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BASIN PLAN FOR ASPARA RIVER

Kazakhstani Part

THE USAID-CAREC PROJECT

STAKEHOLDERS' PARTNERSHIP IN COLLABORATIVE POLICY-MAKING: FOSTERING TRANSBOUNDARY COOPERATION ON SMALL WATERSHEDS IN CENTRAL ASIA

THE ASPARA RIVER BASIN PLAN

(Kazakhstani side)

The city of Astana

April 2015

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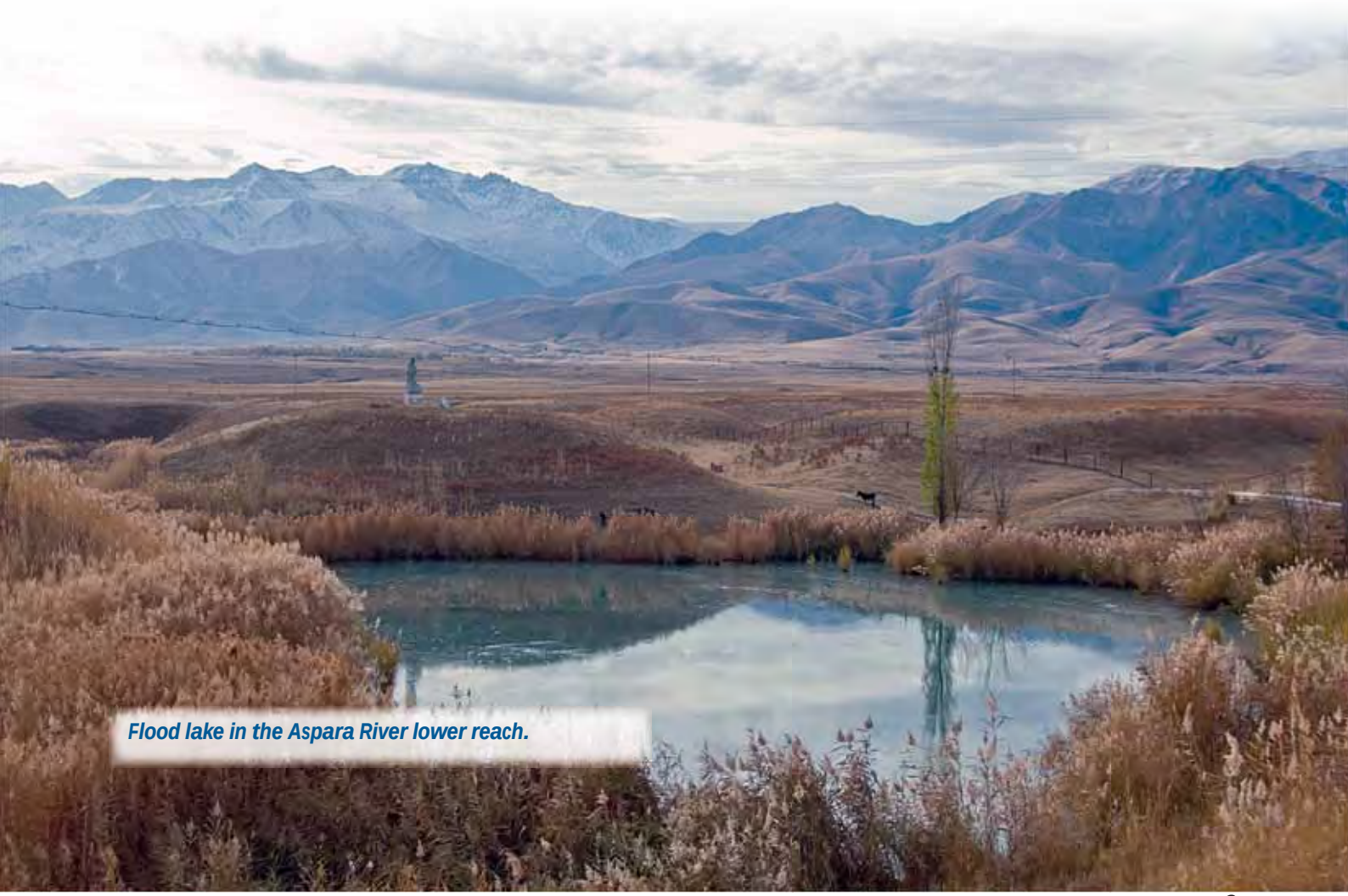
CONTENT



Flood lake in the Aspara River lower reach.

ABBREVIATIONS & ACRONYMS

BI	Basin Inspection
CA	Central Asia
CRNMCP	Committee for Regulation of Natural Monopolies & Competition Protection
CRPC	Consumer Rights Protection Committee
DE	design estimates
EIA	environmental impact assessment
FFS	fuel filling station
FS	feasibility study
Gosprogramma (State Program)	State Water Resources Management Program of the Republic of Kazakhstan
GSUC	Geology & Subsoil Use Committee
HEE	higher educational establishment
IE	individual entrepreneur
IWRM	integrated water resources management
IWRPUS	Integrated Water Resources Protection & Use Scheme
KPPPC	Kazakhstan Public Private Partnership Center
KR	Kyrgyz Republic
MM	Mass Media
MoA	Ministry of Agriculture
MoCS	Ministry of Culture & Sport
MoE	Ministry of Energy
MoES	Ministry of Education & Science
MoHSD	Ministry of Health &Social Development
MoID	Ministry of Investment & Development
MoNE	Ministry of National Economy
NSE	national state enterprise
REC	regional environmental center
RK	Republic of Kazakhstan
RS	rural settlement
SSEE	special secondary educational establishment
TC	Transportation Committee of the MoID of the RK
US	urban settlement
USA	United States of America
USAID	US Agency for International Development
WBCC	Western Big Chu Canal
WRC	Water Resources Committee

PREFACE

This Aspara River Integrated Water Resources Management Basin Plan was developed within the framework of the USAID Project «Stakeholders' partnership in collaborative policy-making: Fostering transboundary cooperation on small watersheds in Central Asia».

The goal of the project is to assist transboundary cooperation of Central Asian States (CAS) on implementation of integrated water resources management principles in small river watersheds. The research was conducted in three small cross-border watersheds of Central Asia (CA), i.e. the Aspara, the Isfara, and the Ugam Rivers. In the future, it is planned to use the main research findings and outcomes as a model for large transboundary rivers.

In the Aspara River Basin – which this draft IWRM Plan directly concerns – project interventions were carried out in Zhambyl Region of the Republic of Kazakhstan (RK) and Chu Region of the Kyrgyz Republic (KR). The US of Granitogorsk, the villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station (Kazakhstan) as well as the villages of Chaldavar and Cholok-Aryk (Kyrgyzstan) were selected as project locations.

Drafting of the IWRM Plan was preceded by environmental and socio-economic assessment of the target region in November 2012 with field missions to selected pilot territories in both countries.

In 2013, the Register of Issues was developed based on previously conducted assessments. It was reviewed at the meetings of the Aspara River Small Basin Council (SBC) established with the participation of representatives of all concerned stakeholders. Priority activities aimed at sustainable integrated water resources management in the Aspara River Basin were identified based on the results of the SBC discussions, and provided the basis for this IWRM Plan.

1. BASIN PHYSICAL & GEOGRAPHIC CONDITIONS

Overview

The Aspara River is located in Panfilov District of Chu Region of Kyrgyzstan and Merke District of Zhambyl Region of Kazakhstan.

The river belongs to the *Chu River Basin* and originates in the *Kyrgyz Region* the Kazakh-Kyrgyz border in the *Western Tian Shan Mountains*. It then flows (in high-water years) into the *Kuragata River on* the territory of Kazakhstan. The watershed finds itself at the elevation of 500 to 4,300 m above sea level. The soils in the mountainous zone of the basin are rocky and stony, and clay and loamy in the foothill plains. The basin is featured by low-, mid- and mountain vertical zoning with predominant steep hilly relief. Significant plains of planation remain undisturbed and retain typical and unique landscapes of the Western Tien Shan in their natural condition.

Hydrography & hydrology

Most part of the river's water-collecting area is located in mountainous, remote and low-rendered habitable territories (Kyrgyz Ridge) broken by narrow and deep valleys.

The total length of the Aspara is 108 km, whereas the basin area amounts to 1,318 sq.km,of which 876 sq.km belong to Kazakhstan and 442 sq.km – to Kyrgyzstan. The bed of the river is twisting.

The river flows from south to north with a small westward (close to source) or eastward (above Granitogorsk) fall. In its lower course, the riverbanks form boggy, meadow and reed thicketed segments. In places, the riverbed dries up.

Occasionally, the width of the river reaches 7 m, the depth of 0,5-1,0 m, and current speed within 0,5-0,8 m/sec margins. The average annual runoff is 3,31 m^3/sec with the maximum of 9,66 m^3/sec and the minimum of 1,02 m^3/sec. The river is deep from May to September. After crossing the Kazakh border, the Aspara falls into the Western Big Chu Canal (WBCC) on

the territory of Kyrgyzstan and then – after returning to the Kazakh territory – is joined by its tributary (the *Igermen River*) in its lower course above the *Tatty Reservoir*.

The riverbed is pebble and/or sand-pebble. The banks are generally flat with meadow and/or shrubby flood plain. As a rule, the river does not freeze during cold season. The highest water levels are observed from April untilJune during the time of intensive thawing of snow.

Hydrological observations were done at the *Granitogorsk Hydro Post* 69 km from the river mouth.

Climate

The climate in the Aspara River Basin is moderate continental. It is featured by sharp annual and daily temperature fluctuations. The area is characterized by hot summer and cold winter (for the latitude), small overcast and poor precipitation unevenly distributed throughout the year. The snow cover generated during winter is insignificant.

The average annual air temperature is +10,7°C. January is the coldest month (average monthly temperature -7°C), while July – is the warmest (average monthly temperature +24,1°C).

Climatic conditions of the Kyrgyz Ridge are predetermined by its location between moderate and subtropical climatic zones and reflect the natural thermal changes depending on the elevation.

The winter is cold with predominantly cloudy weather. Winter precipitation in the form of snow may generate up to 1-2 m (in lowlands) and >2 m thick (in highlands) snow cover.

The spring weather is unstable and predominantly cloudy. The temperatures fluctuate between +6°Cand +25°C. Spring also brings the largest share of annual precipitation.

