Seeking novel ways to share water and improve ecosystem services in Kazakhstan

Lead Partner
International Center for Agricultural Research in the Dry Areas (ICARDA)

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Research Theme
Variability, Risks and Competing Uses

Solutions
Landscape Restoration

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, such as restaurants, and industry.

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

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Collaborating partners: The Regional Environmental Center for Central Asia (CAREC).

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also create a series of difficulties for downstream water users and harm productivity and people's livelihoods.

To address this problem, WLE partner ICARDA has initiated a new project as part of WLE's Managing Resource Variability and Competing Use research theme. The project is carried out in collaboration with the Regional Environmental Center for Central Asia (CAREC), and it seeks to valuate ecosystem services for improving agricultural water management in Kazakhstan. It builds on the experiences of a former CAREC project that was aimed at creating cooperation mechanisms between local stakeholders to enhance ecosystem services provision and to build linkages between nature reserve, farmers, herders, schools and local NGOs.

Initiated in 2014, this current project is set to identify key drivers for water use in the low Syr Darya River basin and their economic impact on water users. Mechanisms will be developed to promote improved water uses, with a focus on women-led, agriculture-based, income-generating activities.

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scenarios being proposed by farmers and women groups, data on water resources, land resources and crop management are first being fed into a SWAT model to simulate scenarios of modified water management. Then the RIOS model will be applied to identify best investment options giving maximum returns to water resources users. Finally, the InVEST model will complete the analysis and generate information on the economic value of ecosystem services in the project area.

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. The project results and recommendations for water management options will be incorporated into development planning and policy making in the Republic of Kazakhstan through consultations and continuous engagement with policy makers

To encourage regional collaboration and partnership, graduate students from Taraz State University are engaged in this project. Technologies and tools developed by national

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socioeconomic and GIS datasets was developed for the study area for sharing with stakeholders. All the water-related activities which are led by women and generate income for them were mapped and a report was drafted on the role of women in water resource management decision making.

Following the identification and valuation of primary water-related ecosystem services, a plan will be developed by the project. The plan will assist in suggesting the parameters of payments by beneficiary stakeholders to those responsible for making improvements in managing water for agriculture. Improved agricultural water management will lead to further improvements in downstream ecosystems that share the same water resources.

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