

How the Smart Waters Project helped to facilitate
integrated water management in Central Asia



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Shared Water, Shared Future

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The Regional Environmental Centre
for Central Asia (CAREC)

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Project Background Objectives, Components

The Smart Waters project serves as a platform for linking countries within Central Asia and Central Asian countries with Afghanistan by creating a network of like-minded water management specialists and policy makers across multiple levels and countries in the region

GENERAL INFORMATION

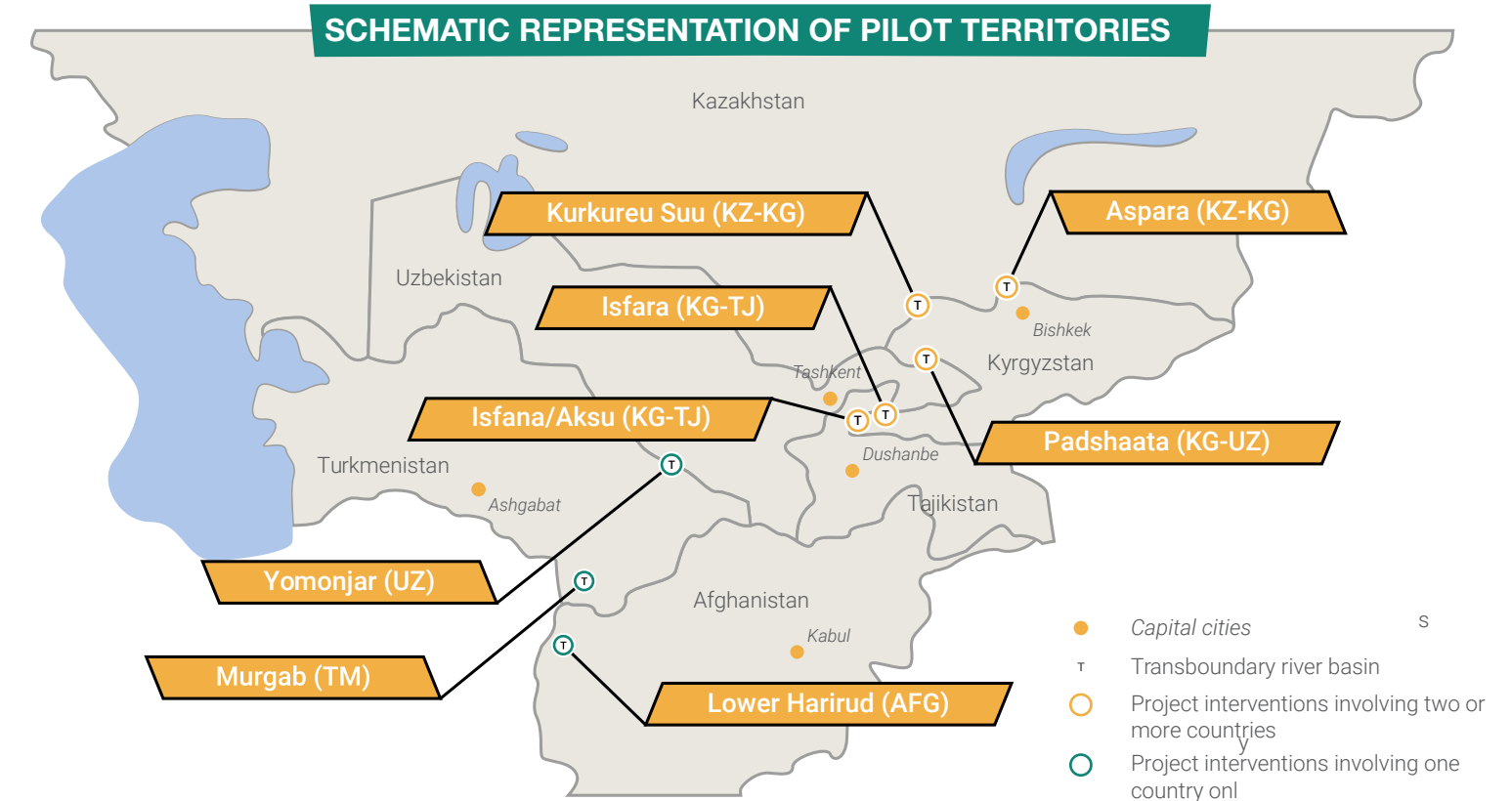
At present, the countries of Central Asia and the Islamic Republic of Afghanistan face a number of issues in the field of water resources regulation and management that need to be addressed, such as the personnel training and retraining system, improving the efficiency of irrigation and drainage systems, optimizing and improving water legislation, strengthening cooperation between stakeholders, as well as involving local communities in decision-making processes.

PROJECT GOAL

Strengthening of cooperation water issues, introduction of modern approaches to integrated water resources management (IWRM) by building the capacity of specialists in water resources management, sharing experiences and networking of water professionals in Central Asia.

PROJECT DELIVERABLES

- Water managers in Central Asia and Afghanistan understand and apply sustainable IWRM on policy and applied levels.
- Networking, collaboration and trust among future water managers across Central Asia and Afghanistan have increased.
- Application of the integrated Water Resources Management principles and its introduction on basin level.
- Basin planning principles in selected basins have improved.



PROJECT COMPONENTS

CAPACITY BUILDING and ACADEMIC EXCHANGE

This component is aimed at enhancing water sector expert capacity in CA countries and Afghanistan and training the new generation of water professionals

NETWORKING and COOPERATION

This component is aimed at expanding linkages and dialogue among water management organizations, water professionals and academic communities in CA countries and Afghanistan

IWRM PROMOTION and SUPPORT

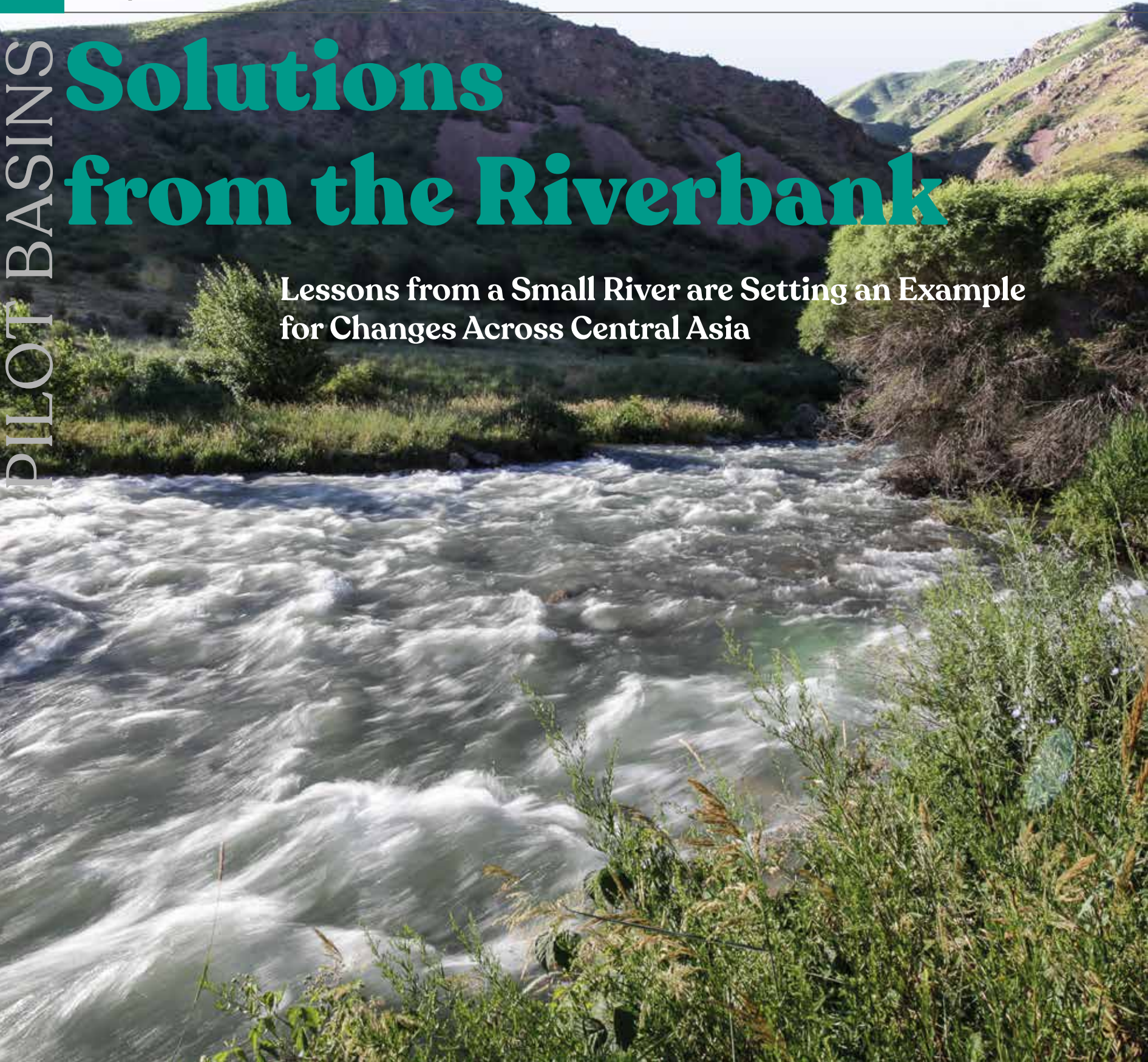
This component is aimed at promoting wider acceptance and use of key IWRM principles at all levels of water management in CA countries and Afghanistan

BASIN PLANNING

This component is aimed at mainstreaming long-term basin-level planning system in CA countries and Afghanistan, using the basin planning approach, specifically developed and adapted to local conditions, as well as providing technical assistance in accordance with the needs of the basins

Solutions from the Riverbank

Lessons from a Small River are Setting an Example for Changes Across Central Asia



Farming is common in the Aspara river basin



The development of countries is often built on the back of large rivers, overshadowing the needs of small river basins. The Aspara River in Central Asia's Chu-Talas basin is one such example. The 108 km transboundary river flows from the Panfilovsky district in Kyrgyzstan to the Merke district in Kazakhstan, where over 9.000 people depend on it for drinking water, their livestock and to irrigate their fields. Over time, this has become increasingly challenging.

Water supply systems have deteriorated and wells have filled up with contaminated water due to river pollution with sewage and household waste. Farmers struggled to extract enough water for their crops; planting less, and letting go of livestock. Water quality has worsened as waste was dumped into the water. Away from the river, roads were run-down. Communities did not engage to try and improve the situation because they had limited opportunities to do so.

With the support of the USAID-funded Smart Waters project, the Aspara basin has seen a dramatic turn-around in the past five years.





Nurtaza Kudaibergenov

The project also aims to make a difference in those areas often overlooked: small transboundary river basins where the need for improvement is substantial. In Central Asia, there are more than 200 such rivers, many suffering from problems similar to those of the Aspara.

For Kudaibergenov these are familiar issues, but the Smart Waters project introduced a key new element. This time, he had to go straight to the riverbanks. “I’ve never worked directly with people like farmers or town residents that use the water,” he says.

The Smart Waters project gave Kudaibergenov the opportunity to work directly with local residents and farmers in the basin.



GOING BACK TO THE RIVERBANK

Nurtaza Kudaibergenov has been working on the region’s largest rivers for almost half a century. His celebrated career, working at the national governmental level in his home country of Kazakhstan, included time as head of the Chu Talas River inspection unit.

When USAID’s Smart Waters project selected the small Aspara river basin as a pilot area, the retired expert was appointed as a national expert. The project aimed to mainstream Integrated Water Resources Management in Central Asia, which calls for the input of all the people that depend on the water.



A canal distributing water from the Aspara River to local communities in the basin



The council helped introduce farmers to a broader variety of crops, adding selections which are less water intensive and those that can also help improve soil conditions

The USAID Smart Waters project includes the establishment of a council made up of farmers and other water users, local government representatives and experts in fields such as conservation and border control. As the national expert, Kudaibergenov became a member of the council and together, they wrote the basin's first integrated management plan, keeping the entire community's needs in mind.

"One of the most important activities of Smart Waters is to give people the opportunity to talk about their problems," says Kudaibergenov. Then, they are taught to identify the most pressing problems as well as the most important actions necessary to solve them. For the Aspara basin, there were many problems identified, but the state of the irrigation network and drinking water system were at the top of the list. The council members, with the support of USAID's Smart Waters project, focused their attention on these issues. As a result, much has changed in the small Aspara basin.

WHEN LOCAL PEOPLE TACKLE LOCAL PROBLEMS

Kudaibergenov says that due to the work of the council, dilapidated drinking water pipes have been replaced. The council helped introduce farmers to a broader variety of crops, adding selections which are less water intensive and those that can also help improve soil conditions.

Due to the work of the council, with further guidance from Smart Waters experts and staff, a number of farmers switched to drip irrigation, substantially decreasing their water needs. In order to get to some of the water infrastructure that needed maintenance, roads have also been upgraded.

The impact of introducing local basin planning has trickled down to many social aspects throughout the communities too. Kudaibergenov says that now that locals have a say in the management choices of the water they depend on, they have taken responsibility for some of the problems. Community members have stepped in themselves to clean canals and prepare the roads for the necessary work.

The council is currently busy updating their basin plan, to revisit priorities and shift their focus to the next set of challenges, says Kudaibergenov. Next, the council will tackle the repair of broken water supply pumps and the purchase of an excavator to help maintain irrigation infrastructure.



Council members study drip irrigation facilities installed at a local farm, as part of the Smart Water project activities



BIG LESSONS FROM A SMALL BASIN

Projects that operate on large river basins have much to learn from the success achieved here, says Kudaibergenov. “For one, by supporting small, local farms and businesses, big changes can be achieved.” For him this is best shown in the uptick of water saving technologies on local farms, and the savings they have achieved as a result. “If you’re not saving water at the local level, you will lose water on a large, national scale.”

For Kudaibergenov, his involvement in the project has also been a personal journey. A highlight has been working with locals. “Previously I worked at a higher level, but now I have a deep understanding of the problems experienced by farmers and the people who are working with and using this water every day.” He says he is now more convinced than ever of water conservation. However, now he sees it from a different perspective than before, “Everything starts from the beginning; the local water user should be supported first.” This vantage point, he says, is something that even the large river basins will benefit from too.

Nurtaza Kudaibergenov with Small Basin Council members and other community members at an event to celebrate the river



Through the USAID Smart Waters project, new integrated basin management plans are being written for 13 sites across Central Asia, ten of which have already been completed. This approach enables the benefits to ripple throughout local communities in the region, ultimately also benefiting the countries they are part of as well.

Saving Water

Farmers Help Water Conservation Efforts Ripple Through Kazakhstan and Beyond



The drip irrigation system allows for better use of fertilizers, leading to improved crops and yield



The Aspara is typical of many small river basins in Central Asia. Thousands of people rely on it for everyday necessities, many depend on it for their small fields and orchards to sustain their families. Sadly in the process, they are harming the source that they all depend on.

The reasons are many; irrigation methods used by farmers are at times outdated and in some cases, they do not have funds to upgrade their irrigation systems. Some are unaware that there are better ways to irrigate, or may not have seen any other methods in practice.

Shyryn Badalov has a 4 ha apple farm next to the Aspara River in Kazakhstan



The same results are being seen across the Central Asian region, including the countries of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, as well as Afghanistan, which share the Aral basin. Over time, water from many basins in the region, like from the Aspara, has become inadequate in quantity and quality to meet the needs of the people that rely on it.

It's here, next to the Aspara in Kazakhstan, that farmer Shyryn Badalov started piloting successful water conservation techniques. With help from the United States Agency for International Development (USAID) the lessons he learned, and the benefits he gained, have now been conveyed to more farms in the region, leading to substantial conservation of the river's water.