The summer in thewatershed is cool and dry with air temperatures between 18°Cand 32°C. Summer precipitation is rare.

The fall is mainly chilly with precipitation in the form of rain and/or snow and temperature dropping down to -12°C.

Annual winds are mainly northern and northwestern with the speed of up to 3 mps. During

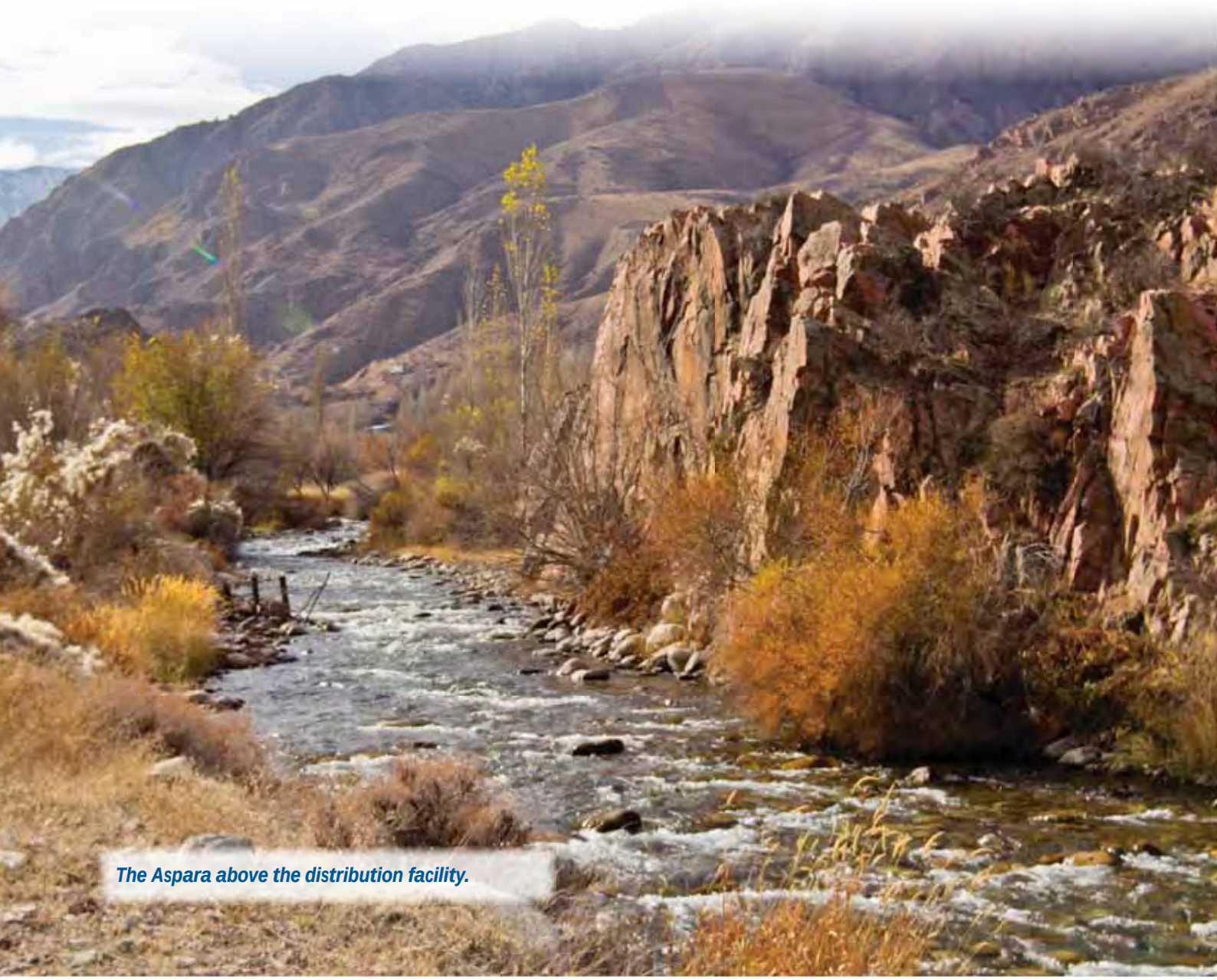
fall and winter, the western winds intensify up to 15 mps.

Vegetation

The woods and light forest on the territory of the watershed are represented by shrubbery, mainly of juniper, cade, dogrose, honeysuckle, and hawthorn. Willow and sea-buckthorn shrubs are widely present in the river valleys along with single standing trees (elm and poplar).

Significant areas are covered with gramineous & herb-bunchgrass and gramineous & shrubby dry steppe vegetation, mainly of shrubs and sub-shrubs (ex.: eurotia, tansy, wormwood) and gramineous plants (ex.: meadow grass, sheep fescue, feather grass).

The upper slopes are covered with green meadows of columbine, speedwell, violet, etc. Vegetation above 3,100m is rather scarce represented by saxifrage, lion's pad and other cold-tolerant plants.



The Aspara above the distribution facility.

2. BASIN SOCIAL & ECONOMIC CHARACTERISTICS

The socio-economic assessment of the Kazakhstan side of the Aspara River Basin was carried out in the US of Granitogorsk and the village Aral-Kishlak. The analysis incorporates data from the villages of Andas Batyr, Kyzyl-Kishlak, Kenes, and the Chaldovar Station.

The total investigated area amounts to 67,319 hectares, including 14,118 ha of agricultural purpose acreage (9,029 ha of arable land, 4,297 ha of pastureland). The total population of the area is 9,120 people.

The detailed data on concerned settlements is presented below in the form of tables and text.

Table 1.

STATISTICAL DATA FOR THE URBAN SETTLEMENT (US) OF GRANITOGORSK
(based on data providedby the District Statistics Agency)

Common feature	
Total population	1,262
Number of households	399
Minors (under 18 years)	680
Young people (18-29)	98
Seniors	160
Men	143
Women	181

Socially significant facilities	
School	Avail.*
Medical office	Avail.
Kindergarten	N/A*

Infrastructure	
Water supply	Avail.
Electricity	Avail.
Internal settlement transportation system	N/A
Transportation system between settlements	N/A*
Natural gas supply	N/A*
Community center (leisure)	N/A
Market	N/A
Tailor shop	N/A
Hairdresser shop	N/A
Drug store	N/A
Grocery shop	Avail.
Other (boarding school)	Avail.*

COMMENTS:

- *Data for male and female populations include inhabitants of 30-60 years old only;*
- *No public transportation communication is available between the settlements. Locals carry out this function using their private vehicles. Previously, public transportation communication was available;*
- *At the time of assessment, natural gas pipeline installation works were underway. Gasification of private households is planned also;*
- *The settlement has a school which requires repair and is quite cold during winter;*
- *The settlement has a boarding school which accommodates (boarding and teaching) all children from the district;*
- *According to the representatives of local authorities, construction of a new school and kindergarten is planned in the settlement.*

Table 2.

STATISTICAL DATA FOR THE VILLAGE OF ARAL-KISHLAK

(based on data provided by the District Statistics Agency)

Common feature	
Total population	485
Number of households	76
Minors (under 18 years)	92
Young people (18-29)	48
Seniors	99
Men	116
Women	130

Socially significant facilities	
School	Avail.*
Medical office	N/A*
Kindergarten	N/A

Infrastructure	
Water supply	N/A*
Electricity	Avail.
Internal settlement transportation system	N/A
Transportation system between settlements	Avail.*
Natural gas supply	N/A*
Community center (leisure)	N/A
Market	N/A
Tailor shop	N/A
Hairdresser shop	N/A
Drug store	N/A
Grocery shop	N/A
Other	N/A

COMMENTS:

- Data for male and female populations include inhabitants of 30-60 years old only;
- The village has a primary schoolwhich requires repair. Other children study at the school located in the neighboring village where they are taken by a school bus;
- For drinking and household needs local population use ground water from standpipes (well depth of 5-10m). People who do not have their own standpipes take water from their neighbors. According to inhabitants, the amount of water is insufficient, standpipes often freeze in the winter;
- The village has a natural gas line installed along the main street at the expense of inhabitants. However, for more than 2 years private households had not been gasified. In 2014, 96 mln tenge had been allocated from the national budget for gasification of households in several settlements of Merke District of Zhambyl Region, including the village of Aral-Kishlak;
- Public transportation circulates twice per day and is intended more for transportation of children of the village of Aral-Kishlak to/from school. In other cases, inhabitants use private taxi;
- According to the representatives of local authorities, construction of a new school and a medical office is planned in the settlement.

The village of Andas Batyr

The village of Andas Batyr is located 25km away from the [administrative] district centerof *Andas Batyr Rural District*.

The population of the village is 5,800 people, including 2,977 men, 2,823 women, 332 retired, 28 physically challenged, 1,741 young people (18 to 29 years old), 820 school students, 1,469 employed, 1,656 self-employed, and 227 unemployed.

The village has a high school (№ 21). However, due to large number of students there is a need to build an extension (including gym, assembly hall, dining hall, workshops for girls and boys). Available school facilities do not meet modern requirements. The school is not equipped with modern classrooms and interactive boards. Required: biology, chemistry, lingaphone & multimedia (L&M) classrooms.

In 2014, a new kindergarten (140 children capacity) was built at the expense of local budget.

The village of Andas Batyr has a standard rural policlinic (60 visits per day capacity) and a rural hospital (15 patient capacity). Due to the lack of doctor rooms, there are no designated chemist, phlegm specialist, day hospital (45 sq.m), senior nurse and district doctor (2) rooms. In order to address this issues, it is necessary to return the part of the policlinic building transferred to the books of the Military Unit № 2035. The rural hospital and policlinic are fitted with a telephone and Internet connection.

The village hosts the Bayterek LLP, the Darkhan-Astyk LLP, 107 collective farms (CF), including 106 engaged in grain production and 1 – in gardening. In addition, there is 1 SPC (service & procurement center), 22 shops, 5 gas stations, 2 cafes, 6 dining halls, 4 hairdressing shops, and 1 bakery.

2,700 cattle, 681 horses, 8,664 sheep and goat, 51 pigs are registred in the village of Andas Batyr. In 2011, the *Ak Biday-2 Collective Farm* purchased 50 cattle within the framework of the *Sybaga Program*.

The orchard of the *Rovshan Farm* is also located on the territory of Andas Batyr Rural District. The orchard was organized in 2009 and occupies 5 ha, includig 2,5 ha of the Golden Delicious pear. The water intake is done via an earthen canal (900 m long) which leads to significant water loss. As a pilot project, it is proposed to install a pipe along the canal bedand a drip irrigation system (5 ha of the orchard) to reduce water loss.

