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The Rights of the Wronged: Norms of Nuclearism, the Polygon and the Making of Waste-life

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Abstract

On 16th December 1991 Kazakhstan inherited "1216 nuclear warheads for intercontinental ballistic missiles and heavy bombers" (Werner and Purvis-Roberts, 2006). Moreover, Kazakhstan was also presumed to have significant amounts of enriched weapon-grade uranium enough for at least "two dozen warheads" (*ibid.*). However on 23rd May 1992 Kazakhstan signed the Lisbon Protocol to the Strategic Arms Reduction Treaty (START), gave up its "nuclear ambitions" and agreed "to become a non-nuclear weapon state" (Ayazbekov, 2014). Why did Kazakhstan give up nuclear weapons? This can be adequately answered only by linking the issue with the high material, human and environmental costs of hosting WMDs within the state territory. This paper examines the case of 'waste-lives' (Bauman, 2004) related to the Semipalatinsk Polygon in Kazakhstan. The Polygon experienced 467 nuclear tests during the period of 1949-1989 "without regard for the health and safety of those living and working near the test site" (Loretz, 2015). The issues of "human" exclusion of the periphery of the Cold War IR and its effects

after the end of the Cold War are at the core of this case study. The structure of the international system (Waltz, 1979) and "nuclear deterrence" (Brodie, 1958) that explain "Long Peace" during the Cold War came at the cost of well-being of the population that supposed to benefit out of the absence of warfare. Geopolitical perspective of the Cold War views historical events as anonymous or mechanical, except those that involved prominent leaders and disregards the "human" aspects of military industrial complex, particularly its biopolitical impact on the life-system of population. The fall of the USSR and "triumph of liberalism" helped to politicise and recognise the long-term effects of radiation contamination. However, this revelation did not resolve the issues as persistent problems being framed as a legacy of the "communist" Soviet Union that people have to accept; that is, without "institutional" or "individual" accountability, relocation, appropriate compensation and clearing the sites from contamination. What are the implications of this case for the future of "nuclearism" debate now with China's rise in the region?

Keywords: *nuclearism, Cold War geopolitics, biopolitics of wasted lives, Semipalatinsk polygon, China's rise*

1. Introduction

In 1988, one of the Soviet foreign policy advisers discussing the US-Soviet relations stated: "We are going to do a terrible thing to you – we are going to deprive you of an enemy." (Onea, 2013: 1-2) The breakup of the Soviet Union brought "considerable strategic difficulties" to the United States that "left without a superpower rival to compete against" (*ibid.*). Until the breakup of the Soviet Union, the containment policy of the United States had already worked for more than forty years with the

identifiable objective, scope and limitations. The Cold War rivalry was "more predictable, even if more dangerous" (*ibid.*) on the military, economic and political/ideological levels, which allowed for the opinion that a balance of power between the US and the Soviet Union was a necessary specific evil that supported a general world peace in the anarchic conditions. However with the end of the Cold War, the purpose and scope of the new grand strategy and foreign policy for the US to replace the containment and balance of power became less identifiable and more questionable, "frequently described as a fruitless quest" (*ibid.*). George H.W. Bush in his keynote speech argued that the liberal Western states such as the United States now can move "beyond a grand strategy", which was based on the idea of containment of the Soviet Union (Kennan, 1947), to ensure "international peace and stability, and a dynamic free-market system generating prosperity and progress on a global scale". (US Foreign Policy Secretariat, 2009) According to Joseph Nye, the "grand rhetoric" of President Bush about a "New World Order" was similar to the Wilson's Fourteen Points or Roosevelt's Four Freedoms, expressing "larger goals important for public support", particularly before "a liberal democratic state goes to war". This "New World Order" was President Bush's pledge for the "peaceful settlement of disputes, solidarity against aggression, reduced and controlled arsenals and just treatment of all people". (Nye, 1992)

On 25th December 1991, the United States was the first state that recognized Kazakhstan as an independent sovereign state after the breakup of the Soviet Union. The United States established diplomatic relations by opening its embassy in Almaty in January 1992, just a few weeks after the official recognition. For the United States and Kazakhstan, the "cooperation in security and nuclear non-proliferation is a cornerstone of the relationship" (US Department of State secretariat, 2016), where Kazakhstan was an active participant of the Nuclear

Security Summits in 2010, 2012 and 2014. In 1993 Kazakhstan gave up Soviet nuclear weapons arsenal located on its territory and closed the Semipalatinsk (Семипалатинск) Nuclear Weapons Testing Polygon (*ibid.*). This initiated a number of security-related activities for cooperation between the United States and Kazakhstan:

> The United States assisted Kazakhstan in the removal of nuclear warheads, weapons-grade materials, and their supporting infrastructure. In 1994, Kazakhstan transferred more than a half-ton of weapons-grade uranium to the United States. In 1995 Kazakhstan removed its last nuclear warheads and, with U.S. assistance, completed the sealing of 181 nuclear test tunnels at the STS in May 2000. In the following decade, the United States and Kazakhstan worked together to seal 40 more nuclear test tunnels at the STS. Kazakhstan signed the Conventional Armed Forces in Europe Treaty (1992), the START Treaty (1992), the nuclear Non-Proliferation Treaty (1993), the Chemical Weapons Convention, and the Comprehensive Test Ban Treaty (2001). In 2015, the government concluded an agreement with the International Atomic Energy Agency to host a low-enriched uranium bank in Kazakhstan. Under the Cooperative Threat Reduction program, the United States spent $240 million to assist Kazakhstan in eliminating weapons of mass destruction and weapons of mass destruction-related infrastructure.
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> (US Department of State secretariat, 2016)

Thus, at the time of its independence on 16th December 1991, Kazakhstan inherited not only industrial sites, infrastructure, processes, and outputs associated with the military industrial complex of Soviet Union, but also a significant part of the Soviet Union's nuclear weapons arsenal. The scale of the Soviet military industrial complex presence in

Kazakhstan can be viewed in the map of Central Asia produced by Philippe Rekacewicz (Rekacewicz, 2006) for the UNEP/GRID-Arendal (see Figure 1). The actual size of the large Soviet nuclear arsenal is uncertain, but the remnant in Kazakhstan may be estimated at "1216 nuclear warheads for intercontinental ballistic missiles and heavy bombers" (Werner and Purvis-Roberts, 2006: 467) or "108 SS-18 intercontinental ballistic missiles (ICBMs) and 1,410 warheads" (Ayazbekov, 2014: 149). Moreover, Kazakhstan was also presumed to have had significant amounts of enriched weapon-grade uranium, which would be enough for at least "two dozen warheads" or more (Werner and Purvis-Roberts, 2006: 467). However on 23rd May 1992, Kazakhstan signed the Lisbon Protocol to the Strategic Arms Reduction Treaty (START), through which the country decided to "give up its nuclear ambitions and agree to become a non-nuclear weapon state" (Ayazbekov, 2014). This premise proved to be economically valuable for a present time as mining and processing of uranium in independent Kazakhstan has become a growing industry, which by 2009 overtook Canada and Australia and had become the largest producer of uranium in the world for nuclear power plants use (World Nuclear Association, 2015).

Nevertheless, this denuclearization of the military of Kazakhstan looked like an "anomaly" of rational decision-making from the perspective of "structural realism" (Waltz, 1979), which is the orthodox theoretical perspective in international relations at the time of negotiations and decision-making in early 1990s. The conventional view of 1990s realism (Buzan, Jones and Little, 1993) is that nuclear weapons could have heightened a sense of safety for Kazakhstan, which is located in the middle of the Eurasia between the major nuclear powers in Continental Asia, Russia and China. An "alternative nuclear power" such as Kazakhstan might have been able to modulate the geopolitical

ambitions of the United States and Russia or China, and thereby reduce existential threats through the realist principle of "nuclear deterrence" (Brodie, 1958) that is supposed to reduce the probability of war or at least mitigate the consequences of its possible failure (Snyder, 1961).