"I could see how much water was being wasted, and I also know that there are more farmers downstream depending on the same water, so I decided to change," he says. Badalov installed a drip irrigation system two years ago, changing from the commonly used furrow irrigation, which leads to high water losses.



Since he installed the new system, his watering needs have decreased from 100 liters per m² to a mere five liters per m². He now also applies fertilizer with the irrigation water which enables him to use more exact measures. Badalov says that benefits are many. “I’m saving money, and the quality and yield of my crops have increased. This year, I have made back my costs, and will now start seeing more profit.”



Since the launch of the USAID-funded Smart Waters project in 2015, these benefits have rippled throughout the region. The project addresses multiple water management issues, with solutions based on the principles of Integrated Water Resources Management, a holistic approach in managing water with caring both for the environment and economic development.



The Aspara basin was selected as a pilot study area. By participating in the project, Badalov could share the knowledge he had gained with other farmers so they too could benefit from it. Badalov says that 10 farms with a total of 60 hectare of fields are now using this technology instead of the typical “wild” furrow irrigation methods. As a result, they have decreased their water use from the Aspara by as much as 70 percent.

The Aspara is not the only basin that will benefit from the work of the Smart Waters project. Thirteen councils similar to one Badalov joined for the Aspara, have been created in pilot study areas throughout the Central Asian region so far. All of them are made up of local people working to implement the basic principles of Integrated Water Resources Management and to conserve water resources that they so intimately depend on.



Where the White Beards Speak

A Mirob Committed to Modern-Day River Management



Abdujabbor Homidov was once a mirob at Kanibadam in Tajikistan

“Since ancient times, people have said that those who give water are blessed,” says Abdujabbor Homidov. He is an aksakal or, white beard – the wise elders of Central Asia. During the Soviet era and well before then, aksakals were leaders that helped administer justice; they are still widely respected today. Homidov has a particular expertise. Once a mirob (a Tajik word that literally translates to “water owner”), he used to supervise the distribution of water from communal canals at Kanibadam in Tajikistan. This water is from the Isfara River, which also flows to the Kyrgyz Republic and Uzbekistan.

“Our organization, the Kanibadam Land Reclamation and Irrigation Management, was Tajikistan’s most efficient organization,” says Homidov, referring to his work during the Soviet era. Now retired, Homidov is a hydro-technician with over 45 years of experience. Times have changed since the fall of the Soviet Union. “After the union collapsed, there was a decrease in water efficiency and production,” he says. Now, with the help of USAID, the skills and knowledge of the aksakals are being tapped into again, giving a new generation of water managers access to their decades of expertise. This is needed today, more than ever.



A canal carries water from the Isfara River to agricultural fields in Tajikistan



In the Central Asian countries of Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan and the South Asian neighbor Afghanistan, water unites and divides. Though the region is enriched by many rivers, international borders crossed over 200 of those rivers after the Soviet Union crumbled, complicating international relations and leading to the loss of decades of shared, expert knowledge on water management.

These challenges led to the establishment of the USAID-funded Smart Waters project. Under the auspices of the project, 13 Small basin councils have

been created in small, transboundary river basins across Central Asia till date. These advisory bodies aim to find the best solutions to water-related problems and to collaborate across borders again. Small Basin Council members include representatives of various water users and local experts. They also include aksakals. Small basin council members are taught to write basin management plans based on scientific principles. The goal is to establish a small basin council on each side of the border of the transboundary river pilot sites. Small basin councils from neighboring countries are then brought together to collaborate on the management plans of the basins that they share.



The Isfara River runs through Isfara in Tajikistan, just across the border from the Kyrgyz Republic

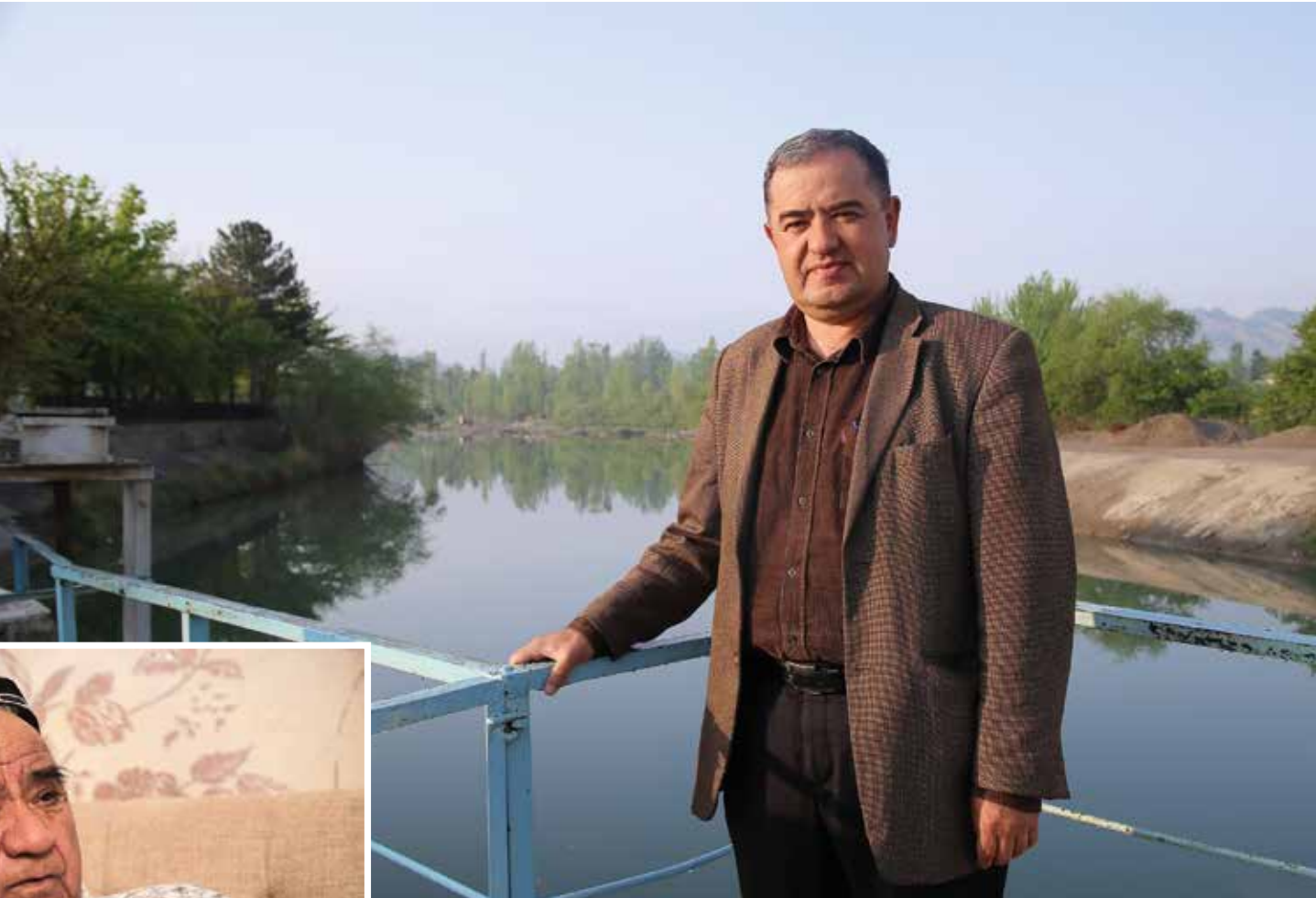
Rustam Shomirsaidov is head of Isfara Land Reclamation and Irrigation Management, and chairman of the Isfara River Small Basin Council in Tajikistan. He says he often consults with former employees of his department, who are now aksakals. He even invites these elders twice a month for plov (a much-loved rice dish) to benefit from their years of experience. “Because the aksakals are now part of the small basin council, more people have access to their valuable expertise,” he says.

In fact, Rustam’s father, Samad Shomirsaidov is also an aksakal, with over 60 years of experience in water management. “Through the small basin councils we can consult with our colleagues across the border in union again,” says Shomirsaidov senior .

The results of involving aksakals in water management are starting to show. Though officially retired, Homidov helps those now responsible for water distribution, as they all serve on the same small basin council.



On the left: Samad Shomirsaidov has over 60 years of experience in water use and management



On the right: Rustam Shomirsaidov, head of Isfara Land Reclamation and Irrigation Management, and chairman of the Isfara River Small Basin Council in Tajikistan

“Three years ago, we set out to achieve the same levels of efficiency in water distribution and management that the Kanibadam Land Reclamation and Irrigation Management unit achieved during the Soviet Union era,” he says. And, last year the Kanibadam water user association, which is now responsible for the fair distribution of water from communal canals, was officially recognised for their excellent performance, achieved with Homidov’s help and support from the small basin council.



The Isfara River basin is one of the Smart Waters project pilot sites

The Smart Waters project is also bringing back something else that the elders remember well. “I used to tell my counterparts here and across the borders we should forget politics and enjoy good relationships,” says Shomirsaidov (senior). Homidov agrees. “We used to be able to negotiate with our friends across the borders without trouble. After taking

water measurements with colleagues from Uzbekistan and Kyrgyzstan, we would have a big picnic together.” Now they can do the same again. Through the small basin councils, the aksakals are back to collaborating with colleagues across borders, this time also teaching a new generation some valuable skills in diplomacy through water management.



Water from the Isfara supports the rich agricultural bounty that the valley is famous for

A Voice for Every Person

A Letting People Speak for the Rivers They Depend On



Dorانبek Mamadiev, a Batken local, explores some of the special features of his home-region, like the wilderness where the Aigul flower grows



Batken, Kyrgyzstan landscape

Dorانبek Mamadiev is the chief engineer at the municipal enterprise for clean water in Batken, the Kyrgyz Republic. On his small plot next to the Isfara River, he experiments with different apricot hybrids to see if any would be more suitable to the region. “I’d also like to build a demonstration plot to test technologies to save water, to reduce water use from irrigation,” he says. “Then, we can showcase technologies like solar energy to pump groundwater.”

After decades of living and working close to the Isfara River, Dorانبek is intimately aware of the challenges with managing the water. Yet, until recently, there was no platform where he could share his knowledge and ideas to help improve the situation.

Now, thanks to the USAID-funded Smart Waters project Dorانبek’s input, and those of thousands more living in small river basins across Central Asia are being heard. The benefits are rippling throughout the communities.



The Isfara water is canalized to feed the rich agricultural fields of Batken and beyond the Tortgul reservoir

THE RIVER THAT RUNS THROUGH THE ISFARA VALLEY

The 102 kilometers Isfara is relatively small river, but its management has international ramifications. Fed by water from the Aksu glacier in the Kyrgyz Republic, the water is captured in the Tortgul reservoir in Batken (the Kyrgyz Republic), before it is fed via canals to Tajikistan and eventually to the Big Ferghana Canal in Uzbekistan.

Shared by three countries, the Isfara River personifies many of the management challenges experienced in other basins in Central Asia. More than 200 rivers here cross the international borders of Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan.



Tortgul reservoir

A water canal channels water from Kyrgyzstan to Tajikistan



Furthermore, the Aral Basin is also shared with Afghanistan. During the Soviet period, when the countries of Central Asia were republics of the same country, the river basins were managed and protected as part of one unit.

When the Soviet Union collapsed, the republics became independent countries. Water management in the region underwent large and disruptive changes. Instead of the welfare of an entire basin, countries started prioritizing local interests. Planning for different sections of the same basin were conducted by independent agencies, often with conflicting priorities.



Isfara River Small Basin Council members represent a broad set of stakeholders from the basin

The impact was felt throughout communities. In the Isfara Basin, for example, irrigation networks had deteriorated into half-ruin, and water losses were close to 20 percent. Neighboring communities, now in different countries, did not trust each other to share water fairly anymore. Excessive grazing by cattle, the felling of trees and bushes, and waste dumped in the river affected the ecosystem and, in turn, the lives of people that depended on it. Furthermore, local people like Doranbek had no voice in the decisions for the very basins they lived in, though they acutely felt the impact.

To improve the state of water management in Central Asia and Afghanistan, the USAID-funded Smart Waters project introduced the concept of Integrated Water Resources Management to the region. Key to this approach was to give local people a role in the management of the water they depend on.

To show the benefits of this approach in practice, the Isfara Basin was selected as one of the eight pilot basins for the project. The project team then helped to create a Small Basin Council, which is a group of people that represent all local basin stakeholders,



and work together to find the best solutions to their water-related challenges. The basin council thus allows people from the public to participate in management decisions. In total, 13 small basins councils have been created throughout the region, giving 264 people a platform to contribute to their local water management decisions, between them representing thousands in their communities.

For the Isfara (on the Kyrgyz Republic side), Doranbek was elected as chairperson and, since they started almost six years ago, they have fared exceptionally well.



On the left: Doranbek Mamadiev leads a Small Basin Council meeting

On the right: A local woman from the Isfara Valley photographed displaying the sweet apricots that the region is famous for



The Aigul flower only grows in the Batken region – special ecological features like this is what basin councils also try to conserve

GIVING LOCAL PEOPLE A VOICE IN WATER MANAGEMENT

Results indicate that more people have gained access to safe drinking water in districts where poor quality of water led to illnesses. Irrigation structures have been fixed and, due to more water being available, more land was available for farming.

For Doranbek it has been especially rewarding to help people understand that water management is about much more than distribution. “The council takes the ecology, the glaciers and other aspects of the formation of water into account too,” he says. “Now we consider all land uses, like forestry and agriculture, as well as education and new water saving technologies when we make decisions for the river.”



In fact, the Isfara has become an icon of integrated basin management. For one, the training modules used to introduce basin management principles here, are now being used in other transboundary basins across the region. Second, four other basins are now bringing neighbors from across country borders together for special days to celebrate the rivers – something that first took place at the Isfara Basin.

Doranbek says his journey with the small basin council has been hard work, but inspirational. “I have enjoyed the opportunity to share new ideas with more people in my community,” he says.

By giving local people, like Doranbek, a platform to have their voices heard, the Isfara is one of the basins now managed more efficiently – for the good of the basin, and the people that live there.

Importance of Water Conservation

Farmer Muso Zikriyoev from Isfara Region



"The soil is very salty, so if the water remains in the soil the salt does not wash away, resulting in poor soil of high salinity. This impacts our crops. I grow alfalfa and potatoes, but cannot grow other crops like carrots because of the high salinity levels in the soil."



Muso Zikriyoev farms in the Isfara region in Tajikistan, where the USAID-funded Smart Waters project has established one of its pilot sites. The project aims to introduce Integrated Water Resources Management to Central Asia and neighboring Afghanistan. This approach allows for the voices of all people to be heard in basin management plans. In the Isfara basin, this includes the maintenance of critical water infrastructure like canals and collectors.

Ultimately, this will benefit all people, including farmers like Muso. “If the canals are fixed, and there is more water it will make a big difference to us,” he says.

Implemented by the Regional Environmental Centre for Central Asia (CAREC) the Smart Waters project has established pilot sites across eight cross-border rivers in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and neighboring Afghanistan.

It's Women's Role to Preserve Water

Minovat Karimova on Women's Participation in SBCs



“Women use water differently than men; we’re more thrifty,” says Minovat Karimova. “For every one bucket of water I use, a man will use three. It’s women’s role to preserve water.”

Minovat is a member of the Isfara River Small Basin Council in Kyrgyzstan. One of the initiatives of the USAID-funded Smart Waters project, an SBC is a group of local stakeholders, that work together to find the best solutions to their water challenges and participate in management decisions.

Minovat’s participation in the council is especially important. Throughout the CA region, water

management rarely considers women. Few women grace management positions in the various ministries. This can reinforce discrimination against women and limit their fair access to water.