The village is facing a number of problems caused by its underdevelopment. The main reasons for rather slow settlement's development are the following: absence of industrial enterprises, poor technical & technological agricultural infrastructure due to low profitability of agricultural production, presence of underutilized fertile agricultural land, unsatisfactory development of social & engineering infrastructure, lack of qualified personnel caused by low living standard typical for rural areas.

The Mailybai Irrigational Canal and the Aspara Feeding Canal.

Farmhouse on the Kazakhstani side of the Aspara Basin.

Children playing on the street of the urban settlement of Granitogorsk, children.

Alongside with that, the village of Andas Batyr has a number of competitive advantages, e.g., its location along the *Taraz-Bishkek Auto Road*, availability of fertile agricultural land and presence of key social infrastructure. All these factors preconditioned the need to develop and execute interventions reflected in the *2014-2018 Plan of Actions to Develop the Anchor Rural Settlement of Andas Batyr of Merke District of Zhambyl Region approved by Zhambyl Region Maslikhat*[1] on April 14, 2014.

The village of Kyzyl-Kishlak

The village of Kyzyl-Kishlak is located in Merke District of Zhambyl Region of Kazakhstan and is part of Andas Batyr Rural District. The village population is 932 persons (481 men & 451 women).

The Chaldovar Station

The station of Chaldovar is part of Andas Batyr Rural District and is located in Merke District of Zhambyl Region of the RK approximately 24 km east of the village of Merke (district administrative center).

The settlement has 442 inhabitants (208 men & 234 women).

The village of Kenes

The village of Kenes is the district administrative center of Kenes Rural District and is located in Merke District of Zhambyl Region of Kazakhstan about 27 km northeast of the village of Merke.

Its population is 2,332 persons (1,196 men & 1,136 women). In 2014, a new school was opened in the village.

Children of the urban settlement of Granitogorsk.

The road to Granitogorsk off the Bishkek-Merke Highway.

A mausolemum in Andas Batyr, Kazakhstani part of the Aspara Basin.

1 Translator's note: local representative body in the RK.

The list of water management facilities located on the Aspara River

One reservoir (the Tatty Reservoir) and two fishery reservoirs are located in the Kazakh part of the Aspara River Basin.

The *Tatty Reservoir* is located in the lower reach of the river. It was commissioned in 1972 and has the design capacity of 4,2 mln m^3, useful design capacity of 4 mln m^3, and the mirror area of 3 sq.km. The reservoir is under seasonal regulation and is used for irrigation.

The Akermen-1 and Akermen-2 Ponds are used as fishery facilities.

The *Akermen-1 Pond* is 2,1 km long and 0,4 km wide. Its mirror area is 84 ha, maximum depth – 3 m, average depth – 1,5 m, and volume – 0,12 mln m^3.

The *Akermen-2 Pond* is 2,1 km long and 0,4 km wide. Its mirror area is 84 ha, maximum depth – 3 m, average depth – 1,5 m, and volume – 0,13 mln m^3.

The *Kenes Pond* was commissioned in 1961, serves fishery purpose and has the volume of 0,96 mln m^3.

Due to weather conditions and a number of technical reasons, there were several cases of potential flooding of the village of Kenes located downstream of the Kenes Pond.

E.g., from January 31 to February 5,2008 a cold snap caused the water in the *arykhs* (drainage canals) of the Kenes Pond to freeze, which, in turn, raised the water level. There was a threat of flooding of households. Under the leadership of district *akim* (head of district administration) a special task force was formed. The team dug several supplementary canals southeast of Kenes along the bed of the *Kajyndy-Saj River* to drain excess water.

The investigation conducted in March 2010 proved that the threat of flooding was present, and that the pond required reconstruction of its spillway and fortification of its dam body. On May 17, 2011, the state procurement tender «The Maintenance of the Kenes Reservoir of Merke District of Zhambyl Region» was held.

It should be noted that the *List of Local Significance Fishery Reservoirs* is approved by Resolution № 50 of Zhambyl Regional *Akimat*[2] of February 27, 2014. The list contains only two water bodies titled «Kenes», i.e. the Kenes Reservoir of *Bayzak* District and Kenes Reservoir of Merke District.

Local employment

Inhabitants of the *US of Granitogorsk* leave their settlement for temporary employment for larger settlements and towns.

Migrants include young people who leave to study in HEEs and SSEEs and persons 25-45 years of age to work in large cities of Kazakhstan (predominantly Almaty, Taraz, and the district center of Merke) in construction, exploration & production of minerals on nearby mines. Some locals possessing certain qualifications leave abroad to large Russian towns. Practically

The Big Chu Canal.

Developing the list of participants of the Kazakhstani Small Basin Council. Merke District Akimat.

A segment of irrigation network.

2 Translator's note: local administrative body in the RK.

all locals who are able to settle down in other cities attempt to remain there. Other inhabitants gain income by rendering small services (housekeeping, auxiliary construction and agricultural works). Some locals are engaged in beekeeping, although their income has decreased in recent years due to border restrictions (limited freedom of movement). A small part of local population get their income from collecting and selling berries.

Residents of the *village of Aral-Kishlak* (about 80%) – which is more compared to the situation in the urban settlement of Granitogorsk – remain in their village and are unemployed. Their main income comes from casual works/services as loaders, field workers, subsidiary construction workers, etc.

Only a limited number of the population of both villages have private land plots to grow crops and engage in farming (e.g., wheat, alfaalfa, beets, barley). A rather large part of the population has state welfare benefits as the only source of income. Local residents have household gardens. Some of them have small cattle and sheep & goats (e.g., horses, sheep, and cows) herds as well as cultivate vegetables for personal consumption.

The majority of women are engaged in housekeeping. In the US of Granitogorsk, some women work in public organizations (school, boarding school, and post office). An insignificant share of women is involved in small business (trade). The vast majority of female population of the village of Aral-Kishlak are homemakers.

According to locals, practically nobody in the area does cattle breeding due to the absence of pastureland. Only a few keep small herds for personal needs – "… the largest herd among locals is 20 or so heads…". Irrigated land is mainly used to cultivate fodder crops to feed cattle. Small plots (kitchen gardens) are usedto grow vegetables, which it is insufficient even to stock up for winter.

In general, the population of both settlements is rather poor.

In the *village of Andas Batyr the* employable population amounts to 3,352 persons, including 514 who are actually working (30 at the Bayterek LLP, 26 at the Darkhan-Astyk, 27 as IEs, and 261 people in state and socio-cultural establishments, including 10 in the akimat, 163 – in High School № 21, 87 in the rural hospital and policlinic, and 1 – in the library). 153 more residents are occupied on local farms, 6 – on the local power plant, 7 – on the railroad, 4 – in service sector. 955 inhabitants of other adjacent settlements are employed in Almaty (455), Taraz (269), and other regions of the country (231).

The majority of Andas Batyr residents are generally occupied in animal husbandry. The dominating crops are grains. The village also has some gardening and truck farming households.

In the village, there are 6 functioning enterprises and establishments, including 4 state bodies (SE «The Office of the Ajul District Akim», High School № 21 of the village of Andas Batyr, rural hospital, and policlinic) and 2 private operations (Bayterek LLP and Darkhan-Astyk LLP).

The only public facility operating in the village is High School №21 with teaching in Kazakh and Russian with 536 students

Poultry farming in the village of Aral-Kishlak.

Animal husbandry in Andas-Batyr.

Cattle breeding in the village of Andas-Batyr.

design occupancy. Currently, there are 912 children, including pre-schoolers, studying there.

The service sector includes the post office, digital automatic telephone station for 168 dial-up users, wireless automatic telephone station for 388 users (village population is provided with telecommunication services), 22 shops, 5 gas stations, 2 cafes, 6 dining halls, 4 hairdressing shops, and a bakery.

Drinking water supply

The ***US of Granitogorsk is*** supplied water as the expense of the Aspara River water resources. The settlement has a water supply system and several water treatment facilities (settlers). The residents are satisfied with water quality, although according to them the settling treatment facilities quite often require cleaning and upgrading. The condition of the water supply system is constantly monitored, and necessary repair works are executed by own forces.

The ***village of Aral-Kishlak*** has no [centralized] drinking water supply. Water is taken form shallow (5-10 meters) standpipe wells independently drilled within the limits of private households. The residents commented on poor water quality.

In the ***village of Andas Batyr***, half of the population is supplied with water via centralized water supply system. However, the school does not have water supply inside or outside.

The policlinic and the hospital are also not supplied with water due to dilapidated condition of supply network and the overall poor state of the infrastructure.

In general, the water supply of the village of Andas Batyr is unsatisfactory. The water supply system made of steel pipes has exhausted its standard operation time and requires complete replacement. Pure water tanks are absent. The sanitary protection zone is neither fenced off nor properly arranged. Water pumping station and bactericidal installations are not installed. The water tower is worn-out and is subject to demolition. On-site networks are absent. None of the existing water wells complies with sanitary epidemiological norms.

In 2013, 6 mln tenge were allocated from the district budget for the purpose of executing DE works for the construction of the water supply system in the village of Andas Batyr. So far, the DE works are still underway. Construction of water supply networks is highly required.

Electricity Supply

Power supply networks are available in all settlements – local population is fully supplied with electrical power.

Transportation communication

In the ***US of Granitogorsk*** and the ***village of Aral-Kishlak***,transportation servicesare being rendered by private taxi. Public transportation does not function in either village. Since there is no school (middle and high) in the village of Aral-Kishlak, there is a school bus organized which takes students to the

The village of Andas-Batyr. Half of the population has acces to centralized water supply.

Gas supply line in the village of Aral-Kishlak.

neighboring settlement (about 5 km away). All other village residents use the same bus which circulates twice a day.

Earlier, there was transportation communication between the urban settlement of Granitogorsk and the village of *Voskresenovka* (a settlement 12 km away from the border checkpoint). According to locals, «… probably because people don't use it…» public buses stopped circulation on this route.

Both villages have a central road with asphalt coating. The road in Granitogorsk is of satisfactory quality. The road in Aral-Kishlak recently underwent capital repair. Internal roads in both villages have no coating. The roads coming up to the settlements are in good condition.

The ***village of Andas Batyrhas*** public transportation system.