An alternative rationalization of the denuclearization is the "nukes for oil" hypothesis. Following an agreement with the government of Kazakhstan on 19th May 1992, the US-based Chevron Corporation announced on 16th October 1992 a deal with the government of Kazakhstan to develop the Tengiz oil field that had estimated reserves of 35 billion barrels of petroleum. Kazakhstan would receive US$10 billion in investments from Chevron to allow the company to gain an annual profit of US$5 billion for 40 years. Nearly a year later, on 29th July 1993, the company Enron Oil & Gas Kazakhstan Ltd. was incorporated in Delware, USA (and the same company was incorporated in the Cayman Islands on 18th August 1994). These petroleum deals were made in the context of nuclear disarmament deals made with the US government: 29th April 1992, 20th May 1992, and 13th December 1993. Arguably, the issue of US support for Kazakhstan sovereignty after the collapse of the Soviet Union is inherently linked to both access to the Tengiz field and nuclear disarmament.

Meetings between US and Kazakhstani officials immediately after the declaration of Kazakhstan's independence on 16th December 1991 referred to both petroleum and nuclear issues (KEI Secretariat, 2007). This link was openly confirmed by then US President George H.W. Bush in a speech during a state visit to the US of Kazakhstan's President Nursultan Nazarbayev on 19th May 1992. US support for Kazakhstan's independence is linked to "president Nazarbayev's commitment that Kazakhstan will join the non-proliferation treaty as a non-nuclear weapons state and that it will adhere to the START (Strategic Arms Reduction) treaty" as well as to increased trade by US businesses in

Kazakhstan, primarily through 'the landmark agreement with Chevron corporation' (Bush, 1992). Kazakhstan appeared to benefit from the deal, as the value of its annual exports to the US which was virtually zero in 1992 rose to about US$434.4 million in 2015. The value of US exports to Kazakhstan in 2015, however, was significantly larger at US$1.484 billion and shows that the US policy of denuclearization-plus-free trade promotion has caused a significant trade deficit for Kazakhstan (UN COMTRADE Secretariat, 2017), which is compounded by significantly less revenues from the petroleum operations. Thus, a rationalization that US policy in Kazakhstan has reduced the risk of nuclear conflict cannot adequately explain why the US government has not tried harder to have "fairer" trade with Kazakhstan. However, it may indicate that the government of Kazakhstan may have chosen the unfavourable conditions rather than risk being a target of active, and possibly military, US-led intervention and aggression.

However, the question of "Why did Kazakhstan give up nuclear weapons?" can be adequately answered only by linking the issue with the high material and human costs of hosting and developing these weapons within the territory of Kazakhstan. The denuclearization-free trade policy of the US towards Kazakhstan focuses only on the results of nuclear conflict and not on the high material and human costs of hosting and developing these weapons within the territory of Kazakhstan. This paper will examine the case of "wasted lives" (Zygmunt Bauman, *Wasted lives: Modernity and its outcasts*, 2004) related to the Semipalatinsk nuclear testing polygon and the Soviet legacy of military industrial complex in Kazakhstan. The Semipalatinsk Polygon experienced 467 nuclear tests during the period of 1949-1989 "without regard for the health and safety of those living and working near the test site" (Loretz, 2015: 24). The Nevada-Semipalatinsk Movement against nuclear weapon testing and its impact on local people and environment

Figure 1 Map of Radioactive, Chemical and Biological Hazards in Central Asia

Source: Philippe Rekacewicz (cartographer) (2006). *Radioactive, chemical and biological hazards in Central Asia*. UNEP/GRID-Arendal (credit following usage instruction at webpage *https://www.grida.no/resources/7390*).

publicised the issue of the Polygon and later institutionalised this information into a form of "eco-nationalism". This ideal was used by the independence-seeking population in Kazakhstan as the reason to give up the nuclear arsenal in exchange for the gaining of a "moral right" of non-proliferation and for inclusion into the global system of economics and diplomacy. The establishment of "sovereign" governance in Kazakhstan did not, however, resolve the issue of neutralizing the "wastes" of the Soviet nuclear proliferation or the other non-nuclear human and environmental crises of the Soviet legacy, such as Aral Sea degradation or toxic pollution from the use of Baikonur space station. The present condition of the government of Kazakhstan, which is characterized by an ineffective Soviet-style bureaucracy, problematic transition of governance responsibilities, and limited industrial and socio-economic initiatives, may not be able to unilaterally reduce the severity of "human" cost and "environmental" degradation of the "Long Peace" legacy without external help.

Many authors of international relations questioned and problematised the preservation of the "Long Peace" between the Soviet Union and the United States during the Cold War, even if the conventional view is that the prevention of a nuclear Armageddon benefitted humankind as a whole. For example, Brodie explained it through the theory of "nuclear deterrence" (Brodie, 1958); Waltz considered it due to the structure of the international system, which allowed the possession of weapons of mass destructions such as nuclear weapons by major powers such as the United States and Soviet Union to be complimented by non-nuclear and non-military means of international power and influence (Waltz, 1979). Van Evera (Van Evera, 1990/1991), Gaddis (Gaddis, 1991) and Fukuyama (Fukuyama, 1989) considered that the rise of civil society, democratisation and the eventual triumph of institutionalised liberalism over communism in Eastern

Europe was at the core of the "Long Peace", which eventually caused the fall of the Soviet Union. However, these explanations of the Cold War and the fall of the Soviet Union are charged to favour a geopolitical perspective from which historical events are seen as anonymous or mechanical, except those that involved prominent leaders and personalities. These explanations disregard the "human" aspects of military industrial complex and its biopolitical impact of this governmentality (Foucault, 2008) on the life-system of local population in the Soviet Union and other locations where American, British and French nuclear hazards of the military industrial complex were located in the Cold War. The fall of the Soviet Union and "triumph of liberalism" helped to recognise and publicise the long-term effects of radiation contamination on the civil population, which resulted in independent Kazakhstan giving up the nuclear weapons. However, this revelation did not resolve the issue as post-Soviet authorities in Kazakhstan and elsewhere reframed the set of persistent problems as a legacy of the "communist" Soviet Union that people need to accept; that is, without relocation, appropriate compensation or clearing the sites from contamination. What are the implications of this localised case for the "human rights" and "nuclearism" debate (Booth, 1999a)?

The issues of "human" exclusion of the periphery of the Cold War international relations (IR) and its eventual effects after the end of the Cold War are at the core of this case study. The realist concepts of "balance of power" and particularly, "nuclear deterrence" that explain "Long Peace" during the Cold War came at the cost of well-being of the population that supposed to benefit out of the absence of warfare. The Soviet government did not relocate the people living near the nuclear testing sites and continuously observed their health and their environment to collect and analyse the data on the effects of radiation on people, as well as on animals and plants (Carlsen, Peterson, Ulsh,

Werner, Purvis and Sharber, 2001).

The conventional view is that the suffering and death of "rural Kazakhs" who lived near the Polygon was an acceptable "collateral damage" because of their strategic, military and economic insignificance or irrelevance (Zygmunt Bauman, "To each waste its dumping site", 2007: 185). Zygmunt Bauman denotes the use of the term "collateral damage" as "specifically invented to denote the human waste" in the modern globalizing world of production with its efficiency and effectiveness to achieve particular "rational" goals (*ibid.*). Moreover, the persistence of ethno-nationalist identity (as opposite to modern "Soviet identity") within these communities contributed to the view of the Soviet government that these people were considered "less important", and thus "waste-life", of the Soviet military industrial complex.

