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Effects of the Semipalatinsk Test Site in an Independent Kazakhstan

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Introduction

Nuclear weapons testing has been put into practice by the United States, Soviet Union, United Kingdom, France, China, Pakistan, India, and North Korea (Takada 2004: 3). Although these countries all have different intentions in why they are testing these nuclear weapons, such testing has had grave affects to the region and the people that inhabit it. For example, the environment is destroyed and made uninhabitable. Radiation that is produced by the nuclear weapons causes illness and/or death within days after the weapon has been detonated (Lewis 2001). During the Cold War, the Soviet Union conducted multiple nuclear tests within the Soviet republics, including present-day Kazakhstan. The Semipalatinsk Test Site changed the outlook of the significance of nuclear weapons within the region. The aftermath of nuclear testing in Semipalatinsk, Kazakh SSR, left a toll on the humans in the region, for instance, such as long-term health problems, as well as on the environment, which prompted a specific agenda of becoming nuclear weapons-free in newly independent Kazakhstan through the formation of allies, creation of treaties, and new domestic policies.

Nuclear Tests Held in Kazakh SSR

The nuclear testing in the region determined the future for Kazakhstan. Between 1949 and 1989, the Soviet Union held up to 459 nuclear tests in Semipalatinsk (Takada 2004: 29). 87 of those were atmospheric, 26 were ground, and 346 were held underground. All of these meth-

ods ultimately had drastic affects on both the land and its people. The first nuclear test for the USSR was held at the Semipalatinsk Test Site on August 29, 1949. Two hours after this test, a large radioactive contamination occurred and inhabitants were exposed to the radiation (Takada 2004: 29). The second nuclear test at the Semipalatinsk Test Site, also known as the "Polygon", was held on August 12, 1953 (Gray 2011). Residents were evacuated for three days after the explosion due to a radioactive cloud that passed at a wind speed higher than expected. The 191 residents who did not evacuate in time were exposed to radiation (Takada 2004: 30). The third nuclear test was held on January 15, 1965. It was exploded underground under the pretense that the USSR was constructing a dam for peaceful use. The explosive power was 30 times that of Hiroshima (Takada 2004: 30). The result is a lake known to the inhabitants as "Atomic Lake". Three of the first nuclear tests already had severe consequences on the region and it only continued. In the late 1980's, before the collapse of the Soviet Union, American scientists arrived in Semipalatinsk to monitor the underground testing of nuclear weapons. The aim of this was to show that even very small explosions can be detected by sensitive instruments and created a confidence that a ban on nuclear explosions could be policed (Broad 1987). Following the collapse of the Soviet Union and the birth of new nations, the Semipalatinsk Test Site in newfound Kazakhstan was repeatedly ransacked with only specialized electronic equipment being stolen. Semipalatinsk is a dangerous area. It stores 3.5 tons of spent fuel, which it is unable to send back to Russia. This fuel includes a significant proportion of potential weapons-grade plutonium (Barletta 1998: 137). This is dangerous for the country as the thieves could use this nuclear fuel to their advantage. The United States sees this as a risk not only domestically, but internationally due to

Semipalatinsk's location 200 miles from Iran's border (Barletta 1998: 137). Paired with the United States, Kazakhstan pursued its nuclear-weapons free agenda.

Effects on Humans and the Environment

The testing of nuclear weapons preformed by the Soviet Union had a negative toll on the people of Semipalatinsk that the domestic politics after independence would be solely focused on nuclear weapons testing. Since the first nuclear test to present-day, they are dealing with the consequences of all of the nuclear testing radiation that has been embedded into their DNA and passed on into future generations. Natalya Zhdanova, who lived in the region from 1968 to 2000, recounted that announcements would be made about the tests, along with movie show times and weather forecasts (Kassenova 2009). It is evident that the nuclear tests were a casual occurrence and no precautions were taken. Suakysh Iskakova expressed, "When I was blinded from the blast, my uncle took me to see the doctor and the doctor said it was my own fault that I looked at the bright light from the explosion" (Taipei Times 2011). These issues resulting from testing nuclear weapons were not addressed and treated correctly, as they continued on into later generations. A 2008 study by Kazakh and Japanese doctors concluded that the population in Semipalatinsk and surrounding areas received more than 500 millisieverts of radiation in one exposure. In comparison to the USA, where the average American is exposed to about 3 millisieverts of background radiation each year (Kassovnoa 2009). With the advancement of technology there are signs of radiation, however, the amount of radiation emitted from the nuclear testing supersedes that of a laptop or other electronic device. Radiation has had a profound effect on the people of the region in that it has altered the way they live. A majority of the 220,000 affected people were exposed to an estimated dose between 7 millisieverts and 350 millisieverts (Kassenova

2009). The Kazakh and Japanese doctors noted that the rate of cancer of those living in the region remains 25-30 percent higher than elsewhere in the country (Kassenova 2009). In fact, cancer rates in the area of Semipalatinsk are twice as high as the national average, and it is estimated that birth defects are up to ten times higher (Gray 2011). There is a higher chance of mental deficiencies in children born to parents who were exposed to radioactive fallout from the testing. This includes nightmares, depression, frustration, agitation, and more while the physical toll includes hemorrhaging of respiratory tracts, mouths, genitals, and changes in mucous and skin (Kassenova 2009).

