

**KYRGYZ REPUBLIC**

**MINISTRY OF AGRICULTURE, FOOD PROCESSING AND LAND IMPROVEMENT  
OF THE KYRGYZ REPUBLIC**

**DEPARTMENT OF WATER RESOURCES AND LAND IMPROVEMENT**

**AGRICULTURE PRODUCTIVITY AND NUTRITION IMPROVEMENT PROJECT”**

**ENVIRONMENTAL MANAGEMENT PLAN**

**For subproject WUA «Talaa-Bulak» rehabilitation, Ak-Talaa rayon, Naryn  
oblast**

**Environmental  
Consultant**

**Neronova T.**

**December 2019**

## **Content**

1. Introduction .....	2
2. Description of subproject under rehab.....	1
2.1. Salient features of Subproject under rehab.....	1
2.2. Description of interventions executed under Subproject .....	2
3 Description of environmental parameters of Subproject.....	4
3.1. Climate conditions .....	4
3.2. Landscape.....	5
3.3. Hydrology .....	5
3.4. Vegetation cover .....	6
4. Description of procedures related to regular operation works .....	6
4.1. Technical surveillance on canals and HTS condition .....	6
4.2. Preparing on-farm network for the winter period .....	8
4.3. Looking after wood lines and access roads .....	8
4.4. Repair works .....	8
4. 5. Desilting of canals and vegetation removal .....	9
5 Environmental impact.....	9
5.1. Expected positive environmental impact.....	10
5.2. Potential negative environmental impact .....	10
5.3. Impact on climate change.....	10
6. Environmental Management and Monitoring Plan. ....	14
7. Health and safety at work .....	14
7. Stockpiling, transportation and disposal of asbestos containing materials/wastes.....	21
7.1. Storage and stockpiling of wastes .....	21
7.2. Disposal of asbestos containing wastes.....	22
8. Legislative support .....	22
9 Awareness rising campaign, consultations and public attendance .....	24
9.1. Public consultations.....	24
9.2. Grievance redress mechanism (GRM) .....	25
9.2.1. The general processing of a complaint.....	25
9.2.2. Management of registered complaints .....	26
Annex 1. The minutes of Public hearings .....	27
Annex 2. Images .....	32

## ACRONYMS

WUA	Waternusers Association
NSR	Night storage reservoir
SAEPF	State Agency for Environmental Protection and Forestry
POL	Petroleum, Oil and Lubricants
HTS	Hydro-technical structures
SETI	State Environmental and Technical Inspectorate
DWRLI	Department of Water Resources and Land Improvement
AF	Additional Financing
CDN	Collector and drainage network
EC	Efficiency coefficient
KR	Kyrgyz Republic
IDA	International Development Association
AHE	Ameliorative Hydrogeological Expedition
Off-farm	Off-farm
LSGA	local self-government authorities
ES	Environmental safety
E	Environment
PIU	Project Implementation Unit
OIP	Second On-farm Irrigation Project
ISF	Irrigation Service Fee
SVL	Soil Vegetation layer
AISP	Agriculture Investments and Services Project
APNIP	Agricultural Productivity and Nutrition Improvement Project
RSU	WUA Rayon support union
RVK	District Irrigation Department (Rayvodkhoz)
SanPin	Sanitary Regulations and Rules
AAS	Agricultural Advisory Services
GWT	Groundwater table
O&M	Operation and Maintenance

## **1. Introduction**

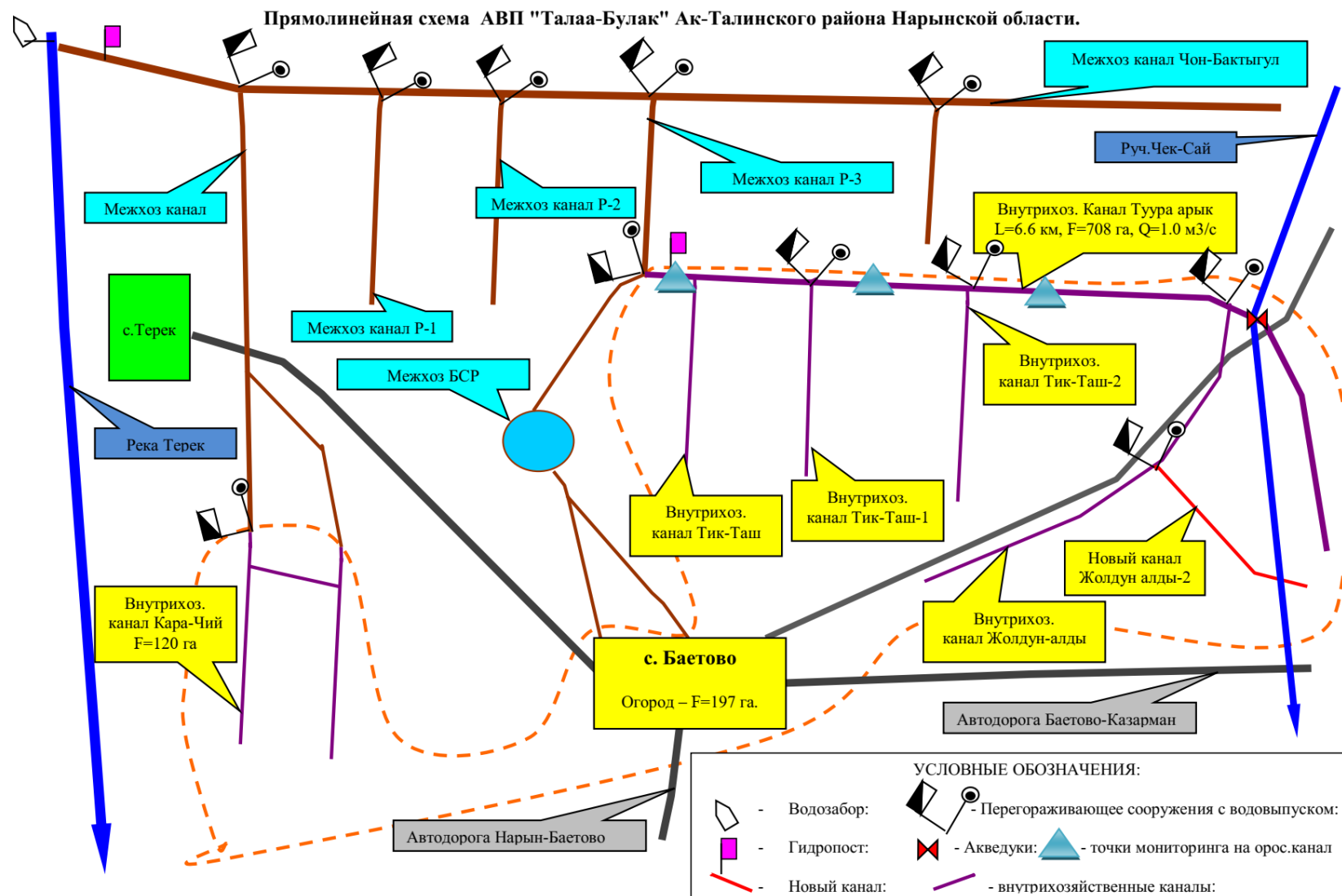
The Agricultural Productivity and Nutrition Improvement Project (APNIP) for the Kyrgyz Republic is implemented with the support of the International Development Association (IDA) and financed by the Trust Fund, provided by the Global Agricultural and Food Security Program.

The general Environmental Management Plan (EMP) was prepared under APNIP. The EMP is addressed to ensure compliance of the Subproject with the environmental management principles and practices and, therefore, with the requirements of environmental protection policy and laws of the Government of the Kyrgyz Republic, as well as the IDA environmental safeguards.