2. The Beginning: Nuclear Deterrence and Cold War Geopolitics

The Cold War was a phenomenon of the 20th century and was "fought" along distinctly geopolitical and biopolitical lines. The concept of "geopolitics" in its early 20th-century construction by Rudolf Kjellen and Fredrick Ratzel was closely linked with the idea of a state "being considered as a super-organism" requiring "living space" rather than with the idea of a state as an entity of "legalistic interpretation" defined by its constitution, claims of sovereignty, borders and membership in international organizations (Dodds, 2007: 24-25, 30). Thus, a state is conceptualised using "biological metaphors" as "one body" with many functions and needs that to ensure its survival in particular geographic space (Somit, 1972). The idea of geographic "space" ("*raum*") or "living space" ("*lebensraum*") in this "organic theory" of the states are important to explain the related governing qualities and possible political or military behaviours of these "state-organisms" towards each other

(Hagan, 1942). Furthermore, this notion of "state" had been linked to "human" biopolitical aspects of population that need to be governed and improved. Therefore, such issues as "birth, death, growth, decay, youth, age, sickness and health" were crucial aspects of state's governmentality and at the same time social Darwinist "survivability" among other states of the world (Somit, 1972: 209-210). This regulatory "biopolitics" of the state require "more complex systems of coordination and centralization" of population administration, which is based on the knowledge of statistics, demography, economy and epidemiology of particular geographic spaces and people "through which life was being discovered in its modern societal form" (Duffield, 2007: 5-6).

These lessons of "geopolitics" and "biopolitics" were not obscure ideas but were rather well known to the leaders who participated in the global conflicts of the 20th century. In 1924 during the democratic Weimer Republic period of Germany, Karl Haushofer established a journal at the University of Munich devoted to geopolitics – *Zeitschrift für Geopolitik* (*Journal for Geopolitics*). In the 1933 issue of the journal the other political scientist Louis von Kohl explained that biopolitics and geopolitics are to be studied simultaneously as they were complimentary to each other as "the basis of a natural science of the state". Biopolitics is about the population life-system and its "historical development in time", while geopolitics is a more horizontal concept where the key is actual distribution and use of geographical space in the society at particular time and more importantly, political "interplay between people and space" (Thomas Lemke, *Biopolitics: An advanced introduction*, 2011: 13-14). These ideas were taken as a normative "statecraft" or scientific expert advice later by the Nazi Germany in mid-1930s. This geopolitical and biopolitical "statecraft" notoriously culminated in the unprecedented suffering, death and destruction associated with World War II.

When the world was focused on the International Military Tribunal of Nuremberg on 8th August 1945 to judge the brutal "crimes against humanity" by Nazi Germany, which gave foundations to International Court of Justice and other important humanitarian institutions of justice, Hannah Arendt observed that the trial would inspire her to write about the notion of "human debris" as a by-product of capitalism in *The origins of totalitarianism* (Arendt, 1951). According to Mark Duffield, the "contemporary treatment" of Hannah Arendt's "human debris" notion was re-conceptionalised by Zygmunt Bauman (Duffield, 2007: 9), who views the condition of existence that modern industrial progress requires as expected to produce "wasted lives" among the population where it operates similarly to other wastes of industrial output (Zygmunt Bauman, *Wasted lives: Modernity and its outcasts*, 2004). This governmentality constructs the "categories" of people for their "usefulness" to the overall productivity of the state system in the competitive environment of geopolitics and associated international structural norms. For those unfortunate, whom Bauman characterizes as "waste-life" for their uselessness to the industrial progress and efficiency of modern systems "from their present place, the dumping site, there is no return and no road forward ..." (Zygmunt Bauman, "To each waste its dumping site", 2007: 175)

> All waste, including wasted humans, tends to be piled up indiscriminately on the same refuse tip. The act of assigning to waste puts an end to differences, individualities, idiosyncracies. Waste has no need for fine distinctions and subtle nuances, unless it is earmarked for recycling … All measures have been taken to assure the permanence of their exclusion. People without qualities have been deposited in a territory without denomination …
>
> (Bauman, 2007: 176)

Gunther Anders wrote that, at around the same time of the war-crimes trials in Germany, "the last irradiated victims of Hiroshima (広島), after having fallen to their knees while running away through the debris of their city, collapsed and died. On August 8, 1945, the inhabitants of Nagasaki (長崎) still had a last 24 hours to walk, to rest, work, eat, sleep, laugh, cry and to love without suspecting anything." (Barrillot, 2007: 443). In other words, the population of Hiroshima and Nagasaki was denoted as "collateral damage" (Bauman, 2007: 185) for the purpose of World peace and new "humanitarian order" of the international relations. Thus, while the "concept of a crime against humanity" was being constructed to be institutionalised in Europe in the post-World War II international society, the similar crime was about to take place in the East, which was, ironically, to be committed by the promulgators of the punishments against war crimes. This state of the global governmentality that emerged before the Cold War is summarized in Halford John Mackinder's Eurocentric geopolitical notion delivered at the Royal Geographical Society in early 1900s about the East, which is "perpetually threatening, unstable, and at times racially incapable of peaceful governance" (Dodds, 2007: 125). Regrettably, this contradiction became the basis for the international and domestic politics associated with the global "development" and "security" dependent on the potential use of nuclear weapons.

The conditions of geopolitical competitiveness determined the "categories" of usefulness with regard to the "military industrial complex" valuable for the advances in governmentality to maintain the World "peace". The Convention for the Prevention and the Repression of the Crime of Genocide was adopted on 9th December 1948 at the United Nations (UN) General Assembly. Furthermore, *The Universal Declaration of Human Rights* (UDHR) was adopted as Resolution 217A

on 10th December 1948 at the UN General Assembly that outlined the "fundamental human rights to be universally protected" as a standard for "all peoples and all nations" (*The Universal Declaration of Human Rights*, 1948). However, the UN General Assembly left out the question of "nuclear weapons and human rights", and the delegates appeared to deliberately ignore the reality that "the United States had already 'deported' the inhabitants of the atolls of Bikini and Enewetak in 1946, in order to carry out nuclear tests on their ancestral grounds" (Barrillot, 2007: 443).

In the midst of the Cold War, the notion of "geopolitics" was rehabilitated from the past "Nazi stigma" to being a core concept in the discussion of the Cold War American "realism". The concept was promoted by the theorists of "nuclear deterrence" such as Bernard Brodie and Glenn Snyder, by the intellectual politicians such as Henry Kissinger and Zbigniew Kazimierz Brzeziński (Dodds, 2007: 39-41) and systematised further by the "structural realism" of Kenneth Waltz (Waltz, 1979). However, in contrast, the discussion of "biopolitics" had appeared in the public discourse from the "critical perspective" on the political technologies of "neoliberal governmentality" in Europe in famous lectures by Michel Foucault (Thomas Lemke, "'The birth of bio-politics': Michel Foucault's lecture at the Collège de France on neo-liberal governmentality", 2001).

Thus, the discussion of "geopolitics" of structural realism, where nuclear weapons arsenal play a key role in maintaining world peace, is discussed without a "complimentary" notion of biopolitics of "structural realism" as was initially conceptualised by Swedish and German theorists of organic "state organism" in early 20th century. At the time, the distinction between the biopolitical and geopolitical spheres of international influence remained distinct mainly because of the different priorities of governance, such as post-war reconstruction,

decolonization, international institution-building, and, in the case of the US, hegemonic expansion in the maritime geography inspired by Alfred Mahan's concept of "sea power" (Mahan, 1890). This was maritime "concept" similar to the Mackinder's enthusiasm of "land expansion" towards "Euro-Asian heartland" pivot by constructing trans-continental railways "that work wonders in the steppe" (Mackinder, 1904: 434) that most probably inspired the early school of geopolitics in 1920s Germany.

At the end of the Cold War, however, it is now possible to identify the costs of the Cold War, particularly in terms of the dehumanizing and marginalizing aspects of the Long Peace. In particular, it is now possible to fill the gap in the incomplete discussion of geopolitical "nuclear deterrence" and associated "structural realism" with "biopolitical" aspects of Nuclear Age in the US-Soviet relations. Post-Cold War Kazakhstan provides an illustrative case for the biopolitical-geopolitical impact on population, its environment and its possible legacy for next generations.

