



Regional Water, Infrastructure and Climate Change

Smart and Precise Prognostic Hydrology for Innovative Risk Management and Resource Use Efficiency in Central Asia (SAPPHIRE)



Automated gauging stations in the Ala Archa Valley – Photo by Tobias Siegfried, hydrosolutions GmbH

Rationale

Central Asia landscapes span across vast steps to high mountain ranges, making hydro-climatological forecasting a highly complex task. The core mandate of the CA National Hydro-Meteorological Services (NHMSs) is to monitor water levels in rivers, streams and canals and provide forecasts and projections of water availability and potential water-related disaster risks including floods, mudflows, and droughts. This information is provided to and essential for a multitude of sectors that depend on water being available at the right time in the right place, including for food and electricity production. To provide quality hydrological services, meteorological data (in particular on snow) are also important not least to adequately prepare for long-term changes in water availability in the region. However, the Central Asian NHMSs lack capacities to provide adequate forecasting services. Despite a positive trend in investments towards modernization and automation of gauging stations in recent years, the resulting increasing amount of data cannot be processed due to a lack of appropriate internal methodological guidelines and digital assistants.

Objectives and activities

The main goal of the project is to improve hydro-meteorological services provision to key stakeholders in Central Asia. This will be achieved through targeted capacity building of National Hydro-

Country:

Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan)

Duration:

2022 – 2026

Total Budget:

CHF 1'720'000

Partners:

The National Hydro-Meteorological Services agencies in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.

Executing Agency:

Hydrosolutions GmbH

Meteorological Services agencies to valorize gauging station data by integrating a digital assistant solution to improve forecast accuracy. This is instrumental for disaster warning and decision-making across water-dependent sectors of the Central Asian economies.

The SAPPHIRE project allows Switzerland to continue its long-standing efforts to build robust water information systems in the region and adds value through a targeted, technical and demand driven intervention. The project will strengthen capacities for service delivery of institutions that are essential to the successful and effective implementation of national water sector reforms. Furthermore, the project reinforces cooperation and joint learning between countries on a technical level and share good practices to contribute to a collaborative, evidence-based way of water management in CA, and therefore foster sustainable development and peace.

The project pursues the following outcomes and envisaged results

- The Kyrgyz NHMS demonstrates the relevance of using of innovative digital solutions for comprehensive hydrological forecasting.
- Based on the regional Community of Practice, Central Asian NHMS customize digital forecasting solutions in their respective national contexts.

Target groups

National Hydro-Meteorological Services agencies in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan benefit directly; indirectly the project benefits end users of hydrological forecast information, including stakeholders from irrigation agriculture and from the hydro-energy sectors, and the wider public.

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