However, there is a problem with taking students (46) from the Chaldovar Station (7 km away) and 64 students from the Abay Street (6 km away) to the school.

The length of internal roads in the viallage of Andas Batyr is 20 km, including 18 km with hard coating. 12 km of the road and internal village roads require capital, medium and/or routine maintenance.

Recreation & leisure opportunities

The villages have practically no community leisure facilities, especially these intended for young people. Schools have music, dance, *togyzkumalak*[3], and soccer clubs. There are no public facilities for community events, movie theaters, clubs, recreation centers, etc. Likewise, there are no leisure facilities for senior citizens.

Relationships among local residents

The settlements are inhabited by people of different ethnic background. According to them, all residents live peacefully, are friendly to and help each other. Many villagers have known each other for many years. At the same time, the culture of daily general meetings to socialize is lacking.

An irrigation canal.

Joint Small Basin Council meeting.

3 *Translator's note*: Kazakh and Kyrgyz board game.

3. LOCAL ISSUES

The issues of the region may be divided into these related to water resources protection and use and socio-economic ones. The division is rather conditional since problems related to water use and protection can sometimes simultaneously manifest themselves in social challenges, e.g., the issue of public potable water supply, etc.

3.1. Water resource protection and use issues

The Aspara River runoff allocation between Kazakhstan and Kyrgyzstan

Allocation of the Aspara River runoff during vegetation period is regulated by *The Provision on Water Allocation of the Talas, Kurkureu-Su & Aspara Rivers between Kazakh Soviet Socialist Republic & Kyrgyz Soviet Socialist Republic* of February 5, 1948. As per the Provision,62% of the water goes to Kazakhstan and 38% – to Kyrgyzstan.

River runoff sharing may sometimes lead to disputes among local residents, although they usually happen only in low-water years.

The water distribution post is located in the border zone between Kazakhstan and Kyrgyzstan in the US of Granitogorsk (Kazakhstan). According to the Kyrgyz-side water users, in recent years access to the facility has been limited due to the fact of its location in the interstate border zone fitted with barbed wire which prevents joint water resource accounting.

Based on the agreement between the communities on both sides of the river and with the support of the USAID Project «Fostering transboundary cooperation on small watersheds in Central Asia» and to improve water monitoring, the facility in the village of Cholok-Aryk (Kyrgyzstan) was fitted with a water-measuring equipment and officially commissioned at the opening ceremony on June 23, 2014. The system is fitted with a sensor allowing automatic measurement of the river water level.

Installation of such sensors does not resolve all disagreements arising between the Kazakh and Kyrgyz communities but it can significantly reduce the number of unreasonable mutual claims.

Water quality in the Aspara River

The quality of water resources in the Aspara River is estimated by locals as good. To a certain extent, this is explained by the limited access of household cattle to the river thanks to the installation of border fences along the riverbanks.

However, it should be noted that water quality in the river is not monitored on regular basis.

Degradation of ecosystems, reduction of biodiversity

The growth of basin population results in increasing anthropogenic environmental impact, which eventually leads to ecosystem degradation and reduction of biological diversity

Socio-economic assessment in Granitogorsk.

Presentation of socio-economic assessment results in Andas-Batyr and Aral-Kishlak.

of the Aspara River Basin. Water and near-water ecosystems suffer significant pressure due to increasing number of cattle and conventional ways of animal husbandry.

Uncontrolled water intakeand dumping of pollutants/ waste directly into the river and into its floodplain also cause deterioration of local ecosystems.

In order to preserve its ecosystems, it is necessary to consider the possibility of sanitary water releases into the riverbed.

Lack of irrigation water

The amount of available irrigation water remains an issue for the population of riparian settlements (which are mainly located in the lower river reach). Due to its lack, local residents areforced to reduce their farming operations, refuse to plant agricultural crops, and reduce their livestock due to the lack of fodder and/or pastureland.

At present, there are plans to build a dam in the Aspara Basin (about 100 meters high) to create a reservoir of 35 mln m^3 to ensure water supply during summer. In case of successful project implementation, the Kazakhstan side of the basin will be guaranteed enough water to supply approximately 35,000 ha of land.

Local authorities consider the construction of the dam as a solution to water supply issues in the region.

At the same time, there are opinions that its construction will also lead to a number of negative environmental consequences. In particular, operation of this hydraulic engineering facility will prevent flooding of the river flood plain and lower course during high-water period which, in its turn, will result in the disappearance of respective pastureland.

Currently, the research is doneto investigate the situation. The final decision re the feasibility of the reservoir construction will be made based on its findings.

Joint Small Basin Council meeting: discussing the need to install water-measuring equipment.

3.2. Local social & economic issues

Border entry-restricting facilities between two riparian countries

Previously, the border line between the two republics followed the upper bound of the hill near the US of Granitogorsk. After the establishment of the Customs Union by three countries (Kazakhstan, Russia, and Belarus) and due to the fact that – in compliance with the existing agreement between Kazakhstan and Kyrgyzstan – the border in the area follows the central line of the Aspara River, Kazakhstan had fitted its border with a guarding (barbed wire) line.

That created certain difficulties for local population, including grazing their cattle on the pastureland located in the river flood plain. Such a reduction of pastures compelled local residents to reduce the count of their herds. Likewise, it became impossible to use mountain pastures since the border line also crosses some mountainous areas.

Construction of the Western Europe-Western China Highway close to the Aspara Basin.

Border arrangements also negatively affected beekeeping. Border entry-restricting lines limit the freedom of movement of local population in the mountains, i.e. their access to best locations for placing their apiaries.

Population's access to mountainous areas to gather berries and mushrooms as well as to natural recreation areas (near the river, mountain foothills, etc.) is limited due to the same reason.

It has also become difficult to salvage construction material (sand, crushed stone, gravel, etc.) from the foothill areas adjacent to the settlements.

The population is lacking information regarding allowed movement in border zones as well as the inventory of goods which may be transferred across the border.

The school in the village of Andas-Batyr.

Animal husbandry issues

The concerned area of Kazakhstan is located in the border zone and, therefore, all livestock has to undergo mandatory vaccination.

However, the same procedure is not always followed on the Kyrgyz side of the basin. There fore, some Kyrgyz cattle – which gets across to the Kazakhstan territory illegally – can be infected and, thus, pose risk of infecting the livestock kept by Kazakhstani residents.

Public health issues

The concerned settlements do not have proper health care services; some of them do not even have drugstores.

Local residents are forced to use private taxi to get to villages which have drugstores.

In general, in recent years there was a local increase in the incidence of such infectious diseases as sharp intestinal infections, dysentery, rotavirus infection, and flu. At the same, there was a decrease in the incidence of tuberculosis, brucellosis, syphilis, scabies, and pediculosis.

The area is also characterized by a number of tick-transmitted diseases.

Recent years showed rare occurrence of some (incl., quarantinable and vaccine-controlled) infections.

«There are no leisure opportunities in the villages, especially for the youth». Children in Andas-Batyr.

Consumer loan issues

There is a need to set consumer loan system for the population to allow purchasing of large goods or small wholesale produce. As a rule, the income of local residents is rather low. Therefore, their opportunities for one-time large payments for, e.g., coal, hay and other goods, are rather limited. The chance of small wholesale purchases would allow them to save money and time spent on searching and organizing such purchases.

In order to address this issue, a consumer loan program (returnable basis) could be designed. Respective loan mechanisms could include collection/transfer of return able money to the next person in line for loan.

Small business development issues

The area is in need of setting up mini-workshops to repair household appliances, like TVs, refrigerators, small kitchen equipment, and computers.

The issue could be addressed by holding special local training courses with subsequent support of such mini business operations. Another possibility would be to set up a furniture assembly shop, etc. by way of target training and allowance of small-scale business development loans (up to 2,000 USD).

Public leisure issues

The settlements need to be assisted with setting up public leisure facilities, e.g., opening community centers, movie theaters, Internet clubs, gyms, chess clubs, etc.

Public participation issues

Public participation is rather low in concerned settlements. No NGOs operate in the area. At the same time, the feeling of mutual aid and participation in public activities is quite developed. For example, the residents of the village of Aral-Kishlak collected their own money to pay for installation of the natural gas supply line along its central street. This testifies to the readiness of local population to put effort and money into improving their livelihood and develop their home settlements. However, such interventions require careful design, transparency and precise coordination.

Research & development, human potential

The local R&D and human potentials are rather low. Employable, educated and/or skilled residents leave villages and go to other cities, towns, larger settlements or abroad (mainly, Russia).