3. The Case of the Polygon: Biopolitics of "Wasted Lives" in Semipalatinsk?

The Cold War in Mackinder's "Euro-Asian heartland" started in the steppes of Kazakhstan "on August 29, 1949 at 6.30 a.m. without any notifications [to the public]" (Berkinbayev, 2016), when the Soviet Union successfully detonated the first nuclear bomb at the Semipalatinsk Nuclear Test Polygon in the northeastern part of Kazakhstan (see Figure 1). The first explosion was conducted by H-bomb RDS-1 "with the capacity of 30 kilotons" of explosive power in Abai and Abyraly districts (*ibid.*). This was a plutonium bomb, which was reported as being a Soviet equivalent of "the U.S. 'Fat Man' design" (Carlsen, Peterson,

Ulsh, Werner, Purvis and Sharber, 2001: 946). The explosions of nuclear bombs continued for the next forty years of life for the unassuming local population.

> On October 18, 1951 the first Soviet aviation atomic bomb was tested by dropping it from aircraft. On August 12, 1953 the first in the world hydrogen bomb with 500 kiloton yields was tried. In August 1953 thermonuclear machine was tested; in 1955 the USSR tried the bomb created by A. Sakharov. In 1949-1989 470 different nuclear plants were exploded within the test zone, including 90 bombs in the atmosphere, 26 – on the ground and 26 – under the ground. Approximately 50 nuclear bombs were exploded at the atmosphere and under the ground at the Semipalatinsk test site during 1961-1962. In 1963-1988 14-18 tests were carried out every year, 343 nuclear explosions were conducted under the ground in total.
>
> (Berkinbayev, 2016)

This nuclear weapons testing resulted in radiation levels "up to 448 rem" with "total yields at the Semipalatinsk nuclear test site … 2,5 thousand times more powerful than the bomb dropped on Hiroshima" (Berkinbayev, 2016). Even in the 1950s some scientists were "actively calling for the end of nuclear testing", as they knew about the hazards of radiation exposure for the public and the environment from previous non-military laboratory work with isotopes, such as uranium, plutonium, polonium and radium. (Werner and Purvis-Roberts, 2006: 463) After all, the life and death of the famous chemist and physicist Marie Curie, who developed a "theory of radioactivity" in early 20th century was one of the poignant examples in the beginning of the nuclear science development.

Both the United States and Soviet Union "conducted atmospheric tests until the Limited Test Ban Treaty of 1963" (Werner and Purvis-Roberts, 2006: 463). The treaty only had a minimal impact on the development of nuclear weapons technology. The United States and the Soviet Union continued their testing with underground detonations, while "non-member states, such as France and China, continued to conduct atmospheric tests" (*ibid.*). Out of more than 2,400 nuclear tests conducted worldwide, 456 tests were conducted at the Semipalatinsk Nuclear Test Polygon. Relative to other detonation test sites, the Semipalatinsk Polygon ranks second "in terms of explosive yield" after the Marshall Islands Test Site, and second "in terms of the total number of tests" after the Nevada Test Site (*ibid.*). The advances in nuclear weapons technology gained from these testing experiments eventually allowed United States, United Kingdom, France, and Soviet Union to negotiate the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in 1968, seemingly on the grounds of prevention of global nuclear weapons proliferation. However, the aspiring "new nuclear powers" such as Israel, India and Pakistan had never joined the treaty.

Semipalatinsk Nuclear Test Polygon is "an 18,000 km tract of land situated about 130 km west of Semipalatinsk, a city that currently has about 400,000 residents" (*ibid.*) and one of the major cities of Eastern province (oblast) of Kazakhstan. The Soviet Government "consciously and intentionally exposed" people within the greater Semipalatinsk area with neighbouring Pavlodar, Karaganda and Ust-Kamenogorsk areas to radiation and "monitored the health" for research purposes (*ibid.*). There are different estimates of the total number of people exposed to radiation as most of the Soviet military data is still classified, but there are estimates that around "1.6 million people were exposed to significant doses of radiation" (*ibid.*). A few kilometres away from the Polygon is Kurchatov, which was a "closed-city" requiring a special permit-for-

entry during Soviet period devoted to scientific research and development of nuclear weapons and was populated mainly by personnel of the military industrial complex and their families. Aside from Kurchatov, which was the largest population centre closest to the Polygon, there are also a number of small local villages surrounding the Polygon. Locally-born Kazakhs populated the villages of Sarzhal, Kaynar, Kanonerka, Bolshaia Vladimirovka, Dolon and others which "ranged from 800 to 4,800 people" in density. From 1949 to 1989, the residents of these villages received significant doses of radiation. The exposure estimates reconstructed by various scientists are different, but one example shows "Dolon receiving 4470 mSv, Sarzhal receiving 2460 mSv, and Kanonerka receiving 1790 mSv" (Carlsen, Peterson, Ulsh, Werner, Purvis and Sharber, 2001: 946, 948).

These volumes represent exposures that range from 663% to 1719% of the average exposure of populations in the present-day health and safety standards (Public Health England Secretariat, 2011). The information openly available on the exposure risk in the Semipalatinsk area was derived from official information about the number and type of nuclear tests occurred: "30 'surface' tests and 86 'atmospheric' tests were conducted in the area known as the Ground Zero experimental field; 109 underground tests were conducted in the Balapan region, where the explosive was deposited into the ground with a borehole; and 239 underground tests were conducted in the Degelen Mountain complex, where the explosives were deposited through a horizontal tunnel into the side of a mountain" (Werner and Purvis-Roberts, 2006: 463). The underground tests were not necessarily safe, as many experiments leaked radioactivity to the atmosphere, or at the very least exposed soil, underground aquifers and other environmental features to radiation. The last underground test was on 12th February 1989, which "resulted in a leakage of large amounts of the radioactive noble gases

xenon and krypton" (Carlsen, Peterson, Ulsh, Werner, Purvis and Sharber, 2001: 946).

The nuclear testing programme of the Soviet Union was so classified that even the local people living in the nearby villages were not informed about the tests. The recently opened archives show the photos and documents previously declassified for the public digital history project in Kazakhstan. For example, one of the official documents shows the list of forty people who died in one village of Karaul during the testing of the nuclear bomb in 1953. The list contains full names and professional occupations listing people from the highest position of the Assistant Secretary of the District Communist Party Committee down along the Soviet "professional hierarchy" to other residents of the village with professions, such as accountants, policemen, teachers, drivers and others (Berkinbayev, 2016). American experts who visited the sites and interviewed local residents in early 2000s reported that "villagers, who lived as close as 30 km from the test site ... occasionally entered the test site territory to gather hay and to herd livestock, were never informed of the risks associated with the tests". Thus, they concluded that most probably Soviet authorities "knowingly exposed these innocent citizens to harmful levels of radiation in order to test the effects of radiation" (Werner and Purvis-Roberts, 2006: 463).

Currently the exposed areas are populated by second- or third-generation descendants of those exposed initially in 1950s-1960s. The occurrence of various radiation-related health problems is of a much higher rate in these populations than elsewhere in Kazakhstan. Undoubtedly, there are many other factors that affect rural population health in the area as malnutrition, poverty and poor sanitation, but these do not discount the effect of the radiation to which local people were intentionally exposed by their own government that intentionally withheld information on the hazards of nuclear weapons experiments.

There are cases such as a "twofold risk of leukemia" in the area "among those with doses >2Sv compared with those having doses <0.5 Sv" that resulted from "exposure during the period of testing" or the increase in cases of "Hashimoto's thyroiditis and thyroid cancer" in 1980s-1990s or predominance of "papillary cancer (48.1%) and follicular cancer (33.1%) currently predominate in the Semipalatinsk region" (Carlsen, Peterson, Ulsh, Werner, Purvis and Sharber, 2001: 947). Despite these health problems, there continues to be an unresolved debate on the exact impact of the "residual radioactivity" after the period of testing of nuclear weapons in the scientific community in Kazakhstan, Russia, United States, Japan and other countries (*ibid.*).