Smart Waters is helping to change this. “In the SBC, my voice counts,” says Minovat. It’s important to have a woman on the SBC because the men’s understanding is different than mine, she says. “A woman’s contribution is different than that of a man. That’s also why the principle of gender equality should be applied in every sphere.”

“I’m very proud to be member of this group,” she says. “My contribution is important.”

Going Back, to Move Forward

Student Uses Life-Changing Opportunity Abroad to Help Improve Water Management Back Home



*Integrated Water Resources
Management Master's Degree
student, Arif Mamedov*

“It has been a once in a lifetime experience,” says Arif Mamedov from Turkmenistan, who received an opportunity from the USAID-funded Smart Waters project to pursue his master’s degree in Integrated Water Resources Management in Almaty, Kazakhstan. Now that his studies are nearly-complete, Arif is already working to apply what he learned at the only place he’s ever wanted to go to with his qualification – back home to Turkmenistan. Arif’s experiences and expertise will be put to good use.

Land-locked Turkmenistan is a largely arid country. The main source of water is Central Asia’s largest river – the Amu Darya – and is shared by Afghanistan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. In Turkmenistan, most of the available water, as much as 95%, is used to fuel expanding irrigated agriculture.



Despite its aridity, Turkmenistan's history is closely tied to intensive agricultural practices

Essential questions are now being asked in Turkmenistan about how to expand food production to meet future demands, conserve the land and water resources, and protect the environment. These issues are becoming even more pressing as the climate changes, creating the need to develop innovative solutions to manage water supplies.

To help develop such solutions across Central Asia, the USAID-funded Smart Waters program was launched in 2015. One of the program's main aims is to introduce Integrated Water Resources Management in the Central Asian countries of Kazakhstan, Tajikistan, the Kyrgyz Republic, Turkmenistan, Uzbekistan and neighboring Afghanistan. This approach promotes the coordinated development and management of water, land, and related resources in order to maximize economic and social welfare equitably without compromising the sustainability of vital ecosystems and the environment.



Arif Mamedov with co-students on a Surkhandarya field trip during the summer school (Poto by Ilkhom Nazarov)

One element of the multi-faceted program is to provide the region's future water leaders with the tools and know-how to implement integrated water management. USAID has funded 36 scholarships for two-year master's degrees in Integrated Water Resources Management at the Kazakh German University (DKU) in Almaty for young water professionals from across Central Asia. Students are nominated by state agencies, with the agreement that they will return to work in their home-countries after completion of their degrees.

This is exactly what Arif is doing. "I cannot convey my feelings about what I've learned in words," he says. "What I know now, is vastly different from what I assumed before I started this degree." Arif says one example is that, before, he thought that only technical expertise were necessary to address Turkmenistan's water-related challenges. After his time at the Kazakh German University, he now understands that these challenges must be addressed from multiple perspectives and with input from a multitude of water users.



Arif Mamedov on a field trip to the Murgab River basin in Turkmenistan

The degree is an in-depth study of a broad range of integrated water resource management-related topics, including practical training and experiences to prepare students to work at a policy level.

Topics include analytical tools for water management analysis, correlation of global climate systems, and the evaluation of global and local environmental problems. Students leave the master’s program competent in analyzing and comparing policies and responding to conflict management situations. They are taught to solve legal problems, analyze statistical, spatial, and remote sensing data, and understand the design of water infrastructure.

The program also gives students the opportunity to participate in high-level events such as the World Water Week, and receive memberships to various international networks.



Arif Mamedov at DKU

Students attend workshops on climate change where they can interact with decision-makers from science, business, and civil society to learn about advanced adaptation and mitigation strategies.

To ensure they understand the practical aspects of integrated water resource management, students also attend a summer school at the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME) in Uzbekistan. This allows them to work in

TIAME’s renowned laboratories and demonstration sites and visit large water management infrastructure such as pump stations, water reservoirs, and hydro-power stations.

Arif says he now understands that water policies across borders are part of the challenge and the solution. “It’s not just a local problem; we have to solve these problems in collaboration with neighbors on all sides of our borders.”

A Mother, a Teacher, a Trailblazer

Raising the Status of Water Issues and Women in Turkmenistan



Lyale Orazova

“In many cases, women here are homemakers,” says Lyale Orazova, talking about her homeland, Turkmenistan. “Since a woman gives birth to her children, she is responsible for teaching them the ways of our people. It’s the women who teach children that water is special, that it must be valued, and that they need to take care of it. My mother taught me that and I am teaching it to my daughter,” she says.



The Murgab River basin, Turkmenistan

Lyale is an expert in the processing and cleaning of industrial drainage water and the Head of the Mary branch of the Union of Women of Turkmenistan, which promotes the role of women in social, political and cultural life. Lyale was also elected a member of the recently established Small Basin Council for the Murgab River, as part of USAID’s Smart Waters project.

The Small Basin Council is the first platform in the country that enables representatives from different agencies, ministries and community members like farmers and business people to discuss water management issues together. The aim of the Small Basin Council is to foster collaboration to find the best solutions to water-related problems.



The Murgab River's water diverted through a canal in the city of Mary

The Smart Waters project aims to introduce the principles of Integrated Water Resources Management which promote the coordinated development and management of water, land and related resources. This approach prioritizes economic benefits, social and environmental impact to ensure sustainability of the ecosystem.

The Small Basin Council of the Murgab River is one of 13 that have been established by the Smart Waters project across the Central Asian region and neighboring Afghanistan. Like the Murgab, numerous rivers – more than 200 – are shared by the countries of Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan and Afghanistan. Since

integrated basin planning is not widely implemented here, rivers are often at the mercy of more than one governing body and multiple sets of laws.

This results in serious water management challenges. For example, large amounts of water are wasted and the water quality in many of the basins is declining.

The Murgab River is a case in point. Flowing through the territory of Afghanistan and Turkmenistan, it is the second largest river in Turkmenistan. Here, the water from the Murgab is shared between seven etraps (districts). The river's water is mainly used for irrigation and the basin supports about 126,000 Turkmen. For her whole life, Lyale has been one of them.



Women selling fresh produce at a market in Mary



Irrigation system
in the Murgab Basin

“I swam in the Murgab often when I was growing up,” Lyale says. “I remember the water being so clean, we used to drink straight from the river.” Today, it’s no longer possible. “This is exactly the kind of issue that we are looking at,” she says, referring to their work on the Small Basin Council.

The Small Basin Council is an example of the practical application of one of the central pillars of integrated water resources management – namely that water development and management should include users, planners and policy makers at all levels. It also recognizes the importance of women as central players in the provision, management and safeguarding of water. Due to her position in the union, Lyale now gives a voice to thousands of Turkmen women represented by the union.

Lyale says she feels women’s participation in forums like the Small Basin Council raises their profiles in society. “It shows we have very educated and active women, who can be involved in such issues,” she says. She also shares the information from the Small Basin Council with other women since she believes it increases their knowledge of water management issues and ability to contribute to solutions.

The impact of the Small Basin Council’s work is showing. When it was first established, the members visited the seven etraps through which the Murgab flows. Water users in downstream etraps told Small Basin Council members about their water scarcity issues, while users in upstream etraps shared that they did not know about the water shortages experienced downstream, so they had no reason to ration their use of water.

The problems experienced by water users in downstream etraps were raised in one of the first Small Basin Council meetings. As a result, the Small Basin Council decided to install automated water measurement devices along the river with the support of USAID’s Smart Waters project. This information will enable decision makers to allocate water fairly



Lyale Orazova during a Smart
Waters project excursion to sites
in the Murgab River basin

to all users along the river. By listening to water users’ challenges, and incorporating them into basin management decisions, the Small Basin Council gives a voice to water users throughout the basin.

Lyale says the first person to learn about what they achieved in the Small Basin Council is her own daughter. “She is my best friend, so I tell her everything,” she says proudly. It’s perhaps of little surprise that although her daughter does not swim in the river anymore, like her mother did, she is showing a keen interest in water issues.

This is part of the reason why Lyale continues her work on the Small Basin Council. “I would like to help achieve sufficient water provisions for everyone along the Murgab. With enough water, we will have fruitful lands, high yields and sufficient crops so everyone can be happy.”



Digging Deep for River Management

Project Helps Maintain Riverbed to Improve Flooding in Turkmenistan



The Sary-Yazy Reservoir in Mary province, Turkmenistan

When there are floods, we have to build water fences (small, temporary dams) to keep our land safe, says farmer Ataev Maksat. Maksat has been living in the village of Saryyazy, Turkmenistan for 35 years. He is the third generation to grow wheat and cotton on the family farm. They also keep livestock and tend a household vegetable garden on their land close to the Murghab River.

“Our land is located near the water,” says Maksat, “and we experience floods every year; some years they are small, and other years the flooding is more serious.” Maksat says that if his lands would flood, it would ruin his crops and he would be left without a livelihood. This is why he keeps on paying for the additional costs to construct the ‘water fence’ to protect his property, every year.

Maksat is not the only person experiencing these challenges. Since dredging equipment has become defunct, silt has accumulated in the river.

As the riverbed became shallower, floods increased, putting riverside villages and settlements at risk. The buildup of sediment also leads to soil salinization and decreases the quality of the soil.

Charyev Murat, lead engineer of the Murgabderaulanysh (the body that oversees water infrastructure on the Murgab River) says it has been a long time since the river has been cleaned and, with as much as 8–10 million m³ of soil deposited into the river every year, the riverbed has raised by an average of two to three meters annually, for the past thirty years.



Ataev Maksat, farmer Mary province

Charyev Murat, lead engineer of the Murgabderaulanysh



The Murghab River in Mary province, Turkmenistan with the dredger purchased with USAID funding

As a result, agricultural lands and pastures for about 100 km along the river upstream of the Sary-Yazy Reservoir flood annually. This year, this is set to change. With the help of the USAID-funded Smart Waters project, a new dredger is now cleaning the riverbed of sediment, after the machinery was purchased in December 2019.

The five-year Smart Waters project is designed to help the five countries of Central Asia and Afghanistan deepen their technical skills in water management, facilitate community dialogue at transboundary rivers, and build a cadre of professionals, capable of managing shared water resources. The project also aims to implement the principles of Integrated Water Resources Management across the region. This approach to water management includes considerations of environmental and economic development impact.

The dredger was purchased in order to help improve water management in the Murghab basin, to the benefit of the more than one million people that live in Mary province. The maintenance work done by the dredger will not only prevent floods, but also prevent mud from being deposited from the river into the Sary-Yazy Reservoir, decreasing that reservoir's capacity.

The Sary-Yazy is the province's main reservoir, and important for water supply across the densely populated province.

Murat says the dredger is extremely valuable. The machinery will scour the riverbed of sediment and silt. The riverbed will be straightened, and the water level in the river lowered. The greatest impact, he says, is that the natural flood waters can now pass without mishap.

In the process, says Murat, they will also save the costs for restoring flood-affected areas. These include labor and machinery, the removal of excess water and fixing the collector-drainage network. Floods also lead to crop losses and numerous knock-on economic and environmental costs.

This year's flooding season has not yet started in order to see the real impact of the dredger but already, the prospects are positive. Since its purchase, the dredger has been operational full-time. By June, it has been running for 640 hours already. During three months, approximately 25 600 m³ of soil was extracted from the riverbed.

"The dredger will make a big difference," says Maksat. If the river's condition is improved, the problems with flooding will improve too. "It will be wonderful," he says.



The dredger in operation in the Murghab River



Like all rivers, the Padshaata River has two sides. Upstream, in the Kyrgyz Republic, a nation traditionally of nomads and pastoralists, the river is framed by the mighty Tian Shan Mountains. Fed from glaciers, it cuts through deep ravines in the shadows of lush, green forests. The name of the river in Kyrgyzstan and Uzbekistan sounds a little different. Citizens of Kyrgyzstan call it Padysha-Ata

Neighboring Uzbekistan is a nation of settlers and farmers. Here the river, works hard and is diverted into canals to irrigate abundant orchards and fields.

Divided by a Border, United by a River

Countries Come Together to Celebrate What They Share



*Lake Sary-Chelek, part of
a UNESCO Biosphere Reserve,
in the Kyrgyz Republic*

Once united as a country under the Soviet Union, the border that has been drawn between the two sides of the river has caused Uzbekistan and the Kyrgyz Republic to grow apart.

But, Masalbek Myrzamamytov has not forgotten. “When I was a child, I went to summer school at Padshaata Kabra along the river with friends from across the Soviet Union, including from towns that are now in Uzbekistan” said Myrzamamytov, once the akim (head of administration) of Aksy district (Kyrgyz Republic), right where the Padshaata crosses to Uzbekistan.

After the Soviet Union fell in the early 1990s, such gatherings of neighbors along the river they shared became difficult, especially when border disputes intensified in the early 2000s.

Until now. With help from USAID, Myrzamamytov could welcome his Uzbek neighbors from across the border that divided them to celebrate the Padshaata River that united them. Once again, Kyrgyz and Uzbek neighbors camped next to the river at Padshaata Kabra. It took patience, time, and a novel approach to river basin management to get them there.



Masalbek Myrzamamytov

**WHEN A BORDER WAS DRAWN
ACROSS THE RIVER**

Located in the south-western part of the Tien Shan Mountains in the northern Fergana Valley, the Padshaata River flows for about 130 kilometers from the Jalal-Abad region in the Kyrgyz Republic to the Namangan region of Uzbekistan. Along the way, it supports around 113,000 people, supplying irrigation water to nearly 30,000 hectares of land, the bulk of which is in Uzbekistan (24,000 hectares in comparison to just over 5,000 hectares in the Kyrgyz Republic).

When part of the Soviet Union, the river flowed through the largest country in the world. After its collapse its fifteen republics were transformed into independent states, including the Central Asian republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Suddenly, the Padyshaata had an international border drawn across it.



*Irrigated apple orchard
in Namangan, Uzbekistan*

*Myrzamamytov with other
council members during a visit
to a greenhouse in Uzbekistan,
as part of the Padshaata Small
Basin Council's second
joint meeting*



As one country, management of the river basins was relatively straightforward. It proved much more difficult after hundreds of river basins were split between independent nations. For example, 36 percent of the Padshaata's water is now allocated to the Kyrgyz Republic, and 64 percent to Uzbekistan, but without clear authorities appointed for upkeep, shared infrastructure such as canals and water pumps have deteriorated. In the Padshaata basin, water shortages are common. Much of the water simply seeps away in the cracks and dust of unkempt canals. As infrastructure crumbled, and water dwindled, relationships across the border deteriorated.

"These are not issues that appeared yesterday, but there was no platform to discuss it, or to try and find solutions," said Myrzamamytov. To conserve the water, and improve the lives of the people that depended on it, collaboration across the border was integral.

The USAID-funded Smart Waters project addressed Myrzamamytov's challenge. Launched in 2015, the project takes a unique approach to basin management. Instead of only funding equipment or infrastructure, it built relationships across borders. A key factor was the creation of Small Basin Councils, which includes local experts in fields such as conservation, irrigation and local government. Together, they aim to find the best solutions to water-related problems. Myrzamamytov was elected as chairperson for the Kyrgyz Republic side, after the USAID-funded Smart Waters project selected the Padshaata basin as one of its pilot study areas.



Greenhouse in Uzbekistan

**A TRIP THROUGH THE AGRICULTURAL
HEARTLAND OF UZBEKISTAN**

Not even an entire year later, he was staring in amazement at a 300-hectare irrigated apple orchard in Namangan, Uzbekistan, just across the border from where he lives. "The sheer size of it is astonishing," he said. "We cannot even imagine repeating this in the Kyrgyz Republic. We only have seven hectares of drip irrigation installed in the entire district!"

