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CLIMATE CHANGE IMPACTS ON GROWING WATER SCARCITY IN THE BORDER AREAS OF KAZAKHSTAN & KYRGYZSTAN

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About Crude Accountability

Crude Accountability is an environmental and human rights non-profit organization that works with communities in the Caspian and Black Sea regions, which struggle against threats to local natural resources and negative health impacts. Crude Accountability works on the local, national, regional, and international levels in partnership with communities and organizations committed to a just and environmentally sustainable world. Based in Northern Virginia, Crude Accountability also collaborates with other environmental organizations in the United States.

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Summary

The increasing pace of climate change, its current and projected effects on national economies, communities, and ecosystems with attendant implications is considered to be the greatest threat to humanity in the 21st century. The expert community in Central Asia is also concerned about the ever-growing importance of climate change threats. The Kazakhstan Risk Assessment Group has identified global warming and climate change as one of the seven major threats to Kazakhstan's security. Four other climate change-related threats were also specified, including the rapidly approaching end of the oil age, water scarcity, military conflicts with neighboring countries, and environmental refugees.[1]

The growing impacts of climate change and environmental degradation are becoming increasingly important factors affecting the socio-economic development of communities and countries around the world. In Central Asia, competition for natural resources is intensifying, further driving tensions.[2] Still, these issues remain under-researched. The escalation of local crises related to falling water levels in rivers and canals and drought in pasture lands in the region in the summer of 2021[3] demonstrated that water distribution in river basins was a critical area for study.

Given the increased scrutiny to climate change as a risk factor for potential conflicts, in September-November 2021, research was conducted in Kazakhstan, Kyrgyzstan, and Tajikistan with a focus on the border regions of southern and western regions of Kazakhstan (Zhambyl, Kyzylorda, Mangystau, Turkestan, and Almaty city), Batken region, the valley zones of Jalal-Abad, Osh, Talas, and Chui regions of Kyrgyzstan, and the Sughd and Khatlon regions of Tajikistan. The field

[1] What threatens Kazakhstan?, Dosym Satpaev's AuditoriumQZ YouTube channel, October 20, 2020, URL: https://www.youtube.com/watch?v=_4du-Fc09kc&t=2654s

[2] World Disasters Report 2020. Executive Summary. International Federation of Red Cross and Red Crescent Societies, Geneva, 2020. URL: https://www.ifrc.org/worlddisasters-report-2020, When rain turn to dust? International Committee of the Red Cross, July 2020, URL: https://www.icrc.org/en/publication/4487-when-rain-turns-dust.

[3] https://rus.azattyq.org/a/zasuha-v-tsentralnoy-azii-anomalnaya-zhara-nehvatka-vody-i-neurozhay/31323824.html

research looked at areas of potential tensions related to climate and environmental factors, a preliminary study of their nature, the opinions of experts and representatives of local communities on the root causes of these tensions, and opportunities and mechanisms for preventing tensions from escalating into violent conflict.[4]

This review addresses the main points, recommendations, and conclusions for the southern and western regions of Kazakhstan (Zhambyl, Kyzylorda, Mangistau, Turkestan regions, Almaty city), and the valley zones of Talas and Chui regions of Kyrgyzstan analyzed in the research above.

[4] The impact of climate change on the dynamics of conflicts in the transboundary river basins of Kyrgyzstan, Kazakhstan and Tajikistan. https://www.international-alert.org/ru/publications/publications-climate-change-conflict-rivers-kyrgyzstan-kazakhstan-tajikistan/

Basic Points

The countries of Central Asia recognize that water security is one of their top priorities. However, it is most commonly associated with differences between the upstream countries where the river flow is formed (Kyrgyzstan and Tajikistan) and the countries located downstream (Kazakhstan, Turkmenistan and Uzbekistan). The upstream nations are interested in using water for hydropower, whereas the downstream nations choose to use it for irrigating crops. Therefore, the search for solutions to potential conflicts was based on water and energy issues through the operation of transboundary hydro-structures. Key elements of water security and the potential for conflicts mainly revolve around interstate relations. There is a pressing need to create modern and efficient mechanisms for resolving disputes arising from varying priorities in the use of transboundary water resources by upstream and downstream countries.[5] Threats to water security in the region have until recently been largely associated with uncertainties about future water availability.