Among the Kazakh scientists, most significantly the prominent anti-nuclear activist and long-time director of the Institute of Oncology, Professor Saim Balmukhanov, argues that the data collected from his sample in the Sarzhal and Kainar villages exposed to the radiation and Kokpecty village unexposed to the radiation show that "pathologies in cohorts born after the atmospheric tests appeared to be significantly higher in the villages within the fallout" compared to the other unexposed "control village". Furthermore, he described a case with many possible "pathways of exposure to plutonium particles from the soil", such as the "plutonium accumulation in the bones of horses", which represents a continuing risk for radioactive exposure as horsemeat and milk are part of the normal diet in Kazakhstan and neighbouring countries (*ibid.*: 947). Moreover, the exposure risk is magnified by the continuing practices of free-range grazing of herded cattle on the open, and potentially irradiated, steppe grassland, irrigating farms and home gardens with potentially irradiated groundwater, and of drinking untested water from artesian wells, which are often the only sources of drinking water in the steppe (*ibid.*: 948).

The example of conflicting discourses of local medical personnel, herding farmers and scientists about the impact of radiation for the life of rural community living next to the Polygon were well documented in the *After the Apocalypse* non-fiction feature film made by the British filmmaker Antony Butts in 2011 (Bradshaw, 2011). The documentary film (Butts, 2011) introduces the audience to one of the medical doctors in the area, Dr. Toleukhan Nurmagambetov, who is struggling with the number of cases of genetic deformities in the population and proposing to introduce biopolitical "genetic passport" to disallow the life of potential newborns for the parents with deformities associated with the nuclear weapons testing. In other words, the only way to reduce the genetic damage in the next generations seems to be to limit the reproduction of the local population. Consequently, the lack of socioeconomic opportunities combined with the lack of national and international institutional concern for the problem leave the local medical personnel with the task of biopolitical governmentality to administer and, ultimately, to disallow (Foucault, 2008) the "wasted lives" (Zygmunt Bauman, *Wasted lives: Modernity and its outcasts*, 2004) among the rural population of herders in the Semipalatinsk region. Thus, what are the levels of radiation that affect local population and their environment? What can be done to prevent or mitigate the continuous damage to population health?

During 1990s there were at least three different teams, including one American team, that published results of their radiation-related research on the topsoil and subsoil of the Semipalatinsk "ground zero" area: Dubasov (1997) with composite samples from 0-20 cm, Shebell and Hutter (1997) with subsamples of 0-5, 5-10 and 10-15 cm, and Yamamoto *et al.* (1996) with surface samples to 5 cm that conducted the analysis of soil in the Ground Zero site and Chagan/Bolapan site for a

number of isotopes. All three have very different results, for example in the Ground Zero (Bq kg-1): radioactive cesium (137Cs) for Dubasov is 108, for Shebell & Hutter is 24200 and for Yamamoto *et al.* is 83300 (Carlsen, Peterson, Ulsh, Werner, Purvis and Sharber, 2001: 949). There seems to be little explanation of why the results are different. Furthermore, in the end of the article showing this table of measurements, Carlsen *et al.* (2001) pose a question – "How good is the dosimetry? At the time of writing, we were not aware of any peer reviewed publications that compare assumptions, methods, and results of dose reconstruction performed by Russian, Kazakh, and U.S. scientists." (*ibid.*: 952) If it is not clear even about how to measure and reconstruct the exposure of soil to the radiation at the Ground Zero, how much more can we know about the effect of radiation on the people who lived and continue to live in close proximity to the testing sites? More importantly, all the findings indicate that the residents in the area very likely ingest more than the stable and safe amounts of caesium, which is on the average 10 micrograms/day (ATSDR Secretariat, 2004).

There are other locations in the world, where local populations and military personnel with their families were exposed to the nuclear weapons tests but were allowed to at least receive information on the condition of their health and environment. For example, the study of the Polynesian patients affected by thyroid cancer conducted by Prof. Claude Parmentier at the Gustave Roussy Institute in Paris showed "anomalies of the DNA ... three times more significant than those in European patients affected by the same disease" (Barrillot, 2007: 456). Bruno Barrillot poses a question with this example – "Is damage to the DNA of an irradiated person transmissible to succeeding generations?" (*ibid.*). He provides further examples of the case researched by Dr. Sue Rabbitt Roff at the University of Dundee in the UK, who showed "dermatological, musculoskeletal and gastrointestinal problems in the

children and the grandchildren of veterans of the British tests as those exposed directly to the tests themselves". She also found "significant rates of sterility and neurological anomalies" in her sample of children and grandchildren of British veterans who served at the nuclear weapons testing sites (*ibid.*). But aside from the issue of humanely treating the victims of intentionally-hidden irradiation in specific locations is the recent discovery that nuclear weapons use, testing, and development is inherently unsafe for all in the present and for future generations of humans. Furthermore, after the 2011 Fukushima (福島) nuclear disaster, the nuclear energy production by TEPCO in Japan and the associated crisis are politicized as the "ongoing nightmare" by Chinese news agency despite the ongoing growth of nuclear power use in China (Xinhua, 2017).

4. Wasted Lives and New Regionalism in Eurasia: China and the New "Nukes for Oil"

The effects of the politics of wasted lives in nuclear weapons testing are not key determinants of the four core elements of nuclear order – namely, nuclear deterrence, arms control, non-proliferation, and disarmament. This is mainly because the goal of gaining strategic stability gives nuclear-armed states a reference for regulating relations between each other and with non-nuclear-armed states (Horsburgh, 2015: 22). Despite the possibility that nuclear weapons may be inadvertently used because of national or international instability (Waltz, 1981), the overall trend of relations between nuclear-armed states has been towards consolidation and stability (Horsburgh, 2015: 28). The case of nuclearization in China shows that the development and creation of nuclear weapons are motivated by the need to overcome the hypocrisy of Western nuclear non-proliferation and to compel the United States in

particular to be more cautious with its diplomacy in the Asia-Pacific (Cirincione, 2000: 133, 135). The limited size and types of nuclear weapons developed in China from 1964 relative to those in the US and the former Soviet Union appear to represent a reactive rather than an aggressive overall national defence policy (Fravel and Medeiros, 2010: 60-61, 75). However, the human cost of this weapons program has been estimated at 750,000 deaths in areas surrounding Lop Nur, Xinjiang (新疆), near the Kazakhstan border, where 46 nuclear detonations tests were conducted from 1964 to 1996 (Epoch Times Secretariat, 2009). The largest detonation was 4 megatons in 1976: the explosive yield was estimated at 10 times greater than the largest at Semipalatinsk, Kazakhstan (Takada, 2008). An estimated 1.2 million persons near Lop Nur have received doses of radiation that are high enough to cause leukemia, cancers and foetal damage, and the cancer rate in Xinjiang is 30 to 35 percent higher than the rest of China (Merali, 2009). Nevertheless, compared to the number of Chinese casualties in the 1950-1953 Korean War (est. 250,000) (Farley, 2014), and the Second World War (est. 10,000,000) (*War Chronicle* Secretariat, 2017), the human cost of the nuclear weapons program would appear, similarly to the Soviet case of Semipalatinsk Polygon, to be acceptable as a "collateral damage" in the geographic periphery, particularly because of the potential "deterrent effect" as a retaliatory measure towards the great nuclear powers of the world in the realist perspective of international relations.