The objectives of environmental assessment (EA) is to identify the significant impact(s) of the proposed Subproject on surrounding environment (positive and negative), identify appropriate preventive and mitigation interventions aimed at preventing, minimizing or eliminating any expected irreversible impact(s). The EMP serves as a management tool that ensures proper implementation of interventions to prevent and mitigate an environmental impact(s), as well as monitoring and institutional acknowledgment of recommended activities during the implementation of the proposed Subproject. The EMP also establishes the necessary institutional obligations, proposes the implementation timing of such activities, and cost estimates within the budget proposed by the Subproject.

APNIP, in the World Bank safety measures quality rating system (WBSMQRS), is classified as "B". No irreversible or significant impact(s) on surrounding environment is expected.

Based on the general Environmental Management Plan (EMP) for WUA «Talaa-Bulak», Ak-Talaa rayon, Naryn oblast, has been developed, considering the subproject specifics.



Image

1.

WUA

«Talaa-Bulak»

irrigation

network

layout

## **2. Description of subproject under rehab**

WUA «Talaa-Bulak», established in 2002 and registered on 15.06.2005 (reg.cert: №78851-3304 ABII , re-registration: 28.03.2017), located 125 km off city Naryn, Baetovo AA, Naryn oblast, within 300 km reach to nearest railways station, and 450 km off Bishkek, masl 1900-2050 m. The population — 11377 people. WUA owns 2491 farming entities, with 821 individual waterusers. Command area – 1025 ha. The main agricrops cultivated - corn (maize), perennial grass, potato.

### **2.1. Salient features of Subproject under rehab**

The off-farm network is in decent condition with absence of serious issues on it. WUA abstracting water from off-farm canals P-3 and Ob`edinitelyi (r.s Terek), water to which is delivered from the main off-farm c-l “Chon-Baktygul”. The total length of on-farm canals – 23,8 km, of which: 1,5 km – prefabs, remaining 22,3 km – earthbed, GWT – 35 m, filtration ratio – 0,5 m/day. The irrigation network built in 1960-70<sup>th</sup> and mainly in earthbed, resulting in sufficient water filtration losses. Because of lack of funding all irrigation and metering/accounting structures, bridge and pipe-crossings are in faulty condition. No NSR rehab is planned.

The irrigation water shortage is the matter of fact caused by insufficient throughput of canals and structures which are in extremely unsatisfactory condition. Some sections of canals, either prefabs or concrete lining, are completely destroyed adding issues to water throughput, thus water losses. Multiple linear structures of canals are destroyed. Some HTS have the following damages:

- Cracks, crack-formations and sedimentation on metal and concrete parts.
- Destructed stone-paving on the upper and tail reaches.
- Missing, incomplete or broken gates/shutters.
- shortage of HTS canals to regulate, supply and metering water.
- shortage of water outlets on canals.

Water abstraction is performed through primitive non-engineering type constructions/devices, for maintenance purposes and execution of agricultural works bridge and pipe-crossings needed. Thus, the need for rehab on on-farm canals that will reduce water losses and strengthen canals efficiency and water metering is obvious, and this will result in an agricrop yield(s) increase and, due to this, WUA can increase the ISF respectively, leading to WUAs irrigation network operation and maintenance funding strengthened, reduce alienation zone(s) and soil erosion, affecting the landscape aesthetics.

During examination of WUA`s territories it was found the following:

- CDN is absent, ameliorative condition of irrigated lands is satisfactory; According to the reclamation hydrological expedition, the reclamation condition of irrigated lands is in satisfactory condition, there is no salinization of land.

- According to visual observation, WUAs on-farm irrigation network is in moderate topography, there are no changes in topography of the area. The use of earthbeds does not pose a risk to soil erosion.
- mudflow ravine is located nearby c-1 “Kara-Chiy”. Despite the fact that mudflows in that rehabilitation area are rare occurrence (according to WUA director), erosion of some areas nearby canal, which formed by mudflows, was visually identified. Thus, canals` bed Tik-Tash1, Tik-Tash2, Joldun-Aldy, Joldun-Aldy2, Kara-Chiy are not stable.
- Canals are not laid through a residential area, which will not impact air pollution quality and noise exposure.
- Alongside of canals there is some vegetation cover that is the subject of uprooting/removal, WUA should resolve that issue with eco-inspectorate, new canal-courses will be laid side-by-side with old ones;
- SVL removal required, a subcontractor should document that with WUA, (through the act between WUA and Contractor).

The landscape under consideration, currently, an artificially irrigated agro-landscape, characterized by extreme instability that caused by the following reasons:

- water delivery and distribution irrigation network is the earthbed canals, which in existing lithology, have large water filtration losses and surface discharges;
- efficiency of these canals is not high;
- irrigated lands are not provided with sufficient volumes of water.

The acute shortage is felt during the vegetation season, resulting in significant agricrop yields losses. Surface water discharges lead to contamination of nearby water reservoirs and lands with minerals and pesticides that are used for agricrops. If this type of practices continue that will endanger soil and water sources. Thus, the rehab of the on-farm network is required.

## **2.2. Description of interventions executed under Subproject**

Under subproject it is planned the rehab of the on-farm network such as; canals, (re)construction of water outlets, HP, water metering structures and etc.

### **2.2.1. On-farm c-1 “Tuura aryk”**

Length - 6.6 km in earthbed causing sufficient water filtration losses, throughput - 1.0 m<sup>3</sup>/s, command area - 708 ha, abstracts water from the off-farm canal P-3, water distribution and water metering complicated due to lack of water outlets and water metering devices.

The subproject planned following:

- reduce water filtration losses, monolithic concrete lining - 3100 m;
- 383 m of new canal-courses will be laid side-by-side with old ones, which will de-commissioned;

- (re)construction of cross-regulators and water outlets planned for improved water delivery;
- «fixed-bed» HP planned to improve water metering/accounting;
- construction of transition points for canals` maintenance and easy agricultural activities, yields transportation.

### **2.2.2. On-farm c-l “Tick-Tash-1”.**

Length - 3.6 km stonework lined in 1960-70<sup>th</sup>, which is destroyed resulting in water filtration losses, throughput – 0.2 m<sup>3</sup>/s, command area - 150 ha, abstracts water from on-farm canal “Tuura-Aryk”.

The subproject planned following:

- install prefabs (JIp-60), which WUA owns and has on another non-operating canal;
- construction of water outlets for water delivery/(re)distribution

### **2.2.3. On-farm c-l “Tick-Tash-2”.**

Length - 4.1 km in earthbed causing sufficient water filtration losses, throughput – 0.3 m<sup>3</sup>/s, command area - 200 ha, abstracts water from on-farm canal Tuura-Aryk, water distribution and water metering complicated due to lack of water outlets and water metering devices.

The subproject planned following:

- reduce water filtration losses, new canal-course will be laid side-by-side with old one, concrete slabs lining – 1 627 m, which WUA owns and has on another non-operating canal, which will de-commissioned;
- construction of 3 water outlets for improved water delivery;
- construction of pipe-crossing for canals` maintenance and easy agricultural activities, yields transportation.

### **2.2.4. On-farm c-l “Joldun-aldy”.**

The total length is 2,5 km, throughput capacity is 0,3 m<sup>3</sup>/s. Canal abstracts water from on-farm c-l Tuura -Aryk. As of today the canal is out of service. Water flows in parallel in the earthbed, resulting in water filtration losses. In upreach part of the canal 1,0 km and in the middle of the canal 0,5 km, precast concrete blocks are absent. The blocks subsidence and broken in different places. The canal runs along the route prone to erosion. Erosion processes in this area are progressing and pose risks to the destruction of the canal. The consequences will lead to water supply difficulties to the lower irrigated lands.

#### **The subproject planned following:**

- To prevent the destruction of the canal during the further development of erosion processes, the subproject planned to restore the canal lining with a length of 1578 m. by reinforced concrete blocks. WUA has reinforced concrete blocks Lr-60. In the head part of the canal, lenth-269 m, the canal will be laid along the new highway in monolithic concrete, and the rest along the old earthbed.