In the summer of 2021, an increase in temperatures and a sharp decrease in the flow of a number of rivers in the target regions attracted considerable public attention. In Kazakhstan, the death of horses, cows, and sheep due to a lack of water and feed in the Mangistau and Kyzylorda regions caused considerable public concern.[6] In Kyrgyzstan, a lack of water for irrigation in June led 300 farmers of the Chui province to protest outside buildings of the Government of

[5] Zulfiya Suleimenova. Water Security in Central Asia and Southern Caucasus. Asia-Pacific Sustainable Development Journal, Volume 27, Issue 1, June 2021, p. 75 – 93, URL: https://doi.org/10.18356/26178419-27-1-4, Tomas Bernauer. Climate change and international water conflict in Central Asia. Journal of Peace Research, January 2012, URL: https://doi.org/10.1177/0022343311425843

[6] The American media spoke about the mass loss of livestock due to drought in Kazakhstan. Kazakh Telegraph Agency, August 10, 2021, URL: https://kaztag.kz/ru/news/amerikanskie-smi-rasskazali-o-massovom-padezhe-skota-iz-za-zasukhi-v-kazakhstane

Kyrgyzstan[7] and block the major Bishkek-Osh highway.[8] In response to these protests, the authorities promised to implement a number of reservoir projects, suggesting the problem was linked to the unfair distribution of water between Kyrgyzstan and Kazakhstan.[9] At the same time in the border Zhambyl region of Kazakhstan, irrigation water shortage is also a persistent issue. In June 2023, the authorities of Kyrgyzstan limited the supply of drinking and irrigation water to Chui province and Bishkek, attributing this to the fact that Kyrgyzstan experiences the deficit of water due to a decrease in groundwater levels.[10] The current imbalance in the use of natural resources (water for agricultural irrigation) makes many rural communities in Central Asia extremely vulnerable to the impacts of climate change, namely abnormally high temperatures, droughts, and low levels of water in rivers.

A review of climate data on rising temperatures, longer duration of hot weather, and decreasing precipitation shows growth in aridity across the three Central Asian countries in question. This primarily concerns the Zhambyl, Mangistau, Aktobe, West-Kazakhstan and Kyzylorda regions,[11] the valley zones in Talas, Chui, Osh and, the Jalal-Abad regions in Kyrgyzstan.[12]

Field studies in the Zhambyl region of Kazakhstan and the Talas and Chui regions of Kyrgyzstan revealed several areas of potential tension related to disputes over water and water shortages for agriculture:

[7] Lack of irrigation water. 300 farmers rallied outside the government building. IA "24.kg" - News of Kyrgyzstan, June 14, 2021, URL: https://24.kg/obschestvo/197535_nehvatka_polivnoy_vodyi300_fermerov_vyishli_namiting_kzdaniyu_pravitelstva/

[8] Farmers blocked the Bishkek-Osh highway, demanding irrigation water. Sputnik Kyrgyzstan, June 28, 2021, URL: https://ru.sputnik.kg/incidents/20210628/1053027595/perekrytie-trassa-bishkek-osh-polivnaya-voda.html

[9] Drought in the Chui region. What is really going on? Sputnik Kyrgyzstan, June 17, 2021, URL: https://ru.sputnik.kg/video/20210617/1052892040/chujskayaoblast-voda-zasuha-fermer-video.html

[10] https://kaktus.media/doc/482049_vice_mer:_to_chto_y_nas_bydet_takoe_snijenie_yrovnia_gryntovyh_vod_ne_znali.html

[11] Annual bulletin for monitoring the state and climate change of Kazakhstan: 2019. RSE "Kazhydromet", Nur-Sultan, 2020.

[12] Report on Assessment of climate change in the Kyrgyz Republic. IFAD Project "Livestock and Market Development-2", Bishkek, 2020.

- Disproportionate distribution of water from transboundary rivers between Kazakhstan and Kyrgyzstan, especially during the vegetation season;
- lack of reliable, timely, and complete information on the distribution of river flow among the water-management authorities of Kazakhstan and Kyrgyzstan;
- non-effective use of scarce water resources for the mass (and expanding) cultivation of moisture-loving crops such as beets, beans, and onions;
- underuse of water-saving technologies in agricultural development and significant losses at irrigation facilities that require reconstruction or repair;
- non-flow of water along the river from the territory of a neighboring country for more than a decade.[13]

These disputable issues mostly affect the Kazakh and Kyrgyz border rural communities, increasing risks of turning tensions into violent conflicts. In 2012 and 2013, there were already instances of border conflicts on the Aspara and Koksay rivers. In 2012, on the Aspara river, violence was avoided through public diplomacy, the creation of small basin council which acted as a negotiating platform, and the automation of water accounting, which removed suspicions about unfair water allocation at the border.[14]

Crisis situations in recent years associated with a visible drop in water levels in rivers and canals, mass dying of livestock, and drying up of pasture land have often led to urgent unilateral measures by Central Asian governments. This includes bans on the export of livestock feed, restrictions on sharing resources between border communities, and the accelerated construction of reservoirs to accumulate water on national territory. These processes have not involved consultation with local stakeholders, including the most vulnerable communities in the countries concerned, let alone those on the other side of the border. Furthermore, these unilateral actions are not conducive to reduce tensions in the long-term and may accelerate conflict from the local to inter-state level.

