

Building Better Water Futures - WE-ACT Delivers Results on Smarter Water Allocation in Central Asia



PUBLISHED MAY 25, 2026
BY [EUROPA](#)

Horizon Europe-funded WE-ACT is helping Central Asia share water fairly across borders by improving data, models, and decision tools, offering valuable lessons for Europe as climate change intensifies droughts and transboundary water tensions.

“With the completion of our modeling system and DSS prototype, the WE-ACT project is now well-positioned to assess climate impacts on water resources and support strategic, transboundary water decisions.” - Project Coordinator, Dr. Ing. Jingshui Huang

Climate science meets local decision-making

The project has generated high-resolution climate datasets (12 km grid) using the REMO and COSMO-CLM regional climate models, with scenarios ranging from historical data (1981–2005) to projections up to 2100. These simulations support long-term planning and provide a foundation for AI-based forecasting of river discharge and drought conditions in the region. In parallel, an impact modeling system was developed, integrating a new hydrological model that simulates glacier recession and water availability, a water demand model, and a water allocation model. Early findings show competition among sectors and frequent environmental flow violations during the 2000–2019 baseline period, especially in the Naryn and Kara Darya basins.

A user-informed Decision Support System

Four institutions—Kyrgyzstan’s Ministry of Water and Agriculture, Uzbekistan’s Ministry of Water Resources, the Syr Darya Basin Water Organization, and the regional SIC-ICWC have joined a co-design process for the DSS. Their input is shaping how the system processes data, visualizes scenario results, and supports strategic decision-

making. In late June 2024, the first cloud-based DSS prototype (Geoportal “MiraX”) was launched and tested through user feedback sessions. The platform includes integrated hydrology, demand, and allocation models, allowing stakeholders to simulate and evaluate cross-border scenarios.

Games, data, and cooperation

WE-ACT has also pioneered non-traditional engagement methods. A serious board game developed by the University of Twente and played in Tashkent helped stakeholders from Kyrgyzstan and Uzbekistan explore the values that influence water decisions. Data from the session is currently being analyzed for publication. To ground modeling in reality, the project team acquired and validated regional water withdrawal data (2000–2022) from the SIC-ICWC, ensuring robust calibration for hydrological models and sectoral demand estimates.

Toward sustainable water governance

Stakeholder analysis carried out by IWMI, CAIAG, and others revealed fragmented governance structures and diverging national priorities—legacies of post-Soviet transitions. The project’s findings point to two clear needs: reliable and updated allocation data, and stronger political alignment to support integrated water management. The DSS aims to address both by combining actionable technical tools with participatory methods such as workshops, games, and user surveys. These efforts will continue throughout 2025, with an emphasis on expanding co-development and preparing the system for future adoption. With Europe experiencing record-low river levels in recent summers and debates over water prioritization escalating, the project’s blend of data science and stakeholder engagement is attracting attention from European policymakers and researchers exploring how to adapt such approaches closer to home.

About the project

WE-ACT (Water Efficient Allocation in a Central Asian Transboundary River Basin) is a Horizon Europe-funded project bringing together 14 partners across Europe and Central Asia. It develops scientific models, stakeholder tools, and digital solutions to improve transboundary water allocation in the Syr Darya basin, contributing to climate adaptation, food security, and regional cooperation.

Press release distributed by Wire Association on behalf of Europa, on May 25, 2026. For more information subscribe and [follow](#) us.

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