

Aidar Zhumabaev

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Dedicated and results-oriented Environmental Engineer with a background in private research consulting, keen on turning complex development challenges into opportunities for sustained growth through strategic environmental solutions.

WORK EXPERIENCE

Technical Coordinator

International Office for Water

22/05/2026 – Present

Paris, France

Responsibilities:

- Technical coordinator for the Chu River Basin Plan, consolidating hydrological and water management inputs from international consultants
- Production of a basin plan aligned with the Kyrgyz Republic's New Water Code

Environmental Engineer

Hydrosolutions GmbH

01/10/2021 – Present

Venusstrasse 29, Zurich, Switzerland

Responsibilities:

- Hydrological modeling of Central Asian rivers using open-source GIS, programming (R, Python) and modeling software
- Map production and Geospatial analysis (GIS)
- Data acquisition and analysis
- Workflow automatization
- Research and teaching assistantship

Research Assistant

American University of Central Asia

01/05/2019 – 29/05/2021

Aaly Tokombaev Street 7/6, Bishkek, Kyrgyz Republic

Responsibilities:

- Hydrological modeling
- Data acquisition and analysis
- Geospatial analysis
- Research assistantship

PROJECTS

Kyrgyz Water Permits

Affiliated Organization: Hydrosolutions GmbH, International Office for Water (OiEau)

01/02/2025 – Present

- Project Description: The overall goal is to reach environmental sustainability and rational use of water resources enforced by strong regulatory functions in the water domain in the Kyrgyz Republic.
- Role: 1) Development of Quantitative Management Plan, based on the Geospatial analysis, preliminary flood risk assessment and hydrological model in the Ala-Archa and Alamedin river basins 2) Technical Coordination of all international consultants in order to produce Basin plan
- Region: Kyrgyzstan

SAPPHIRE Central Asia

Affiliated Organization: Hydrosolutions GmbH

14/12/2022 – Present

- Project Description: Modernization of operational hydrology workflows in Central Asian Hydrometeorological Organizations
- Role: Junior hydrologist. Hydrological modeling of Central Asian rivers using open-source software, discharge forecasting via machine learning, workflow automatization, User interface dashboard development
- Region: Central Asia

Hydro4U - Hydropower for You

01/06/2022 – Present

Affiliated Organization: Hydrosolutions GmbH

- Project Description: Sustainable Small-Scale Hydropower in Central Asia. Hydro4U aims to demonstrate European small hydropower equipment and technologies in Central Asia thus contributing to a sustainable and climate-resilient future for the region. The project is funded under the European Union's Horizon 2020 research and innovation programme
- Role: Junior hydrologist. Hydrological modelling of Central Asian rivers using open-source software, data analysis, programming, reporting, assistance on teaching in Kazakh-German University (DKU, Almaty).
- Region: Central Asia
- Link to project website: www.hydro4u.eu

Transboundary Project on IWRM

01/09/2020 – 01/05/2021

Affiliated Organization: American University of Central Asia

- Project Description: Strategic Environmental Assessment of Kabul and Amu Darya Rivers. The closure of knowledge gap on water resources that should help Afghanistan and the donor community to plan their sustainable water development and environmental assessment strategies and projects on Amu Darya Basin within Afghanistan. They aim to provide an array of cost-effective tools to agricultural producers in the three sub-basins of the Amu Darya River Basin to assist them with optimizing irrigation scheduling and maximizing crop yields with the water available each year. In addition, they will provide new tools for quantifying and forecasting irrigation demand to water managers in order to help schedule water deliveries to growers effectively
- Role: hydrological modelling, research, data collection and analysis, geospatial analysis.
- Region: Central Asia

Land Degradation Neutrality Project

01/05/2019 – 01/07/2020

Affiliated Organization: American University of Central Asia

- Project Description: Pasture degradation is a serious threat to food security and the well-being. The shrub's, Karagana (or Altygana), growth can lead to a decrease in pasture areas, making it more challenging for livestock to find sufficient grazing land. The spears or thorns of the shrub can cause physical harm to the animals, leading to illness or even death in some cases. This situation can have a significant impact on the local economy, especially in regions where cattle breeding is a primary source of income. Moreover, the situation with the Altygana shrub in Kyrgyzstan becomes more complex because it is a rare species and protected by law. This research project aims to assess the area's dynamic of the shrub.
- Role: Junior hydrologist. Research assistantship, data collection, data analysis, interviewing, translating service, geospatial analysis.
- Region: Suusamyr Valley, Kyrgyz Republic