- The construction of turning well, water outlet, pipe crossing, the bridge over the canal, the pipe under the canal and water discharge in earthen canal.

#### **2.2.5. On-farm c-l “Joldun-aldy -2”.**

The lands located at the tail reach of the “Tuura aryk”, irrigated from sai Chek-Sai. The continuation of the Tuura aryk canal, with length -3.5 km, passes in the earthen canal. On on-farm canals the filtration losses are observed. Water hardly reaches the tail reach. Thus, the subproject provides for rehabilitation of the Zholdun aldy canal and through it the construction of new Zholdun aldy-2 canal, with length -1.156 km.

##### **The subproject planned following:**

- The rehab of c-l “Joldun aldy-2” and the construction of new c-l Joldun-aldy, with length- 1, 156 km. the subprojects provides for concrete lining of the c-l Zholdun aldy-2 with the reinforced prefabricated blocks Lr-60, length- 1200 m., which WUA owns. Thus, c-l “Joldun aldy -2”, with the length- 1,2 km, command area -258 ha, throughput - 0,3 m<sup>3</sup>/s, will be receiving water from the on-farm c-l Joldun aldy.
- Water outlets (5 pcs.), pipe crossings- 2, turning wells (4 pcs.), 2 cushion wells, 2 aqueducts and water discharge into earthen canal

#### **2.2.6. On farm ca-l “Kara-Chyi”**

Canal abstracts water from the off-farm canal P-2, length -1,6 km, throughput – 0.10 m<sup>3</sup>/s, command area - 120 ha. The c-l in earthbed resulting in water filtration losses. Water distribution and water accounting is complicated due to absence of outlets.

- To prevent water losses, the project provides for a new canal along the new highway parallel to the old earthbed- 950 meters, the rest of the canal 650 m passes along the old highway. The c-l will be lined with existing prefab concrete blocks Lr-40, which WUA owns.
- The construction of transition point, water outlets -3 pcs, turning wells- 3pcs., and pipe crossings -2 pcs.

#### **2.2.7. On-farm c-l Tick-Tash–3.**

The rehabilitation of the reservoirs and dams is not planned. Thus, the policy on irrigation dams and reservoirs (Dam safety - OII 4.37) is n/a.

The construction workload deadlines: 2020-2021.

### **3 Description of environmental parameters of Subproject**

#### **3.1. Climate conditions**

The area`s climatic specifications are introduced in accordance with the meteo-station “Naryn”. The climate of the region is moderate continental climate and indicative with lukewarm climate in summer and cold winter. Standard free of snow period -146 days. The last freezings are observed in early May, the first - in

early September. An average observed snow cover in the region is 126 days per year. It is noted in early November, and the snow cover melting at the beginning of the second decade of April. Steady snow cover is maintained from late November to late March. Winters without stable snow cover are not observed. The average annual number of temperature transitions through 0°C -68.

The coldest month- January, with absolute minimum -38°C, the hottest month- July with absolute maximum +37°C.

Rainfall in the period from November to March -68 mm. The average precipitation for the period from April to October is 234 mm;

The maximum depth of penetration into the soil of the zero isotherm under natural snow cover is 254 cm; the standard depth of seasonal freezing of soils under the surface of a horizontal platform exposed to bare snow is: coarse soil - 153 cm, sandy loam - 104 cm; the maximum height of the snow cover is 60cm.

**Table 1. Average monthly and annual air temperature, ° C**

meteo-station	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Year
“Naryn”	-15,8	-12,5	-2,3	7,7	11,7	14,7	17,3	17,5	13,1	6,0	-3,5	-12,0	3,5

### 3.2. Landscape

The landscape height within -1 900-2 050 masl. Ratio of slope- 0,08-0,09. Soil conditions - alluvial-proluvial. All household croplands are located on the village territories of the low land. The seismicity area under rehab - IX points.

### 3.3. Hydrology

The Terek river is the left tributary of the Naryn river and originates from the glaciers of the northern slopes of the Tien Shan Mountains, at an absolute elevation of 3000-5000 m, formed from the confluence of the tributaries Kalkapar and Tarasu.

The total length of the river to the water intake site is 35.5 km with an average water intake height of 2860 m and a catchment area of 404 m<sup>2</sup>. The type of river sourcing river is ice-cold with soil feeding.

The maximum flood in May-June and reaches more than 36 m<sup>3</sup>/s. Flood growth is characterized by its rapid increase, due to the intensity of snow and ice melting in the mountains and rainfall (as a rain) in the summer.

The average multi-year water flow in the low-water period - 0.221-0.698 m<sup>3</sup>/s. of the speed and depths of the flow in the river from low-water to high water vary between 1.2-3.5 m<sup>3</sup>/s and 0.2-1.4 m. The slope is 0.024 and passes in a floodplain 300 m wide in boulder-pebble sediments, the average diameter of which is 94 mm, maximum 458 mm. The Terek river in the site of the node on average

annually carries about 36 thous.m<sup>2</sup> of sediment, of which bottom sediment is 15 thous/m<sup>3</sup>, weighted 21 thous/m<sup>3</sup>.

**Table 2. Average multi-year water flow of the r. Terek**

Average monthly water flow, m <sup>3</sup> /s												Q <sub>ср</sub> , m <sup>3</sup> /с	W <sub>год</sub> , mln. m <sup>3</sup>
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII		
0,17	0,15	0,14	0,33	1,26	2,29	2,51	1,89	0,86	0,37	0,23	0,18	0,815	25,68

### **3.4. Vegetation cover**

The array covers irrigated lands with all signs of anthropogenic activity. Natural vegetation was replaced by artificial vegetation during the development period. In the natural state, the vegetation in this area - fescue-wormwood. Vegetation cover: tree and shrubbery vegetation, herbaceous plants.

The SVL will be disturbed, because (re)construction workload will be executed on new earthbeds. Thus, in the workloads plan it is necessary to provide locations for SVL storage, or let the local authorities and residents handle it for use in agricultural and landscape activities.

The alongside of the canals there are tree and shrubbery cover. During the canal' rehab, it is necessary to uproot trees that complicate conducting workload, and which are within the alienation zone of water management structures. According to the requirements of the Water Code of the Kyrgyz Republic, Art. 80 p.3, while executing repair and rehabilitation works, the shrubbery cutting and forest felling within the alienation zones of water management structures and canals, as well as sanitary cutting and deadwood cutting, do not require permission from specially authorized state agencies/bodies. Prior to commencement of work, the contractor will inform the environmental protection agency of forthcoming tree and shrub vegetation cutting to be conducted.

If rehabilitation works to-be-conducted on the sections that are not within alienation water management zones, then tree and shrubbery cutting is the subject to approval with authorized environmental protection agencies/bodies. Prior to commencement of work, WUA has to agree with authorized environmental protection agencies/bodies on tree and shrubbery cutting and necessity of compensatory measures.

## **4. Description of procedures related to regular operation works**

### **4.1. Technical surveillance on canals and HTS condition**

In the operational scheme activities, paramount importance is paid to the timely conduct of preventive and rehabilitation works that exclude probability of system failure, while complying to the rules of its operation. The main indicators of decent technical condition and reliable operation of the on-farm irrigation network are provision of designed canal's throughput, minimum filtration and performance specification water losses, absence of sedimentation, greenery overgrowing, collapse and canal's erosion.

If the actual canal's capacity corresponds to the estimated throughput, then the technical condition of a canal is good and considered as reliable. If there are 20-25% throughput deviations, then a canal's reliability is reduced, and the technical condition is an average. If the deviations are more than 25%, then a canal's performance is considered as unreliable and its technical condition is below the average.

To ensure a canal's throughput, it is necessary to conduct a careful monitoring over water regulating structures. The water volumes regulating structures must be easily and reliably (re)adjusted and controlled. While operating water regulating structures, it is necessary to ensure that there is no water leakage through the water outlet gates and no canals' erosion and destruction on its structural parts.