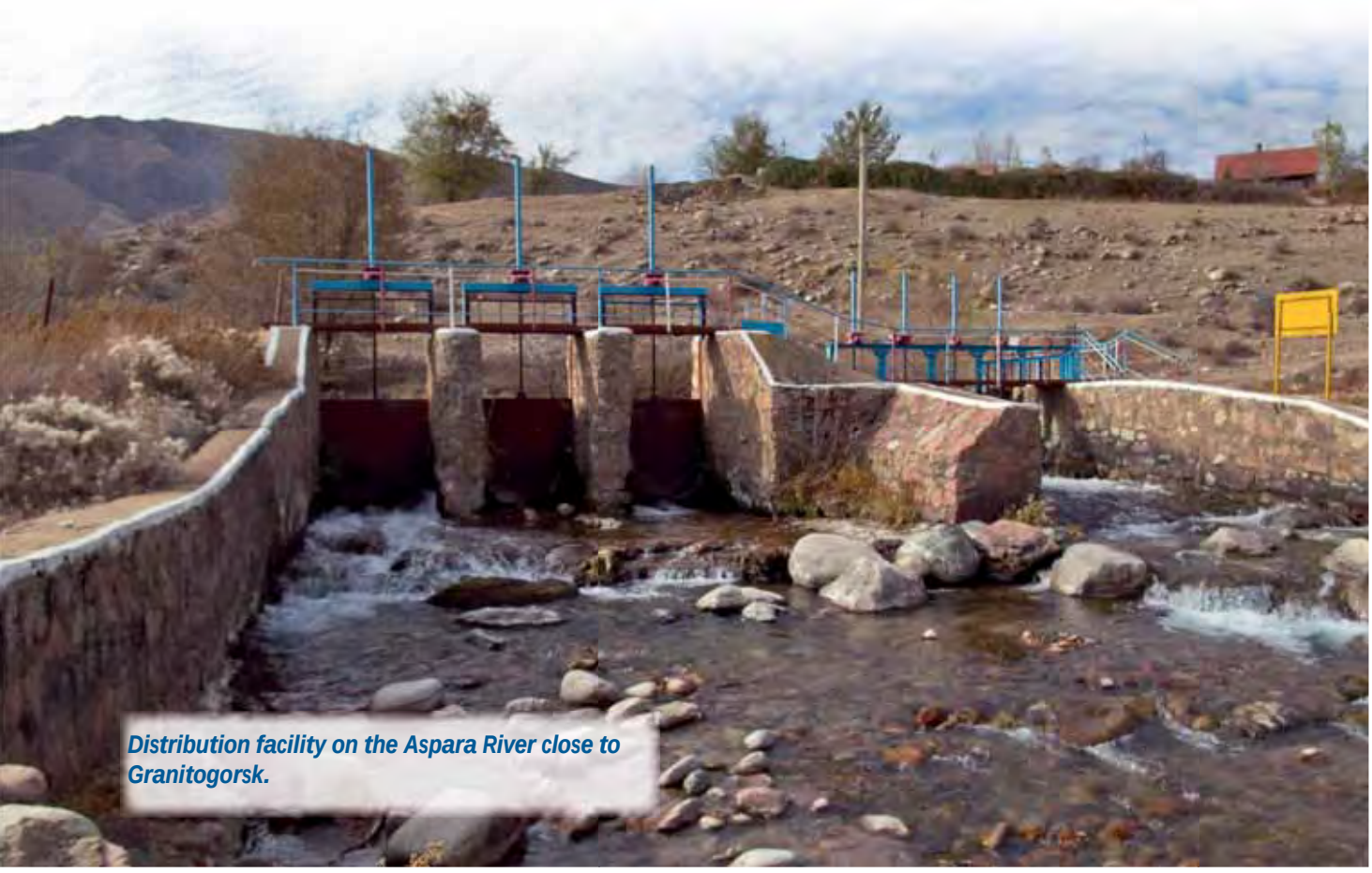
Due to the fact that during the Soviet times the region hosted a number of large factories producing railway carriage components and other items, many local inhabitants had good technical education and skills of operating technical equipment.

Now the local population is mainly comprised of elderly people who, although, previously possessing required knowledge and experience, have lost their competencies because of not utilizing them during the last 20 years or simply due to age.

The employable population of 40-50 years old possessing knowledge and experience left their settlements and is now living and working in rural areas.

It is also necessary to note that the majority of local residents is made of farmers and cattle-farmers, and that their level of education is quite low.

The analysis of many local issues, their underlying reasons as well as corresponding negative consequences, which have already occurred or may potentially occur in case of failure of adequate responseto address them, is presented in the *Register of Issues* (Table 3) below.



Distribution facility on the Aspara River close to Granitogorsk.

Table 3.

Register of Issues in the Kazakh part of the Aspara River Basin (based on conducted assessments)

Identified issue	Negative consequences & risks	Reasons	Sphere of activities	Indicator
Lack of irrigation water	Contraction of irrigated land, dropping livestock population, decreasing yield of sugar crops, growing social tension, complicated interstate relations	Insufficient flow of the transboundary river to the Kazakh territory during low-water years	Agriculture (irrigated)	Water runoff in the Kazakh part of the watershed
Unauthorized utilization of pastures on the territory of Kazakhstan by nationals of the riparian country	Dropping pastures productivity, threat of animal disease outbreaks due to lack of livestock vaccination in the neighboring country, complicated interstate relations	Lack of pastureland and its poor development	Agriculture (animal husbandry)	Number of cases of unauthorized use of pastureland in the neighboring country
Deteriorating water quality	Risk of human and animal disease outbreaks, deterioration of irrigated land	River pollution with sewage and household waste	Municipal services	Chemical and biological indicators
Shallowing of delta lakes	Decreasing fish resources and productivity of lakeside pastureland	Water intake for irrigation and household/domestic needs	Agriculture (irrigated)	Lake area, quantity of fish resources, fish species structure, pasture area
Contestation over the Aspara River water quality and quantity on the border between two countries	Deterioration of interstate relations	Absence of joint operations to monitor river water quantity and quality	Hydrometeo-rology	Hydrological and hydro-chemical indicators
Difficult mechanisms of funding livestock operations	Low growth rate of animal husbandry production	Excessive loan processing bureaucracy for the development of animal husbandry	Agriculture (animal husbandry)	Quantity and the amount of extended loans
Disagreements between local authorities and population on the types of agricultural crops (instead of forage crops the villagers are obliged to plant sugar beets)	Poor crop yields due to unstable supply of irrigation water, insufficient summary of process utilization of the sugar beets processing plant, complicated marketing of the plant's finished products within the Customs Union	Inconsistency of actions of national and local authorities and population	Agriculture	The area of agricultural land allocated for sugar beets and fodder crops; local budget revenues

				from sugar crops and meat production
Growing migration of employable population to other large settlements	Falling economic capacity of the region, reduction of service sector production, falling level of social security for senior citizens and children, poor quality of medical and educational services, growing gender inequality	Absence of alternative income sources except agriculture; lack of the wide range of services; inaccessibility of low-interest loan schemes	–	Number of employable population; number of drugstores, clubs, schools, mini-productions
Falling level of general education and technical literacy among the population	Falling attractiveness of the region as to opening new enterprises, falling overall economic capacity of the region	Migration of the majority of employable and educated population to large cities or abroad (Russia)	Social services	Human development index (HDI)
Lack of attention to certain social issues (absent or unreliable water supply, lack of gasification, lack of local roads with hard coating, lack of protective fencing, etc.)	Falling overall level of life quality, decreasing attractiveness of settlements as places of long-term accommodation, increasing outside migration of residents	*Objective reason:* the order of allocating financial means from local and national budgets *Subjective reason:* untimely submission of corresponding request and/or their improper review by state agencies	Social services	Indicators showing supply of the population with water and natural gas; quantity of roads with hard coating, etc.
Raising radiation level near the US of Granitogorsk (historical contamination)	Deterioration of public health, possible animal and human diseases outbreaks	Not utilized sites adjacent to the old radioactive waste tailings dump	Former industrial production	Radiation level
Low level of public participation	Risk of untimely measures by local executive bodies to address urgent social issues	Commitment to the traditional tenor of life, which, in many respects, predetermines the desire and ability of the population to resolve their issues independently; migration of the majority of educated population to rural areas	Public activities	Existence of NGOs, etc.
Emergency hazard due to the possibility of earthen dams failure	Risk of flooding settlements, agricultural and industrial facilities, threat to human health and/or life	Insufficient monitoring and forecasting of the hydrological condition of water facilities, their poor technical condition, human factor, etc.	Hydro-meteorology, water management, emergency response	Reservoir water level, dams technical condition, etc.

Insufficient application of water-efficient technologies	Growing deficiency of water resources, deterioration of their quality, aggravation of social conflicts and interstate relations	Lack of financial means, sufficient knowledge and experience, low water tariffs for industrial and agricultural enterprises	All types of industrial, municipal and agricultural activities	Volume of water used per production item
Insufficient attention to the issue of water disposal	Environmental pollution, growing risk of infectious diseases incidence, growing deficiency of water resources, etc.	Lack of financial means, absence of due attention to the issue on the side of decision-makers, etc.	All types of industrial, municipal and agricultural activities	Volume of treated and diverted sewage

The Register of Issues was elaborated based on the field mission to the concerned area for corresponding environmental and socio-economic evaluation. In 2013, it was reviewed at the meeting of the Aspara River Small Basin Council and amended based on the proposals of the SBC members this year.

The preliminary Register of Issues submitted for SBC review was amended as per review findings, and was transformed into the Register of Priority Issues for the Kazakhstan part of the Aspara River Basin (Table 4.). The latter register includes 6 items, out of which the current condition of the irrigation network was deemed the most urgent one. The issues of potable and irrigation water supply of the settlements were also qualified as requiring foremost attention.

Table 4.

The Register of Priority Issues for the Aspara River Basin
(Kazakhstani part)

Issue	Impact Scale	Complexity / Costs Associated with Impact Scale Measuring	Timeframe	Pubic Interest	Issue Priority Rating
Irrigation network condition	3	4	4	4	15
Lack of irrigation water	5	2	3	4	14
Lack of potable water	3	4	3	4	14
Risk of emergency due to presence of earthen dams	3	3	3	5	14
Population migration	3	2	2	5	12
Lack of attention to the issue of water diversion	4	2	3	3	12
The issue of starting new enterprises	3	2	2	4	11
Risk of emergencies due to failure of earthen dams	3	3	3	5	14
Insufficient practical application of water-efficient technologies	3	3	2	3	11
Complicated loan system	2	1	1	2	6

4. EXISTING REGIONAL DEVELOPMENT PLANS & PROGRAMS

The Government of the RK implements a number of programs to improve the local socio-economic situation.