Myrzamamytov was fresh from a visit to a greenhouse down the road where the Uzbeks were applying Israeli and Korean technologies. "This trip is showing us how to use modern technology to save water and achieve higher yields," he said. "In the Kyrgyz Republic, we should also start using drip irrigation to make better use of the limited land we have available for agriculture."





Myrzamamytov visits the Eski Yer Water Reservoir in Uzbekistan as part of the Small Basin Council

Small Basin Council Members from Uzbekistan and the Kyrgyz Republic greet during their second joint meeting in Namangan, Uzbekistan

Though it only happened over a year ago, much has changed since Myrzamamytov became chairperson of the council. Soon after, a second small council for the river was established across the border in Uzbekistan.

Then, the Smart Waters project brought them together in the Kyrgyz Republic to discuss shared water issues for the basin. The meeting was a success and, carefully laying the building blocks forward toward solving joint water management issues, they agreed to meet again, but in Uzbekistan. The meeting, that took place in early-2019, allowed Myrzamamytov to see all the agricultural developments that have taken place across the border since the Soviet Union fell.

“We wanted to show the council members how water was managed in Uzbekistan, and the support that farmers who applied water conservation technologies received from the government,” said Padshaata Small Basin Council chairperson (Uzbekistan side), Saydilla Mehmonov during the field trip.

Small Basin Council Members from Uzbekistan and the Kyrgyz Republic greet during their second joint meeting in Namangan, Uzbekistan

Again, the meeting went well, and the two councils agreed to meet regularly in order to discuss and resolve issues that affected all of them, such as the maintenance of irrigation infrastructure, water accounting and data exchange. Even more so, they decided that their ignited friendship and the river that it was built on, should be celebrated. They would call it the Padshaata River Day Celebration. This time, they would go to the Kyrgyz Republic. Myrzamamytov knew where he wanted to take his neighbors.

Nematjon Nurmatov from Uzbekistan, during the Padshaata River Day Celebration in neighboring Kyrgyz Republic



A RIVER IN ITS NATURAL STATE

Soon after, in mid-2019, Uzbek native Nematjon Nurmatov was staring out the window of a bus rambling over a mountain pass to Lake Sary-Chelek in the Kyrgyz Republic. Accustomed to the intensive agricultural practices that mark the Uzbek landscape, Nurmatov could not believe his eyes. “I have never seen a place so unaffected by human development,” he said. Nurmatov is a member of the Uzbekistan side of the Padshaata basin council and chief specialist of the Water Management Division at Chartak district, Uzbekistan. Though living only a short distance from this UNESCO Biosphere Reserve, he has never been able to see it. Famous the world over, the border made it impossible for Nurmatov to reach it.



Basin council members taking
in the natural splendor of the
Kyrgyz Republic

For Myrzamamytov, that was exactly the reaction that he hoped for. “We wanted to show them the highlights of our territory, how we manage it, and how water and ecology is connected here in the Kyrgyz Republic,” he said.

“We wanted to show them those things that the Kyrgyzs Republic and Uzbekistan share, and those which make us unique,” he said. Except for Laky Sary-Chelek, they also visited monuments dedicated to Kyrgyz national heroes, and mosques along the way to pray together.

The last night was spent at Padshaata Kabra, the same place where Myrzamamytov used to camp along the river with his friends from across the old Soviet Union. Now, he brought new friends back. “We have been separated since the 1990s,” he said. “Since the Small Basin Councils were established we’ve been able to collaborate again, and we will continue to do so in order to solve our joint issues. This is why we celebrate the Padshaata. It’s the river of friendship that brought us together again.”



Basin council members from
Uzbekistan and the Kyrgyz
Republic visit a local mosque
together

Sharing Water

How a Donkey Helped Shape the Uspenovka Canal



Farmer Akmyrza Masalbekov

When the barn on his farm caught fire in 2012, Akmyrza Masalbekov had to watch it burn. “There was no water to put out the flames,” he says.

He resolved to never let that happen again. But the solution would need more than just determination.

A HISTORY TIED TO WATER

Akmyrza’s home in the Zherge-Tal village is located in the traditional heartlands of the Kyrgyz nomads, in the valleys and foothills of the Tian-Shan Mountains between Issyk-Kul Lake and the Fergana Valley.

In desperate need of food more than a century ago, villagers here once dug a canal to get water from the Padshaata River. They dug for four years, completing the 4.8 kilometer Uspenovka canal in 1880. In return, fields and orchards with black plums and potatoes flourished. Since then, the canal has remained unchanged. Yet a lot has happened around it.

A TUMULTUOUS HISTORY

Over time, the Uspenovka canal became the main source of water for a growing community. Even when in dire need of repair, the earthen canal supported more than 600 hectares of land for over 1,000 families.

When the Soviet Union collapsed and its republics became independent nations, international borders were drawn across more than 200 rivers, including the Padshaata. The Uspenovka canal was now located in Kyrgyzstan, across the border from the river that fed it in Uzbekistan (where it is known as the Padshaata River).



The Padshaata River

The traditional pastoral heartlands of the Kyrgyz nomads lie in the valleys and foothills of the Tian-Shan Mountains





Akmyrza Masalbekov
at a meeting of the Padshaata
Small Basin Council

This led to formidable challenges.

Central Asian countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – suddenly had to manage shared water resources. Most management decisions were assessed locally – not basin-wide. Monitoring became inconsistent, water losses substantial, and conflict common. The environment suffered and problems were rarely resolved.

The canal personified this struggle. “We could withdraw 500 liters per second of water from the river, but about 200 would seep away along the way,” says Akmyrza. In times of shortages, people had to wait their turn for water. “Sometimes about 30 or 40 had to share as little as 10 liters,” per day he says. People had to stop growing staple crops like potatoes, cucumber, and garlic.

A NEW APPROACH TO WATER MANAGEMENT

In 2015, the USAID-funded Smart Waters project launched in Central Asia. The project helps resolve transboundary water management problems by coordinating the development and management of water, land, and related resources. The project helped create 13 small basin councils across 8 transboundary watersheds in Central Asia, where a variety of local water users collaborate to solve their water management issues.

After establishing the small basin councils, USAID’s Smart Waters project taught council members how to conduct a comprehensive, integrated baseline analysis of the basin. They used this knowledge to prioritize critical problems and then write an action plan to solve them.



The Uspenovka canal after
rehabilitation work started

For the Padshaata Basin, the Uspenovka canal was at the top of the list. And by now, Akmyrza had become chairperson of the Zherge-Tal Suu Water User Association and been elected to the Kyrgyz Republic small basin council. He’d also managed to secure funding to line 1.5 kilometers of the canal with cement – but he couldn’t raise the rest of the money to have the work done.

That’s where USAID Smart Waters stepped in, funding the canal’s rehabilitation. As a result, 120 years after it was dug, the canal was upgraded with cement lining.

Akmyrza says the results have been life-changing: “People don’t have to queue for water anymore.”



They can now use as much as 400 liters of the 500 harvested from the river. USAID has funded rehabilitation of 5 kilometers of canals, and 54 hydraulic structures in the Padshaata Basin, improving irrigation of 5.145 hectares of land. In other transboundary basins, roughly 1.5 kilometers of canals and water pipelines, and about 22 hydraulic structures will be fixed. This will improve irrigation of an additional 13.000 hectares in the Central Asia region, allowing farmers and communities to increase their income and secure their livelihoods.

In the Padshaata, Akmyrza says people are planting potatoes, garlic, and cucumber again. For him, the improvements are particularly close to home. “Now,” he says, “I have faith that there will be water when I truly need it most.”



If water canals could talk, they would probably tell many fascinating stories of how water had to be harnessed once to start benefitting people. The Uspenovka canal in Western Kyrgyzstan is one. It follows the tale of the Zherge-Tal Village located in the traditional heartlands of the Kyrgyz nomads, between Issyk-Kul Lake and the Fergana Valley.

It’s here where one of the last Tsars of the Russian Empire sent peasants from Ukraine and Russia to occupy lands in the late 1800s. According to the story told through the generations, one such group of Ukrainians settled at a small village with a spring (then known as Uspenovka) desperate to make a living out of their difficult circumstances. Community elder Madyshev Anarbek remembers the story, told to him as child, well.

The Ukrainians were farmers, he says, but the spring did not offer enough water for their fields. They would have to bring more from the Padshaata River further away. When the promised money from the tsar to do this did not materialize, the villagers decided to dig it themselves. First, a donkey was sent to the river, says Anarbek. The villagers placed a bag of sand with holes on its back and as the donkey walked the best way back home, marked the route with falling sand. The villagers dug for four long years. When the 4.8 kilometer canal was completed in 1880, the water allowed people to grow fields and orchards with black plums and potatoes. Since then, the canal remained unchanged, though more and more people came to rely on it through the years.

By the time the Smart Waters project helped to secure funding to line the canal with cement (earlier this year), around 1 000 households depended on the water, though almost half seeped away before it reached them. Many had to stop planting important crops, and people often suffered water shortages. Now, with an improved canal, and more water to make a living from, the history of the village can continue for many more years to come.



Council members from Kyrgyz Republic and Uzbekistan inspect the canal rehabilitation work

Celebrations for the canal rehabilitation work

Introduction to General Transboundary Water Management

Challenges in the Region, And What the Project Has Achieved

BASIN PLANNING CYCLE

The main objective of the Project’s Component 4, “Water, Education, Cooperation” is the sustainable development of small transboundary river basins in Central Asia and Afghanistan through the consistent implementation of long-term basin planning and creation of local basin councils. In order to achieve this goal, the Project applies basin planning methodology, which was initially developed by CAREC with the support of the GIZ in 2014, published as guidelines on basin planning.

One of the essential elements of the Integrated Water Resource Management (IWRM) is a transition to basin management and comprehensive protection of water resources, as well as joint development and implementation of basin plans.

Maximum engagement of all stakeholders is achieved through establishment of special institutional structures, the so-called basin councils, which allow to strengthen local decision-making mechanisms, making the latter more sustainable in the long-term perspective.

Basin council is a consultative-advisory entity that has the right and authority to give consideration to matters related to management, use and protection of the water resources, make expert decisions and elaborate recommendations, as well as develop and implement basin plans.

As part of the Project implementation small basin councils are to be established in all of the locations selected for pilot purposes.



Basin Planning Theory and Practice
Component 4

The process of a basin plan development takes about a year and a half to two years on average. The development and implementation of basin plans provide water management organizations and common water users with an opportunity to identify priority areas that represent higher significance for a particular stage and location and lay down groundwork for short-term (2–3 years), mid-term (5–7 years) and long-term (10–15 years) planning. It is particularly important to duly cover and reflect all the aspects potentially influencing the basin planning process, including demographic forecasting, climate change and economic development.

Basin planning is a reiterative process distinctly characterized by its cyclic nature. The stages of this cycle are generally common for all basins, however each particular basin plan is individually unique.

BASIN PLANNING STAGES

CAREC’s Basin Planning Methodology is based upon six stages, the implementation of which requires broad engagement of all concerned stakeholders, involvement of a wide spectrum of experts and systematic use of efficient monitoring mechanisms. However, prior to the cycle’s launch, the stakeholders need to identify a so-called “initiator”, an organization or an individual to commence the whole process.

“Water, Education, Cooperation” project, supported by the USAID, is a catalyst of basin planning initiative launch on 8 small river basins located along the waterways of 8 transboundary rivers in Central Asia and Afghanistan. Three of these pilots are limited by works implemented in one country only, whereas five others are bringing together efforts of two or more states at the same pilot territory.

STEP ONE “SITUATIONAL ANALYSIS”

Complex analysis of the situation within a particular basin may include matters associated with the social-economic status of the region, environmental protection issues, water resource management aspects, infrastructure and other relevant topics specific or pertinent to the basin in subject.

STEP TWO “STRATEGIC VISION”

This step allows the stakeholders to look into the future and engulf themselves in the dreams and aspirations, think together about what tomorrow might bring for their basin. All the stakeholders and members of a small basin council must be engaged in the process of formulation of a strategic vision for the basin.

STEP THREE “PROBLEM PRIORITIZATION AND SETTING GOALS AND OBJECTIVES”

Every basin faces multiplicity of challenges and it is difficult to try to tackle them all at the same time, attaching equal importance to all of them. This step allows to prioritize and select most pending problems, for the latter to be included in basin plan. Goals and objectives are then identified and clearly defined.

STEP FOUR “PREPARATION OF THE BASIN PLAN DOCUMENT”

Basin plan should reflect all of the implementation steps and include specific instructions regarding preparation of all activities and description of key performance indicators for monitoring purposes. Upon its completion, the basin plan must be duly agreed with all of the main stakeholders in the concerned river basin.

STEP FIVE “BASIN PLAN IMPLEMENTATION”

This step is the longest one in the basin planning cycle. Its duration depends on the specific arrangements and may vary from 5 to 15 years. The SBC makes decisions with regard to the exact timeframe of the process, depending on the goals and objectives in the context of regular revisions and updates of the basin planning document.

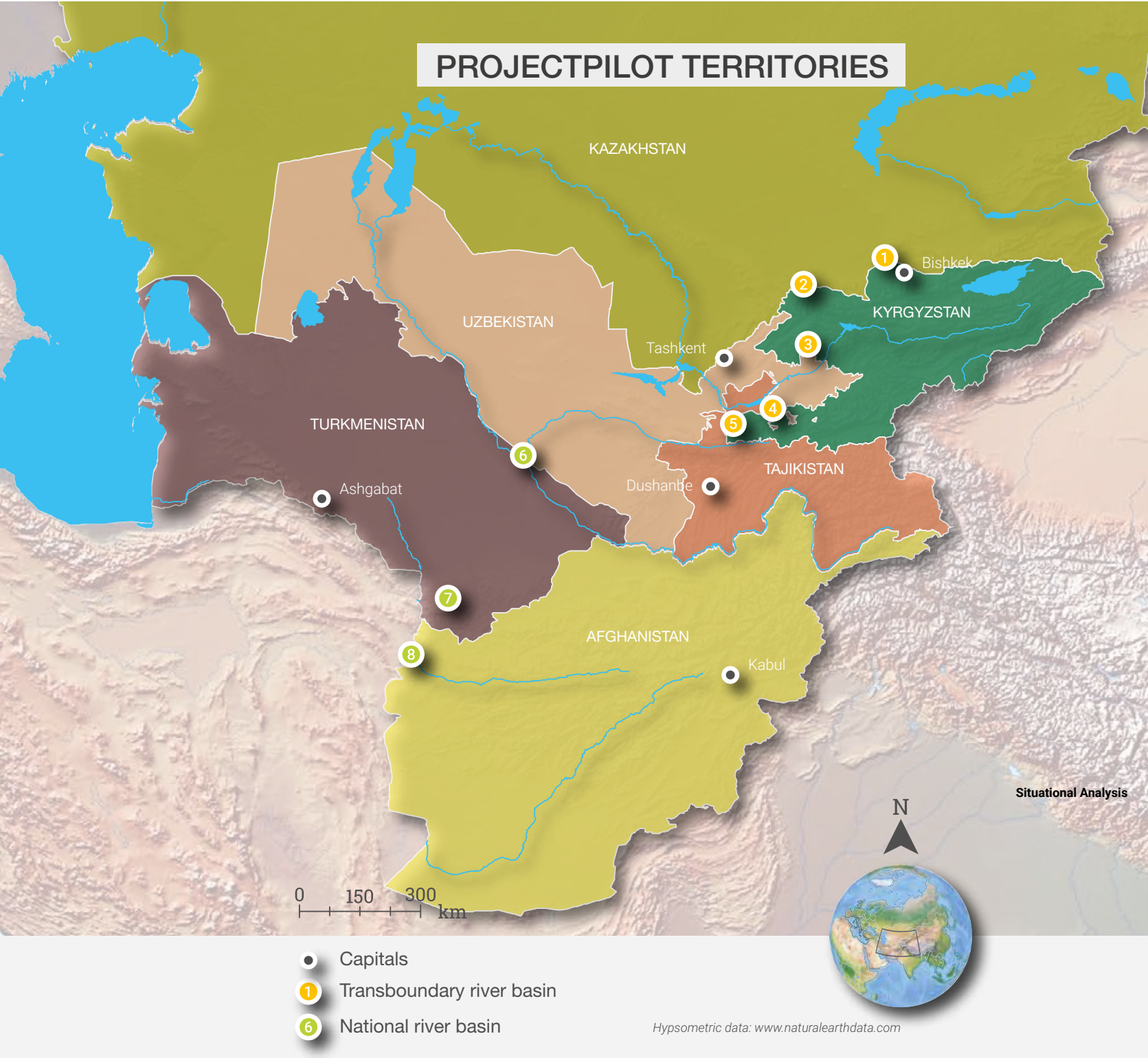
STEP SIX “MONITORING OF BASIN PLAN IMPLEMENTATION”

This is one of the most crucial steps of the whole cycle, because it allows to measure the effectiveness of the basin plan implementation. It also gives an opportunity to better understand to what extent the basin plan is affecting the overall basin situation. At this stage the stakeholders are also able to start preparation of the follow-up plans for the future.