The lined sections, expansion and joint sections construction of a canal are the subject of constant surveillance. The damaged lining must be reworked immediately.

A daily maintenance of lined and unlined canals, facilities and equipment located on them, keeping them in good condition is reduced to the removal of vegetation and floating objects that block canals and lead to sedimentation in certain areas. During the maintenance, works are carried out to clean up structures and water distribution units from debris and ice, vegetation overgrowth and sedimentation.

A canal's lined sections must be of monolithic concrete and maintenance must be timely to prevent cracking. A particular attention must be paid to subsiding soils, as concrete lining on those soils is prone to cracks formation. A slight and gradual canal's base degradation, sometimes, leads to the formation of cracks on the lining that is impossible to rehabilitate. In this case, the cracked and battered lining sections are cut down and reworked.

The joint sections of a canal, with prefabricated reinforced concrete slabs, are the subject of particular attention. Constant surveillance of which is necessary and, if there is any urgency, must be treated with resilient water resistant materials that can withstand a vegetation impact.

Within the prefabs it is prohibited to dissolve various types of fertilizers that may cause destruction of concrete. It is also not recommended the prefabs network operation if water flow temperature is below -5 - 10°C. Therefore, in the process of preparing the network for winter, the whole canal's route must be completely free of water.

The livestock crossing and pasturing on canal's dams and slopes is strictly prohibited. The livestock drinking, dipping and etc. allowed on a special canal's section only.

To monitor the quality of irrigation water and prevent a canal's sedimentation, the water samples must be regularly inspected by RSU WUA for the following indicators: turbidity, temperature, hydrogen index and mineralization.

## **4.2. Preparing on-farm network for the winter period**

In the winter period, the on-farm irrigation network can be used for water charging irrigation, washing off and other types winter watering, as well as for supplying water to the residential areas and livestock farms, filling up reservoirs. The control over canals and structures operation, in the winter, should be paid a particular attention, as to prevent formation of ice jams near bridges, crossings, etc. The trash racks that were set for the summer in front of water structures must be removed for the winter. When frosts are formed and HTS are covered with the ice, in this case the ice must be chipped without disturbing integrity of the structures and canal's lining/coating.

## **4.3. Looking after wood lines and access roads**

Forest plantations alongside of a canal are designed to protect a canal from vegetation overgrowing, lowering the level of groundwater alongside a canal's route and reducing the adverse effect of wind force on agricrops. Alongside of permanently embedded canals within a farming network that require constant desilting interventions, it is recommended to create, on the one side, two-row or three-row strips of fast-growing trees and shrubbery. The distances between trees in the strip is 1....3 m, between bushes - 0.75..... 1 m with the distance between greenery strips of 1.5 .... 3 m.

The field and on-farm access roads on irrigated area, as a rule, are ground roads. If they pass through silty loams and solonchaks, then a road is made of gravel or other coating. A road maintenance is reduced to keeping the upper layer in good condition. The thickness of gravel coated roads is maintained within 8 ...10 cm. The roadbed condition is also the subject of maintenance and must be periodically planned and compacted. Roadside cuvettes and canals must be cleaned off dirt and vegetation. To improve water flow into cuvettes, the roadways must be made with slopes and with a slight lateral inclination from the middle to the cuvettes.

## **4.4. Repair works**

The irrigation schemes are subject to repair works according to the annually developed and approved plans. In the irrigation and drainage systems operation practice, the current, major and emergency repair workload(s) are executed.

The current repair works executed annually including desilting of canals, removal of vegetation, strengthening and widening dams, cleaning berms, eliminating small landslides, collapses, rifts and sandpits, repairing damaged anchorages and canals' lining, repairing small damages of a structural parts While carrying out current repair works, a complex technical upgrading and modifying a structural construction is not included. The preventive (prophylactic) repair workloads include:

- Patching ratholes;
- Structural cracks maintenance after ice impact;
- Tightening fixing bolts;

- Drainage structures winterization etc.

The preventive repair and a significant part of the current repair, including desilting of canals, vegetation and landslides removal, a minor canal repair(s), repair of structures, buildings and other devices are performed annually without stopping the scheme's operation.

The major repair is executed, as required, within a few years' period and includes: repair workloads on a canal's sections, dams and parts of a structure attrition and destruction, structural modification or replacement of certain elements and structural units.

The emergency repair: rehabilitation of canals, dams and structures or parts of them, destroyed as a result of natural phenomena (mudslides, floods, etc.), or violations of the operating and maintenance rules, execution of which carried out 24/7, and all available material and technical resources and labor resources are mobilized for the execution of emergency repair.

Rehab and (re)construction workloads on an on-farm network canals performed by WUAs contracting a construction company. Repair works expenses and operation of an on-farm network are annually provided by a WUA's budget.

#### **4. 5. Desilting of canals and vegetation removal**

The solid particles of soil form sedimentation that moved around by water flow. When precipitated, they form stream-bed deposits. The content of solid particles, per water volume unit, characterizes the water flow saturation with sediments, or its turbidity.

Sediments, often, are formed as a result of soil wash-away in the catchment basin via snow/glaciers melting and rain waters. Partly the sedimentation is a product of a canal/river bed and banks erosion.

The largest bed sedimentation with pebbles and coarse sand observed and remain within the head section of a bulk water supply canal. The average sized sediment particles washed into a canal's distribution network and even into on-farm irrigation network. Silty fractions are washed in an irrigation network.

On average, about 80% of sediments remain in the off-farm canals network and about 20% inflow into on-farm irrigation network. A canal's slopes have an impact on sedimentation process, if an inclination is too steep then about 60% of sediments washed in on-farm network and fields. Desilting executed on annual basis and, if necessary, more often.

### **5 Environmental impact**

The implementation of APNIP is addressed to provide economic, social and environmental benefits to farmers, farmer entities and local communities through WUA's development, the rehabilitation and modernization of irrigation and drainage infrastructures in projected areas. The best practices of previous (sub)projects demonstrate positive impacts on the environment. Namely, this Project is aimed at reducing water losses in irrigation schemes, improving water

resources management, scaling up agricultural productivity and improving soil fertility.

The Project workload require compliance with a number of mandatory requirements, including strict compliance with noise reduction, air quality, timely removal of solid and liquid domestic waste, construction debris. The requirements for prevention of environmental pollution and negative impact on the population are provided by the Law of the Kyrgyz Republic "General Technical Regulations for Ensuring Environmental Safety in the Kyrgyz Republic", the Law "On Production and Consumption Wastes", the Law "On Protection of Atmospheric Air", SanPin "Noise in the workplaces, in premises of residential, public buildings and on the territory of residential buildings" the Governmental decree of the KR, dated 11.04.2016, under №201,

### **5.1. Expected positive environmental impact**

The positive impact consists of:

- Water losses reduction;
- Improved water resources management, consisting of construction and rehabilitation of water distribution and water-metering structures;
- Improved soil fertility by increasing humus while applying an efficient irrigation schedules.
- Agricultural productivity increase;

### **5.2. Potential negative environmental impact**

At the same time, while executing irrigation network (re)construction works, there may be some potentially negative impacts on environmental protection conditions in the projected areas and require attention, preventive actions and appropriate mitigation measures during planning, development, construction, operation and maintenance.

While performing the planned irrigation networks rehabilitation works, no asbestos-containing materials will be used. It is necessary to mention that previously asbestos cement pipe crossings were used. But in the last years, they were replaced with structures of more inert materials. Thus, no issues concerning asbestos-containing materials are expected. In the case(s) if asbestos-cement pipes will be detected, asbestos-containing materials will be stockpiled, transported and finally disposed, and specific protective interventions will be executed in accordance with the hazardous wastes standards handling and disposal. For detailed information concerning the asbestos-containing materials removal, see section 10.

