

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19 "Verification and Monitoring Projects," vertic, http://www.vertic.org/pages/homepage/programmes/verification-and-monitoring/multilateral-disarmament-verification.php (accessed June 16, 2014).