The proposed approach for the development of small river basin plans allows to:

- Create platforms for uninterrupted exchange of information among all of the concerned stakeholders;
- Proactively engage all the stakeholders in the decision-making process;
- Shape and formulate strategic vision for the basin development;
- Improve transboundary cooperation among the local communities.

Although the very same methodology is to be applied to all of the pilot river basins, the results and outcomes of the basin planning process would vary from basin to basin. At the same time, application of one common methodology would greatly complement the overall process, helping to build up common trust and understanding, ultimately changing the regional perception of the water resources management. This would allow the stakeholders to set up a unified management system and enhance regional cooperation.





ASPARA

Being the stream tributary of the River Chu, the Aspara River crosses Zhambyl province of the Republic of Kazakhstan and Chu district of the Kyrgyz Republic. The total catchment area totals approximately 1210 square kilometers, while the river's length equals 108 km. Downstream the river flows into the Kuragata River. Most of its water resources are used for the agricultural irrigation purposes. Local population of the river basin is about 10 thousand people.

KURKUREU SUU

The River flows across Talas province of the Kyrgyz Republic and Southern-Kazakhstan province of the Republic of Kazakhstan. The catchment area is about 454 square km. The river's length equals 31 km and the altitude above sea level is under 2870 m. The river is mostly getting its water from the glacial melting and is predominantly used by the local residents for the irrigation purposes. The total population of the basin area is about 251.3 thousand people.

PADSHAATA/PADYSHA-ATA

The basin is located in the south-western part of Tian-Sian mountain massive in the northern part of the Ferghana Valley. It is shared by Djalal-Abad province of the Kyrgyz Republic and Namangan province of the Republic of Uzbekistan. The catchment area is about 443 square km and the length of the river equals 130 km. The population is about 113 thousand people. The river's water is used to irrigate 27800 hectares of agricultural land.

ISFARA

The Isfara River takes its origin from Aksu glacier, located at the altitude above 5000 m, at the territory of the Kyrgyz Republic. The river is 102 km long, most of its waterway crossing Batken province of the Kyrgyz Republic and Sogdian province of the Republic of Tajikistan. The river basin's total catchment area is about 3240 square km. According to the census of 2003, the population of the river basin area is about 80 thousand people.



ISFANA/AKSU

These two rivers are flowing across Batken province of the Kyrgyz Republic and Sogdian province of the Republic of Tajikistan. The catchment area of two rivers is about 1709 square km (Aksu 1170 and Isfana 539 square km). Both rivers are tributaries of the Syr-Darya River. The water is predominantly used for agricultural irrigation. The population is about 133.3 thousand people, 77.4% of which are rural residents. The project activities are implemented for both rivers on the Kyrgyz side and for the Isfana River only on the side of the Republic of Tajikistan.

YOMONJAR

The Yomonzhar Canal is an interstate irrigation mainline, constructed in 1973. Its throughput capacity is about 18 cubic m/sec. The area serviced by the canal is inhabited by more than 34 000 local residents. The total length of the canal is 32.5 km, out of which 6.2 km are crossing the border control zone in between Turkmenistan and Uzbekistan. The canal is providing water for approximately 7960 hectares of irrigable land-plots spread across the farming areas of Alata and Qaraqul' districts of Bukhara province of the Republic of Uzbekistan.

MURGAB

The river flows across the territory of Afghanistan and Turkmenistan. It is the second largest river in Turkmenistan with an average annual runoff of about 1 billion cubic meters, equivalent to 6.5% of the total volume of water consumption in the country. The total length of the river is 978 km, with 530 km flowing on the territory of Turkmenistan. Headwaters are located in Afghanistan. The water of this river is predominantly used for agricultural irrigation. The total population of the Turkmenistan part of the basin area is about 126 thousand people.

LOWER HARIRUD

The Harirud River takes its origin at the western slope of the Koh-i-Baba mountain, which belongs to the Hindu Kush ridge, located in the central part of Afghanistan. The basin is comprised of two main parts: the Upper Harirud (Gor) and the Lower Harirud (Herat). Multi-purpose artificial water reservoir was constructed in Cheskht district recently with Sal'ma dam. According to the project design, the dam would help to provide irrigation water to eight neighboring regions (counties), as well as generate about 42 MW of hydropower.

Bringing Afghanistan to the Conversation

Smart Waters Project Helps Make Space for Afghanistan Around Central Asian Water Negotiation Table



More than a third of Afghanistan falls in the Aral Sea basin, which is shared with the Central Asian nations. Rivers like the mighty Amy Darya, Syr Darya, the Pyanj, Kunduz, Kokcha and others are integral to all countries whose borders they cross.

Yet, not all countries sit around the negotiation table when management decisions for the water are made. Following independence, Central Asian parties declared that water resources will be managed together to equally share mutual benefits. Yet, Afghanistan is not part of key platforms that are working towards this, including the International Fund for Saving the Aral Sea (IFAS), created in 1992 by the Heads of the Central Asian states to improve the social, economic and ecological situation in the Aral Sea basin.

In fact, says Serik Bekmaganbetov, Kazakhstan representative to the IFAS Executive Committee, cooperation between Central Asian countries and the Islamic Republic of Afghanistan on transboundary water management issues did not take place in any format. Unlike concrete collaboration in humanitarian, educational, trade and economic fields, in the sphere of water management, there were only isolated conversations and hopes voiced for possible future cooperation.

The Central Asian region includes Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan, but the region is inextricably linked to neighboring Afghanistan by a vital resource: water.



Idrees Malyar, representative from Afghanistan at the Central Asian Leadership Programme (CALP)

THE IMPACT OF EXCLUSIVE WATER MANAGEMENT

Afghan representative at the Central Asian Leadership Programme (CALP) Idrees Malyar, says the exclusion of Afghanistan from the main platforms for managing transboundary water in the region created issues for the management of water regionally. Malyar is also the Deputy Director General, Policy and International Affairs for the Afghanistan National Environmental Protection Agency (NEPA). Because we are not included, we are not familiar with the other countries’ management plans, and as a result, manage our water resources differently than Central Asian countries, he says. “Uniformity across the region is lost.”

The USAID funded Smart Waters project has changed this. Smart Waters is the first project in this region to include Afghanistan in transboundary water resources management, says Malyar. Launched in 2015, the project aims to bring the countries in Central Asia together with Afghanistan by creating a network of like-minded water management specialists and policy makers across multiple levels.



“Since the Smart Waters project started, Afghanistan gradually became involved in the process of regional and interstate water cooperation in the Aral Sea basin,” says Bekmaganbetov, who was advisor to the Pan-Asian Department of the Ministry of Foreign Affairs of Kazakhstan when the project launched. “It has had a direct impact on the use and management of transboundary water resources in the region.”



An Afghan participant of the Smart Waters project visits an agricultural project in Turkmenistan with representatives from across Central Asia

COOPERATION ACROSS BOUNDARIES

Not only has the understanding that part of the large Aral Sea basin is also the territory of Afghanistan become clearer, but thanks to the project, concrete foundations for collaboration has been laid in at least two important areas, he says.

First, thanks to project interventions, representatives of all six countries have begun to cooperate in bilateral formats on small transboundary rivers across the participating countries. For example, basin councils, that work to establish best management practices for the water they share, were created in 13 project pilot sites across the participating countries. At regional, and national levels, joint events are regularly held; the experiences of individual basins are shared between all participating countries; and, throughout, local communities have been brought into decision-making processes for shared water resources.

Secondly, Smart Waters is helping future water managers and employees from across the region to interact. Part of the project entails USAID funded Masters degrees for students from participating countries to study together at the Kazakh-German University. The programme gives students the opportunity to visit transboundary river basins and provides specialized training in water diplomacy and integrated water resources management.

Malyar says that thanks to the project funding Afghanistan's participation in initiatives such as CALP, and the establishment of steering committees that bring the five Central Asia countries and Afghanistan together, large strides have been made towards a shared understanding of water resources management. "This has had a very good impact on the management of transboundary waters," he says.



Afghan Masters students Mirwais Elyasi (left) and Saiyed Nori (right) at the Kazakh German University with co-student Aigirim Karibay, from Kazakhstan

Except for the formal platforms that have been created, the impact of the Smart Waters project initiatives will ripple further beyond, creating change in those vital areas of water management that cannot be measured. "Water specialists and managers, diplomats, representatives of academia and other fields getting to know each other, interacting and getting more information about each other has helped build trust, which I hope will grow," says Bekmaganbetov.



Afghan Participation at CALP

Funded by USAID, Smart Waters is the first project of the Regional Environmental Centre for Central Asia (CAREC) that involves Afghanistan. The project aims to bring the countries in Central Asia together with Afghanistan by creating a network of like-minded water management specialists and policy makers across multiple levels.

Remember, the heart is not located at the centre,” says Benafsha Mirbacha, a consultant to the Regional Cooperation Directorate for the Ministry of Foreign Affairs of Afghanistan. “Afghanistan is not Central Asia but Afghanistan is the heart of Asia.” It is a critical geopolitical country, she says. “For countries in Central Asia to have a sustainable future they also need to support Afghan peace and stability.”

The Smart Waters project started in 2015, progressively involving Afghanistan in the regional processes and initiatives within the Smart Waters project for the past near-5 years.

Afghanistan is an inseparable part of Central Asia, says Hussain Alemi, socio economist at the Italian Agency for Development Cooperation in Kabul, Afghanistan. “We have common environmental threads and we share the same important water basin.”

Idrees Malyar, Deputy Director General, Policy and International Affairs for the Afghanistan National Environmental Protection Agency (NEPA), says that the project allowed him to learn how people in Central Asia think. Thanks to USAID funding, Malyar, together with

Mirbacha and Alemi also the recent 10th anniversary of the Central Asian Leadership Programme on Environment for Sustainable Development in 2019. The occasion brought select participants from Afghanistan and all Central Asian countries together.

Knowing our neighbours will be important when we have to sit down to negotiate water and settle issues, says Malyar. But he adds that there is more to it. Afghanistan’s image is mostly about war and conflict, but now we get to share our vision for our country and dispel stereotypes, he says. Through talking and networking, we learn about them, says Malyar, but they also learn about us. In this way, we have made friends.

Says Malyar, “friends will always help each other.”



Benafsha Mirbacha, CALP attendee from Afghanistan

Hussain Alemi and Idrees Malyar in Almaty, Kazakhstan for the recent Central Asian Leadership Programme

Forecasting a Safer Future

New Model Helps Kazakhstan Prepare Better for Fatal Floods



Didar Zhanibekuly, Director of the Department of Hydrology at Kazhydromet

Didar Zhanibekuly points to the camping bed propped against the wall of his office, squeezed in-between bundles of maps. “It’s for spring,” he says, when they often work throughout the night. In Kazakhstan, spring time is flood time. “The impact of floods in Kazakhstan is huge,” says Zhanibekuly, Director of the Department of Hydrology at Kazhydromet.

WHAT IS KAZHYDROMET?

Kazhydromet provides round the clock monitoring of weather and climate in Kazakhstan. They are also responsible for warnings of possible extreme weather events such as floods.

In this game, time and accuracy are integral. If a serious flood is forecast in time the potential damage can be lessened by managing the flow of water in the country’s extensive system of reservoirs and water canals. Property and livestock can be saved and emergency services can be dispatched to rescue people in time.

Forecasts, however, are only helpful when accurate, says Zhanibekuly. For Kazhydromet, this has become close to impossible.



AN OUTDATED SYSTEM FOR A MODERN DAY CRISIS

Kazhydromet makes use of a static forecasting system that has been in place since the times of the Soviet Union. Each February, this provides a set forecast for the coming year’s floods.

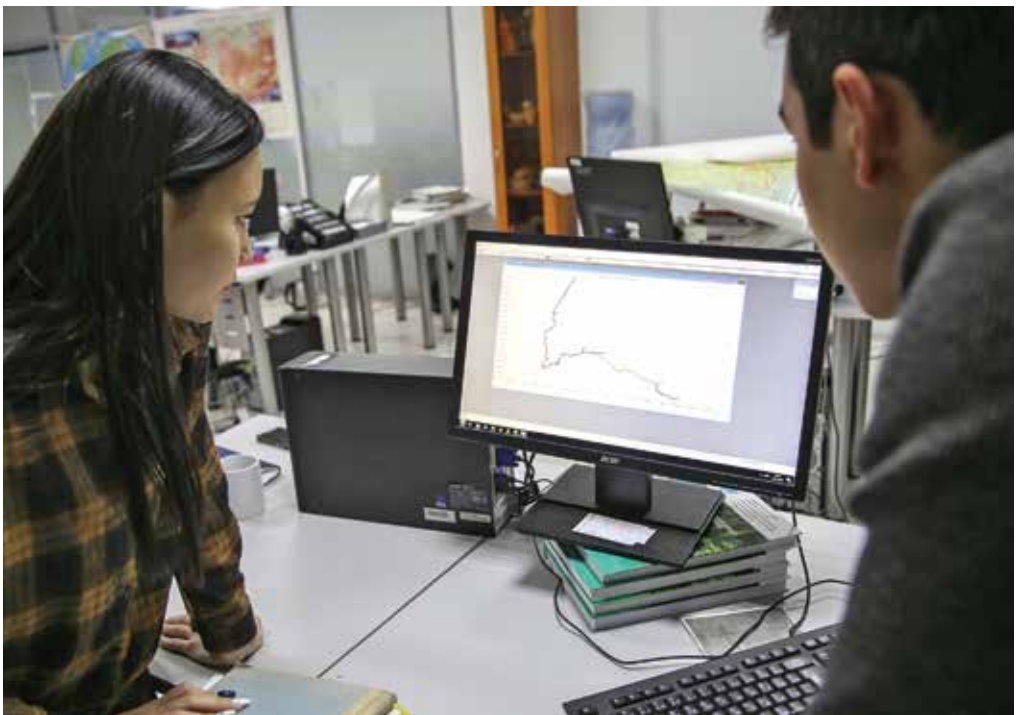
While the forecasting system remained the same, much has changed around it. When the Soviet Union fell, international borders were drawn across many rivers and canals, isolating sections of the once-integrated system into separate countries. Much of the water infrastructure in Kazakhstan was privatized, taking management responsibility out of government hands. Last, the climate that the system functions in is also changing.

