Kazakhstan, a country with an extensive nuclear infrastructure as a legacy of the Soviet Union, has decided to rely on civilian nuclear programs for economic development and has reached out to numerous countries for cooperation in nuclear areas. Nursultan Nazarbaev, who has been at the helm of Kazakhstan since the Soviet era, has been very skilled in creating equivalent relations with all major players in the region, including the USA, EU, Russia, India and China. While the country still has strong links to Russian nuclear infrastructure, Kazakhstan has made an effort to cooperate with other countries, and has in turn placed pressure on Russia to be more attractive in business dealings. With the stated desire to move to higher-end nuclear products, Kazakhstan established a special relationship with Russia for enrichment, so it can produce and export more economically advantageous fuel assemblies, rather than its current manufacture of interim products. The concerns of the international community regarding the Kazakhstan-Russian enrichment cooperation, in summary, focus on Kazakhstan's position as a country that may find it attractive to acquire enrichment technology, and Russia's ability to provide such technology in order to maintain clout in its traditional sphere of influence and retain a resource-rich neighbor. Alternatively, Kazakhstan may be tempted to acquire enrichment technology from China, which China will be tempted to provide to secure its relations with Kazakhstan vis-à-vis India. Moreover, in its desire to cultivate nuclear deals with multiple countries, Kazakhstan may be reaching out to cooperate with Iran as a regional power. Amidst Kazakhstan's ambitions, there is the additional complicating issue of power succession: Nazarbaev, the first President of Kazakhstan and approaching 70, has been successful leading the country since 1991, but leadership that will replace him remains unclear. With his grip on power, Nazarbaev has groomed some obedient parties and officials, but whether they will be able to retain his power and tight control, or pursue his nuclear agenda, is unclear and what direction the country will follow under the new leadership is uncertain.

Introduction

The map below depicts Kazakhstan and its neighboring countries as well as the main nuclear facilities in Kazakhstan.
Hazardous radioactive, chemical and biological facilities in Central Asia, including Republic of Kazakhstan. [Taken from http://cartographia.files.wordpress.com/2008/05/central-asia-hazards.png ]

When the Soviet Union collapsed in 1991 and Kazakhstan became a Newly Independent State, it inherited nuclear weapons and a portion of the Soviet's vast nuclear infrastructure, whose organizational structure intertwined military and civilian facilities. Almost immediately, the new country's leadership decided to denuclearize. As a demonstration of denuclearization, Kazakhstan accepted IAEA safeguards and the Additional Protocol. Further, Kazakhstan participated in drafting the Central Asian Nuclear Weapons Free Zone Treaty and took additional obligations to prevent nuclear proliferation in the Region.

Seemingly contrary to its promotion of a peaceful, nuclear weapon-free Central Asia, Kazakhstan foresees itself connected to the nuclear arena, and actively pursues collaborations with other countries in nuclear-related activities.

According to estimates, Kazakhstan holds 16% of the world's uranium resources, while supplying~9% of the world's current uranium needs, with plans to increase its mine production.[1] By developing fuel fabrication facilities, Kazakhstan wants to move from a mining concentration to higher value-added production—fuel fabrication.

Kazakhstan's government has been shrewd in its diplomatic activities, excelling in establishing good relations with important players and powerful neighbors, including the USA, EU, Russia, China, and India. Nazarbaev, a veteran politician, has successfully managed to maneuver on international and domestic arenas and cultivate partnerships with
influence in Central Asia. At the same time, some serious issues lurk behind the veneer of the government's political and commercial success, including political manipulation, widespread corruption, and an unclear line of power succession, all of which could facilitate nuclear deals with international partners with mixed proliferation records.

Nazarbaev has been president of Kazakhstan since 1991. Even though the Constitution imposes a two-term limit, an exception was made for the country's first president. Nazarbaev's third "election" should take place in 2012 (Note: term lengths slated to change at this election from seven to five years).

The country is corrupt and has corrupt practices. Kazakhstan's mineral riches supplied many a thief with wealth. An ongoing investigation at Kazatomprom resulted in the dismissal of its leadership because of corruption accusations. Additionally, Nazarbaev's former son-in-law is in hiding in Austria while charged with kidnapping and murder at home. Time will tell whether 2012 will be a continuation of the Nazarbaev legacy or bring political disruption and new leadership.

