

Seeking Environmental Justice Amid Post-Industrial Ruins

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Kyzyl-Alma: Toxic Legacy of Industrial Decline

Kyzyl-Alma, a village in southern Kyrgyzstan, stands as a stark reminder of [post-industrial decay](#). Once home to the Kristall semiconductor material plant, which produced mono-silicon wafers and chips, the village suffered after the plant's privatization and eventual bankruptcy in 2010. Despite its closure, eighty tonnes of highly reactive trichlorosilane remain stored in deteriorating warehouses on the site. This toxic substance reacts violently with moisture, releasing flammable gases and corroding infrastructure. Exposure causes severe health issues, from chemical burns to respiratory distress.

Kyzyl-Alma's decline mirrors a [broader pattern](#) across Kyrgyzstan. Once-thriving industrial towns like Tash-Kömür, Mailuu-Suu and Min-Kush collapsed, leaving behind toxic waste and economic hardship. Tash-Kömür, once a coal-production hub, faced mass unemployment as industries shut down. Mailuu-Suu remains contaminated by [radioactive waste](#), and Min-Kush saw its population shrink from twenty thousand to fewer than three thousand due to the decline of the uranium industry. [Other towns so affected](#)—including Ak-Tuz, Kok-Jangak, Suluktu and Kadji-Sai—face similar struggles.



Despite its hazardous materials, Kyzyl-Alma receives little attention compared to uranium-contaminated areas benefiting from international remediation efforts. Governance failures, lack of institutional trust and weak national coordination in environmental remediation efforts contribute to these disparities. Addressing them requires political commitment and equitable resource distribution.

*An abandoned plant in
Mailuu-Suu, Kyrgyzstan.*
Photo: Nikolaos Olma, 2021.

Slow Violence and Daily Struggles

Kyzyl-Alma's 2,500 residents endure what Nixon (2011) calls "slow violence"—harm that unfolds gradually, remaining invisible and unrecognized. Isolated and politically marginalized, they experience poverty and environmental degradation. Abandoned houses, crumbling infrastructure and dried-up vegetation illustrate the extent of the neglect. The post-Soviet neoliberal restructuring displaced many people, while those who stayed continue to suffer the plant's toxic legacy. Survival here relies on remittances from labor migrants in Russia, while elderly family members care for grandchildren. Some engage in small-scale farming or work in local schools and kindergartens. Others commute to nearby towns for hydropower jobs or sustain themselves through small trade. However, poor road connectivity makes commuting costly and difficult. Many remain simply because they own property that they cannot afford to replace elsewhere—fostering a deep, if reluctant, attachment to their home.

Voices from the Ruins: Memories and Resistance

In summer 2011, I visited my aunt Arzykan Eje, who lives in Kyzyl-Alma. That year, her son, who had migrated to Russia to work at a construction site, tragically died. Arzykan Eje blamed herself for not being able to care for him. Widowed and left without a job after the closure of the Kristall plant, she made ends meet by taking on any work she could find—scrubbing school floors, sewing clothes for home orders, and doing small jobs wherever needed. Alone and in deep despair, she had aged noticeably and her health had deteriorated. Pointing to her chintz summer dress, she explained that she could no longer wear such open clothes because of severe dermatological problems. White patches resembling psoriasis had appeared on her skin, which she attributed to the radiation emitted by the ruined plant. Initially, she suggested we stay the night but quickly changed her mind, perhaps out of concern for me and my child's safety: "You better not spend the night here, especially with a small child. I'd rather come to see you tomorrow in Shamaldy-Sai. We have strong radiation and 'heavy air' (Kg. *aba oor*) here. We are used to it; your aunt is an iron woman (Kg. *temir katyn*)", she said with a laugh¹. "When a group of tourists from Japan came to our region, their special sensor devices showed high radioactivity. They had to rush back quickly," she added, laughing again.

¹ *Temir katyn* describes a resilient woman. The image became popular following the release of the 1990 film *Temir Xotin*, which features a character who works tirelessly around the clock.

The story about the Japanese visitors and their radiation sensors is one I heard repeatedly from various local residents. Despite its widespread circulation, I was never able to trace the original source or verify the precise details behind this anecdote. People from Kyzyl-Alma, Tash-Kumyr and Shamaldy-Sai often bring up the tale when discussing air quality and radiation concerns in the region.

