Geophysical Research Abstracts
Vol. 21, EGU2019-6128, 2019
EGU General Assembly 2019

Water Quality, Climate Change and Kazakhstan - Exploring Future Scenarios

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There is an emerging need in Kazakhstan for water for irrigation, to underpin recent upscaling of agriculture for domestic and external markets. This need for irrigation water competes with the need for process water for the substantial mining sector, with mineral wealth a key part of the Kazakh economy, and also the need for potable water, especially for increasing populations in urban areas. With Kazakhstan facing a situation of widespread water scarcity, water quality has also been recognised as a serious issue, particularly in rural areas where in 2009 only 35% of the population had access to clean water (Bekturganov, et al., 2016) (Granit, et al., 2010). The country has a legacy of water pollution from extensive metal mining and industry outputs, arising from the Soviet era (Bekturganov, et al., 2016). The combined effects of both water availability and quality will be critical in long-term planning and management of water resources in Central Asia trans-boundary catchments. This project aims to begin identifying the likely impacts of future climate change on water quality in the northern region of Kazakhstan.

Through working with the CCCC a picture of the network of influences on water quality in Kazakhstan will be developed, using data on mining at both present and predicted levels alongside information on current agricultural policies on water use. Various scenarios of future climate change in this region will be studied, including alterations in winter/summer rainfall and temperature extremes, based on literature data combined with original environmental data from Kazakhstan. A review of the potential impacts of these changes on the release of pollutants from mining and agricultural activities, through leaching of metals, fine particle wash out, run off and mine water adit discharges into water sources will then be conducted.

The results from this study are to be presented at a workshop in Astana, Kazakhstan to be held in 2019, which is aimed at providing essential information to guide future climate change and water policy decisions at corporate and governmental levels. The information gathered during this four-month study will complement the data currently being gathered on water resources across the country, helping to generate a broader base of understanding for future development.

References

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