[13] https://www.international-alert.org/app/uploads/2022/01/Central-Asia-Climate-Conflict-Rivers-EN-2021.pdf
[14] https://ulysmedia.kz/analitika/12170-mokryi-konflikt-kak-v-tsentralnoi-azii-podelit-vodnye-resursy/

In 2021, due to higher temperatures in the mountains in spring and autumn, the period of seasonal snow melt began earlier and ended later. Floods shifted to earlier dates, and the role of seasonal snowmelt in the intra-annual flow distribution of rivers they fed increased. Moreover, summer temperatures in the mountains were not high enough, and as a result, there was no increase in river flow during the vegetative period.

Despite the lack of irrigation water during the vegetation season, farmers in the Kurkuroo river basin still continue to cultivate moisture-intensive crops. Analysis shows that beans remain the main crop in the Kara-Buura district, accounting for 48% of the total area of agricultural crops watered from the Kurkuroo river basin in 2021.[15]

To date, however, there is a noticeable trend in the gradual replacement of beans with less moisture-intensive crops, in particular cereals. This trend has already been observed in the settlements of the Kara-Buura region, located at a greater distance from irrigation water sources.[16]

In the Zhambyl region, despite years of water shortages, moisture-intensive sugar beets continue to be grown to support the local sugar center. There is a centralized demand for the crop, which local farmers cannot meet on a sustainable and long-term basis. In 2021, a major part of the sugar beet crops in the Kordai, Merken, and Shui regions dried up due to an acute shortage of irrigation water.[17] In recent years, tensions between communities in Kazahstan and Kyrgyzstan have flared due to Kyrgyzstan's plans to build additional water reservoirs. The plan was voiced by Kyrgyz President Sadyr Japarov during a two-day summit held as part of the 26th session of the Conference of the Parties to the UN Framework Convention on Climate Change (Glasgow, November 1-12, 2021).[18] In his statement on the country's aspiration to achieve carbon neutrality by 2050, Sadyr Japarov said that about a dozen small and medium-sized hydropower plants are

[15] https://www.international-alert.org/app/uploads/2022/01/Central-Asia-Climate-Conflict-Rivers-EN-2021.pdf
[16] Ibid.
[17] Ibid.
[18] COP26: Kyrgyzstan and Tajikistan concerned about rapidly melting glaciers. UN News. November 2, 2021, URL: https://news.un.org/ru/story/2021/11/1413072

under construction in the country and half of them will be commissioned by the end of 2022.[19]

[19] Ibid.

Recommendations

Recommendation 1. Bring both local and international experts into wider discussion processes on climate, water, and ecology to allow local experts to convey knowledge in a more accessible and comprehensible manner and make research results available in local languages, so that a well-informed community is not limited to a narrow circle of experts and gradually expands.

Recommendation 2. Determine the geographical scope of regional dialogue with a focus on the southern and western border regions of Kazakhstan (Zhambyl, Kyzylorda, Mangistau, Turkestan, and Almaty city); Batken region, valley zones in Kyrgyzstan (Jalal-Abad, Osh, Talas, Chui); Sughd and Khatlon regions in Tajikistan.

Recommendation 3. In future regional dialogue, include a broader scope of tension-generating factors related to climate, the environment, social issues, and the economy, with the involvement of experts in these fields.

Recommendation 4. Promote transboundary dialogue based on the use of transboundary consultation tools, access to information, and holding public hearings as part of the transboundary environmental impact assessment procedure allowing for the prevention and mitigation of measures with significant transboundary impacts.

Recommendation 5. Consider holding regional trainings and workshops on the interstate dispute resolution tools based on established procedure and documentation of processes, including mediation, consultation process, and arbitration.

Conclusions

The study makes it possible to establish a connection between tensions and rising temperatures, increasing aridity of the climate, and the current shortage of water resources due to low water levels and overregulated rivers in Central Asia. The results of the study also provide a fairly reliable basis for assertions that climate and environmental factors of tension will increase in the future.

The study suggests that the areas most exposed to the impacts of climate change, such as increased temperatures, longer duration of heat waves, reductions in precipitation and shifting patterns of precipitation, and droughts, are often vulnerable to other factors as well. These vulnerabilities include hotter climates and higher population growth and density, which makes them even more vulnerable. In this regard, the initial geographic coverage of the study correlates quite well with data on exposure to various tensions and vulnerability development factors. It is clearly forecasted that as a result of climate change, there will be decreases in river flows in the basins of the Amu Darya, Syr Darya, Chu, and Talas rivers as well as a growing reduction in glaciers and snow coverage throughout the 21st century. Central Asia's current population growth rate will further increase the demand and scarcity of water. There is a growing need to adapt to climate change, expanding the scope of cooperation to address current and prevent future tensions.

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