The current economic policy of the government is to provide stability even if it hinders economic growth. By keeping distance from, but in good relations with, all important parties within Kazakhstan, Nazarbaev's will for Kazakhstan's future is not transparent. There are concerns about what course the country will take when Nazarbaev, the last Soviet-type leader, vacates his position. Kazakhstan has a sizable Muslim population, but no traditional political Islamic parties. It is close to Russia and has a large Russian minority, but has not unequivocally supported Russia's interests in the international arena. Kazakhstan has developed good relations with the U.S. and European Union but also has built links to China and India, and even reached out to Iran. These contradictions were highlighted when an Israeli high-level delegation came to Kazakhstan concerned that Kazakhstan may supply high-enriched uranium and other radioactive materials to Iran.

United States of America

Since its independence, Kazakhstan has cooperated with US policies on denuclearization. The Lisbon Protocol signed in 1992 outlined the denuclearization of Kazakhstan, Belarus and Ukraine. "Kazakhstan guarantees the carrying out the elimination of all kinds of nuclear weapons, including strategic offensive arms located on its territory, over a period of seven years," Nazarbaev wrote to US President George H.W.Bush. In 1993, both countries signed the Safe, Secure Dismantlement (SSD) Agreement that provided a framework for US assistance in the destruction of Kazakhstan's nuclear weapons arsenal. Kazakhstan's nuclear weapons were returned to Russia and their delivery systems destroyed. In 1994, the countries also signed a joint letter of intent to assess the damage at the former nuclear test site near Semipalatinsk. Since 1994, Kazakhstan has participated in Nunn-Lugar activities that included material protection, control and accountability (MPC&A) of civil nuclear materials and the Unites States has assisted Kazakhstan in removal of nuclear warheads and weapons-grade material, as well as providing support for its infrastructure. In 1994, Kazakhstan transferred more than 500 kg of HEU to the United States. In 1995, Kazakhstan removed its last nuclear warhead and, with US assistance, completed the sealing of 181 nuclear test tunnels in May 2000. Under the Cooperative Threat Reduction Program, the US has spent $240 mln to assist Kazakhstan in eliminating weapons of mass destruction and related infrastructure. In addition to government-to-government cooperation, Kazakhstan's corporation Kazatomprom has conducted business with private US companies; for example, in 2008, US General Electric (GE) signed a memorandum of cooperation on nuclear power and uranium processing, including mining.

Russia

Kazakhstan has intimate and long-established ties to Russia by virtue of its membership in the Soviet Union. While Kazakhstan wants to maintain its closeness with Russia's nuclear fuel cycle, it does not want to depend too much on Russia, and plans to develop more value-added production in Kazakhstan. In the days of the Soviet Union, Kazakhstan carried out the initial stages of uranium mining and conversion into yellow cake for the Soviet complex. The interim products were then transported to Russia for further processing--gasification and enrichment. After processing, the
uranium returned to Kazakhstan to be manufactured into fuel pellets, which were then transported back to Russia to make assemblies. After Kazakhstan's independence, Kazatomprom then-head Mukhtar Dzhakishev[^10] said that Kazatomprom would continue to rely on Russia for uranium enrichment; Russia and Kazakhstan will build an enrichment facility near Angarsk as a joint venture, in which Kazatomprom will have a 50% stake. Even though Kazatomprom specialists will not have direct access to the enrichment technology, they will be able to enrich uranium there. Kazakhstan is also a part of the International Uranium Enrichment Center (IUEC) in Angarsk, where Kazatomprom holds a 10% share. Another nuclear collaboration with Russia is the Atomniye Stantsii project: a joint venture to design, build and sell small and medium-size reactors[^11].

Russia's continued interest in mining Kazakhstan's uranium is evidenced by joint ventures with Zarechnoye and Budennovsk. For its part, Russia is concerned that Kazakhstan's tendency to look for nuclear projects with other countries would decrease the amount of uranium which could be supplied to Russia, and make Kazakhstan less dependent on Russian nuclear technologies[^12].