The potential negative impacts are relatively minor, and positive economic, social and environmental benefits far outweigh them in environmental assessment. The consideration of these impacts is given below.

### **5.3. Impact on climate change**

The irrigation and drainage schemes rehab will enhance the agricultural and farming practices, improve materially-technical procurement, land owning, pastures and water management, resulting on productivity increase and adaptation to climate change, and sustainable use of natural resources.



**Table 3. Assessment and ranking of environmental risks**

Activities	Impact	Type	Duration	Term	Degree	Risk	Reversibility	Probability
<b>Construction phase</b>								
Construction site location	Soil contamination at a construction site as a result of storage, construction and household waste, including liquid wastes.	Direct	Short-term	Immediate	Low	Low	Reversible	Average
	Surface water and ground water contamination at a construction site, as a result of stockpiling of construction and household waste, including liquid waste	Direct	Short-term	Immediate or postponed	Low	Low	Reversible	Low
uploading of excavated soil during (re)construction works of new earthbed	the landscape degradation, destruction of the animal world habitat	Direct	Mid-term	Immediate	Low	Low	Reversible	Average
construction materials transportation, heavy machinery use	air pollution and noise impacting the population/workers while heavy machinery and vehicles in use	Direct	Short-term	Immediate	Low	Moderate	Reversible	High
Canals rehab	1) Damage and trees felling and shrubbery cutting 2) SVL removal	Direct	Long-term	Immediate	High	Low	Reversible	High
<b>Operation and maintenance phase</b>								
Earth-bed canals and drains cleaning that in operation	Landscape and animals' natural habitat degradation	Direct	Mid-term	Immediate	Low	Low	Reversible	Average

Increase in irrigation water delivery, which increases the volumes of waste water	surface water pollution with agrochemicals, as a result of excessive application of pesticides and mineral fertilizers	Indirect	Mid-term	Delayed	Moderate	Moderate	Reversible	Average
Increase in irrigation water volumes delivery that leads to water speed increase	Soil erosion, related to existing agricultural production practices and with existing surface slope in WUA	Indirect	Long-term	Delayed	Moderate	Moderate	Reversible	Low

## **6. Environmental Management and Monitoring Plan.**

All the (re)construction phase risks are easily monitored and eliminated. They can be minimized by properly designing mitigation measures and monitoring the Contractor, while executing workload. During the (re)construction works, trees felling and shrubbery cutting in a canal's alienation zone will be carried out in accordance with the requirements of the Water Code (Article 80, para. 3.) and in agreement with the specially authorized environmental protection agency/body. Excavated soil-vegetation layer will be transferred to the local authorities or WUA members to apply for agricultural purposes or/and landscape improvement.

Among the O&M risks, the risk of landscape and animals' natural habitat degradation, while cleaning earth-bed canals and drains, is clear and easily controlled. The risks of surface and groundwater pollution by agrochemicals, due to excessive use of pesticides and mineral fertilizers, soil erosion associated with the existing practices of agricultural production, increase of near-surface/shallow groundwater table, due to excessive irrigation and, as a consequence, soil salinization, require a specific monitoring. The need for environmental mitigation interventions, while on O&M phase, is determined exactly in the process of environmental monitoring.

## **7. Health and safety at work**

In accordance with the KR's legislation requirements, concerning occupational health and safety, as well as the World Bank protective policy, the EMP owns measures to protect health and safety during the (re)construction work under the Subproject, see Table 2.

Developed and approved by order №8/П of the PIU Director, dated March 16, 2018. The regulation "Requirements for environmental protection, occupational health and safety to people involved in work and the provision of services at facilities implemented as part of the World Bank's project "Improving Agricultural Productivity and Nutrition" had been developed and approved by the PIU Director's Order No. 8/p, dated March 16, 2018. The regulations are sent to all subcontractors involved in rehabilitation and (re)construction works under this subproject.

Control over compliance with safety at a (re)construction site will be executed by the Safety and OOS Department of the Contractor. Control over compliance of EMP by PIU, state control executed by the State Inspectorate of Environmental and Technical Safety under the Government of the Kyrgyz Republic.

**Table 4. Mitigation plan**

Phase	Subject	Preventive/mitigation activities	Cost, US \$		Institutional responsibility		Control
			Installation	Operation	Installation	Operation	
Construction	Organizing a construction site	1) It is forbidden to locate a (re)construction site in the water protection zones of rivers and canals; 2) Ensure removal of all waste and construction rubble from (re) construction sites to dispose on the authorized municipal landfills, with the permission of local authorities; 3) Execute planning and restoration measures to restore troubled lands during and after completing (re)construction	n/a	part of the (re)construction works contract 378 571	PIU/Contract or	Contractor	1) A Contractor bears responsibility to execute environmental mitigation interventions; 2) A construction site inspections made by PIU; 3) State Ecological Inspectorate
	soil after laying a canal`s route	1) soil transportation to the designated areas, approved by the local authorities; 2) executing rehabilitation and planning activities	n/a		PIU/Contract or	Contractor	1) A Contractor bears responsibility to execute environmental mitigation interventions; 2) A construction site inspections made by PIU; 3) State Ecological Inspectorate
	1) trees and shrubbery cover;  2) SVL excavations	Coordination with the specially authorized environmental protection agency/body cutting greenery plantations that grow outside of a canal`s alienation zone;	n/a	part of the (re)construction works contract	PIU/Contract or	Contractor	1) A Contractor bears responsibility to execute environmental mitigation interventions;

		2) SVL handled by WUAs through act between WUA and Contractor					2) A construction site inspections made by PIU; 3) State Environmental and Technical Inspectorate (SETI)
	Vehicular emissions into the atmosphere	1) vehicular exhaust systems and construction equipment should be in good condition, in order to minimize air pollution; 2) Limiting the speed of vehicles and selecting suitable transportation routes to minimize dust emissions; 3) Moisturizing the road surface while driving through the residential area territories	n/a	part of the (re)construction works contract	PIU/ Contractor	Contractor	1) A Contractor bears responsibility to execute environmental mitigation interventions; 2) A construction site inspections made by PIU; 3) State Environmental and Technical Inspectorate (SETI)
	Noise impact within labor area	Machinery and equipment operation	n/a	part of the (re)construction works contract	PIU/ Contractor	Contractor	1) A Contractor bears responsibility to execute safety of staff; 2) SETI on- site inspections;
	Work area safety	1) construction sites will be equipped with information and designator boards concerning working regulations and requirements; 2) easily accessible and complete first aid kit to treat an injury. 3) Workers' health and safety (helmets, protected shoes, gloves);	n/a	part of the (re)construction works contract	PIU/ Contractor	Contractor	1) A Contractor bears responsibility to execute employee safety measures 2) SETI on- site inspections;

	Safety of local population	limiting access to (re)construction sites, zones and equipment locations by local citizens.	n/a	part of the (re)construction works contract	PIU/Contractors	Contractor	1) A Contractor bears responsibility to execute employee safety measures 2) SETI on-site inspections;
Operation	Threats to water quality due to contamination by agrochemicals	<ul style="list-style-type: none"> <li>- best practices on pesticides application,</li> <li>- application of agrochemicals in accordance with recommended norms,</li> <li>- preventing effluent water discharge into canals and surface water objects,</li> </ul>	n/a	n/a	AAS/AISP	WUA Members	RSU on-site inspection, approval and coordination with SETI
	Increased of soil erosion	<ul style="list-style-type: none"> <li>- preventing effluent water discharge into canals and surface water objects,</li> <li>- outreach campaign</li> <li>- rational use of irrigation water and applying water regimes in accordance with the irrigation requirements,</li> <li>- Arrangement of irrigation furrows on the lowest slope (cross-cut furrows);</li> <li>- shortened furrows length;</li> <li>- altering irrigation technology (sprinklers, drip irrigation)</li> </ul>	n/a	n/a	AAS/AISP	WUA Members	RSU on-site inspections
	Climate change impact	<ul style="list-style-type: none"> <li>- education on environmental mitigation activities;</li> </ul> Compliance of irrigation norms and regulations.	n/a	n/a	AAS/AISP		RSU on-site inspections



