SCHOOLWATER PILOT PROJECT

DRINKING WATER TREATMENT FOR 240 STUDENTS AND 30 TEACHERS OF THE TIK OZEK SCHOOL IN THE AUTONOMOUS REPUBLIC OF KARAKALPAKSTAN IN UZBEKISTAN

The Schoolwater initiative was launched by the NGO alliance LATMA-ADED after a preparatory visit to Karakalpakistan by LATMA experts. The region was chosen based on several analyses of the economic, social and health situation of the population in rural areas of Central Asia (e.g. average family income, unemployment, availability of safe treated drinking water, the incidence of chronic diseases, etc.). LATMA's experts tried to identify areas where drinking water supply cannot be provided as a fully paid service (the population is not able to pay the full costs of investment, rehabilitation, maintenance and operation), and should be offered as humanitarian aid.

Large areas in the five Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) lack safe treated drinking water. In Uzbekistan, only 58.8% of the population has access to piped water, which is often of poor quality. The situation is particularly critical in rural areas. Due to a lack of resources, it is unlikely that these communities will have access to safe water in the next 10-15 years, following investments in new infrastructure or reconstruction of existing networks. As a result, Central Asian countries are unlikely to achieve Sustainable Development Goal 6 (SDG 6): "Achieve universal and equitable access to safe drinking water for all by 2030." Economic hardships caused by the pandemic, the difficulties of the war in Ukraine, declining remittances from migrant workers in Russia, soaring inflation and impending food insecurity combined with the increasingly dramatic effects of climate change are creating a critical situation in this region.

The pandemic has dramatically highlighted the importance of providing safe water, sanitation, and hygiene services to every community in a region that has already suffered from decades of environmental degradation. The drying up of the Aral Sea was one of the most serious man-made environmental disasters in history. Among the economic, social and health consequences of the environmental disaster, the widespread occurrence of water-borne diseases and serious health problems caused by the lack of drinking water are the main sources of concern. Populations in the most polluted areas suffer from high levels of anaemia, tuberculosis and cancer. Children are affected by liver, kidney and respiratory diseases, micronutrient deficiencies, cancers, immunological problems and birth defects.

The Autonomous Republic of Karakalpakistan in Uzbekistan is one of the regions in Central Asia that faces the most serious challenges in the area of water, sanitation and hygiene (WASH). It has suffered disproportionately from the drying up of the Aral Sea due to the huge irrigation networks developed by Soviet planners. Decades of cotton monoculture have left the already highly saline surface and groundwater heavily polluted with pesticides, herbicides and fertilizers. As the lake dried up, the fishermen and communities that depend on it disappeared.

For example, the temperature has risen sharply due to the lack of water to moderate it. Last January, the UN expressed alarm at this situation in a report made public, recalling that more than 60 million people live in this region. The GDP per capita is among the lowest in Uzbekistan.

The extraordinary Savitsky Museum in Nukus nostalgically testifies with its paintings to the glory of the Aral Sea, the 4th largest lake on the planet, which provided a living for tens of thousands of families through fishing. Now, his paintings testify to the drama of deformities and diseases related to this ecological disaster.

Preparatory Phase of the Schoolwater Pilot Project

First visit

An expert from LATMA visited Uzbekistan in May 2019 to prepare the pilot project. Based on several analyses of the accessibility of safe treated drinking water supply, the Moynaq district (formerly a coastal region of the Aral Sea, now a salt desert) was identified as an area that is in an extremely critical situation. After visiting several communities, the expert chose the school in Tik Ozek, a particularly vulnerable and disadvantaged community in the Moynaq district, as the location for the pilot project. It was discovered that parents in the village were taking water from a heavily polluted irrigation canal nearby, boiling it, and that students at the school were bringing the water in plastic bottles to the school to drink. The school principal complained of widespread illness and regular diarrhea among the students.