Brazil

In winter 2007-2008, Mukhtar Dzhakishev, then-head of Kazatomprom, announced plans to mine tantalum in Brazil in cooperation with a local company[^13]. In summer 2009, Kazatomprom entered talks to acquire a Brazilian producer of tantalum. To this end, Kazakhstan may buy Industrial Fluminense and form a joint venture in Brazil to mine tantalum.[^14]

Canada

Cameco performed a feasibility study to build a conversion facility--uranium oxide to uranium hexafluoride -- in Ust-Kamenogorsk, which if completed, will allow one more stage of fuel fabrication (conversion to gas) to occur inside Kazakhstan.[^15] Cameco and Kazatomprom set up a new joint venture, Ulba Conversion LLP (Kazatomprom: 51% and Cameco - 49%), with plans to build a 12,000 MT uranium hexafluoride conversion facility in Kazakhstan. In addition, the countries jointly operate uranium mines, for example Inkai--with plans to increase production.[^16] Among Kazakhstan's assets, Uranium One holds 70% of operating Akdala Uranium Mine and develops uranium production at South Inkai and Kharasan.[^17] This cooperation did not proceed without problems. In 2008, Uranium One CEO Jean Nortier said that the company had problems with two of its operations in Kazakhstan, South Inkai and Kharasan. Production from South Inkai was lower than expected, plus production from Kharasan had started later than expected. Uranium One also operates in Akdala[^18] and recently announced signing a definitive purchase agreement to acquire a 50% interest in the Karatau uranium mine in Kazakhstan from Russia's JSC Atomredmetoloto (ARMZ) uranium mining company.[^19]

China

Kazakhstan's cooperation with China has steadily grown, especially after the Kazakh-Chinese Committee for Cooperation was established in 2004. This cooperation was subsequently augmented by a cooperative arrangement on the joint development of uranium resources, production of nuclear fuel, the long-term trade of natural uranium, nuclear power generation, and construction of nuclear power plants. In 2006, Kazatomprom and China Guangdong Nuclear Power Group (CGNPC)[^20] signed their first strategic cooperation agreement, and then later expanded it. In 2007, the two countries signed a trilateral deal to jointly mine uranium deposits in Kazakhstan with China Guangdong Nuclear Power Group (CGNPC) and China National Nuclear Corp. [^21] In September of 2007, both countries also signed an agreement in Beijing to further cooperative projects for the long term, envisioning large portions of China's uranium fuel needs to be met by Kazakh uranium. Then-president of Kazatomprom Mukhtar Dzhakishev said that Kazakhstan was the first country allowed to become a shareholder in China's atomic power industry enterprises.[^22] Kazatomprom expects to provide fuel pellets, yellow cake, and nuclear fuel to China, surpassing its traditional supplier, Areva of France. Kazatomprom and
China were also discussing plans to work together on fuel assembly production. The Semizbai-U LLP joint venture established between China's CGNPC subsidiary and Sino-Kazakhstan Uranium Resources Investment Co., will invest in two Kazakh uranium mines: Irkol and Semizbai. In September 2009, Kazatomprom plans to open its representative office in Beijing to further foster cooperative effort between the countries. It is important to note that Russia has been building enrichment production facilities in China without transferring the technology (Chinese attempts for reverse engineering), so, in principle, Kazakhstan may have access to Russian enrichment technology via China.

France

In 1996, Cogema and Kazakhstan State Corporation for Atomic Power and Industry (KATEP) established the Katco joint venture by to develop uranium deposits in Kazakhstan. In 1999, Katco received a license to explore and mine the Muyunkum deposit, and then started operating in-situ leach mining at the uranium mine in 2006. In 2008, Kazatomprom reached a strategic agreement with Areva. The Katco joint venture between Areva and Kazatomprom (51% - Areva, 49% - Kazatomprom) will provisionally produce 4,000MT of uranium per year until 2039; Areva will handle sales. In addition, Kazatomprom will receive engineering assistance to build fuel fabrication production at the Ulba plant.

