

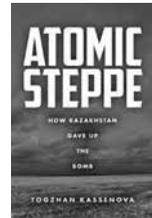
BOOK REVIEW

Atomic Steppe: How Kazakhstan Gave up the Bomb?

by Togzhan Kassenova

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There has been a notable increase in attention surrounding nuclear weapons lately, primarily due to: (a) The ongoing vertical nuclear proliferation: at present, nine nuclear weapon-possessing states have roughly 12,100 nuclear warheads, with over 9,500 in active military stockpiles, according to the Federation of Atomic Scientists' 2024 State of the World Nuclear Forces. Despite the decline from approximately 70,000 warheads owned by the nuclear-armed states during the Cold War, nuclear arsenals are expected to grow over the coming decade. For instance, if the United States and Russia, after the expiration of the New START (Strategic Arms Reduction Treaty) on February 4, 2026, decide to ignore the limits, it could lead to an increase in the number of deployed strategic nuclear warheads and delivery systems from the set limit of 700 deployed Intercontinental Ballistic Missiles (ICBMs), deployed Submarine-Launched Ballistic Missiles (SLBMs) and deployed heavy bombers equipped for nuclear armaments. Assessments

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indicate that as of December 2024, China's nuclear weapons stockpile was estimated to be approximately 600 warheads. The US Department of Defence projections suggest that, based on its current trajectory, China's arsenal may reach 1,000 nuclear warheads by 2030. Concerning France, while there are discussions on the potential expansion of its nuclear umbrella to cover the European allies, the implications of such actions on the size of its nuclear arsenal remain to be determined. Simultaneously, the United Kingdom has also decided to increase its nuclear weapon stockpile ceiling from 180 to 260 warheads. (b) The ongoing Russia-Ukraine conflict and the rise in nuclear salience: amidst the ongoing Russia-Ukraine conflict, Russia has employed nuclear threats against its adversary, indicating a lowered threshold for the use of nuclear weapons against non-nuclear countries in its latest Nuclear Doctrine in 2024. (c) Horizontal nuclear proliferation: as Japan and South Korea are assessing the credibility of the US' extended nuclear deterrence, they are undertaking a reevaluation of the role of nuclear weapons within their respective national security architectures. An increasing share of South Koreans believes their country should develop its nuclear weapons rather than rely on the US for security, as decades of American guarantees have failed to dissuade North Korea from developing and expanding its nuclear arsenal. Although the South Korean government continues to reject the idea, it is gradually becoming a part of the mainstream political debate.

Driven by contemporary nuclear concerns, Kazakhstan, in partnership with the UN Office for Disarmament Affairs (UNODA), convened a workshop in Astana on August 27-28, 2024. The workshop focused on reinforcing the five established Nuclear Weapon-Free Zones (NWFZs) and promoting greater collaboration. For decades, Kazakhstan was a testing ground for Soviet nuclear weapons. As a result, according to the UN, approximately 1.5 million Kazakhs were exposed to radioactive fallout. The high rate of cancer and birth problems among locals is a tragic inheritance of these tests. President Nursultan Nazarbayev's campaign against nuclear weapons, launched prior to Kazakhstan's independence, demonstrates the country's

specific interest in nuclear disarmament, which stems from its history of nuclear testing.

The impact of this history is well captured in the book *Atomic Steppe: How Kazakhstan Gave up the Bomb*. Written by Togzhan Kassenova, a senior fellow with the Project on International Security, Commerce, and Economic Statecraft (PISCES) at the Centre for Policy Research, SUNY-Albany, the book provides historical insight into nuclear testing and denuclearisation, highlighting their relevance to the present global situation.

