HYDRO4U
Sustainable Small-Scale Hydropower in Central Asia

Hydro4U – European project on sustainable small-scale hydropower in Central Asia meets in Tashkent, Uzbekistan

21st / 22nd June 2022

Hydro4U is a project funded under the European Union's Horizon 2020 research and innovation programme. Organisations from Europe and Central Asia are collaborating to boost sustainable small-scale hydropower in Central Asia. Eco-friendly hydropower solutions will be implemented in two demonstration plants: one in Kyrgyzstan and one in Uzbekistan.

In Central Asia, more than 90 % of annually renewable water resources are consumed for irrigation, and allocation conflicts between large-scale hydropower in the upstream and irrigation in the downstream occur regularly, and mostly across complex international borders, especially during water scarce years and low storage conditions. With an increasing attention on climate-neutral hydropower solutions, including on small-scale hydropower (< 10MW), the water-energy-food-environment nexus is now under renewed focus in the region. In line with these developments, new nexus tradeoffs emerge that need to be yet acknowledged and quantified, also in light of a changing climate.

Small-scale hydropower is not extensively exploited in Central Asia despite considerable potential to satisfy unmet electricity demand and chart a new way forward in cooperative cross-sectoral management of shared waters. There is also vast potential to roll out European small-scale hydropower approaches in other regions outside the European continent.
The Hydro4U project will adapt European technologies to Central Asia, demonstrating viability in a forward-looking cross-border water-food-energy-climate nexus and price-competitiveness through design alterations based on a prior analysis of unexploited sustainable small-scale hydropower potential in Central Asia.

Hydro4U will install and assess two demo plants: a low-head eco-friendly run-of-river plant in Kyrgyzstan and a medium-head diversion plant in Uzbekistan, both with radically reduced planning and construction costs that do not compromise efficiency.
The selected solutions will be fit-for-purpose based on innovation, modularisation, meaning simplified structural concepts, with longevity, eco-compatibility and socio-political acceptance. Replication guidelines will be developed to accelerate the exploitation of the unused small-scale hydropower potential in Central Asia. This will demonstrate EU quality standards and create entry points in developing markets for the entire European small-scale hydropower industry. Furthermore, the project partners will develop a new online nexus toolbox with an innovative monitoring and accounting methodology to increase transparency in water use.

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101022905.

Two demo-sites have been selected for the implementation of two pre-defined European technology solutions:

a) Shakimardan Enclave (Uzbekistan): A medium-head small hydropower facility using the Francis-Container-Power-Solution manufactured by Global Hydro.

   The site is located at the River Koksu within the Uzbek enclave Shakimardan, where both reliable electricity supply as well as the fair transboundary use of water resources play an essential role for the sustainable development of this region.

b) At-Bashy (Kyrgyzstan): The low head run-of-river hydroshaft concept will be incorporated in an existing diversion weir.

   The site is located in the headwater of the Naryn river, in the tributary At-Bashy. There, a non-powered diversion weir will be upgraded, not only energetically but also ecologically. The demonstration will show how hydropower production and ecological conservation can benefit from each other.

Further sites in Central Asia will be selected as planning sites. At these sites, detailed feasibility studies will be carried out within the Hydro4U project to show that the technologies have a wide range of applications. The findings from the demonstration and planning sites will serve as input for the replication guideline and support the decision-making process for new hydropower projects in the future.

This week, the consortium met for two days in Tashkent for a general project meeting together with the project's Advisory Board team to review the activities of the past twelve months and plan the upcoming actions. The meeting also included a special session with regional EU Delegations to benefit from the expertise of the Commission. The meeting in Tashkent was hosted by Hydro4U project partner International Water Management Institute (IWMI) as well as the national electricity supplier Uzbekgidroenergo (UGE).

"The potential for hydropower in Central Asia is huge. Together with local partners, Hydro4U will demonstrate that a sustainable exploitation is possible and that we can contribute to a green energy transition", Dr.-Ing. Markus Reisenbüchler, Hydro4U project coordinator, emphasised the main goal of the project in his welcoming speech.
Hydro4U brings together industry, politics, science and stakeholders from both Central Asia and the European Union.

After the meeting, the demonstration site in At-Bashy, Kyrgyzstan, was visited for detailed field work, as well as a potential planning site.

Further information on Hydro4U:

Website: www.hydro4u.eu
LinkedIn: Hydro4U
Twitter: @Hydro4Uproject
YouTube: Hydro4U
Flyer EN/RU: download Flyer

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About Hydro4U:

Hydro4U receives funding from the European Union's Horizon 2020 Research and Innovation programme.

Grant Agreement number	101022905
Type of project	Innovation Action
Coordinator	Technical University of Munich
Total Project budget	11 488 428.03 €
Total EC funding	9 931 160.13 €
Consortium	13 partners from 8 countries (Germany, Austria, Switzerland, Sri Lanka, Uzbekistan, Spain, Belgium, Kyrgyzstan)

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