India

India and Kazakhstan signed a civil nuclear agreement on fuel supplies. Under the agreement, Kazakhstan will provide uranium and related products to the Nuclear Power Corporation of India (NPCIL). This agreement could also cover joint exploration of uranium in Kazakhstan and construction of nuclear power plants in the future. Supplies of uranium to India could start in 2009, said then-Kazatomprom President Mukhtar Dzhakishev.

Iran

Currently Kazakhstan does not have nuclear business with Iran, but Kazakhstan maintains ongoing relations with Iran and has entered into some business deals. Kazakhstan has taken the simultaneous position of developing bilateral cooperation with Iran while maintaining friendly ties with the United States and European Union, and carefully monitoring their position on relations with Iran. In 2004, the U. S. came out strongly against the proposed Iran-Kazakhstan pipeline to export oil reserves underneath the Caspian Sea, but in 2008, the idea to build a joint oil pipeline and several oil refineries with Iran came back to life again. Kazakhstan and Iran swap oil for sale. In 2007, Kazakhstan, Turkmenistan and Iran signed an agreement to build a railway connecting Western Kazakhstan with Iran by 2011; the project got delayed due to financial reasons. In 2009 the Iranian and Kazakh presidents met on April 6 in Astana, where Kazakhstan and signed a number of commercial deals. President Nazarbaev said that he supports Iran's right to have nuclear energy but believed that it should be developed in a transparent way. Earlier, it had been reported that Kazakhstan backed Iran's "undeniable right to use nuclear technology for peaceful purposes" when Kazakhstan's Foreign Minister Kasymzhomart Tokayev visited Tehran in June 2006. The Foreign Minister also said that Kazakhstan opposed the use of nuclear enrichment for military purposes. The growing relations between Iran and Kazakhstan have made Israel concerned, leading to a visit by Israel's President Shimon Peres to Kazakhstan and requests that Kazakhstan halt its sale of uranium ore to Iran. After the visit, Nazarbaev made a statement that Kazakhstan has not been supplying Iran with nuclear material.

Japan

Japan and Kazakhstan signed a memorandum of cooperation in August 2006. In 2007, Kazatomprom signed a deal with Kansai Electric Power Co, Sumimoto Corp, and Nuclear Fuel Industries Ltd. to supply fuel to Kansai's nuclear power plants. In 2008, the countries agreed to increase cooperation in uranium mining and nuclear energy. The first uranium
deposit developed with Japanese company investment was Western Mynkuduk, and the second Khorasan. Japanese and Kazakh corporate and national relations have further ventured into interdependency, or perhaps dependency. For example, in 2007, Japanese Marubeni Corporation purchased a stake in the Kazatomprom uranium mine; Kazatomprom then acquired 10% of Westinghouse Electric Corporation from Toshiba for $540 mln, thereby making Kazakhstan Toshiba-Westinghouse technical partners and receiving access to the world's nuclear fuel market. Additionally, construction in Ust-Kamenogorsk of a fuel assembly production facility will be completed in 2011 or 2012, expected to be Japan's largest uranium supplier, moving from the current 1% to 30-40% by 2010. Japan also agreed to provide Kazakhstan with technical assistance for processing uranium fuel and building reactors signing an agreement for Kazatomprom to purchase uranium processing technology from Toshiba in 2007.

South Korea

Kazakhstan has been seeking a fuel supply agreement with South Korea.

Ukraine

Kazakhstan has ongoing relationships with Ukraine. Both sides have periodically declared their intentions to conduct joint nuclear projects however, no specific information (except general declarations) has come forth in open sources. In 2008, Ukraine and Kazakhstan made attempts to reinvigorate their cooperation on nuclear fuel production under the joint venture, which was established in 2001, but no developments were reported. The joint venture includes not only Ukraine and Kazakhstan, but Russia as well.

Lastly, Kazakhstan has an agreement on cooperation with the European Atomic Energy Community in the field of controlled nuclear fusion.