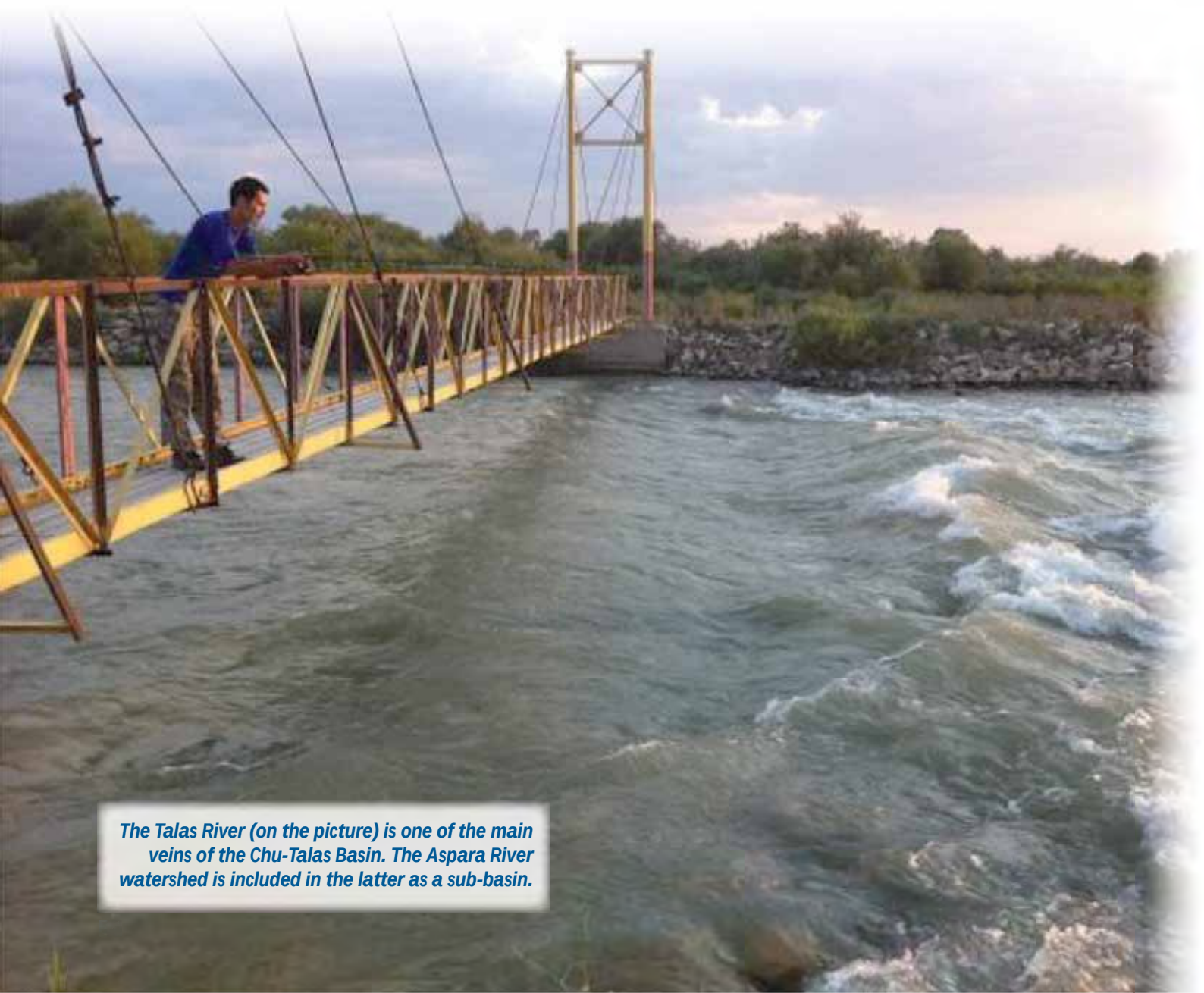
The ***Beets Growing Support Program*** is one of them. In accordance with the Program, each 1ha of sugar beets is allocated 60,000 tenge from the national budget in the form of grant. The Program also provides seeds under the condition of returning them after harvesting. Mineral fertilizers, herbicides and other chemicals sold within the Program enjoy a 40% a discount. It is important to emphasize that water supply of the beets growing sector is subsidized as well.

The area hosts a sugar refinery, which accept farmer produce. However,the full-scale implementation of the program is restrained by the lack of irrigation water. E.g., in 2012, 2,036 ha of sugar beets were planted, and yet the yield did not reach the planned level.

In spite of significant state support, local farmers are discontent with the Program. In their opinion, they are losing money by growing the beets. Due to bureaucratic delays, it is difficult for them to receive target grants and seeds. Meanwhile, beets cultivation is a labor-intensive process.

Because of these difficulties, farmers are not willing to engage in sugar beets cultivation. Moreover, as was noted by one of the respondents during the interview, the region will not be able to fully cover the needs of the sugar refinery in raw materials. Besides, within the Customs Union (Kazakhstan, Russia, and Belarus) beets production is Kazakhstan is becoming increasingly unprofitable, as it is much cheaper to grow it in Russia and Belarus.

Therefore, farmers seek to grow forage crops to support cattle breeding to which local population is much more accustomed to historically.



The Talas River (on the picture) is one of the main veins of the Chu-Talas Basin. The Aspara River watershed is included in the latter as a sub-basin.

The 2010-2015 ***Sybaga Animal Husbandry Development Program*** aims to support meat production. As per the Program, farmers may get loans to purchase local and breeding cattle for breeding and reproduction of thoroughbred cattle (4 generations).

At the same time, the Program has several shortcomings. There are enough farmers willing to participate in it. However, the required list of documents (27 items) to process the loan is rather extensive. Besides, the rules of the Program require deposition of loan security the value of which is sometimes underestimated. This creates complications related to Program implementation and forces many farmers to refuse the idea of getting the loan even though already in the process of collecting necessary paperwork. It is also difficult to collect all required papers due to the fact that the main authorized agencies are located in the district center (village of Merke) often too far from the farms.

In 2012, 4 farms received Program related loans totaling of 3,975 mln tenge to procure 198 livestock.

There are also several other target agricultural programs supported by agricultural loan corporations (e.g., *KazAgro*). One of them – the *KazAgroFinance* – is specifically aiding the dairy sector. According to local farmers, this is one of the few schemes working more or less efficiently.

The 2014-2018 Integrated Development Plan of the Anchor Urban Settlement of Andas Batyr in Merke District of Zhambyl Region was approved by Zhambyl Region Maslikhat resolution of April 14, 2014. The plan stipulates for a whole complex of measures to enhance socio-economic wellbeing of local population.

The Plan is allocated 7,498.4 mln tenge, of which 6,702 come from the national budget, 980,9 – from the local budget, and 15,5 – from other sources.

As a matter of example, the Plan's activities include construction of a reservoir (50 mln m^3 capacity) on the Aspara River, acquisition of 50 cattle within the Sabyga Program, construction of a solid waste landfill and a water supply system in the village of Andas Batyr, etc.

The intersection of the Aspara River and the Big Chu Canal on the Kazakh-Kyrgyz border. The barbed wire line prevents local residents from using the floodplain pastureland.

5. SWOT ANALYSES

As a rule, SWOT analyses is an integral part of drafting any program documents. The analyses is aimed at assessing advantages and weaknesses, threats and opportunities.

This SWOT analysis was doneto supplement the IWRM Plan for the Kazakh part of the Aspara River Basin.

Based on the analysis of the current situation presented in the preceding sections it is possible to note the following corresponding advantages and weaknesses, threats and possibilities.

Advantages:

1. Existence of the interstate water allocation agreement in the Aspara River Basin.
2. Support by national and local governments of activities aimed at supplying the population and the industry with the necessary amount and quality of water.
3. Implementation of national and local-level social aid programs to assist the population of small urban and rural settlements.
4. Approval of the *State Water Resources Management Program* by the President of the RK and the Ak-Bulak Sector-Specific Program by the Government of the RK.
5. Willingness and readiness of local population to independently address their economic issues, develop business, search for alternative ways of increasing the profitability of their operations, including by cultivating less water-consuming crops and developing animal husbandry.

Weaknesses:

1. Violation (on occasion) of fundamental provisions regulating water relations between the two riparian countries.
2. Absence of shared facilities to jointly monitor the Aspara River runoff.
3. Absence of an IT-system to transfer data on the condition of the Aspara River water resources.
4. Absence of a water quality monitoring facility on the Aspara River.
5. Contamination of the Aspara River bed with agricultural and household liquid waste and solid household waste.
6. Landscape degradation (irrigated land, foothill meadows and pastures).
7. Dependence of the Kazakh side of the basin on water releases by the Kyrgyz side.

The Aspara River distribution facility.

8. Migration of the most capable and educated population and young people to large cities.
9. Low civil participation, absence of active NGOs and their low potential.

Threats:

- Possible aggravation of interstate tensions due to lack of irrigation water in low-water years;
- Decreasing runoff and deterioration of water in the Aspara River;
- Decreasing income of population from agricultural production and consequently increasing social tension, increasing migration of residents to large cities, falling general educational level and, eventually, human potential;
- Decreasing attractiveness of the region for accommodation, especially among young people;
- Aggravation of environmental issues, shallowing of delta lakes;
- Threat of environmental deterioration in the lower reach of the river due to planned dam construction;
- Threat of flooding of the settlements of Kenes and Akermen due to potential failure of the Kenes-4 dam.

Opportunities:

- Increasing efficiency of existing irrigation systems;
- Increasing efficiency of intra-farm water distribution networks;
- Increasing efficiency of water resources use of the Aspara River by way of implementing coordinated actions on interstate and local levels;
- Increasing crop productivity by way of implementing coordinated water resources managementinterventions;
- Decreasing interstate tensions by way of establishing joint monitoring facilities and their automation;
- Improving interstate relations by way of joint protection and management of transboundary water resources;
- Developing joint enterprises (in particular,setting up a contract system to deliver raw materials (e.g., corn) to the processing facility on the Kyrgyz side).

The emergency overflow course on the Aspara River.