**Table 5. Environmental monitoring plan**

Project Phase	Parameter	Location	Method/Equipment	Frequency	Objective	Costs		Responsibility	
						Organization	Performance	Organization	Performance
Baseline	Salinity, concentration of hydrogen ions (pH), water turbidity	upper and lower reaches of irrigation canal under rehab	Field equipment for parameters measurement	At the beginning, in the middle and at the end of vegetation season	Rehabilitation works and agricultural activities impact assessment	0	Insignificant	RSU	Water sampling and analysis.
Construction	Environmental Management Plan	subprojects under rehab	visual inspection of a subproject	Before, during and after (re)construction completion	Ensuring implementation of planned activities under EMP	0	Insignificant	Contractor or PIU	Contractor PIU
	Salinity, concentration of hydrogen ions, turbidity	Canals under rehabilitation, located upstream and downstream of the rehabilitation site	Field equipment for parameters measurement	Before, during and after (re)construction completion	Assessment of construction works impact	0	Insignificant	RSU	water sampling and analysis. Introduction of results to PIU
	Pollution of watercourses by petroleum, oil and lubricants	When suspected of contamination. Downstream of rehabilitation subproject	Sample for laboratory analysis	During construction	Assessment of construction works impact	0	100 USD	Contractor	Accredited laboratory Water sampling and analysis. Introduction of results to PIU



Operation	Salinity, concentration of hydrogen ions, turbidity	upper and tail reach of irrigation system of Terek river	Field equipment for parameters measurement	At the beginning, in the middle and at the end of vegetation season	irrigation and waster waters quality control	0	Insignificant	RSU	RSU
-----------	---	--	--	---	--	---	---------------	-----	-----

## **7. Stockpiling, transportation and disposal of asbestos containing materials/wastes**

Asbestos-containing materials disposal will be executed in accordance with the local legislation, including construction standards, occupational health and safety regulations, emissions of harmful substances into the atmosphere, disposal/removal of construction and hazardous wastes (in cases of a specific domestic legislation absence, the European Parliament Directive 2003/18/EU, which amends and updates the EU Directive 83/477/EEC on protection of workers against workplace exposure to hazards from asbestos and asbestos containing materials: the air pollution thresholds are 0.1 fiber/cm<sup>3</sup>, and also use the recommended standards Notes: Asbestos: “Health problems at the workplace and in the community”, the World Bank). The asbestos materials are subject to immediate unconditional disposal/entombment in special conditions.

In accordance with the Government of the Kyrgyz Republic’s Order No. 885 "On Management of Hazardous Wastes in the Kyrgyz Republic, December 28, 2015," asbestos-containing wastes should be disposed the following order:

- The process of handling hazardous wastes (waste lifecycle) consists of the following stages: generation, accumulation (collection, temporary storage, stockpiling), transportation, neutralization, recycling, reuse of processed products and disposal/entombment.
- If there is asbestos on a construction site, it should be clearly marked as a hazardous material. Asbestos-containing materials should not be cut or destroyed, as this leads to dust formation. During the (re)construction, all workers should avoid crushing/destroying the asbestos-containing waste, store such waste(s) in designated areas on a construction site and properly dispose thereafter in a special place or landfill.
- When asbestos-containing wastes are to be temporarily stored at a designated area(s)/construction site, they should be properly placed in sealed containers and marked appropriately as a hazardous material. Precautions must be taken to prevent unauthorized disposal of such wastes from a designated area/site.

### **7.1. Storage and stockpiling of wastes**

- The asbestos containing materials extraction should be minimized through the use of efficient technologies.
- All asbestos containing materials should be recycled and disposed by the experienced specialists. The specialists are obliged to wear protective outfit (face masks, gloves, uniform)
- The stockpiled wastes, on a designated area(s), should not exceed established volumes/requirements.
- The access roads for removal of industrial and construction wastes from a designated area(s) should not be obstructed.

- While handling asbestos containing wastes, all operating staff members should wear protective outfit (facemask, gloves etc.). Prior to removal of asbestos waste (if necessary) the stockpiled area should be treated with a moisturizing agent to minimize emission of asbestos containing dust. Disposed asbestos should not be reused.
- Storage of inappropriate items, individual protective or working outfit is strictly prohibited at the designated asbestos waste(s) locations.
- During handling operations, all workers should strictly follow the asbestos treatment requirements, and health and safety requirements. All operations should be executed with the use of mechanized machinery, elevating and transportation equipment.
- Hazardous waste(s) should be transported by the superficially equipped Vehicles to the landfill locations, either contracted, or owned. The Vehicles should be designed and used in such a way, as to prevent possible incidents, losses and pollution of the environment, both on the way to the disposal site location, and during the (re)loading of waste from one vehicle onto another. All types of handling and transportation of waste operations from/to the main and supporting facilities should be mechanized, and an airtight equipment used. It is strictly prohibited, during the transportation, to open the hazardous waste containers.
- Solid and dusty wastes are the subject of transportation in a specially designed containers, equipped with gripping devices for (un)loading by cranes. The transportation of asbestos wastes on the open-bed vehicles and railway cars is strictly prohibited.
- The use of hooks and other sharp tools, while processing the waste, is strictly prohibited.
- The driver of the Vehicle, transporting hazardous waste and authorized accompanying staff only, are allowed on the Vehicle(s). The Driver(s) must be aware of the safe transportation requirements. (During transportation asbestos waste)
- All handling, transportation, (un)loading and disposal of waste must be mechanized. The waste must be transported in such a way, as to prevent transport losses and impact on environment.

## **7.2. Disposal of asbestos containing wastes**

- Asbestos-containing waste must be disposed in municipal solid waste dumps or non-recyclable industrial solid waste damp-yards.

## **8. Legislative support**

In the Kyrgyz Republic, there are a number of environmental protection laws, regulations and requirements, which address the specific issues of environmental protection. Table 5 summarizes the legal norms relevant to the Subproject.

**Table 5: The main subordinate legislations, regulations and requirements**

<b>Legal authority</b>	<b>Legal mandate</b>
Constitution (2010)	The state's ownership of natural resources, rights and duties of citizens.
Water Code of the Kyrgyz Republic (2005)	It identifies the state policy, legislative and institutional basics on water resources management and protection
Law on environmental protection (1999)	It identifies state policy on environmental protection, legislative and institutional basics on water resources management and environmental protection
Law "General technical regulation on ensuring environmental safety in the Kyrgyz Republic" (2009)	The Regulation determines the main provisions of technical regulation in the field of environmental safety and establishes general requirements for ensuring environmental safety while designing and implementing of interventions within economic and other types of production activities, storage, transportation and production disposal.
Law on environmental expertize (1999)	It requires review of environmental protection issues (environmental appraisal) and prevents negative environmental impacts and human health as a result of economic and other activities
Law on specifically protected natural reservations (2011)	It establishes regulations for specially protected natural areas, various types and/or levels of economic activity.
Law on protection of atmosphere (1999)	It regulates emissions to atmosphere and specific obligations on protection of atmosphere
SanPin "Noise on the workplaces, in premises of residential, public buildings and on the territory of residential buildings" the Governmental decree of the KR, dated 11/04/2016. №201,	Establishes a sanitary-epidemiological requirements, standardized parameters and maximum permissible noise levels at (re)construction sites, noise classification, permissible noise levels in the Projected rooms, (re)construction sites, (re)constructed and operated residential, public buildings and on the territory of residential buildings.
the GovKR. Provision No.224 of 03/05/2013. "On approval of fees for calculating the amount of penalties for damages caused to objects of animal and plant life, mumijo-containing mineral materials and mushrooms by legal entities and individuals"	Fees designed to ensure preservation of biodiversity, proper protection of flora and fauna

The Government of the Kyrgyz Republic ratified multiple international conventions on environmental protection and agreements, related to this Project:

- Convention on environmental impact assessment of the transboundary territories Espoo (2001);
- Agreement on cooperation in environmental protection and efficient use of natural resources (Kyrgyz Republic, Kazakhstan, Uzbekistan) (1998),
- Convention on wetlands, representing the international importance for the waterfowl's main habitat (Ramsar Convention) (2002);

- Convention on right to use international watercourses as transport routes (1997), Agreement on the use of water structures for interstate purposes on the Chu and Talas Rivers (Kyrgyz Republic and Kazakhstan) (2000);
- the United Nations Framework Convention on Climate Change (2000);
- Kyoto Protocol (2003).