We cannot be sure anymore when to expect flood peaks, says Zhanibekuly. As a result, there is not enough time anymore to warn people of impending danger.

The consequences have been dire.



The Kazhydromet offices in Nur Sultan, Kazakhstan



Flood forecasting is integral to save lives, and property in Kazakhstan, but this integral job is hampered by an out-of-date system

THE IMPACT OF FLOODS IN KAZAKHSTAN

In spring 2017, for example, areas of northern and central Kazakhstan were hit by intense floods. Thousands had to flee their homes and many roads were barred as rivers burst their banks. Across the country, emergency situations were declared.

In fact, an estimated 3 000 people are adversely affected by floods in Kazakhstan each year, losing livestock and suffering damage to their homes. Roads, schools and other public buildings are often badly affected.

It has become clear that they needed a new forecasting system, says Zhanibekuly.



A new flood modeling system will help to generate more efficient forecasts for Kazakhstan

A NEW ERA OF FLOOD FORECASTING FOR KAZAKHSTAN

With financial support from the USAID funded Smart Waters project, the MIKE II HYDRO River software was purchased for Kazhydromet. With this internationally renowned model, the time and affected areas of floods can be calculated with much more accuracy. USAID also stepped in to fund training sessions for the Kazhydromet staff to enable them to use the new software as efficiently as possible.

The benefits will be vast and far reaching. On average, flood damage costs Kazakhstan about USD 15 million per year. With more time to prepare for floods, and more knowledge on exactly what they have to prepare for provided by the MIKE II model, the impact of floods in Kazakhstan will be substantially reduced.

With the training completed, huge amounts of historic data still needs to be fed into the model. The full benefits of more accurate flood forecasting will be felt across Kazakhstan from the spring of 2021.

Rewriting the Future

New Academic Standards Will Steer Future of Kazakhstan, and Its Engineers, in Right Direction



Kazakh German University
in Almaty, Kazakhstan

“Many things have been lost,” says Professor Kenshimov Amirkhan Kadyrbekovich about water management in Central Asia after the fall of the Soviet Union. One of the biggest losses, he says, was the simultaneous collapse of the education system that generated the engineers necessary to support it. With help from USAID, Prof Kenshimov is now working to steer the ship in the right direction again. It’s a long road ahead but the task is crucial. Lives are at stake and some have already been lost.

THE DAWN OF NEW DAY

Kenshimov heads the Department of Water Resources of the International Fund for Saving the Aral Sea (Kazakhstan branch). Himself a hydro-technical engineer, he has been working in water management in Kazakhstan for over five decades. Kenshimov says during the reign of the Soviet Union, there was a specific system in place for the construction and maintenance of large infrastructure such as dams and canals. “It was managed by experts with vast knowledge and experience,” he says. This was supported by an education system that produced renowned-hydro engineers working across the union.

The collapse of the Soviet Union led to a near-complete overhaul of the education system. Many specialist institutions closed or collapsed. New countries created new courses. Specialist facilities are bordered off, inaccessible to students from the nations where large infrastructure is located.

“It changed completely,” says Kenshimov, even though the infrastructure that needed to be managed remained the same. Soon, cracks started to show.



Professor
Kenshimov Amirkhan



FATAL CONSEQUENCES

It's not that people don't want to work, says Kenshimov, they just don't have the right skills. "They're not engineers. They know the soft sciences, but not the basics of how the infrastructure works." The difference between the needs on the ground, and the education system is as big as the east is from the west, he says. "We have about 150 to 200 graduates here who are unemployed because they do not have the right skills for critical jobs."

As a result, the country's large water infrastructure is deteriorating. As example, Kenshimov mentions the failure of the Kyzyl-Agash Dam in 2010. When it burst, the Kyzyl-Agash village in Almaty Province was flooded, killing at least 43 people and injuring hundreds. In 2014 failure of the Kokpekty water reservoir flooded hundreds of houses, killing five people. Criminal proceedings were reportedly filed against the dam owner.

Kenshimov says there are many more examples of small dams in villages and farms that collapsed. "Incidents like these happen because of this new situation. The people who now own the dams are not engineers, and do not know how to manage the system and control the flow. Engineers can be good managers, but managers cannot be good engineers."

Having worked in this sector for so long, it's "very hard" to experience this situation," he says. Now, they are trying to change it. Kenshimov says that they are working to improve the education system, "to create new engineers." Work started in 2010.

Kazakhstan water infrastructure



THE FIRST STEPS TO WALK A LONG ROAD

As head of the Consortium for the Development of Professional Standards, Kenshimov is now helping to rewrite professional standards for Kazakhstan's hydro-engineers. In total, eight new standards will be produced, including for specialists in the fields of irrigation, drainage and flood protection, and the construction of hydro-infrastructure. Each standard specifies the required skills, knowledge and background for the qualification. "The standards will directly affect the education system, and the kind of expert the institutions will produce," he says.

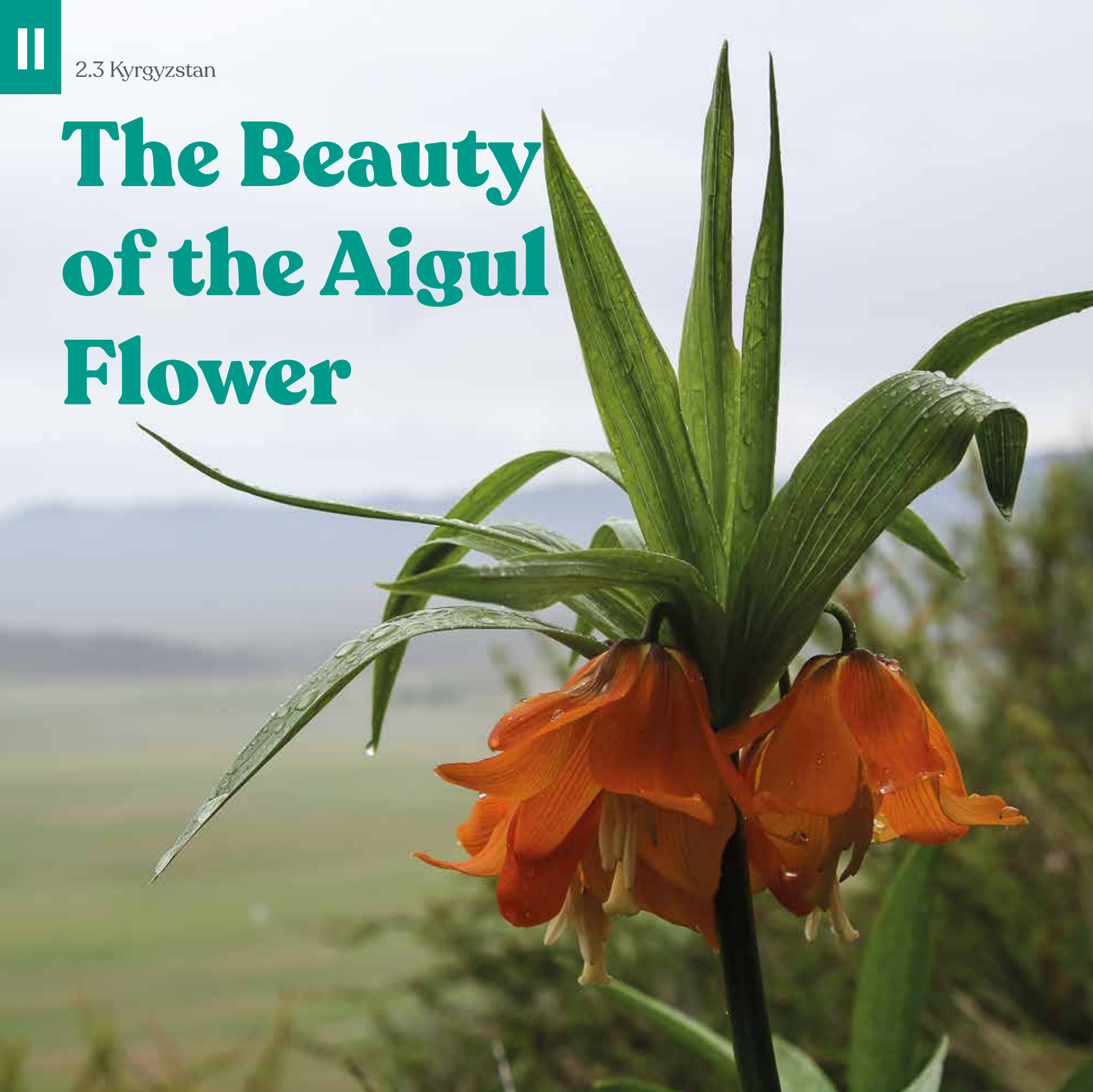
There is still a long road ahead, so it's integral that the work is done now. The gap between the new and previous generation of experts under the Soviet Union

is 30 years. Should the standards be applied next year, it will take four years before the new engineers graduate. It will take more time to create experienced and expert specialists. "We lost 30 years' capacity," he says.

Kenshimov, one of four specialist engineers with the necessary decades of experience left in Kazakhstan, says to achieve their goal, they need help. Together with other international funders, this help is now also coming from USAID through the Smart Water project, implemented by the Regional Environmental Centre for Central Asia (CAREC).

Kenshimov says his hopes for the outcome are simple. "I just want the right people, good engineers, to be working in the water sector again."

The Beauty of the Aigul Flower



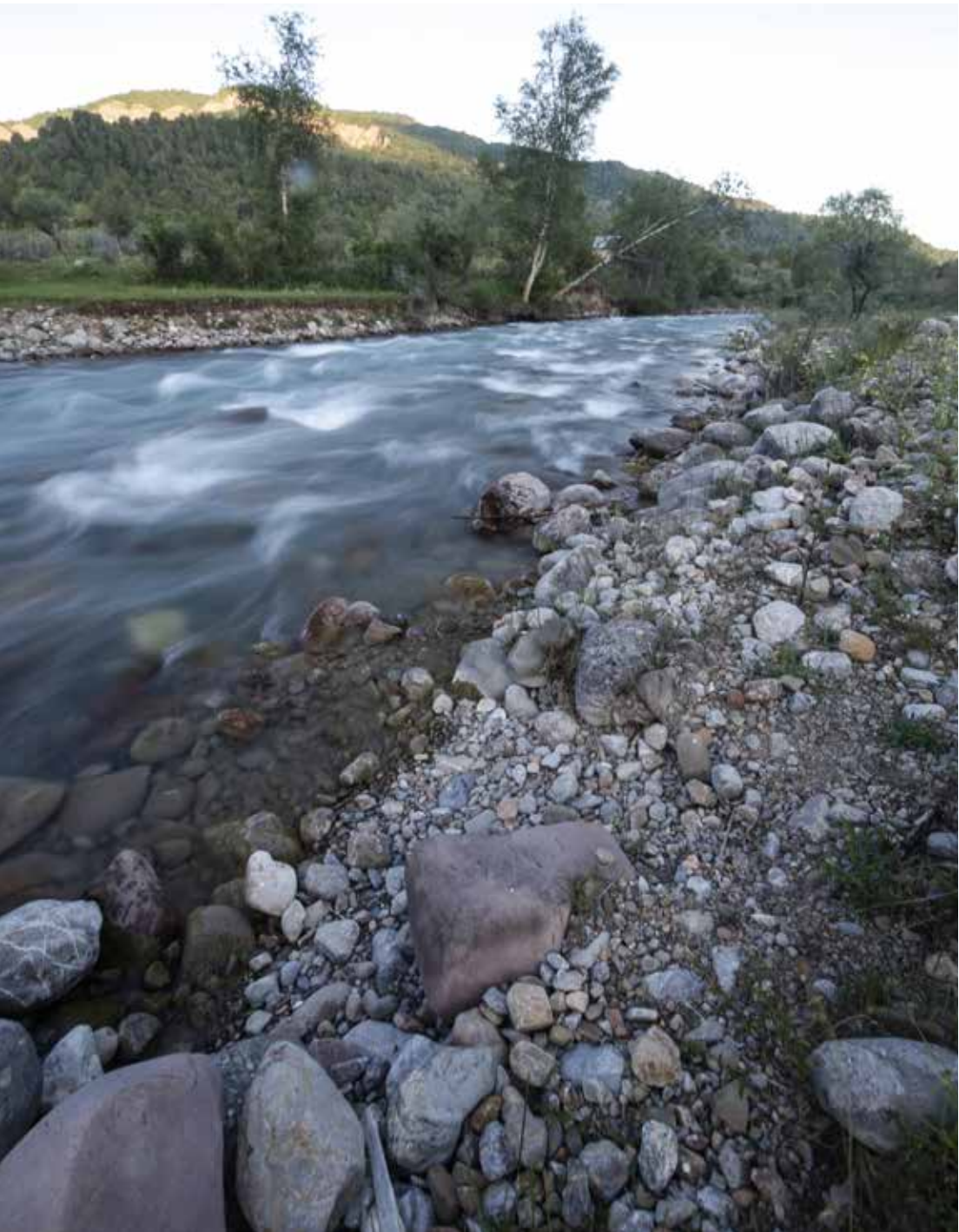
Taking care of our rivers is about much more than conserving water. Among other aspects, it’s also about conserving the local environment and biodiversity. Take the Isfara Basin as example, one of the pilot sites of the USAID funded Smart Waters project. This small river is only 102 kms long, and runs from Kyrgyzstan, through Tajikistan to Uzbekistan. In the upper reaches of the river, just outside Batken in Kyrgyzstan, is the only place in the world where you will find the Aigul flower (*Fritillaria eduardii*).

Translated as moonflower, it grows on the slopes of the Aigultash Mountain. Local legend has it that the dew drops that always decorate the petals are the tears of a beautiful maiden, crying for her lover lost in battle. The flower only blooms every year for two weeks. If you are in the area during April, you have to join the visitors to try and get a glimpse of the revered flower – they say it will bring happiness to those who see it.



Padysha-Ata River

Celebration and Enjoying the Music



It’s not all work and no play for the USAID-funded Smart Waters project. There are many meetings to attend, plans to draw up and paperwork to take care of, but the project is also about celebrating the rivers that unite Central Asian nations.

The project has established 13 transboundary Small Basin Councils (SBC) across the region. This was one night, next to one: the Padysha-Ata River. Before the official meetings started, project members and locals from the Kyrgyz and Uzbek SBCs, took some time to enjoy the Kyrgyzstan hosts’ culture. Soon after, the dancing began!



Behind the Scenes

**Interview with Basin Planning Specialist
Sakhvaeva Ekaterina**



“For me, this most effective actions of the Smart Waters project are the training that was provided to the Small Basin Council members, on topics such as climate change and financial tools. The second is the application of automated water flow measurement devices at the Isfara River.

Some of the most effective project actions that contribute to Integrated Water Resources Management include creating a basin plan, in the Isfara basin especially, that includes many sectors and civil society in water management. It thus called for a comprehensive approach to water, including consideration for areas like drinking water and irrigation all in the framework of the hydrographic basin.

This, the key is the Small Basin Council, and the development of the basin management plan.

It’s impossible to measure the impact of the project in quantifiable ways. The people that got involved learned so much, and gained a new world view.”



The Isfara river

Green Apricot Season



What is your favorite way to eat green apricots? With salt, or without? And, where do you get your hands on some?



The Isfara Valley, which lies across the border between Kyrgyzstan and Tajikistan will be full of them this April. The valley is famous for its sweet apricots, but before they ripen, the green fruits are a favorite snack for kids (and grownups).

Much of the fruit here is irrigated with water from the Isfara River, which runs from the mountains of Kyrgyzstan, to Tajikistan and then, Uzbekistan. This small river basin is one of the pilot sites of the USAID-funded Smart Waters project.