Just like Arzykan Eje, local residents frequently discuss air quality, referring to radiation as "heavy air." The existence of radiation remains a contested issue, not least because locals sense exposure by means of their bodily feelings, perceiving it mainly through the lens of persistent headaches, which in turn are attributed to poor sleep caused by radiation. This belief is reinforced by the supposedly radioactive reddish hills which

are locally known as Crocodile Mountain (Rus. *Krokodilovaya Gora*), considered part of the natural environment surrounding the abandoned industrial zone.

The strategic importance of the Kristall plant made it one of several secret enterprises operating in southern Kyrgyzstan during the Soviet era. The levels of secrecy were such that, according to Arzykan Eje, speaking about the plant's internal operations was strictly forbidden. Nonetheless, locals and newcomers eagerly sought jobs there, and in the late 1980s it was considered the rising star of the Tash-Kumyr industrial zone. Many of the plant's nearly one thousand employees took pride in their association with this formally secret facility. However, the same secrecy that fuelled their sense of prestige also concealed the extent of their exposure to toxic substances. Allegedly, the high concentrations of chemicals in the workshops caused severe health issues, prompting management to provide workers with regular doses of vodka and fermented kefir, supposedly to detoxify their bodies. "Pure vodka was given to cleanse us from the inside," said Arzykan Eje, joking that despite this she managed to avoid alcoholism. Her husband died a year after being hired as a construction worker at the plant—a death she suspects was linked to the facility's toxicity. Despite years of legal battles, former workers who fell ill while working at the plant have yet to see their occupational health claims acknowledged. With deep sighs and resigned shrugs, they continue their daily lives just a few kilometres away from the source of their suffering, caught in a cycle of hardship and unfulfilled justice.

Enduring Hope Amidst Uncertainty

The plant's closure in 2010 not only stripped hundreds of workers of their income, forcing many to migrate, but also disrupted essential infrastructure services. Sewage, heating and garbage disposal were the plant's responsibility, but its bankruptcy meant these services could no longer be provided to the local community. As a result, the settlement first lost its heating, followed by its hot water supply. A year later, the sewage pipes began to corrode, causing filthy water to flow along the roads and seep near people's houses and the local school. To this day, running water is provided only two hours a day. Frequent power cuts further exacerbate the situation, with locals expressing frustration that, despite their village's proximity to Kyrgyzstan's largest water reservoir and several hydropower stations, consistent [water and electricity supplies](#) remain elusive.

In summer 2018, ninety-one residents of Kyzyl-Alma sent the following letter to President Sooronbai Jeenbekov:

Before the presidential election, you visited our town and promised to help us. We voted for you, hoping that you would improve life not only in big cities but also in the provinces and small towns like ours... Water, waste management, electricity cuts and economic stagnation [remain significant problems]. Water is not disinfected; it is supplied directly from the river, leading to intestinal diseases and hepatitis, especially in the autumn. (Original in Kyrgyz, translation by the author)

The letter continues, highlighting the severe environmental and economic challenges, including unemployment, that Kyzyl-Alma faces. Residents express their aspirations for the future through calls for new infrastructure projects and convey their active hopes that the Kristall plant will be reopened. However, they also seek justice for the unresolved social and environmental issues caused by the plant, both during its operation and after its closure. The plant's bankruptcy means that there is no clear entity responsible for addressing these concerns, no one to hold accountable. Some locals view the bankruptcy as suspicious, interpreting it as a strategic move by management to evade responsibility for cleaning up environmental toxicity and maintaining infrastructure in the town. As one resident told me in 2020: "No plant, no responsibility; no one to blame and no one to make demands on."

The residents of Kyzyl-Alma and the former workers at the Kristall plant have been striving for many years to hold the plant owners and the authorities accountable. Since they first demanded state intervention to address their ruined post-industrial lives in a literally toxic environment, the government in the capital Bishkek has changed four times. Those who lack the means to leave the area, contaminated by toxic reservoirs which they fear may rupture one day, live in an environment marked by uncertainty. They hold onto hopes for social and environmental justice, believing that at some point their appeals will be heard. In the meantime, they search for ways to survive amid environmental and infrastructural challenges. Effectively abandoned and left to fend for themselves, they refuse to be passive, continuing to protest in their own ways.

References:

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