Ecopark groundwater estimation project

01/05/2019 – 01/09/2019

Affiliated Organization: American University of Central Asia

- Project Description: Research project on groundwater level estimation and monitoring in the Ecopark part of the Elm Groove.
- Role: Research assistantship, data collection, data analysis, geospatial analysis
- Region: Bishkek, Kyrgyz Republic

EDUCATION

American University of Central Asia

Bishkek, Kyrgyz Republic

Bachelor of Arts in Applied Geology

06/2021

- GPA: 3.93/4.00

PROFESSIONAL PUBLICATIONS

Raimbekova, Z., Mashtayeva, S., Zhumabaev, A., Marti, B., Mussina, A., Kogutenko, L., Siegfried, T., Rodrigo-Clavero, M.-E., and Rodrigo-Illarri, J. (Submitted for publication). *Glacio-Hydrological Modelling of Streamflow Dynamics in the Tentek River*. Submitted to Hydrological Processes Journal.

Zhumabaev, A., Marti, B.S., Ragettli, S., and Siegfried, T. (2024). *Water Tales from Turkistan: Challenges and Opportunities for the Badam-Sayram Water System under a Changing Climate*. Central Asian Journal of Water Research 10, 2. <https://doi.org/10.29258/CAJWR/2024-R1.v10-2/1-25.eng>

Marti, B.S., Yakovlev, A., Karger, D.N., Ragettli, S., Zhumabaev, A., Wakil, A.W., and Siegfried, T. (2023). *CA-discharge: Geo-Located Discharge Time Series for Mountainous Rivers in Central Asia..* Sci Data 10, 579. <https://doi.org/10.1038/s41597-023-02474-8>

Marti, B.S., Zhumabaev, A., and Siegfried, T. (2023). *A comprehensive open-source course for teaching applied hydrological modelling in Central Asia*. Hydrol. Earth Syst. Sci., 27, 319–330. <https://doi.org/10.5194/hess-27-319-2023>

Schwedhelm, H., Zhumabaev, A., Siegfried, T., Hägele, T., Kopecki, I., Alapfy, B., Hayes, D.S., Zeiringer, B., Jorde, K., Rütther, N. (2023). *Wasserkraftplanung Badam – ein Fallbeispiel für nachhaltige Wasserkraft an bestehender Bewässerungsinfrastruktur mit Potential zur Replikation*. Beiträge zum 21. Wasserbau-Symposium der Wasserbauinstitute TU München, TU Graz und ETH Zürich, 2023, Seite(n) 177-186, ISBN 978-3-00-075350-3. Lehrstuhl für Hydraulic Engineering, Technical University of Munich <https://doi.org/10.3030/101022905>

Kulembekov, Z.E., Orunbaev, S.Z., Zhumabaev, A.Z. (2021). *Hydrologic Model for Runoff Simulation of the Kyzyl-Suu River*. In: Kulembekov, Z.E., Asanov, B.D. (eds) Water Resource Management in Central Asia and Afghanistan. Springer Water. Springer, Cham. https://doi.org/10.1007/978-3-030-68337-5_3

DIGITAL SKILLS

Geospatial Information Systems | R programming | Google Earth Engine (GEE) | QGIS | Remote Sensing | Python | RSMINERVE | MIKE HydroBasin | GIT | Office suit | Management Softwares | Video Conferencing | DaVinci Resolve | OpenBroadcasterSoftware

LANGUAGES

Mother tongues: KYRGYZ, RUSSIAN

Levels: A1,A2 - Basic user; B1,B2 - Independent User; C1,C2 - Proficient User;

Language	Understanding	Speaking	Writing
ENGLISH	C1	C1	C1
GERMAN	A1	A1	A1