One of the aims of the project is to facilitate better cross border relationships, for the good of the river, and all the people that depend on it.



Making Linseed Oil

Behind the Water Collector



The Isfara River basin is one of the USAID funded Smart Waters pilot project site. Following the water around the basin delivers plenty of wonderful surprises. Visiting a water collector, we found this gentleman making linseed oil. The popular local product is made from extracting oil from a number of seeds and nuts,

like linseed, pumpkin and almonds. He said that he sells his oil at the local market, but that he is the last villager left making it. If you ever pass by Isfara City in Tajikistan, try to find some linseed oil. It makes the most delicious plov! We tasted it one night at dinner, and could not have enough.



Behind the Scenes

From Interview with the Small Basin Council Member Saidhojaev Narzullo



“In the Small Basin Council we are able to discuss the priorities in the basin and then develop a plan to fix our problems. We have a common vision and therefore we can easily prioritize our actions.” Saidhojaev Narzullo is Deputy Head of ALRI at Isfara in Tajikistan, and a member of the Isfara Small Basin Council, an initiative of the Smart Waters project. Saidhojaev explains that the SBC includes all types of agencies involved in sanitation, emergency services, irrigation and more. “The council also does a lot of education work among farmers to improve water use, riverbank reinforcement, disaster risk reduction and prevention.” For Saidhojaev, the highlights of being part of the SBC includes being able to attract new donors to rehabilitate canals and headworks. Because of the work of the SBC, communities have also become more involved in water management. Every year, with the help of local communities, they all work together to clean the water canals they depend on.

Muhidinzoda Muhammadhuncha, Deputy Mayor In Isfara, the importance of the project Smart Water



The Isfara river is used by three countries, and each has his own share and we want to see this share have to be allocated properly and controlled.

I think the biggest achievement of the Small Basin Council is that it brought people closer together. Thought the project work towards Integrated Water Resources Management we have learned never to forget to value water because it has the same value as oils and gas. Each source has to be protected and values. Most of our people grow vegetables, and without water they cannot make their living. An integrated approach to water management highlights efficient water use.

Though the project, I have learned that water distribution between countries should be equal. People of different countries in the same basin should be have good relations. All of this, is thanks to having this small basin council.

Meeting of the Small Basins Councils in Mary

An extended workshop of the Small Basin Councils of Central Asia and Afghanistan took place in Mary, Turkmenistan on June 25, 2019. The event was organized within the framework of the Smart Waters project, organized by the Regional Environmental Center for Central Asia (CAREC) in cooperation with the Executive Committee of the International Fund for Saving the Aral Sea (EC IFAS) with financial support of the United States Agency for International Development (USAID).

With support of USAID and other international development partners, CAREC has been working on establishment of Small Basin Councils (SBC) on small transboundary rivers since 2012. We have accumulated vast experience in the development and operation of such councils. Following the successful SBCs' Forum in November 2018 in Bishkek, Kyrgyz Republic, it was decided to continue working for further promotion the experience and best practices exchange between small basin councils in the development of their basins, as well as to involve international development partners in their activities. This workshop reinforced networking of small basin councils, and expanded the prospects for cooperation of international partners with basin councils in the region.

More than 100 participants from all countries of Central Asia and Afghanistan took part in the workshop including representatives of the Ministries of Foreign Affairs, state bodies for water resources management and environmental protection, experts, as well as the main participants of the event – members of 13 Small Basin Councils established within the framework of the Smart Waters project.

All countries of the region are currently reforming their water sectors, and the level of Integrated Water Resources Management (IWRM) principles' implementation and basin planning is different. For example, if the Republic of Kazakhstan switched to basin planning back in 2003, Turkmenistan adopted a new Water Code with IWRM elements only in early 2017 and created its first basin council on the Murgab River in 2018 as part of the Smart Waters project. In the Kyrgyz Republic and in the Republic of Tajikistan national basin councils have already been established and the Lower Harirud River SBC in Afghanistan will be the first council applied the functions prescribed in national legislation. Since in Uzbekistan the principles of IWRM and basin planning are not yet fully reflected in the national legislation of the country, the Padshaata River SBC will rely on the experience of other countries in the region, including in the field of legal regulation areas.

"Such events, where participants are sharing their knowledge and experience are crucial. We in Turkmenistan need this experience" said Mr. Ashimurat Charyev, representative of the State Committee for Water Resources of Turkmenistan.

The seminar consisted of 4 thematic sessions - the role of SBCs in water resources management, their impact on the development of territories, the legal and institutional status of the SBCs in countries, the prospects for cooperation between the SBCs and international organizations. Each of these sessions raised important issues, resulting in a lively discussion, where participants shared experiences, clarified details and shared plans for the future.



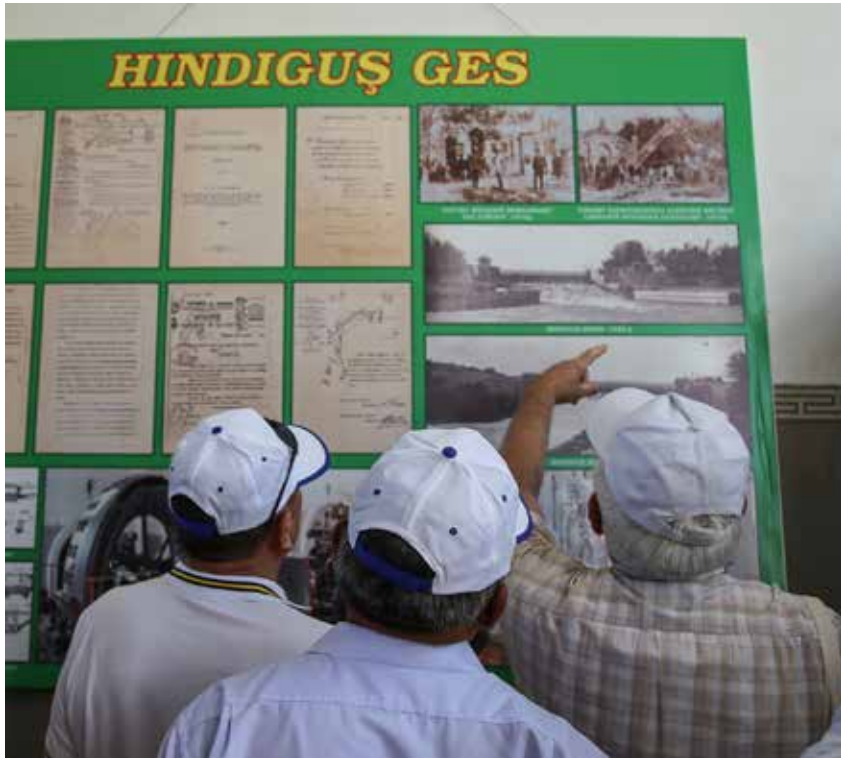
One of the significant proposals for further work in this area was proposed by Mr. Serik Bekmaganbetov, the plenipotentiary representative of the Republic of Kazakhstan in the IFAS. According to him, the legal and regulatory framework for strengthening and simplifying cooperation on small transboundary rivers is very poorly developed currently. Any joint action on the river must be coordinated with the Foreign Ministries of two countries, while the agreement does not mean simplifying procedures for crossing the border, transporting special equipment across the border (if it is used to perform joint cleaning of river or perform other joint work).

"Currently, CA countries can only use the provisions of the UN Convention on Transboundary Rivers, the provisions of the Interstate Commission for Water Coordination (ICWC) and bilateral agreements between

countries (if any)," explained Igor Petrakov, an expert on water legislation. However, according to Mr. Bekmaganbetov, it is necessary to continue working in this direction for developing the regulatory framework between countries to improve cooperation on small (and not only) transboundary rivers in the region.

Based on the results of the seminar, it can be concluded that all countries of the region are faced with similar problems and difficulties in the development of institutions of basin and small basin councils such as issues of the councils' status, their financial sustainability. Experience exchange taking place at such events helps countries to better understand process of transition to basin management and becoming prepared for challenges and possible solutions.

Visit to the Hydropower Plant



Located on the banks of the Murgab River, the Hindukush Hydropower Plant has been generating electricity for Turkmenistan since 1913. For over 100 years, the hydro turbines have been rotated by a powerful stream of water from a dam built on the Murgab to generate 1.2 MW of power. The turbines are still running smoothly, but today it's also a kind of open-air museum of days gone by. At the same time, the 978 km Murgab River, which flows from

Afghanistan to Turkmenistan is an example of new water management approaches too. It's one of the USAID-funded Smart Waters project pilot sites, which is helping to apply integrated water resources management across Central Asia. This approach to managing water calls for all stakeholders to come together to determine how to meet society's needs for water, preserve the ecosystem, and protect economic benefits.



To Affect Change, Educate the Educators

Educators’ New, Vital Water Management Knowledge
Will Ripple Through Generations of Their Students



Professor Abdulakhakim
Salohidinov

Good science is not always enough for the right choices to be made for Uzbekistan’s water resources. “Sometimes management decisions based on research are not applied because the public does not understand them,” says Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME) vice rector for international cooperation, Professor Abdulakhakim Salohidinov. “Emotions get in the way,” he says. With decades of experience in water resources management and education behind him, Prof. Saolhidinov was recently taught a new lesson on addressing these challenges, which is helping him make changes to achieve sustainable development of water in Uzbekistan.

This is more necessary now than ever; not only in Uzbekistan but also across the Central Asian nations of Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and neighboring Afghanistan (which shares the regionally important Aral Basin). After the breakup of the Soviet Union, Central Asian countries became independent states and international borders divided dozens of rivers across the region. Local versus basin-wide needs were prioritized. Communities had little say in the choices made about the water they so intimately depend on. Water losses were rife, and conflict over water became common.

To address the situation, the USAID-supported Smart Waters project conducted training for a select group of water stakeholders across the Central Asian region on integrated water resources management, and how to apply it in river basin planning. Integrated Water Resources Management (IWRM) is a management approach where social, economic and environmental issues have to be considered holistically when water resources management decisions are made. This implies that local people must be involved in managing their own local resources.

For Prof. Salohidinov, this is what they have been missing. “Our shortcoming is not involving the public in our decisions. ”We simply follow the route that science says is best, he says. “According to the Smart Waters approach, in order for scientific decisions to be applied, there should be public involvement.”

“The training helped us understand water problems from everyone’s perspective. It helped us see that our decisions are not understood because people are not involved in the details. If we inform participants at the basin level, they can understand the implications of the different choices.”

Professor Saolhidinov says that they now have an approach that includes a scientific background, the basin and the people. The training aimed for much more than simply increasing the knowledge of specialists.

The 49 participants from five Central Asian countries and Afghanistan included representatives of national agencies, water resources management ministries and international organizations that implement water management decisions.



Namangan market, Uzbekistan



*Eski Yer Water Reservoir
in Uzbekistan*

*Nurgazy Mamataliev, coordinator
of the river basin planning
component, Sydykova Damira,
project specialist, Nurlan
Baibosunov, project lawyer*



Additionally, representatives of the Tashkent State Agrarian University and Samarkand Agricultural Institute (both in Uzbekistan), the Kyrgyz National Agrarian University, and the Tajik Scientific-Research Institute on Hydrotechnics and Amelioration are among other institutes in the region that attended the USAID-funded training. By teaching the teachers, the benefits of the material will go that much further, spreading through generations as the knowledge is imbibed by their students.

Following the USAID Smart Water's training, Prof. Saolhidinov is already updating the curricula of the bachelor's and master's degrees in Water Resources Management at TIAME.

"The students must be the torch bearers," he says. "We are not only preparing specialists; we are preparing leaders." The updated curriculum incorporates ethical, scientific and environmental aspects, as well as climate change. Prof. Saolhidinov says they are also including social, economic and psychological aspects, which embraces the role of people.



*Students of Water Resources
Management at TIAME (and
further afield) can become more
than specialists – they can
become leaders in the field*

"I have put all of my time and attention into these curricula," he says. "Science has not found a way to create new water. Instead, we have to find a way to involve millions of people in the decision making, to help them make wise choices for sharing and conserving the limited water we already have."

Additionally, the training has led to a project to the establishment of national basin councils and the development of basin management plans in the Kyrgyz Republic according to the methodology taught to attendees.

The project will result in Integrated Water Resources Management, and the holistic consideration of social, economic and environmental issues, implemented in the country.



Sydykova Damira, specialist for phase 1 of the National Water Resources Management Project Phase 1 (administered by the World Bank and implemented by the Kyrgyz Republic Water Resources Agency), attended the training.

She says the training was extremely useful, and allowed her to understand the basin planning process. She learned that the integrated approach includes all levels of water users, not just those in official water user associations, says Damira.

Each water user usually sees things from their own perspective, and might not see the other point of view, but we learned that all issues are interrelated, she says. "Interaction with all stakeholders, and teamwork, are very important."

Crossing Rivers

Scholarships Bring Students in Central Asia Together to Solve Cross-Border Water Conflicts



Kanatbek Turatbek Uulu from Kyrgyzstan and his friend Alijon Qurbonov from neighboring Tajikistan

“I thought the water belonged to us, the Republic of Kyrgyzstan,” says Kanatbek Turatbek Uulu, referring to the rivers that supply his country with water. As he speaks, he looks at his friend Alijon Qurbonov, who comes from Tajikistan, Kyrgyzstan’s downstream neighbor.

“And I always asked why we had to give Uzbekistan water from our country,” Alijon says, referencing Tajikistan’s large neighbor to the west.

Kanatbek and Alijon are getting master’s degrees in Integrated Water Resources Management (IWRM) and are roommates at Kazakh German University in Almaty, Kazakhstan. Both are part of a bold scholarship program, funded by USAID, that is bringing together students from across Central Asia to learn together, and develop friendships and professional collaborations that will ultimately help their countries solve often contentious cross border water resource issues.

For many years, water has been a source of conflict across the Central Asia region. Following the fall of the Soviet Union, over 200 rivers in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and neighboring Afghanistan were divided by international borders.



Kyrgyzstan water canal USAID’s Smart Waters Project

This has resulted in formidable challenges to water resources management. Different nations vying for the same water resources with competing objectives, countries downstream feeling at the mercy of those upstream.

Once freely shared, expert knowledge became isolated in select nations. As borders were drawn between former colleagues, infrastructure and relationships crumbled, resulting in massive water losses, unchecked pollution, and heavy impacts on the natural environment.

“Before (graduate school), I thought that people from neighboring countries weren’t the same as us... that they have different cultures and see the world differently than we do,” says Kanatbek with a laugh. “Now that I have many friends from these countries, I see they are the same as me. Their people are as good as my people.”

Alijon quickly adds, “after living together, he is getting more like me and I am getting more like him!”



Marhabo Yodalieva, Water Program Coordinator



CHANGING MINDSETS FOR BETTER COOPERATION

The impact of a friendship like this will ripple far beyond the walls of the university. “Now I think that to better manage water, we need more friendships,” says Alijon. “We need to share our resources.”

Building relationships across the region’s international borders is part of the scholarships’ primary goals. “We believe that these are the future leaders,” says Marhabo Yodalieva, Water Program Coordinator at Kazakh German University.

Various state bodies nominate candidates for the scholarships, and students sign an agreement to return to their home country and contribute to reforms in the water management sector upon completion of their studies. “We aim to change their mindsets,” says Marhabo. “When the students return to work in their countries, they go back with new perceptions.”



At Namangan Market, Uzbekistan

Kanatbek and Alijon are not alone. A whole new generation of experts from Central Asia and neighboring Afghanistan are being trained together. Since April 2016, under USAID’s Smart Waters project, 18 scholarships have been awarded to young people from throughout the region. The project also supports numerous training events throughout the year, including an annual summer school courses in Tashkent, Uzbekistan, which brings together participants from throughout Central Asia and Afghanistan to develop a greater understanding of complex water challenges across the region.