However, even if Kazakhstan and neighbouring Xinjiang still represent "geographic periphery" for the nuclear issues of the government in Beijing, its foreign policy engagements appear to be motivated by some concern for energy-related stability. The decision of President Xi Jinping (习近平) to have a 10-day official trip devoted to four Central Asian countries on 3-13 September 2013 have effectively reconceptualised Eurasia as an important geopolitical component of

growing China. The aim of President Xi Jinping's trip to Kazakhstan was to "reaffirm the strategic partnership" and to sign twenty-two agreements "worth 30 billion dollars" in the energy, agriculture, transport, and construction sectors, which also included "building of new oil refinery in Kazakhstan" (Boulègue, 2013). The most important part of Xi Jinping's September 2013 visit was "the official agreement on the acquisition by the CNPC (Chinese National Petroleum Company) of an 8.33 percent share in the Kashagan offshore oil project for 5 billion dollars" (*ibid.*). Interestingly, this arrangement became certain for China only "after U.S. major ConocoPhillips announced in November 2012 its intention to disengage from the project and to sell its shares" (*ibid.*). Furthermore, President Xi and President Nursultan Äbişulı Nazarbayev (Нұрсұлтан Әбішұлы Назарбаев) formally launched "the first phase of the Kazakhstan-China natural gas pipeline" (De Haas, 2015). These transactions between the governments of China and Kazakhstan appear to indicate an important shift concerning the geopolitical and geostrategic influence in Central Asia and in the former Soviet geographic "space", and therefore also imply several key questions. Is China's energy interest and participation in Kazakhstan's economy part of the "Good Neighbourhood" and harmonious "Peaceful Development" that will have an effect on wasted lives (Zygmunt Bauman, *Wasted lives: Modernity and its outcasts*, 2004) in "geographic periphery" or just an indication of the geopolitical expansionism of a threatening "China's Rise" (Brzezinski and Mearsheimer, 2005)?

The "One Belt, One Road" (OBOR) initiative consists of two components: (1) Silk Road Economic Belt (SREB) and (2) Maritime Silk Road (MSR). The Silk Road Economic Belt component has placed Kazakhstan in the midst of China's contemporary foreign policy for Eurasian economic expansion. According to Wang Jisi (王緝思), an international relations scholar at Peking University, the Chinese state is

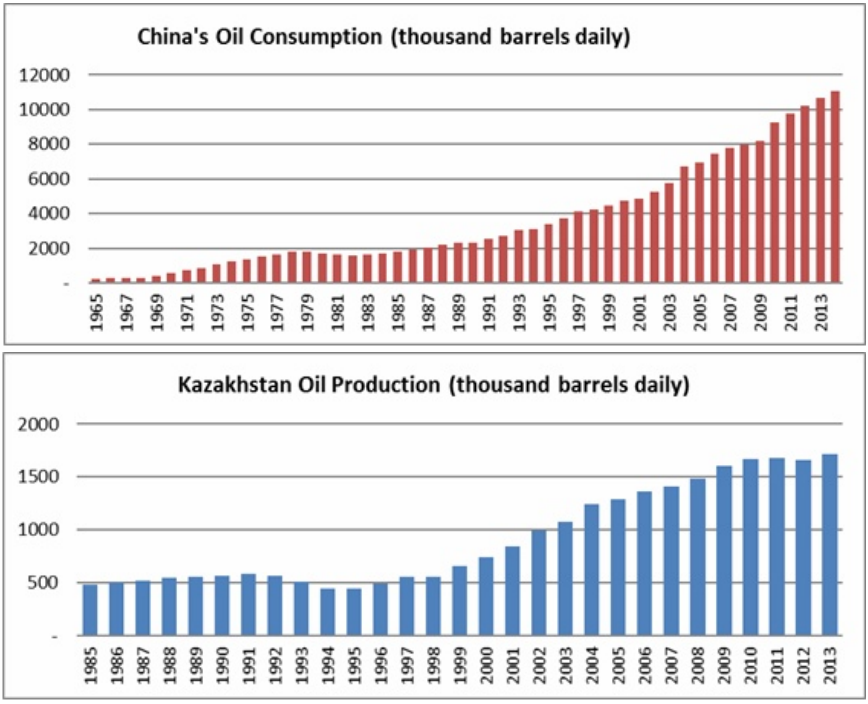
self-obliged to "march westward", conceptualised in OBOR, as part of rational strategic decision-making (Panda, 2013). This is "because the 'eastward shift' in strategic focus of the Obama administration (known as the 'rebalance') threatens to lock SinoU.S. relations into a 'zerosum game' in East Asia", which could have negative effects that range from the promotion of aggressive nationalism among the states of the Asia-Pacific to militarized conflict over territorial control, freedom of navigation and other issues associated with "hegemonic expansion" of either the US or China (Clarke, 2015). China's western expansion inland towards Kazakhstan has considered having minimal risk of conflictual encounters with the US, and in particular having zero potential for territorial or military conflict with the US over maritime, territorial, freedom of navigation, and sovereignty-related issues. Thus, from China's perspective the western direction for the expansionary policy is more of a geopolitical necessity that allows for a relatively safer means to rebalance power and influence against the Unites States, which has significant influence over eastern issues such as the South China Sea disputes, the cross-strait Taiwan issues, and the resolution of the nuclear threat of North Korea. Moreover, the westward move will draw more global attention to the promotion of "peaceful development" of Xinjiang, which has until recently been an obscure and impoverished territory for centuries. The Chinese strategy will likely have an inevitability of re-conceptualizing Xinjiang as a gateway for the supply of energy resources and the safety of commercial traffic necessary for further economic and political growth in the Eurasian region. Just as important as the ability of China to expand its interests westward is the decline of the US influence in Central Asia. In this case, the decline is indicated by the decision to sell the U.S. ConocoPhillips shares in Kashagan oil field in Kazakhstan and by the termination of the agreement to allow American military forces to deploy from the Manas Air Base in Bishkek,

Kyrgyzstan, which was linked with the withdrawal of NATO forces from Afghanistan.

The energy consumption for all types of fuels in China continued to increase dramatically until recently (see Figure 2), when even in 2014 "China still recorded the world's largest increment in primary energy consumption for the fourteenth consecutive year" (BP, 2015). The consumption growth for oil in China in 2014 was "below average but still recorded the largest increment to global oil consumption (+390,000 b/d)" (*ibid.*). This growth justified the expansion of Chinese energy-related interests in Kazakhstan, particularly in growing oil production projects (see Figure 2) such as, for example, the extraction and refinement operations in the large Kashagan oil field. At the same time, China's comprehensive strategy included the building of the transportation-related infrastructure, including natural gas pipelines, for the "Silk Road" economic belt in order to stimulate further trade and investments in Central Asia. There were three critical oil projects of China-Kazakhstan relations: (1) the investment of "$2.5-3 billion in building a 3088-km pipeline from Atyrau in western Kazakhstan to Dushangzhi in Xinjiang" in 1997, which extended from Qandyaghash to Atasu in 2003 and from Atasu in Kazakhstan to Alashankou in China in 2004; (2) the acquisition of 60% shares of Aktobemunaigaz oil company in Aktobe in 1997; and (3) the acquisition of PetroKazakhstan, Canadian oil company, in 2005 (Lai, 2007: 527).

According to Mathieu Boulègue, Beijing's Central Asian energy policy relies on two major approaches: (1) Beijing acquires the "controlling shares in distressed energy consortiums at low prices as well as purchases local oil fields", and (2) Beijing invests in the pipelines and other transportation infrastructure "in order to connect all the acquired fields and deposits to the wider Chinese network" via Xinjiang (Boulègue, 2013). There is also a third approach to the energy

Figure 2 China's Oil Consumption and Kazakhstan Oil Production



Source: BP (2015).