## **9 Awareness rising campaign, consultations and public attendance**

### **9.1. Public consultations**

In accordance with Operational Procedures OP4.01.<sup>1</sup> The WB has special requirements for disclosure of information and public consultations. The disclosure includes introduction of information about the Project affected population (PAP) and other stakeholders, from the Project's early implementation cycle, and throughout lifecycle of the Project. The information disclosure is intended to facilitate comprehensive interaction with the Project affected population, and stakeholders throughout the lifecycle of the Project.

Moreover, the Kyrgyz Republic is a member of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, the United Nations Economic Commission for Europe, which also contains provisions for ensuring the disclosure of the objectives and environmental considerations of the subproject.

The public hearings in WUA "Tala-Bulak", Bactov AA, Ak-Talaa rayon, Naryn oblast held on May 29, 2018. Which was attended by 69 people: WUA representatives, local authorities, farmers, RSU WUA, PIU project designer.

The public hearings delivered a general info of the subproject, as well as technical solutions and activities that will be undertaken to prevent and mitigate impact(s). The the minutes of Public hearings, the list of participants and pictures, are attached.

EMP was uploaded on APNIP webpage, section "Reports on environment": <http://apnip.water.gov.kg/en/reports/environmental-reports/>.

---

<sup>1</sup> World Bank Project Operational Manual OP 4.01, «Ecological assessment», clause.3.

## 9.2. Grievance redress mechanism (GRM)

**Objective.** The primary target of GRM and population's statements is identification, registry and assistance in solving complaints that were stressed during the Project activities.

**The GRM main principles are:**

- (i) Protection of Citizens' rights;
- (ii) Transparency;
- (iii) Accessibility to a free GRM mechanism and without follow-up prosecution;
- (iv) Appropriateness, from the point of local cultural sensitivities view;
- (v) Personal responsibility for the performance duties;
- (vi) Accountability of during the GRM consideration and applications by the PIU.

Complaints and applications filed in accordance with the established procedure are subject to a mandatory review, refusal to admit is not allowed. Complaints and applications of citizens, without indication of the name and postal address, to which the reply should be sent, are considered anonymous and are not subjected to revision.

The GRM does not hinder the right of citizens to applying into the Judiciary authorities. Citizens have the right to apply to the court, or other state bodies for the resolution of emerging issues related to the violation of their rights, emerged under the Project.

For the GRM implementation, the PIU and WUA created a register of complaints and statements from the population. Moreover, anyone can apply to the PIU in an online format at: <https://mail.rambler.ru/m/redirect?url=http%3A//apnip.water.kg/%25D0%25BE%25D0%25B1%25D1%2580%25D0%25B0%25D1%2589%25D0%25B5%25D0%25BD%25D0%25B8%25D1%258F-%25D0%25B8-%25D0%25B6%25D0%25B0%25D0%25BB%25D0%25BE%25D0%25B1%25D1%258B/&hash=8ef50d487d10168e5d891f2d9dd443cd>

### 9.2.1. The general processing of a complaint

- In the process of the assets assessment, PAP will be introduced to the information concerning filing and reviewing procedure.
- The first step in the process of handling complaints will be a personal verbal appeal to the Subproject representative, local authority, or by phone (the mobile phone number will be provided on the information board of AO's office, and also posted in ads in places frequented by the population). If the problem cannot be resolved within 5 days, consideration of the complaint will be done at the next level.
- An aggrieved person can file a complaint on the issue related to the process of resettlement or compensation, in written form, to the PIU APNIP Director. A complaint must be signed and dated by an aggrieved party. The APNIP social affairs consultant will maintain a direct link with the PAP. The PIU will

determine the validity of a complaint and notify an aggrieved person that he/she will be assisted. The answer will be provided within 14 working days, during which meetings and discussions will be held with an aggrieved person.

- If a complaint concerns an asset assessment at the expense of the Subproject, a secondary or even a third assessment of an asset will be carried forward, until it is accepted by both parties. The follow-up assessments can also be carried forward by an independent appraiser(s) at the expense of an aggrieved party. The PIU will assist to an aggrieved party at all stages to resolve a complaint and ensure that a complaint is treated the best-of-breed.
- If, after receiving a response from the PIU, an aggrieved party remains unsatisfied, then a complaint is considered in the working group of the Project under AO, which will be established by the head of AO's resolution, from the members of the Local AO deputies, WUAs representatives, local dignitaries and the PIU specialists.
- In case of an objection, regarding to the working group decision, which is provided within 30 working days, the PAP may appeal to the court.

### **9.2.2. Management of registered complaints**

A local representative of the Subproject should ensure a weekly transfer of received complaints from the PAP to the PIU, as well as the first instance consideration result(s). The local authorities should work with complaints in accordance with the established order and should file the complaints and proposals in the processing registry.

The PIU upon receipt of an information, the social consultant should ensure that each complaint has an individual identification number and a progress report in reviewing each complaint reflected in the FRP, which identifies a person(s) responsible for each individual complaint and recording the dates of the following events:

- the date of filing a complaint;
- the date of entering a Complaint(s) Registry in the Project database;
- the date when the information on the proposed solution measure(s) was sent to an aggrieved party (if applicable);
- the response date to an aggrieved party.

The general information on complaints received (number, type of complaint), progress in resolving it and problems encountered, should be included in the Subproject's periodic reporting submitted to the World Bank.

**Annex 1. The minutes of Public hearings on environmental protection and social issues in  
WUA «Talaa-Bulak», Ak-Talaa rayon, Naryn oblast,  
the World Bank, "APNIP"**

**Baetov A/O**

**May 29, 2019**

Attendees:

Aliev A.N. Haed of aiyl okmotu;  
Neronova T. – environmental consultant, APNIP;  
Masalbekov R.- PIU APNIP engineering coordinator (north)  
Abdygaziev M. PIU APNIP Design Engineer;  
Osmonov K. - PIU APNIP senior design engineer (north);  
Akmatov B. - Director of WUA “Talaa Bulak”;

The public hearing was attended by 69 people; waterusers, representatives from farming entities, WUA members, of which 12 females. The list of attendees is applied

**Chairperson –Aliev A. N.**

**Masalbekov R.** – PIU APNIP engineering coordinator (north), introduced an information concerning the APNIP and informed about the projected rehab workload for on-farm network.

**Neronova T. I.** - environmental consultant, APNIP, has explained about the Kyrgyz Republic’s environmental legislation requirements and the World Bank's policy on environmental protection under the Project.

The task of environmental assessment is to identify the Project’s significant impact on the environment (positive and negative), identify appropriate preventive measures and mitigation measures aimed at preventing, minimizing or eliminating any expected irreversible impact(s).

The experience of previous projects demonstrates the positive impact of the Project on the environment. In fact, many positive impacts of projects have been identified during the environmental assessment. Namely, this Project is aimed at reducing water losses in irrigation schemes, improving water management, scaling up agricultural productivity and improving soil fertility.