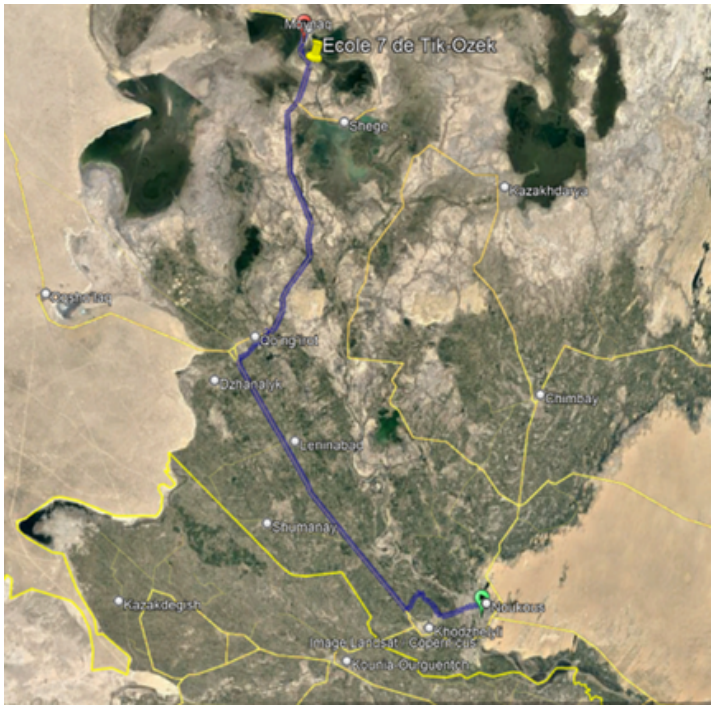
Commitment to Water

Since 2014, Switzerland has been mediating between Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan in the "Blue Peace Central Asia" project. The goal: fair and sustainable water use in Central Asia. A high-level dialogue platform has been set up for this purpose. In addition, Switzerland has been involved in the Central Asia Water and Energy Program since 2009, together with the World Bank, the European Union and the United Kingdom. The aim is to improve the supply of energy and water at regional level. The main pillars of this initiative are data and analysis, strong institutions and open dialogue.

Climate crisis

In Central Asia, the population is feeling the full impact of the climate crisis. According to a study conducted by the International Monetary Fund, the three main manifestations of the crisis have only worsened since the 1990s: temperatures are rising faster than the global average, meager rainfall is increasingly unpredictable, and climatic disasters such as droughts and floods are more frequent.

Source : Google Maps
Ecole 7 – Tik Ozek : 43°41'19.5"N 59°02'49.7"E



Accelerated video of the Aral Sea drying up from 1984 to 2016 on the LATMA-ADED website.
Source : Earth Observatory NASA

In this region, where the Aral Sea has receded more than 150 km from this location, a Soviet-era pipeline supplies water from Nukus (more than 200 km!) to this population, which only receives it every 3 days for 2 hours. LATMA experts negotiated a Memorandum of Understanding with two local implementing partners: Nukus State University and the International Center for Innovation in the Aral Sea (IICAS). The three partners agreed to work together to develop and implement innovative solutions to provide clean water to disadvantaged communities in Karakalpakistan, with a pilot project to be implemented in Moynaq district. The document was signed in December 2019.

The memorandum of understanding establishes a clear division of responsibilities among the implementing partners:
LATMA is responsible for overall project management, coordination of implementing partners' activities, preparation of project documents, fundraising, management of financial flows, overseeing the procurement of materials and contracting of services for project purposes, preparation of an implementation report, and dissemination of project results.

IICAS is responsible for negotiating an agreement with the National Customs Administration that allows the import of equipment from abroad for the project without paying customs duties, storage and transportation of the equipment from Tashkent to Nukus by air and then from Nukus to Tik Ozek by road, purchase of locally produced materials, hiring local contractors to carry out our technical preparatory work for the project, logistical support (tickets for domestic flights, road transportation and hotel reservations) for LATMA-ADED project staff visiting Uzbekistan, as well as joint technical research for the adaptation of advanced technologies to local conditions and the development of new innovative solutions.