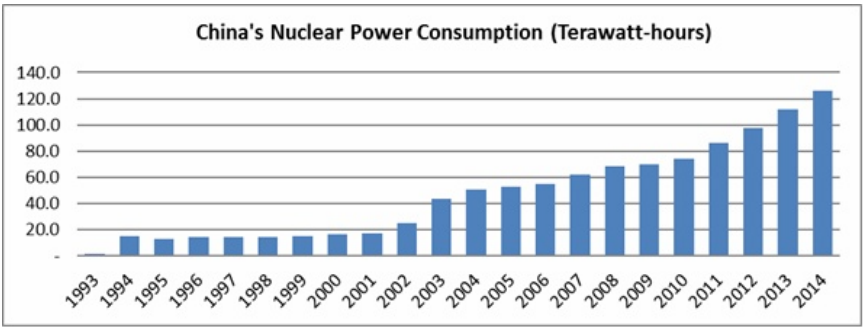
policy of China that is becoming more relevant for Kazakhstan and its industrial development in recent years – the nuclear energy. Kazakhstan's experience in military industrial complex of the Soviet Union, particularly in managing the "nuclear assets" of the industry has now become useful for China's growth as economic power of the world. In recent years China has put in enormous efforts for expanding the capacities for nuclear power generation to cope with the challenges of economic growth and energy security, as well as climate change, which brings "new challenges on resources allocation, technology selection,

waste management and safety" (Xu, 2010: 48).

According to the *BP Statistical Review of World Energy*, the global nuclear output increased "by an above-average 1.8%, the second consecutive annual increase" notwithstanding the accident in the Fukushima nuclear power plant in Japan in 2011, the growing doubts about the future of nuclear power in Japan, and the debate on the long-term sustainability of nuclear energy worldwide. Nuclear energy production particularly increased in South Korea, China and France, while the opposite trend of decline was seen in Japan, Belgium and the UK (BP, 2015). *World Nuclear Performance Report 2016* shows the "predictable series construction of large reactors" in China despite the safety concerns in the industry in order to "cut reliance on coal-fired generation and promote the use of low-carbon energy, confirming the 2012 target of 58 GWe of nuclear online by 2020, with 30 GWe more under construction". In 2015 alone the "new units were connected to the grid at Fangjiashan, Fuqing, Hongyanhe, Ningde, Changjiang, Fangchenggang and two at Yangjiang" and the construction began for "two new units at Fuqing and another two at Hongyanhe" (World Nuclear Association, 2016).

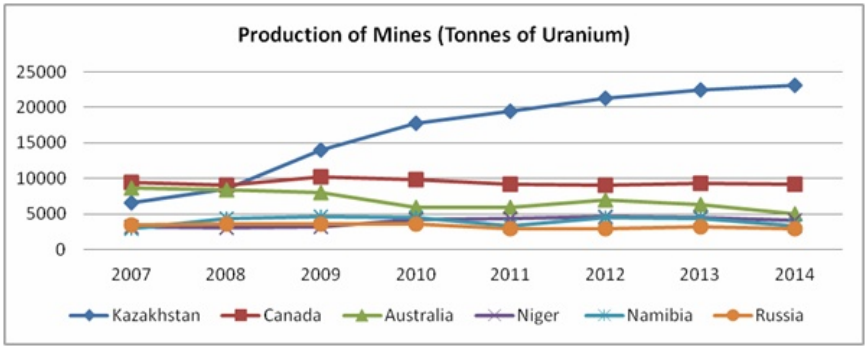
As if matching the steady increase in China's nuclear energy consumption since 2010 (see Figure 3), Kazakhstan since 2009 overtook Canada and Australia in the mining of uranium produced for nuclear power plants use (see Figure 4). Presently, more than two thirds of the world's uranium fuel is sourced from the mines in Kazakhstan, Canada and Australia, and among these Kazakhstan produces the largest world share. More importantly, more than half of uranium mine production is managed by the state-owned companies due to the complexity of the process and to safety concerns, where the security of the production, storage, transportation, and overall supply is given greater emphasis than pure market considerations (World Nuclear Association, 2015).

Figure 3 China's Nuclear Energy Consumption



Source: BP (2015).

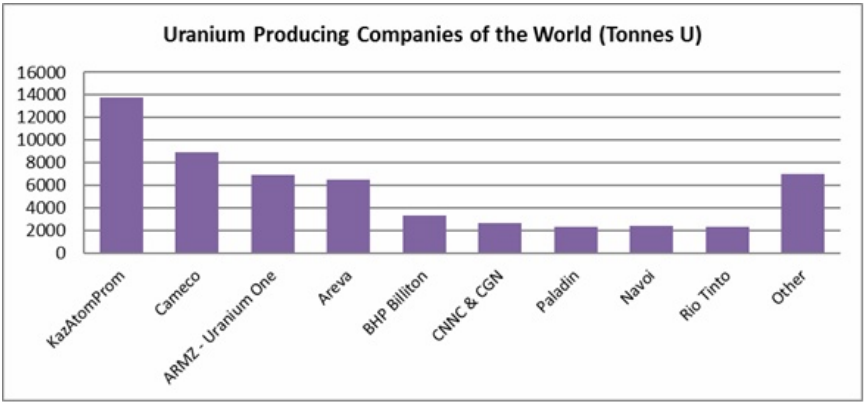
Figure 4 Major Uranium Production in 2007-2014



Source: World Nuclear Association (2015).

Both Kazakhstan and China in the case of uranium and nuclear power production rely on the state-owned companies, which places business negotiations and inter-state cooperation within the scope of state foreign policy that includes bilateral and multilateral engagements in the Eurasian region. In 2014, among eleven companies that take up 88% of the world's uranium mine production, Kazakhstan's state-owned KazAtomProm was accounted as the largest producer (see Figure 5).

Figure 5 Uranium Producing Companies of the World in 2014



Source: World Nuclear Association (2015).

The primary obstacle to further expansion of the Kazakhstan uranium industry is the overall condition of the international uranium market taking liberal perspective of industry growth, not the biopolitics of "wasted lives" experience of Semipalatinsk Polygon. In this liberal perspective, China is considered one of the growing markets for power produced from nuclear reactors and the Chinese government is likely to explore further opportunities for cooperation with Kazakhstan to meet this demand. These opportunities are likely to come in the form of expanded energy sector investments in Kazakhstan's uranium mines and other associated nuclear energy industries. As would be expected, in 2011 Beijing not only continued investing in oil and natural gas infrastructure, but also pledged "to buy Kazakhstani uranium for an estimated $8 billion" (Rousseau, 2013).

Uranium transportation requires strict regulations on the "health and safety" and security of the radioactive commodity, thus complementing the future demand for the improved infrastructure as expected for the

"One Belt, One Road" (OBOR) strategy. China's enthusiasm and capabilities to expand the bilateral investment and trade relations with Kazakhstan also enhance the interactions, which support the more comprehensive institutionalized multilateral initiatives such as the "One Belt, One Road" (OBOR) strategy as part of the now geopolitical "Eurasian pivot". Thus, former "geographic periphery" populated by the "wasted lives" has become critical for the future economic development of a growing China. However all these initiatives are based on state-level geopolitical "national interest" in the liberal capitalist "market conditions" of the mostly authoritarian Eurasian region, conveniently disregarding the biopolitical issues of population lives in Semipalatinsk and Xinjiang. Thus, the question still persist: What would China do as a regional power for "Good Neighbourhood" and harmonious "Peaceful Development" of the marginalized population? Would the development of "peaceful" energy industry in Eurasia contribute more existential risks and more "wastes" (Zygmunt Bauman, "To each waste its dumping site", 2007) to the life-systems of local population in Kazakhstan and China? How would the issues of "nuclear safety" on the population level in the region be managed? These questions are open for debate for diplomats, multilateral institutions and professional industrial associations in the region. Currently, Shanghai Cooperation Organisation (SCO, 上海合作組織 / Шанхайская Организация Сотрудничества), the main multilateral institution in the Eurasian region, does not provide clear guidelines for the issues of "nuclearism" among its member-states.