At the same time, while carrying out civil works on (re)construction of irrigation networks, there may be some potentially negative impacts on environmental protection conditions in projected areas that may need attention, to undertake preventive actions and appropriate mitigation measures during planning, development, construction, operation and maintenance. Potentially negative impacts are relatively small and positive economic, social and environmental benefits far outweigh them in environmental assessment. Consideration of these impacts is given below.

The main impact(s) that can be seen as a result of the (re)construction works:

- 1) Soil pollution on construction site.
- 2) Groundwater pollution on construction site.
- 3) Deterioration of the landscape, destruction of the natural habitat of the animal world, changing the local drainage network.
- 4) Air pollution and impact on workers/population during traffic and heavy equipment operation.

The site specific EMP is composed for each of the rehabilitation subproject to prevent or mitigate the negative impact of the construction works. It includes a mitigation and monitoring plan, both for the construction phase, and for the O&M phase.

All the risks of the (re)construction phase are easily controlled and eliminated. They can be minimized by properly designing mitigation measures and controlling the Contractor, while carrying out the works.



From the risks of the O&M phase, the risk of landscape deterioration and destruction of the natural habitat of the animal kingdom when cleaning earth canals and drains is clear and easily controlled. The risks of surface and groundwater pollution by agrochemicals due to excessive use of pesticides and mineral fertilizers, soil erosion associated with existing agricultural practices, increase in groundwater levels in the zone of their not deep occurrence due to excessive irrigation and, as a result, salinization of soils, require special monitoring. The need for mitigation measures at the O&M stage is determined precisely in the process of environmental monitoring.

Social issues were raised. In particular, the participants in the public hearings were told about the World Bank policy 4.12 “Involuntary Resettlement”, which is aimed at eliminating the risks associated with involuntary resettlement by resolving issues of minimizing risks.

In the interests of the public and WUA members, a GRM has been developed. WUAs have a complaint form and GRM. Moreover, all WUAs have a complaint form and GRM.

In addition, the PIU site ([www.apnip.water.gov.kg](http://www.apnip.water.gov.kg)) has a separate section on appeals and complaints, where anyone can send their appeal or complaint about the Project's activities.

For effective monitoring and management of complaints of the population and GRM, the PIU maintains a database of appeals and complaints.

### **Questions:**

Mamaev S.- who is in charge for controlling environmental condition during (re)construction?

Neronova T. I. -The Subcontractor is responsible for the implementation of activities specified in the EMP and responsible for appointment a person/specialist in charge. The PIU will control the subcontractor work performance, as well as the SIETS will maintain its controlling functions.

Arykbaev B. – Who is in charge for controlling over the quality of water in the canals?

Neronova T. I. - Monitoring of water quality in the canals will be carried out by the rayon water use support unit. They will conduct rapid analyzes of water for mineralization, acid-base analysis and turbidity of the water.

Mametov Zh.- Greenery (shrubs and trees) is it necessary to obtain permission for felling/cutting if they are within alienation zone?

Neronova T. I. -During surveying of canals it was found that there is some greenery within those zones. Thus, WUA has to compose the formal letter with the request to cut greenery to the Chui-Bishkek territorial environment protection department, and they will consider this issue.

Bayazov B.- (re)construction and household wastes, where they will be removed?

Neronova T. I. - All types of wastes will be buried at designated by the local authority landfills and the subcontractor will be in charge for it, some of the (re)construction waste could be re-used.

Chekurov. N -What is GRM?

Neronova T. – local residents who have questions and concerns during the (re)construction works can make an entry into the complaints register. If WUA/wateruser will not receive a response, the complaint will be submitted to the PIU APNIP for follow-up revision.

Satynaliev T. – who is eligible to make a complaint?

Neronova T. - any local resident and WUA member can do it. Complaints can be submitted at any time orally or in writing during the preparation and implementation of the project.

At the end of the meeting, all attendees supported implementation of the subproject.

Aliev A.N. expressed acknowledgement on behalf of all attendees, who have supported implementation of the subproject.

**Chairperson**

**Environmental consultant**

**Regional engineer coordinator**



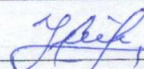
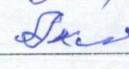

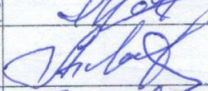
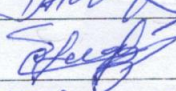
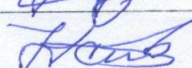
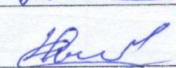

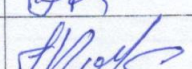
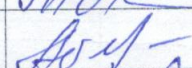





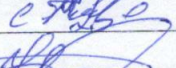

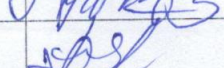


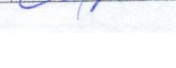
**Aliev A.N.**

**Neronova T.I.**

**Masalbekov R.O.**

Список участников общественных слушаний по экологическим и социальным вопросам в АВП «Таала-Булак» Баетовского аильного округа Акталинского района Нарынской области в рамках проекта «Улучшение сельскохозяйственной производительности и питания»

29.05.2019г.

№№	ФИО	Подпись
1	Аракайтыв. Р.	
2	Байсереев. Л.	
3	Исмаилов Ибрагим	
4	Ахмедов Конокбай	
5	Манжаев Лангсак	
6	Лисав. Анибай	
7	Маматов. Срибай	
8	Нурдолозов Сатим	
9	Нурдолозов Сатим	
10	Кунабеков Сулукбек	
11	Мурзакеев. Рауфкан	
12	Абдымомунов Ибрагим	
13	Артукбаев Батыр	
14	Ахмедов Курманбай	
15	Манатов Манымбек.	
16	Рисбек уулу Бакыт	
17	Мурсабек уулу Нурдин	
18	Ташматов Сулукбек	
19	Абдрахман уулу Чан	
20	Фурсабеков Тимур	
21	Семиров Нурман	
22	Чаданова Руманова	
23	Балзов Бакыт	



24	Камбарбеков Эман	Кам
25	Ахмедова Туркешан	Турк
26	Абдуллаева Назир	Наз
27	Чойбек к Назир	Чой
28	Мамиев С	Мам
29	Бечтемиров У	Беч
30	Абдулга у Д	Абд
31	Бактубеков А	Бакт
32	Нурматов Рахат	Нур
33	Сатканиев Темирген	Сат
34	Момоидов Азамат	Мом
35	Эмомиев Висал	Эмо
36	Солмубетова Турмуш	Сол
37	Беймекеева Атыркан	Бей
38	Назирбеков Назирбек	Наз
39	Ходжаханов Комодик	Ход
40	Турсунгулов Кудайбек	Турс
41	Алиев Орозбек	Али
42	Мамиев Абдыбек	Мам
43	Асанов Муратбек	Асан
44	Камбаров Баракан	Кам
45	Алиев Муратбек	Али
46	Алиев Абдрахман	Али
47	Алиев Нурмат	Али
48	Марзакматов Жан	Мар
49	Нурматов Стан.	Нур
50	Алиев Умидбек	Али
51	Алиев М.Т	Али
52	Самиев М	Сам
53	Алиев Б	Али



54	Карасаринов И.М.	Шад
55	Гантбаев, Г.	Тар
56	Экенов М.	Чай
57	Гектиев Г.	Там
58	Турдугенов Давид	Шин
59	Смаилов В.	Андр
60	Айтказе Котыбек.	Андр
61	Экенов Бекен	Андр
62	Экенов Нурбек	Андр
63	Корали	Андр
64	Мурсаев уулу Нурган	Андр
65	Кереева Г.И.	Андр
66	Масалбаев Р.	
67	Осмонов К.	
68	Абдураманов М.	
69	Наминова В.	
70	Наминов Б.	
71		



Image #1. Participants of public hearings, May 28, 2019



## Annex 2. Images



Image # 2. C-1 Tuura- Aryk, May 2019



Image №3. Cross regulator on the canal Tak-tash, May 2019.





Image # 4. C-1 Kara-Chyi, May 2019.