6. GOAL & OBJECTIVES OF THE PLAN

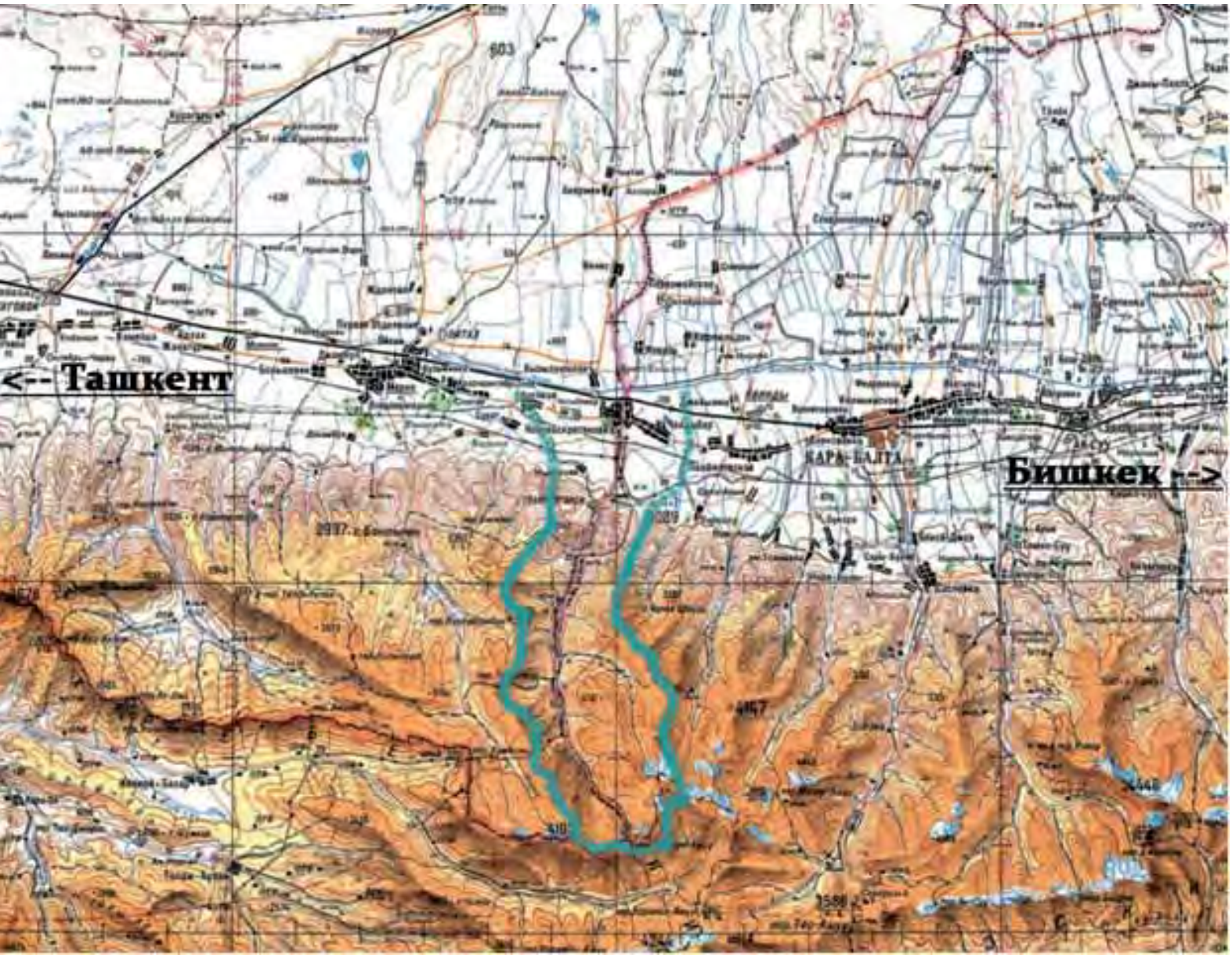
Based on research, discussion and identification of priority social and economic issues existing in the region, including these related to water supply, the purpose of the Integrated Water Resources Management Plan of the Kazakhstani side of the Aspara River Basin may be formulated as follows.

The goal of the Plan:

The goal of the Plan is to provide the population and the industry of the Kazakh side of the basin with necessary quantity and guaranteed quality of water by way of enhancing the effectiveness of water resources use and protection management based on monitoring the current and prospective socio-economic regional development.

Objectives:

1. To improve access of the communities of the US of Granitogorsk, the villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes and the Chaldovar Station to safe potable water.
2. To enhance water use efficiency and irrigation network condition.
3. To enhance local water supply, including by way of increasing the volume of available water resources and utilizing modern water-efficient technologies.
4. To improve socio-economic wellbeing of the population and decrease migration outflow to large rural areas.
5. To ensure ecosystems conservation.



7. PLANNED INTERVENTIONS

To achieve the goal and objectives stated above it is necessary to implement the following interventions.

Objective 1: to improve access of the communities of the US of Granitogorsk, the villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes and the Chaldovar Station to safe potable water.

1.1. Inclusion in the Ak-Bulak Sector Program (Implementation Plan) and execution of measures to improvehygienic characteristics of potable water supplied to the urban settlement of Granitogorsk, and other measures to clean and upgrade water diversion systems;

1.2. Inclusion in the Ak-Bulak Sector Program (Implementation Plan) and execution of measures to build water supply and diversion system in the village of Aral-Kishlak;

1.3. Setting up a monitoring system to control water quality from the Aspara River used by residents of the US of Granitogorsk for drinking;

1.4. Setting up a monitoring system to control ground water quality used by residents of the US of Granitogorsk, villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station for drinking.

Objective2: to enhance water use efficiency and irrigation network condition

2.1. Fitting the Aspara River hydrological post with modern equipment, including devices to analyze water chemical composition;

2.2. Carrying out automation of the Aspara River water observations system within the framework of the State Water Resources Management Program (hereinafter, the State Program);

2.3. Setting up a water resources monitoring system;

2.4. Executing inventory of hydro-reclamation systems and pastureland water supply systems within the framework of the State Program;

2.5. Reconstructing and upgrading local regular irrigation inter-farm land irrigation systems within the framework of the State Program;

2.6. Establishing a single water supply and diversion operator in the US of Granitogorsk, villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station within the framework of the State Program;

2.7. Developing the Integrated Water Resources Protection and Use Scheme (IWRPUS) for the Kazakhstan part of the Aspara River Basin within the framework of measures aimed at upgrading the Chu-Talas River Basin IWPRUS as per the State Program interventions;

2.8. Developing the proposal on changing the structure of agricultural crops cultivated on irrigated land within the framework of the State Program;

2.9. Developing and deploying a differentiated water supply tariff system.

Objective3: to enhance local water supply, including by way of increasing the volume of available water resources and utilizing modern water-efficient technologies.

3.1. Developing the FS/DE related to the reservoir construction on the Aspara River as per the State Program interventions;

3.2. Constructing the reservoir on the Aspara River as per the State Program interventions;

3.3. Developing an action plan of economic incentives to promote water-efficient, water reuse and recirculation technologies.

Objective4: to improve socio-economic wellbeing of the population and decrease migration outflow to large rural areas.

4.1. Repairing and maintaining in proper condition roads in the urban settlement of Granitogorsk, villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station by including these communities into the Business Road Map Kazakhstan National Program or by way of searching and attracting private sector, donor means;

4.2. Establishing internal and external public transportation systems in the US of Granitogorsk, villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station at the expense of local budget, private sector or donor means;

4.3. Establishing a community cultural facility in Granitogorsk (with a movie theater, Internet club, gym, chess and dance clubs, etc.) at the expense of local budget, private sector or donor means;

4.4. Establishing a primary medical care center in Granitogorsk and Aral-Kishlak, including a drugstore, at the expense of local budget, private sector or donor means;

4.5. Establishing mini-shops in Granitogorsk, including sewing, household appliances/clothes/footwear repair, furniture assembly, etc.;

4.6. Developing a local consumer loan program to support local population and develop small business.

Objective 5: to ensure ecosystems conservation.

5.1. Executing the EIA related to the reservoir construction on the Aspara River;

5.2. Drafting alternative design proposals related to the reservoir construction on the Aspara River, including repair and cleaning of irrigation canals and construction of daily runoff ponds in the Aspara River lower course;

5.3. Carrying out public hearings to review the EIA related to the reservoir construction on the Aspara River;

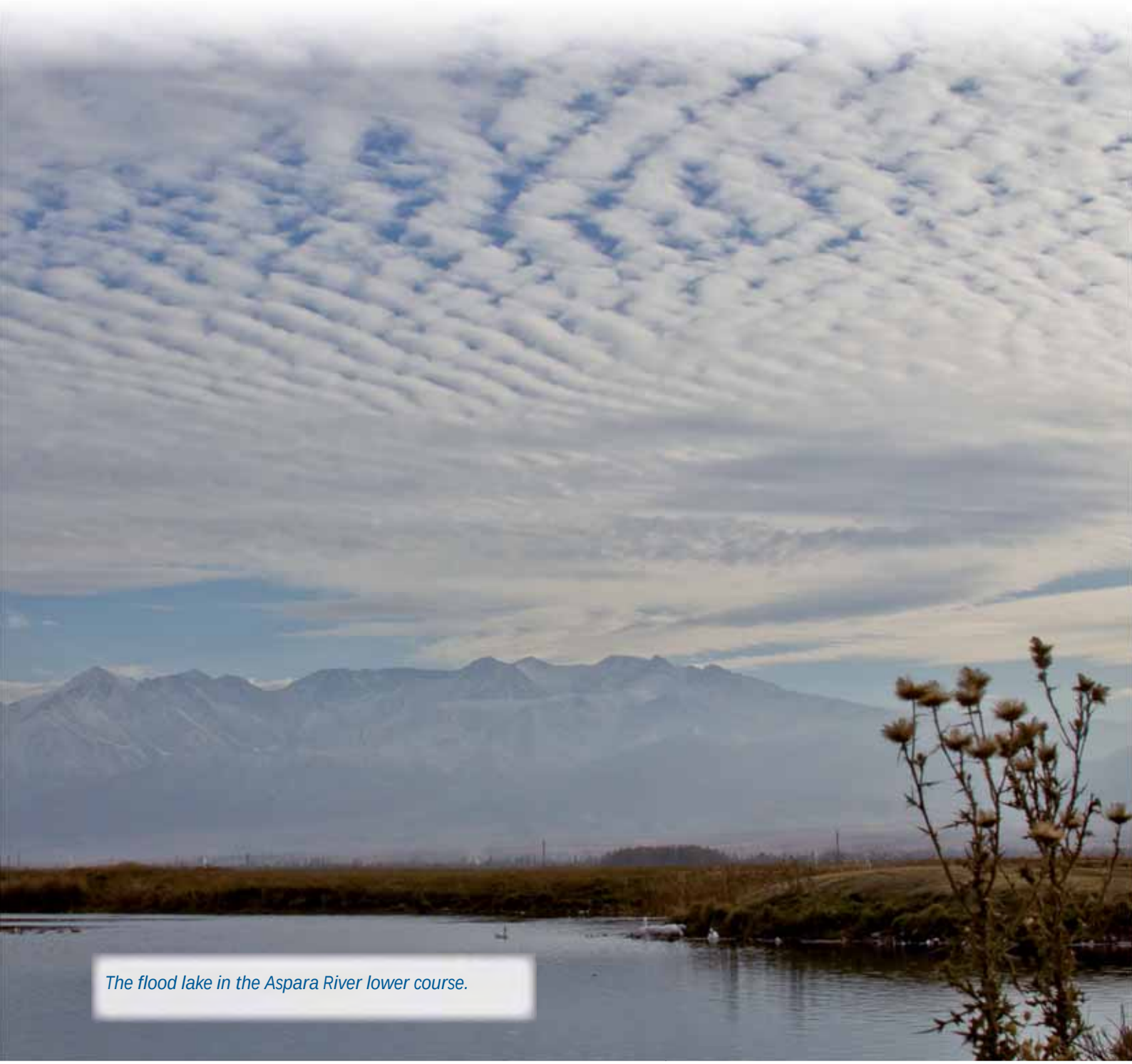
5.4. Developing a working design to establish a water protection zone and belt along the Aspara River course;

5.5. Ensuring execution of sanitary release regime in the Aspara River lower reach;

5.6. Setting up facilities to monitor ground water condition along the Aspara River bed;

5.7. Building and arranging standard garbage dumps in concerned settlements and implement garbage disposal measures;

5.8. Raising public awareness on environmental protection issues and ways of resolving them.



The flood lake in the Aspara River lower course.