5. Conclusion: Wasted Lives and the Limits of Liberal "Humanitarianism" and Realist "Nuclearism"

The summary of the International Physicians for the Prevention of Nuclear War (IPPNW) Congress in August 2014 in Astana, Kazakhstan,

provides a disturbing account by medical doctors about the existing knowledge and capabilities of the "humanitarian emergency" institutions in the case of intentional or accidental "nuclear weapon detonation" (Loretz, 2015). For example, Dr. John Borrie from the UN Institute for Disarmament Research (UNIDIR) introduced his research titled "An Illusion of Safety" where he argued that "any emergency medical response to even a single nuclear detonation would be palliative (i.e. easing the suffering of the dying) at best" (Borrie and Caughley, 2014). The discussion interestingly omits the increased capacities for peaceful nuclear energy use and risks associated with the other "nuclear accidents" in the industry. Furthermore, his conclusion is that in the current state of the global epistemic community and institutional humanitarian capabilities, "it is unlikely that any state or international body could address the immediate humanitarian emergency caused by a nuclear weapon detonation in an adequate manner and provide sufficient assistance to those affected" (Loretz, 2015: 23). And the most distressing summary of the research is: "it might not be possible to establish such capacities, even if it were attempted" (*ibid.*). In other words, even the United States as a superpower in the "realist" perspective may not have "capabilities" to lead or manage the international humanitarian emergency associated with "nuclear weapon" detonation. What are the capacities of China and Russia for emergency humanitarian response to nuclear disasters in hypothetical military or civil events? What is the role of the multilateral institutions such as Shanghai Cooperation Organization in responding to potential regional "nuclear" crises?

Therefore, particular persons who are already affected by the nuclear weapons programmes of the states would never be fully assured that the treatment they received as the "waste-life" of 20th-century Nuclear Age will end in their lifetime or how far in their generational line the effects of the maltreatment will extend. For example, a painter,

nuclear non-proliferation activist and an ambassador of ATOM ("Abolish Testing. Our Mission") Project (The ATOM Project, 2016), Karipbek Kuyukov (Карипбек Куюков), who was born without arms after his parents were unknowingly exposed to the hazards of Semipalatinsk Polygon (Loretz, 2015: 22) may be only a symbol for the marginalised few of this generation with more "affected" generations to come, because nuclear proliferation as part of "structural realism" still continues to be a major framework of analysis for international relations recommending governments to attain nuclear weapons for "peace and stability" in the region (Kenneth N. Waltz, "Why Iran should get the Bomb: Nuclear balancing would mean stability", 2012). The impact of nuclear disasters on the population and environment in Chernobyl (Чорнобиль) in 1986 in Ukraine and in Fukushima in 2011 in Japan still does not provide clear answers on standardized response to crisis management during nuclear emergency on the regional level of multilateral governance that involves populations of several states.

Thus, the costly impact and the risk of nuclear proliferation do not stay with one generation: the effect is intergenerational. The reality that the damage of a nuclearised military industrial complex cannot be fully predicted, limited, compensated or cured is a strong challenge to the claim that a nuclearized peace promoted by the American IR "realists" is desirable or at least viable. The risk of nuclear war may be low now with the perception that nuclear deterrence provide the "peace and stability" in the United States, Russia, Israel, India, Pakistan and other nuclear states, but there is no guarantee of "miscalculation" or "accident" in the long term even for the super-power such as the United States (Rendall, 2007: 526-527). Ken Booth, who previously published a number of articles in the "realist" perspective, in his two-part article on "human rights and nuclearism" argues that the culture of "nuclearism", which is a "psychological, political, and military dependence on nuclear

weapons", is fundamentally not only opposite to but cancelling out "all other human possibilities" encouraged by the post-Holocaust "universal human rights" culture (Booth, 1999a: 1-2). Furthermore, the "pervasive nuclear amnesia at the public level" is dangerous in the long term because the limited interest of the global civil society allows political elites "to carry out their nuclear policies in way and at the pace they have preferred" (Booth, 1999a: 12-13). Booth does not criticize nuclear energy policy of the major powers, even though there are clear parallels in the "culture of nuclearism" in the energy sector, particularly considering carbon emissions reduction pressure of climate change and other environmental targets, as much as in the traditional military sector.

Furthermore in part two of the article series on "human rights and nuclearism" Booth provides a critical analysis of the "nuclear deterrence" theory, by comparing it to "theology", which has its dogmatic "sacred texts" and "high priests" of nuclearism that silence "alternative ways of thinking" in strategic studies as a discipline. In sum, "nuclear theology" is the "highest technological expression of the strategic culture associated with the 350-year international world defined by the ideas and practices of Machiavellian ethics, the Clausewitzian philosophy of war and the Westphalian states system; this strategic culture is also ethnocentric, masculinist, and determined by the material most powerful" (Booth, 1999b: 44-45). If "structural realism" has its limits in re-conceptualising the international system of states without nuclear weapons proliferation, are there liberal institutional measures to possibly respond to this issue?

One of the hopes explored by Bruno Barrillot is "categorizing the manufacture and experimentation related to the production of nuclear weapons as 'crimes'" (Barrillot, 2007: 444-445). His article argues that "nuclear testing constituted a denial, indeed a deliberate violation, of the right of a population to live in a healthy environment" and the nuclear

weapons tests shall be discussed as "attacks on the physical and genetic integrity of the indigenous populations of the areas affected" (*ibid.*). However he is pessimistic about the actions of international institutions as "specialists in international law have not been able to reach agreement about the status of those who carried out, continue to carry out, or intend to carry out tests that have affected the physical and genetic integrity of specific populations, and even it might be argued, of humanity as a whole", even though in 1996 the International Court of Justice considered the issue (*ibid.*). He further problematises the issue of nuclear weapons testing in international law by linking it to the "deficiencies in human rights law" on the issue of "genocide". The exposure to hazardous radiation because of the nuclear weapons tests "can be regarded as an 'inhuman act'", however the diversity of the "very few" victims in the world "were not exposed to the dangers of radiation for 'political, racial or religious reasons' according to terms of the Court of Nuremberg", thus it cannot be accounted as "genocide" (*ibid.*: 455). And lastly, the definition of genocide by the Convention of the United Nations of 9th December 1948 includes provisions about the "authors of genocide" whose acts are "made with the intention to destroy". However, the politicians and scientists who promoted and continue to promote the nuclear weaponry cannot be covered by this definition as the "objective of nuclear testing does not appear to be ... carried out with the intention of destroying the indigenous populations or affected personnel" (*ibid.*: 456). Thus, politicians, academic professionals and administrators of the military industrial complex who help to either promote or produce nuclear weapons would be legally safe to continue the practice of "nuclearism" despite the high risks for population life and documented historic cases of "rights" violations.

Still, the illustrative case of the Semipalatinsk Polygon provides the "fact" that despite the knowledge of the negative impact of radiation on

people, the tests were carried out without informing or relocating the local population. Furthermore, the costs of intergenerational health problems associated with genetic damage due to exposure to the nuclear weapons testing lie with the local "waste-life" population and the current government of Kazakhstan. The capacities of the government of Kazakhstan to resolve the issue are limited not only because of the internal socio-economic, financial and scientific limits, but also due to the enormity of the Cold War "nuclearism" legacy that continues to this day in the American foreign policy and international institutional system.

The US and European Union-led international institutional mechanisms of humanitarian organisations, donor governments and epistemic community are limited to research and more detailed documentation and communication of the cases, such as the Semipalatinsk Polygon and its population. Therefore, even if there are possibilities of "institutionalising" the intentional irradiation of people groups as "crime against humanity", the probability of this happening in the near future might be low due to little interest among the global civil society and the majority of the American political elites. Thus, Zygmunt Bauman's pessimistic critical thesis about marginalised "wasted lives" of the US-led global industrial system is unfolding among the humans of military industrial complex since the Cold War, where "there is no authority they may resist, sue, lay charges against, or demand compensation from." (Zygmunt Bauman, "To each waste its dumping site", 2007: 183) Furthermore, China's rise might not bring positive change for marginalized communities, even though "nuclear energy industry" has become part of the more "peaceful development" among the neighbours with more transparent industrial guidelines for safety than the "military industrial complex" of the Soviet Union and the United States during the Cold War.

Note

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