Nukus State University is responsible for the analysis of the data provided by the Karakalpakistan Water Department, together with LATMA. The analysis identifies vulnerable communities that are unlikely to be covered by infrastructure development and reconstruction plans in the next decade (or even for a longer period). The University is invited to integrate the installation, maintenance, and operation of modern water treatment equipment provided by the Schoolwater project into the University's engineering course curriculum in the form of hands-on training or internships, as well as the analysis of school water samples by the University's laboratory (by Chemistry and Biology faculty students in hands-on training). The trained graduates will then be able to train members of local communities and their associations (e.g. women's associations or school parent associations) in the maintenance and operation of water treatment equipment. A team of 5 students and their teacher from Nukus State University spent the week in the school of Tik Ozek to follow the installation and to validate a practical engineering course.

A year later, a second technical preparatory visit was made by a joint team of experts from LATMA and ADED. The technical preparatory team inspected the school building, verified the availability of water (highly polluted water from the Soviet-era pipeline passing a few dozen meters from the school), electricity, prepared a plan for the installation of water treatment equipment, storage and a distribution network, ordered the analysis of water samples (necessary to define the optimal water treatment technology), assessed the availability of local materials and technical expertise, the price and quality of these materials and services, and agreed with the local implementing partner IICAS on a work plan, rules for the purchase of local materials and contracts with local companies to carry out the preparatory work.

After identification of the needs and the problem to be treated, ADED studied and proposed a sustainable, economic, ecological and social solution, without using chemicals, aiming at the potabilization of the water delivered by the pipeline and including: pumps to draw water from the pipeline to feed tanks for a total of 6 m3 which are filtered, sterilized (UV), treated with activated carbon, then dynamized. A permanent circulation of the stored water in the tanks avoids the creation of biofilm.

Unfortunately, travel restrictions introduced as a result of the successive waves of Covid-19 have slowed down preparations for the implementation of the pilot project. Project implementation was not accelerated until the fall of 2021.

Installation of water treatment equipment at Tik Ozek

During the summer of 2021, LATMA and ADED received, reviewed, and approved proposals from IICAS to purchase locally produced materials and hire local contractors to perform preparatory work.

ADED, in collaboration with Aqua Swiss, designed, assembled and tested the drinking water treatment equipment in January 2022 in Geneva. The equipment was then packed, and after completing the necessary formalities (customs clearance, insurance, etc.), was sent to Tashkent by air freight. IICAS then took care of customs clearance, storage and transportation of the equipment by air to Nukus and then by road to Tik Ozek.

Jean-Marc WARIDEL for ADED and Gilles JLIL from Aqua Swiss went to Uzbekistan from May 12 to 21, 2022 for the realization of the drinking water treatment plant in the school of Tik Ozek.

The facility was successfully commissioned on May 20, 2022, in a ceremony attended by the district governor of Moynaq and the district attorney. The Karakalpakistan TV channel's video of this handover ceremony is available on the website.

In this region, where not only the quantity and quality of water are a challenge, but also the continental desert climate, marked by a large temperature range, cold winters, hot summers and scarce rainfall, had to be taken into account. A drinking water distribution network in the corridors of the Tik Ozek school now supplies water points where students fill their water bottles and cups, as well as hand-washing stations equipped with the eco-sanitary faucet The Drop® from Links to Water Development SA, at the main entrances of the building.

LATMA and ADED presented the Schoolwater project plans in October 2019 at a side event at the Budapest Water Summit.

Most recently, on June 8, 2022 in Dushanbe, Tajikistan, the project was selected as a "Best Innovative Practice" at a roundtable on "Promoting Water Sustainability in Urban and Rural Areas" organized by the World Bank in partnership with UNICEF at the Second International Action Conference of the Water Decade 2018-2028: "Water for Sustainable Development."

Unfortunately, serious unrest took place in Karakalpakistan in early July 2022. Dozens of people were killed. The people of Nukus demonstrated against the amendment of the constitution, thus depriving Karakalpakistan of the right to separate from Uzbekistan. The lack of drinking water is one of the most serious grievances of the population. Our project is therefore more necessary than ever, but we must wait a few weeks to let the situation stabilize.

In the meantime, funding is being sought to duplicate the Tik Ozek school drinking water treatment project in 2 other schools in the country, already identified.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