As this new generation of water specialists begins work in their countries’ water agencies, they have the support of a close-knit group of alumni. The deep bonds they formed during graduate school will allow them to cooperate on complex water management issues across borders — something that was once unheard of.





Master students at Summer School-2019, Tashkent



For Kanatbek and Alijon, the transformation in their thinking is as clear as the water that brought them together. “Because of this course, I’ve realized that water is not just for one country; it’s for all of the countries crossed by the rivers,” says Kanatbek.

“Watershed management is not just about building hydropower plants or developing agriculture; it also relates to other sectors that affect social issues and economics. We need to solve all of these problems together with our neighbors.”

According to Alijon, his earlier thinking about water management was too limited. “Now I’m not only thinking about myself, my family, and my country, but also the upstream and downstream countries that don’t have water. I think about all the places in the world with water problems.”



Tortgul Reservoir, Kyrgyzstan

The two friends think about how best to describe their experience. “Uniting people is a good way to unite countries,” says Kanatbek, before Alijon helps his roommate out...“if you integrate the people, you can solve any problem.”

Water management may seem like an esoteric topic best left to the experts. But students trained through USAID’s Smart Waters project explain that this issue has a direct impact on economics, social issues, and communities, including here in Kyrgyzstan.



A Practical Approach

Future Water Leaders Provided with Building Blocks to Launch Careers From



Anwar Hussain Aryan

Anwar Hussain Aryan is on a mission. Once he has completed his Master’s Degree, he wants to return to Afghanistan, his home-country, to work in the Ministry of Foreign Affairs. His aim? To help resolve conflict over water. “My thesis is on the topic of conflict and cooperation,” he says. A student of Integrated Water Resources Management, Aryan knew he was on the right path, but a recent two-week Summer School funded by the United States Agency for International Development (USAID), gave him some of the most important tools he will need to truly achieve his goal to help establish cooperation across borders in a region marked by shared water resources.

“Both conflict and cooperation can start with water,” he explains, but he adds that to manage it, you need to understand how the water system works. “When you know how the water is used, and how to use it efficiently, then you will be able to understand any conflict, as well as how to resolve it.”



The Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME) laboratories

The Summer School took place at the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIAME) in Uzbekistan, as part of the USAID supported Smart Waters project. The project aims to bring the countries in Central Asia together with Afghanistan by creating a network of like-minded water management specialists and policy makers across multiple levels. As part of the project, students from across Afghanistan and the Central Asian nations of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan are sponsored to complete their two year Master’s Degrees at the Kazakh German University in Almaty, Kazakhstan. The degree is aimed at increasing management skills in the region, but to create efficient leaders of the future, practical experience is integral. As such, the Summer School was added to the programme.





“Our mission at TIAME is to achieve good theoretical knowledge with application in practice,” says TIAME vice rector for international cooperation, Abdulkhakim Salokhiddinov. According to Salokhiddinov, Water Resources Management consists of many important components. Knowing only the ‘hard sciences’ is not ideal, but neither is knowing the ‘soft sciences’ without the engineering background, he says. “It’s like knowing how to drive a car, but never getting behind the wheel.” Practical application and working in laboratories are vital for students to gain insight, he says.

In Central Asia, TIAME is the place to head to for such exposure. “No other university in the region has such special and unique laboratory complexes,” says Salokhiddinov and, Aryan is not the only one that will benefit from the unique experience. The first Summer School that took place in 2018 put 19 students from across the Central Asian region through their paces, with 14 more following in their footsteps in 2019.

Lecture topics include an array of technical subject matter, such as the patterns of flow irrigation systems and their management; operational reliability and safety of hydraulic structures; the operation of pumping stations and pumps; the basics of water management at the basin level; and the operation and monitoring of irrigation and drainage systems. In all instances,

lectures are combined with practical exercises at the TIAME laboratories. To understand water saving irrigation and technologies, the students also visited a recently constructed demonstration site – an orchard complete with drip irrigation technologies installed to test different approaches to water use and conservation.



Students on the field visit
to Surkhandarya



However, for Aryan, the highlight was the field visit to Surkhandarya in southeast Uzbekistan to see infrastructure such as pump stations, irrigation canals, water reservoirs, water allocation systems and a hydro power station. “The field trip to Termez (a city in Surkhandarya) was my favorite because I could see for the first time how dams have been constructed and how the water is being used.” For him, it was an eye opener. “Before, I thought that Uzbekistan uses too much of the region’s water, but now I can see that they don’t waste it. They are using it very efficiently – more than what I’ve seen in other countries in the region,” he says.

For Aryan’s future, and those of the other Summer School students, this insight is invaluable. Understanding shared water issues is particularly important in Central Asia and Afghanistan. Over 200 river basins here are transboundary, and are shared by two or more countries. In general, countries upstream use water largely for hydropower generation, while countries downstream use it predominantly for agriculture. While this creates the opportunity for collaboration, it has also led to disagreements and conflict across borders. In order to improve the situation, it’s integral that the next generation of water managers are adequately equipped – exactly what the Summer School is addressing.

If you don’t know the mechanics behind how the dams, and the water distribution system works you cannot manage it, says Aryan. “It’s vital to understand the calculations of how dams work, for example, to know how much water is necessary for the areas that abstract water from them.” Aryan says for him, it’s pointless to work on a thesis about political issues without practical data on the amount of water used, how it is used, if there is any alternative and if, for example, a user is taking more than they need. “You can only see the big picture once you have combined all of these practical aspects.”

For Aryan, the benefits of the summer school is clear. Studying the management of water resources is like becoming a doctor of politics, he says. When you go to a village, and tell people that you are a doctor, they will ask you for medicine to fix their health problems. When you say that you cannot help because you are not that kind of doctor, they will think that you are lying. It’s the same with water management. If you visit a village and somebody asks for technical support, and you say that you can’t help because you only work in management, they will also think that you are lying. “This is why the summer school is so important - we need to know the basics of how water resources and infrastructure works, before we can understand how to manage it.”





Women Managing Water

USAID’s Smart Waters Project Empowers Central Asian Women Solve Environmental Challenges Through Science



Aigerim Karibay

“I’ve known problems like water scarcity and lack of drinking water since childhood,” says Aigerim Karibay, who grew up next to the mighty Syr Darya River. Thanks to a USAID-funded scholarship, Kazakhstan-born Aigerim has become part of the solution and is now one of the few women who are helping solve the many water-related challenges experienced across Central Asia.

Giving women like Aigerim a foot in the door of water resources management in Central Asia is integral.



WOMEN IN WATER MANAGEMENT IN CENTRAL ASIA

An estimated 80 percent of people in the region live with some sort of water scarcity; a number which is projected to increase in the future due to many factors including the impact of climate change. The current water management structure, from grassroots through higher-level decision making, does not fully engage women, and, only a few women secure management positions in the region’s ministries of irrigation and water resources.

The lack of women’s participation and leadership is a huge missed opportunity because given the right opportunities women are poised to drive change in water usage and distribution as the primary water users in their homes and communities.

The USAID-funded Smart Waters project, which started in 2015, addresses this challenge.

Through the project, USAID empowers women like Aigerim to have a voice and make changes in the water sector by training a new generation of female water professionals on science-based approaches to water resources management.



Diana Aripfanova is studying Integrated Water Resources Management at the Kazakh-German University

SUPPORTING WOMEN TACKLE ENVIRONMENTAL CHALLENGES

The project has funded scholarships for eight female students from across the Central Asian region to pursue their Master's degrees in Integrated Water Resources Management at the Kazakh-German University in Almaty, Kazakhstan.

For those students, and the communities they will work in, the opportunity provided by USAID is a game-changer.

For example, Diana Aripfanova, one of those eight students, is studying the impact of climate change on hydropower potentials of the Kaskelen River as part of her degree. "My project gets straight to the heart of local problems," she says.

The community of Kaskelen does not have regular access to electricity, but this will change when a small hydropower plant is built on the river. Hydropower is extremely sensitive to climate change, she clarifies, and her paper explains how keeping this in mind hydropower generation should be adapted.

Thanks to the scholarship, Diana can now recommend realistic and practical solutions for her home country of Kazakhstan as well as other countries in the region, rather than writing theoretical papers alone. It will make her a sought-after specialist who can help solve crucial local and regional environmental challenges in Central Asia.



GIVING WOMEN THE TOOLS TO PARTAKE IN DECISION-MAKING

As part of the scholarship agreement, graduates will return to work at state water ministries in their countries after the completion of their degrees. With this, female scientists will be empowered to participate in local governance, within local water basin councils, and one day, national and regional decision-making bodies.

For Aigerim, there is only one place to return to when she completes her degree - straight back to the Syr Darya. She has decided she wants to work at a hydropost where water levels are measured to enable accurate water allocation between different countries and different users.

Aigerim thinks fair water division of this regionally important river could change the fate of her beloved Syr Darya. "They say it's impossible, but we can do it."

With the support of USAID funding and the Smart Waters Project, Aigerim, Diana and other women scientists are much closer to designing solutions to water-related challenges in Central Asia. "Women can also manage water resources, although in Central Asia this is considered a man's business," says Aigerim.



For the Love of a River

Flurry of River Day Celebrations Teaches Central Asian Children the Love for Water and Each Other

Shadruf Sharopov, a student from Tajikistan
at the Isfara River Basin



“Friendship is important so people understand each other when water needs to be shared,” says Shadruf Sharopov, a primary school student from Isfara, Tajikistan. Shadruf’s poem about the topic won first prize at the recent Isfara River Day celebration. The aim of the river day is to strengthen cross-border relationships between the countries that the Isfara flows through and, to create a tradition of celebrating friendship, cooperation and trust between the communities that share the river across borders.

The festival, funded by the USAID’s Smart Waters project, celebrates the Isfara River as a source of friendship between the countries that the river flows through; from the high mountains of the Kyrgyz Republic, through the lush agricultural fields of Tajikistan and Uzbekistan.

The importance of countries in Central Asia coming together to celebrate the river that they share, cannot be underestimated.





The Padhaata /Padysha-Ata River



WHEN BORDERS ARE DRAWN ACROSS RIVERS

The fall of the Soviet Union resulted in vast changes to the region's rich and abundant water resources. Water once shared is now divided by borders in different countries, which has had far reaching consequences.

Often, those at the helm of water management only take their own country's interests into consideration, instead of those all of in the river basin. Time and again, this has led to people that were once neighbors now seeing each other as enemies leading to discord and conflict.



Communities from the Isfara basin in Tajikistan, the Kyrgyz Republic and Uzbekistan come together for the Isfara River Day celebration



A SMART SOLUTION

The USAID-funded Smart Waters project helps bring the countries in Central Asia together including Afghanistan by creating a network of like-minded water management specialists and policy makers across multiple levels of governance and water uses. The project is implemented by the Regional Environmental Centre for Central Asia (CAREC).

In essence, the project is building bridges across borders through relationships and friendships.

With support from Smart Waters, communities across 13 transboundary rivers have started celebrating the rivers they share as reasons for collaboration, instead of conflict.

The celebrations are an outcome of the project objectives to introduce integrated water resources management, and strengthen transboundary cooperation, in the 13 pilot sites.

The festivals bring people from all countries that share the rivers together. Furthermore, to build relationships among the next generation of water users, a large part of the festivities are dedicated to the participation of local school students, who are invited to paint, write and verse their love for the river and the new friendships that it can bring.

And, the results are showing.



THE ISFARA RIVER DAY CELEBRATION

The most recent Isfara River day in 2019, the fourth celebrated, saw just shy of 70 pupils from participating countries attend.

Omara Shameen from Tajikistan, won the painting competition. For her it's important to have friends across borders, so they can share water. For Omara the river is also her muse. "When I see the river, I get inspired."



Omara Shameen won the painting competition this year at the Isfara River day

The celebration of the Isfara River was the first, but since it started, USAID funding has supported the spread of the festivities to more shared basins across the region.



THE PADSHAATA RIVER CELEBRATION

In 2019, communities from the Kyrgyz Republic and Uzbekistan came together for the first Padysha-Ata/Padshaata River Day celebration to celebrate the water they share.

The first celebration day for the Padysha-Ata/Padshaata River

THE ASPARA HAS ITS DAYS

Shortly after, the Aspara River was celebrated, bringing communities from the Kyrgyz Republic and Kazakhstan together across the border that divides them, to honor the water that unites them.





Thanks to the Smart Waters project, plans to celebrate the Kurkureusu, a small transboundary river between Kazakhstan and the Kyrgyz Republic, are also in progress.

Through these celebrations the project is helping to ensure that shared water resources across a region with a history of conflict over this valuable resource, can be a reason for collaboration once again.

A Final Word

Project Chief of Party Ms. Ekaterina Strikeleva



“People from different countries, different basins, and different backgrounds became friends.” This will be the Smart Waters Project’s most enduring legacy, says Ekaterina Strikeleva, the project’s Chief of Party. “Even if everything in the region changes; even if there are new laws, regulations and strategies, these friendships will remain,” she says. “These personal connections will help countries when people sit down together around the negotiation table for water rights.”

For a wide-ranging project like Smart Waters, it’s difficult to highlight only a few achievements, says Ekaterina, but the personal growth that she has seen in people, and in their relationships with each other are some of the most important. Doranbek Mamadiev is a perfect example.

During Soviet times, Doranbek studied at one of the leading St. Petersburg Universities, where he obtained his degree in engineering, she says. “You can imagine how talented he is to have done that, coming from a small town in rural Kyrgyzstan.”

Currently the chairperson of the Isfara Small Basin Council (Kyrgyzstan), Doranbek has progressively become more immersed in project activities. “As he became more involved, he once told me that this project helped him think again.” I could see that he meant what he said, says Ekaterina. “Doranbek really thought about how to make the SBC sustainable; how to attract financial support to implement the basin plan; and how to continue the dialogue with neighbors from Tajikistan and Uzbekistan.”

“For me, this is our most important achievement.”

“Like Doranbek, people started seeing common issues like water management from new perspectives. They started seeing their neighbors as partners in water management, not as rivals for water. This is the most important measure of success for me. We have changed peoples’ mindsets, which can change cooperation and development of shared water resources.”

“It is impossible to count the value of these accomplishments in numbers, but the impact will be priceless, and will ripple throughout future generations.”

Looking back over the past five years that the project ran, Ekaterina says there is much to be proud of.



For one, Afghanistan was brought into the conversation about water management, with their Central Asian counterparts. “Personally, I think this was a big shortfall. Although we are only at the start of this new road together, all countries now recognize this need in the dialogue around water management issues in the region.”

A second achievement to be proud of is the establishment of the first ever basin councils in Turkmenistan, Afghanistan and Uzbekistan. “This proves that our methodology is unique and universally applicable for different circumstances.”

A third aspect is the networks that have been built among young water management specialists – our future ministers and decision makers – through the DKU master’s degree scholarships, says Ekaterina. “I believe that this will pave the way for comfortable conversations with each other, on a professional level, once they are working back at their own ministries. Friends will always find a compromise.”

Personally, highlights for Ekaterina are the interactions she has had with so many people throughout the project.

“This project gave me and my colleagues a unique opportunity to interact with people at very different levels of water resources management across the region – starting from our eight small transboundary watersheds, to the ministries at national level in all six project countries, to representatives of regional institutions, international experts, and more.”

“The opportunity to learn from people, and share vast amounts of knowledge from all over the world and the region has been a unique experience.”

As a final word, Ekaterina points out that finding compromises and mutually beneficial solutions are much better than to look for someone to take the blame. “Stay on this path that we started together – search for compromises in all aspects of your lives, for the future development of our common region.”



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