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Pastoral Farming in the Ili Delta, Kazakhstan, under Decreasing Water Supply: An Economic Assessment

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Abstract

The Ili Delta with an extension of 8.000 km² is the largest natural delta region of Central Asia. It contains large areas of pastures, which are dominated by *Phragmites australis* reed vegetation. For local population, pastoral farming is one of the most important land use forms and income sources. The pastures are almost entirely dependent on Ili River's runoff. The Ili River is a transboundary river shared by China, upstream, and Kazakhstan, downstream. Due to the expansion of irrigated agriculture, as well as, shortcomings of inter-governmental agreements, the Ili Delta is threatened by water shortages and subsequent pasture degradation.

Against this background we aimed at assessing these threats from an economic point of view and analysed the economy of the pastoral system in the Ili Delta in its current state and in three scenarios including different assumption on water supply: (I) sufficient water supply (normal situation), (II) decreasing water supply, and (III) significantly decrease of water supply (worst case). Data was collected in 2015 through 35 farm and additional expert interviews. Production parameters were calculated and entered to a cost-benefit analysis, in order to estimate profits of livestock keeping for three scenarios.

Three different farm types, family-, medium- and large-scale farms, were identified at a range between subsistence and market orientated commercial production. Beef cattle, 24.000 animals in 2015, dominate livestock throughout the Ili Delta. Interviews revealed a continuous decrease of water flow into the Ili Delta over the last few years. This already resulted in a qualitative and quantitative reduction of pastures at margins of the Delta, where most of villages are located. Big commercial farms produce at the upper stretch of Ili River, whereas villages at the underflow are almost cut off water supply. As adaption strategy in face of pasture degradation, most farmers purchase winter fodder. According to our calculations, this significantly reduces profits of worst case in comparison to normal situation (by 80 or 90%) for all farm types. We conclude that under further decreasing water supply, especially downstream village population will have to reduce livestock significantly or out migrate from the delta region completely.

Keywords: Adaption strategies, Cost-benefit analysis, Ili-Delta, Livestock, Pasture farming, Upstream-downstream conflict

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