8. EXPECTED OUTCOMES

The following outcomes are expected in the Kazakhstan side of the Aspara River Basin as the result of fulfilling the stated objectives within the IWRM Plan.

Objective 1: to improve access of the communities of the US of Granitogorsk, the villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes and the Chaldovar Station to safe potable water.

- 100% quality potable watersupply of the population of the urban settlement of Granitogorsk as well as the villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes and the Chaldovar Station are;
- Decreased water-related disease incidence among the population;
- Decreased total treatment costs of water-related diseases.

Objective 2: to enhance water use efficiency and irrigation network condition.

- The hydrological post on the Aspara River fitted with modern equipment, including devices to analyze water chemical composition;
- Representatives of Kazakh and Kyrgyz riparian communities provided with real-time access to data on the Aspara River runoff;
- A water resources monitoring system established;
- An inventory of hydro-reclamation and pastureland water supply systems implemented within the framework of the State Program;
- Local regular irrigation systems reconstructed and/or upgraded;
- A single water supply and diversion operator set up in Granitogorsk and Aral-Kishlak within the framework of the State Program;
- An Integrated Water Resources Use and Protection Scheme for the Kazakh side of the river basin developed;
- A feasibility study on the expediency of replacing sugar beets with fodder crops executed;
- A differentiated irrigation water tariff system developed and implemented.

Objective 3: to enhance local water supply, including by way of increasing the volume of available water resources and utilizing modern water-efficient technologies.

- The FS/ED related to the reservoir construction on the Aspara River drafted;
- The reservoir on the Aspara River built;
- Economic incentive measures to promote water-efficient, water reuse and water recirculation technologies developed and introduced.

Objective 4: to improve socio-economic wellbeing of the population and decrease migration outflow to large rural areas.

- The roads repaired and maintained in proper condition;
- Concerned settlements provided with internal and external public transportation communication;
- A sporting & entertainment center organized in the US of Granitogorsk;
- Primary medical care centers and drugstores up in concerned settlements;
- A consumer services center, incorporating mini-shops to repair household appliances/clothes/footwear, assemble furniture, etc. set up in the US of Granitogorsk;
- A local consumer loan program to support local population and develop small business developed.

Objective 5: to ensure ecosystems conservation.

- The EIA related to the reservoir construction on the Aspara River drafted;
- Alternative design proposal related to the reservoir construction on the Aspara River drafted and reviewed;
- A public hearing to review the EIA related to the reservoir construction on the Aspara River held;
- The economic activities regime in water protection zones and belts along the coastal line of the Aspara River as per existing legislation enforced;
- Sanitary water releases in the Aspara River lower reach executed;
- Monitoring stations to control the condition of ground waters along the Aspara River bed set up;
- Concerned settlements equipped with standard garbage dumps;

- Booklets, posters, billboards, postcards featuring the Aspara River Basin environment printed; a series of articles about local environment published in local Mass Media; drawing competitions among schoolchildren with the local environmental theme held; an awareness-raising environmental seminar organized.

9. THE IWRM PLAN IMPLEMENTATION TIMEFRAME & FUNDING SOURCES

The IWRM Plan for the Kazakhstani side of the Aspara River Basin is planned for implementation during 2014-2020.

The financial support of the IWRM Plan interventions will be done by means of national and local budgets, private sector, international organizations and donors.

10. THE 2015-2020 ACTIONPLANTOIMPLEMENT THE IWRM PLAN
(KAZAKHSTAN PART OF THE ASPARA RIVER BASIN)

Objective	Activity	Executor	Time-frame	Funding
1	2	3	4	5
OBJECTIVE 1. ***To improve access of the communities of the US of Granitogorsk, the villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes and the Chaldovar Station to safe potable water***	1.1. Inclusion in the Ak-Bulak Sector Program Implementation Plan and execution of measures to improve hygienic characteristics of potable water supplied to the US of Granitogorsk, and other measures to clean and upgrade water diversion systems	Merke District Akimat, MoNE of the RK	2015 -2020	National budget
	1.2. Inclusion in the Ak-Bulak Sector Program Implementation Plan and execution of measures to build water supply and diversion system in the village of Aral-Kishlak	Merke District Akimat, MoNE of the RK	2015 -2020	National budget
	1.3. Setting up a monitoring system to control water quality from the Aspara River used by residents of the US of Granitogorsk for drinking	NSE «KazHydroMet», CRPC of the MoNE of the RK	2017	National budget
	.4. Setting up a monitoring system to control ground water quality used by residents of the US of Granitogorsk, villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station for drinking	GSUC of the MoID, CRPC of the MoNE of the RK	2017	National budget
OBJECTIVE 2. ***To enhance water use efficiency and irrigation network condition***	2.1. Fitting the Aspara River hydrological post with modern equipment, including devices to analyze water chemical composition	NSE «KazHydroMet», CAREC	2018	National budget, USAID
	2.2. Carrying out automation of the Aspara River water observations system	NSE «KazHydroMet», CAREC	2015	National budget, USAID
	2.3. Setting up a water resources monitoring system	WRC of the MoA of the RK, NSE «KazHydroMet»	2017	National budget
	2.4. Executing inventory of hydro-reclamation systems and pastureland water supply systems within the framework of the State Program	WRC of the MoA, GSUC of the MoID of the RK	ежегодно.	National budget
	2.5. Reconstructing and upgrading local regular irrigation inter-farm land irrigation systems within the framework of the State Program	Merke District Water Administration	2015-2018	National budget

1	2	3	4	5
	2.6. Establishing a single water supply and diversion operator in the US of Granitogorsk, villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station within the framework of the State Program	MoNE of the RK, WRC of the MoA of the RK	2015-2018	National budget
	2.7. Developing the Integrated Water Resources Protection and Use Scheme (IWRPUS) for the Kazakhstan part of the Aspara River Basin with in the framework of measures aimed at upgrading the Chu-Talas River Basin IWRPUS as per the State Program interventions	WRC of the MoA of the RK, Chu-Talas Basin Inspection	2015-2020	National budget
	2.8. Developing the proposal on changing the structure of agricultural crops cultivated on irrigated land within the framework of the State Program	Merke District Akimat	2015-2020	Local budget
	2.9. Elaborating rationale to change irrigation water tariffs	CRNMCP of the MoNE, WRC of the MoA of the RK, Merke District Akimat	2015-2018	National budget
OBJECTIVE 3. ***To enhance local water supply, including by way of increasing the volume of available water resources and utilizing modern water-efficient technologies***	3.1. Developing the FS/DE related to the reservoir construction on the Aspara River as per the State Program interventions	WRC of the MoA, MoNE of the RK, Zhambyl Region Akimat	2015-2016	National budget, 347,2 mln tenge
	3.2. Constructing the reservoir on the Aspara River as per the State Program interventions	WRC of the MoA, MoNE of the RK, Zhambyl Region Akimat	2017-2018	National budget, 6150 mln tenge
	3.3. Developing an action plan of economic incentives to promote water-efficient, water reuse and recirculation technologies	MoA of the RK	2014-2015	
	Establishing a pilot land plot to showcase advantages of water-efficient technologies (up to 10 ha)	Farmer of Merke District	2015-2016	International donors
OBJECTIVE 4. ***To improve socio-economic wellbeing of the population and decrease migration outflow to large rural areas***	4.1. Repairing and maintaining inproper condition roads in the US of Granitogorsk, villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station by including these communities into the Business Road Map Kazakhstan National Program or by way of searching and attracting private sector, donor means	TC of the MoID of the RK, Merke District Akimat, KPPPC	2017-2018	National budget, private sector, donors
	4.2. Establishing internal and external public transportation systems in the US of Granitogorsk, villages of Andas Batyr, Aral-Kishlak, Kyzyl-Kishlak, Kenes, and the Chaldovar Station at the expense of local budget, private sector or donor means	TC of the MoID of the RK, Merke District Akimat, KPPPC	2017-2018 rr.	Local budget, private sector, donors

1	2	3	4	5
	4.3. Establishing a community cultural facility in the US of Granitogorsk (with a movie theater, Internet club, gym, chess and dance clubs, etc.) at the expense of local budget, private sector or donor means	MoCS of the RK, Merke District Akimat, KPPPC	2016-2017	Local budget, private sector, donors
	4.4. Establishing a primary medical care center in the US of Granitogorsk and the village of Aral-Kishlak, including a drugstore, at the expense of local budget, private sector or donor means	MoHSD of the RK, Merke District Akimat, KPPPC	2015-2016	Local budget, private sector, donors
	4.5. Establishing mini-shops in the US of Granitogorsk, including sewing, household appliances/clothes/footwear repair, furniture assembly, etc.	Merke District Akimat, KPPPC	2015-2016	Local budget, private sector, donors
OBJECTIVE 5. ***To ensure ecosystems conservation***	5.1. Executing the EIA related to the reservoir construction on the Aspara River	GSUC of the MoID, Merke District Akimat	2014-2015	National budget
	5.2. Drafting alternative design proposals related to the reservoir construction on the Aspara River, including repair and cleaning of irrigation canals and construction of daily runoff ponds in the Aspara River lower reach	WRC of the MoA of the RK, Merke District Akimat	2014-2015	National budget
	5.3. Carrying out public hearings to review the EIA related to the reservoir construction on the Aspara River	MoE of the RK, Merke District Akimat	2014-2015	National budget
	5.4. Developing a working design to establish a water protection zone and belt along the Aspara River course	Tender-based	2014-2015	Regional budget
	5.5. Ensuring execution of sanitary release regime in the Aspara River lower reach	WRC of the MoA of the RK, Merke District Akimat	Regularly	Not required
	5.6. Setting up facilities to monitor ground water condition along the Aspara River bed	GSUC of the MoID of the RK	2016	National budget
	5.7. Building and arranging standard garbage dumps in concerned settlements and implement garbage disposal measures	Merke District Akimat	2015	Local budget
	5.8. Raising public awareness on environmental protection issues and ways of resolving them	MoE, MoES of the RK, Merke District Akimat, donors	2015	Local budget, USAID

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