In addition to bilateral relations with various countries, Kazakhstan has also offered to host an international nuclear fuel bank where non-nuclear weapon states can purchase nuclear fuel for their civilian reactors. It is worth noting that President Nazarbaev met with Iran's president Mahmud Ahmadinejad in Astana on April 6, 2009, and afterwards proposed conducting negotiations on the possibility of situating an international nuclear fuel bank in Kazakhstan to which Iran would have access. Ahmadinezhad supported the idea of having the bank in Kazakhstan.

Conclusion

From its inception as an independent country, Kazakhstan's nuclear infrastructure depended heavily on cooperation with Russia. However, after almost two decades of dependency, Kazakhstan is growing self-sufficient and relying less on Russia. Kazakhstan, as an economic power in Central Asia, has achieved a stronger, more influential standing in the international arena; it is being sought after by many countries as a nuclear business partner. Kazakhstan second only to Australia in uranium reserves and exceptionally appealing to nuclear nations that require uranium, has entered into agreements or joint ventures with many countries and corporations. This concerns Russia, as it fears that Kazakhstan will lower export of uranium to Russia in order to satisfy its obligations to other countries. Kazakhstan still depends on Russia for uranium enrichment--with stakes in joint ventures and in the International Uranium Enrichment Center. To that end, Kazakhstan is looking to expand its business by producing its own nuclear fuel so that it can provide high-end uranium products, which is more economically profitable than its traditional products. Kazakhstan has signed multiple contracts, including technology transfer agreements, with companies from Canada, Japan, France, and China. Kazakhstan's trends and forecasts for uranium mining and nuclear fuel production appear to be improving, perhaps to Russia's detriment--only time will tell. A growing concern, to the detriment of many, is that Kazakhstan may find attractive the option of performing its own enrichment and will therefore try to acquire this technology from Russia or China, both of whom may be willing partners, looking after their interests in Kazakhstan and to establish closer ties to Iran.
Nursultan Nazarbaev was elected president on December 1, 1991 before the demise of the USSR; according to the new Constitution he was elected to his first seven-year term on January 10, 1999 and re-elected to the second seven-year term on December 4, 2005. Embassy of the Republic of Kazakhstan.

For example, in August 1999 Kazakhstan reportedly sold 30 to 40 MiG-21 to North Korea. An investigation was launched and Foreign Minister Tokayev assured Western countries that the government had no knowledge of the sale, and requested that DPRK return the planes. Nazarbaev fired Defense Minister Mukhtar Altyńbaev and the chairman of the country's security committee Nurlan Balgymbayev. (Asia Times Online August 18, 1999; November 18 1999) As China Post reported on February 18, 2008 Horelma Perama, a billionaire from Kazakhstan set a record by purchasing the Toprak Mansion for no less than 50m pounds in London; but no information can be found how Perama made his billions. The number of criminal charges was brought up in the US due to violations of the Foreign Corrupt Practices Act; for example, former Mobil executive was found guilty in tax evasion charges associated with a $2m kickback he received in connection with Mobil's oil business in Kazakhstan. (Center for Corporate Policy, Washington, USA). The US Security and Exchange Commission (SEC) found violations in operations of ABB Ltd. in Kazakhstan where sham contracts were set for consulting services but no legitimate service was performed. (Foreign Corrupt Practices Act Update by Wilmer Cutler Pickering Tale and Dorr LLP, July 27 2004). Baker Hughes Inc. settled charges with the SEC related to improper payments associated with its business in Kazakhstan. (FCPA Alert, May 2007) Former Minister of Environment Protection Nurlan Iskakov and his deputies were arrested and charged with embezzlement of funds allocated for disposal of equipment from a former secret facility Balkhash. (Radio Azzatdy, June 24 2009) Mukhtar Dzhakishev, former head of Kazatomprom was accused of illegal sale of uranium mining rights to overseas companies and embezzlement. (Agency French Press. May 27 2009)

Currently Mukhtar Dzhakishev is under investigation. Kazakhstan KNB spokesman said that investigators have confirmation that more than 60 percent of the state’s uranium deposits were transferred into the property of Dzhakishev and the companies he owned (Agency French Press. June 1, 2009) and Kazakhstan’s authorities have been reviewing assets sales under Kazatomprom previous management.


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