**Agricultural water management and ecosystem services in the Aral-Syrdarya watershed, Kazakhstan - Searching for novel ways to share water and improve ecosystem services in Kazakhstan**

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Nestled between the Syr Darya River and the Karatau mountain range, idyllic Turkestan region in South Kazakhstan Province is situated 250 km downstream from the Chardara reservoir. Agricultural land in this region is well-irrigated and mostly used for growing cotton, alfalfa, maize and fruits. Other economic activities in the region include fishing, livestock-raising and tourism, some of which are women-owned enterprises. People in urban areas also rely on the Syr Darya River for business. With many livelihoods dependent on this river, the Kazakhstan portion of the Aral-Syrdarya watershed, an area stretching from the Chardara reservoir to the Aral Sea, faces various challenges. Downstream water users are affected by the high concentration of pesticides, sediments and sewage carried in the river water from upstream areas. Along with this, unsustainable water uses, outdated irrigation systems and riparian forest logging also create a series of difficulties for downstream water users and harm productivity and people’s livelihoods.

Initiated in 2014, this current study was set to identify key drivers for water use in the low Syr Darya River basin and their economic impact on water users. With community participation, a baseline assessment was carried out and stakeholders mapped. Based on scenarios proposed by farmers and women groups, data on water resources, land resources and crop management were fed into a SWAT model to simulate scenarios of modified water management. Then the RIOS model was applied to identify best investment options giving maximum returns to water resources users.

Information thus generated will be used to understand the water usage patterns and model ways of making the most efficient usage of water resources. Through the valuation, trade-offs can be negotiated.

KEYWORDS: Aral Sea Basin, agricultural water management, SWAT, RIOS

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