These tests also impacted the environment negatively by altering the land. Crops could no longer grow as they did before and water was now polluted with radiation. The nuclear weapons tests at Semipalatinsk inflicted serious damage to the area around the test site as it left large pieces of agricultural lands in Kazakhstan radioactively contaminated (Abden 2014: 51). Lake Chagan, or "Atomic Lake" as it is known to the residents, is a direct result of a consequence stemming from nuclear testing. The lake was produced by an underground explosion that formed a reservoir. However, the water is radioactive, about 100 times more than the permitted level of radionuclides in drinking water (Aben 2014: 51). This proved to be hazardous for the civilians who needed the water for everyday life. Concerns of Soviet citizens of the blasts contaminating the environment prompted the Soviet Union to scale back its nuclear testing program (Gordon 1989).

Formation of Allies

The United States played a vital role in the development of Kazakhstan's policies and helped the Kazakhs fulfill their spread of awareness of the negative effects of nuclear weapons

testing. An anti-nuclear group called the Nevada Movement, named after the American nuclear test site that was shut down, sought to impede the Soviet Union from continuing further testing (Gordon 1989). With the guidance of the United States, an anti-nuclear organization was formed. The movement, Nevada-Semipalatinsk, was a success and received more than two million people to petition to close the testing site (Kassenova 2009). In 1991, Kazakhstan's President Nursultan Nazarbayev officially closed the site and ordered that medical help and compensation be provided to those suffering from illness due to testing (Ibid 2009). This action paved the way for Kazakhstan's new anti-nuclear weapons agenda with the assistance of the United States as an ally. The United States funded the Cooperative Threat Reduction Program (CTR) which helped Kazakhstan with the dismantling of Soviet nuclear weapons left on its territory (Kassenova 2004: 126). As a newly formed country, Kazakhstan would not be able to properly finance the removal of the nuclear weapons as there were higher priorities. At the Nuclear Security Summit in Seoul in April 2012, the presidents of Kazakhstan, Russia, and the United States made a joint statement that the work to eliminate the consequences of nuclear tests at the Semipalatinsk site had almost been completed (Aben 2014: 50). With the help of the United States, Kazakhstan was able to achieve one of its country's concern and appeal to its people who are suffering from the grave affects of the Soviet nuclear testing.

Creation of Treaties

The support received from the United States acted as the starting point for a greater cause towards ensuring Kazakhstan's stability internally and externally. Through treaties, with the United States and other countries, Kazakhstan maneuvered its way into ensuring the safety of the country in regards to nuclear weapons, and the stability of nuclear weapons in the international

system. Following the collapse of the Soviet Union, the Central Asian states were left with weapons of mass destruction technologies, expertise and nuclear weapons (Kassenova 2004: 170). All of the following factors posed a threat on the stability within Central Asia. The Central Asian Nuclear Weapon Free Zone was produced in 2009. Also known as the Semipalatinsk Treaty, the CANWFZ, aimed at the reduction of nuclear weapons globally, with the ultimate goal of eliminating those weapons, and the promotion of security in Central Asia. The CANWFZ expresses a prohibition of stationing nuclear explosive devices within the zone, effective maintenance standards of nuclear material, facilities, and equipment, promote protection to the natural environment, and more (Roscini 2008). Kazakhstan's goal of non-nuclear proliferation expanded beyond the region of Central Asia. In 1996, Kazakhstan signed the Comprehensive Test Ban Treaty (CTBT). The CTBT is a global ban on nuclear explosive testing which would prohibit nuclear explosive tests of all the parties (Kassenova 2004: 186). The treaty was ratified in Kazakhstan in 2001. The creation of treaties revealed Kazakhstan's dedication to becoming nuclear weapons-free to appeal to the majority sentiment in the country. Kazakstan's effort and participation in fulfilling treaties on a global scale expresses its commitment to ensuring another Semipalatinsk aftermath does not occur.

Domestic Policies

Within its borders, Kazakhstan had been dedicated to promoting clean nuclear usage, especially near the region of Semipalatinsk because the government understands and sympathizes with the people who were greatly affected by the testing. Kazakhstan is currently underway of using the Semipalatinsk facility as the core for a new national center for radioactive waste processing and storage (Aben 2014: 51). This would provide assistance in assessing the long-term

public health and environmental consequences in that it would discover safer means for the radioactive environment still present in the area of Semipalatinsk. The National Nuclear Center of Kazakhstan has discussed opening up parts of the facility for commercial uses such as mineral exploration and extraction (Gray 2011). The International Atomic Energy Agency is backing plans to open up the site, although the Kazakh government is supportive, it insists on consulting with the public. This action illustrates the importance of the public's view on Semipalatinsk and its usage, especially to those who reside in the vicinity of the former test site. However, the government is debating whether to build a new nuclear power station. The country has more than 20% of the world's natural uranium deposits, the fuel source for nuclear power, and does not know what to do with it (Ibid 2011). The motive for this new nuclear power station would be peaceful and the petro-cash earned would go to proper clean-up operations (Ibid 2011). Kazakhstan is the global model for transforming the usage of nuclear power. This is mainly done in part because of its history and grave effects of nuclear power on its territory which prompts the country to be conscientious of nuclear weapons and the toll it has on its people.

Conclusion

The aftermath of the nuclear weapons testing held by the Soviet Union within the Soviet Republic of Kazakh drastically affected the people from the beginning of these nuclear weapons testing to early on into the birth of Kazakhstan. The new country attended to its people by offering them medical support and compensation for the decades of suffering and generations of mutations. Kazakstan dedicated itself to enforcing a nuclear weapons-free zone in Central Asia to ensure its people's security and that there would be no repeat of long-term health effects or lakes

filled with radiation. The efforts of becoming nuclear weapons-free expanded internationally as it cooperates and encourages the removal of nuclear weapons through treaties and allies.

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