The book is divided into two sections. The first section covers the Soviet nuclear tests in the Semipalatinsk region of Kazakhstan. Between 1949 and 1989, the Semipalatinsk Test Site was a key facility for the Soviets' above and underground nuclear testing. Semipalatinsk conducted the first Soviet nuclear weapons test, known as *Pervaya molniya*, or First Lighting. The Semipalatinsk Test Site facilities conducted a total of 456 nuclear tests, 340 underground and 116 atmospheric. The Semipalatinsk nuclear programme brought immense hardship and caused widespread casualties among the local population and the environment. For decades, the programme was conducted secretly. The local population and landscape, exposed to radiation through atmospheric and underground nuclear tests, suffered from illness, genetic disorders, and environmental devastation. The authorities kept the locals unaware of the health and environmental impacts of the nuclear tests and tried to blame the people's health problems on poor hygiene and diet, downplaying the effects of radiation. The Nevada Test Site (NTS), from 1951 to 1992, presented a similar picture. The NTS conducted 928 announced nuclear tests, including 100 atmospheric detonations. These explosions resulted in the release of vast amounts of radioactive particles into the atmosphere. Individuals and communities exposed to fallout across Arizona, Nevada, Utah, Oregon, Washington, and Idaho fell victim to health risks. These people became known as "Downwinders."

The book also tells the story of the Nevada-Semipalatinsk anti-nuclear movement in Kazakhstan. This movement began as a result of the *Glasnost*

(openness) policy instituted by Mikhail Gorbachev, which allowed Kazakhstan's people to speak out against nuclear testing. The people's concerns grew when it was revealed in 1989 that the Soviet nuclear test site near Semey was likely releasing dangerous radioactive materials. A Kazakh activist named Olzhas Suleimenov spearheaded this movement, calling it "Nevada-Semipalatinsk" to show solidarity for a similar anti-nuclear testing movement in Nevada, US. The anti-nuclear movement compelled the government to close down the Semipalatinsk-21 testing site in 1991, and by 1994, Kazakhstan gave up all the nuclear weapons on its territory, sending them back to Russia. The Nevada-Semipalatinsk movement was instrumental in achieving a nuclear-free Kazakhstan.

In the second section, Kassenova discusses the concerns of the US and Kazakhstan after the disintegration of the Soviet Union, as well as the diplomatic efforts between the two countries. As Kassenova explains, during the unstable political situation in the final years of the Soviet Union's disintegration, the US' primary concern was about Kazakhstan's large uranium reserves, Soviet-era nuclear infrastructure, and expertise, and especially the nuclear weapons stockpile. Washington feared the possibility of nuclear material or the knowledge of Soviet scientists falling into the wrong hands or appearing on the black market. On the other hand, Kazakhstan was concerned about its security, particularly its borders with Russia and China—it had inherited unresolved border disputes. By citing Kazakhstan's vulnerability in its formative years, President Nazarbayev aimed to secure security and economic guarantees from the US. Contrary to Nazarbayev's expectations, the US guaranteed to seek the UN Security Council measures if Kazakhstan faced aggression or nuclear threats, but refused to provide any formal security guarantees. A key outcome of Nazarbayev's visit to the US in 1994 was the signing of the Charter on Democratic Partnership, which included their commitment to democratic values, the rule of law, and respect for individual rights. Subsequently, in the same year, the Budapest Memorandum on Security Assurances (1994) formalised security commitments from the US, Russia, and the UK to Kazakhstan, Belarus, and

Ukraine, promising not to use or threaten to use military force, and economic coercion against their territorial integrity. Kazakhstan gave up its entire nuclear weapons and related facilities.

Additionally, in a highly secret operation named “Operation Sapphire,” in the Nunn-Lugar Cooperative Threat Reduction Programme, 600 kg of highly enriched uranium from Kazakhstan was transported to the US, and, in return, the US provided Kazakhstan with approximately \$25 million in financial aid. Furthermore, between 1995 and 2001, the same US programme assisted Kazakhstan to secure the former nuclear testing sites.

Togzhan’s book excels in its descriptive efforts and provides valuable historical context and insights into the non-proliferation endeavours. Her work provides a foundation and impetus for future research that can explore nuclear history from the perspectives of communities and individuals in countries that formerly possessed nuclear weapons, such as South Africa, Belarus, and Ukraine; study the roles of civil society, pressure groups, and international organisations in influencing foreign policy decisions on nuclear issues; and examine the consequences on the environment and communities of nuclear activities conducted in other testing sites such as the US (Nevada and Marshall Islands), France (French Polynesia), or other former Soviet sites (Novaya Zemlya). Overall, the book would be of great value to scholars and readers interested in nuclear affairs.