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OUTLINE OF INVESTMENT PROJECT IDEA

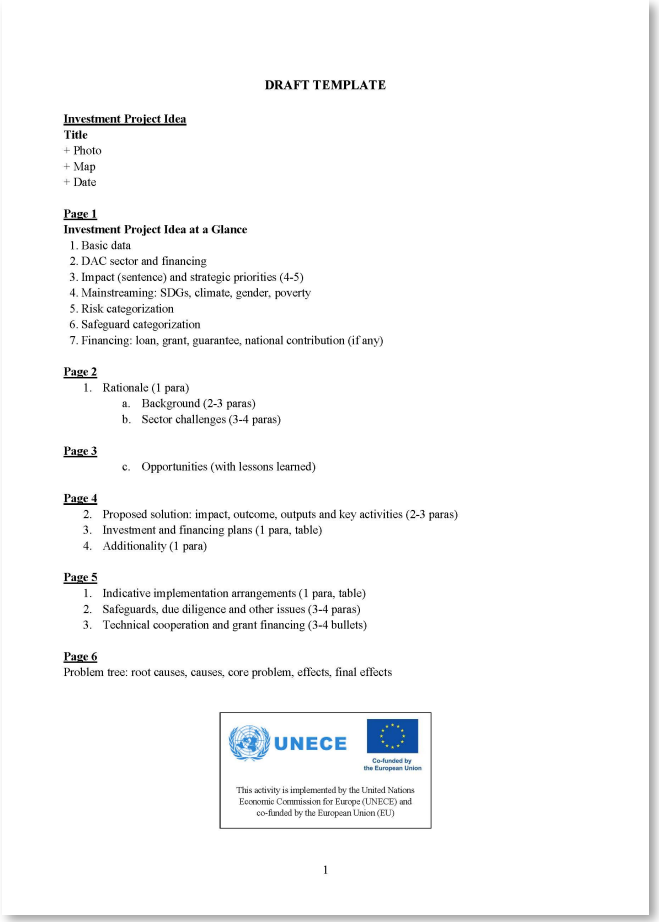
MODERNIZATION OF WATER DISTRIBUTION SYSTEMS AND WATER MANAGEMENT INFRASTRUCTURE IN THE CHU-TALAS BASIN (KYRGYZ SIDE)

18th Meeting of the Steering Committee
of the National Policy Dialogue on Integrated Water Resources Management
in the Kyrgyz Republic

Bishkek, 3rd February 2023

NPD INVESTMENT PROJECT IDEAS

- Help target countries develop environmentally-friendly investment project ideas
- Discuss the proposed investments at the NPD IWRM
- Prepare the investment proposals, based on feedback from the NPD IWRM
- Help governments present the investment proposals to potential investors and donors
- **Activity supported by the EU, implemented by UNECE**
- **Disclaimer: this does not imply that the EU and UNECE have plans at the moment to support the financing and implementation of this investment project**



DRAFT TEMPLATE

Investment Project Idea
Title
+ Photo
+ Map
+ Date

Page 1
Investment Project Idea at a Glance
1. Basic data
2. DAC sector and financing
3. Impact (sentence) and strategic priorities (4-5)
4. Mainstreaming: SDGs, climate, gender, poverty
5. Risk categorization
6. Safeguard categorization
7. Financing: loan, grant, guarantee, national contribution (if any)

Page 2
1. Rationale (1 para)
   a. Background (2-3 paras)
   b. Sector challenges (3-4 paras)

Page 3
   c. Opportunities (with lessons learned)

Page 4
2. Proposed solution: impact, outcome, outputs and key activities (2-3 paras)
3. Investment and financing plans (1 para, table)
4. Additionality (1 para)

Page 5
1. Indicative implementation arrangements (1 para, table)
2. Safeguards, due diligence and other issues (3-4 paras)
3. Technical cooperation and grant financing (3-4 bullets)

Page 6
Problem tree: root causes, causes, core problem, effects, final effects

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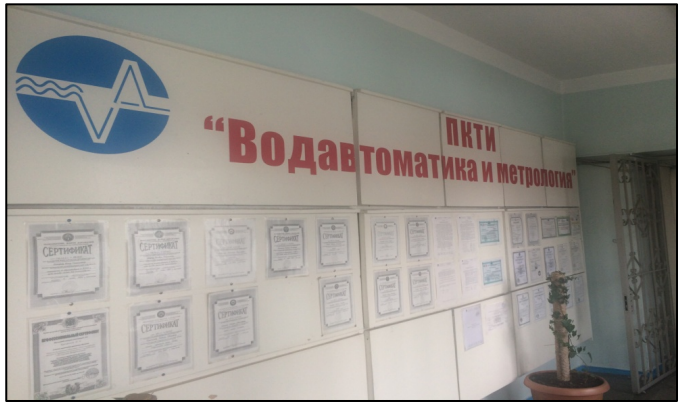
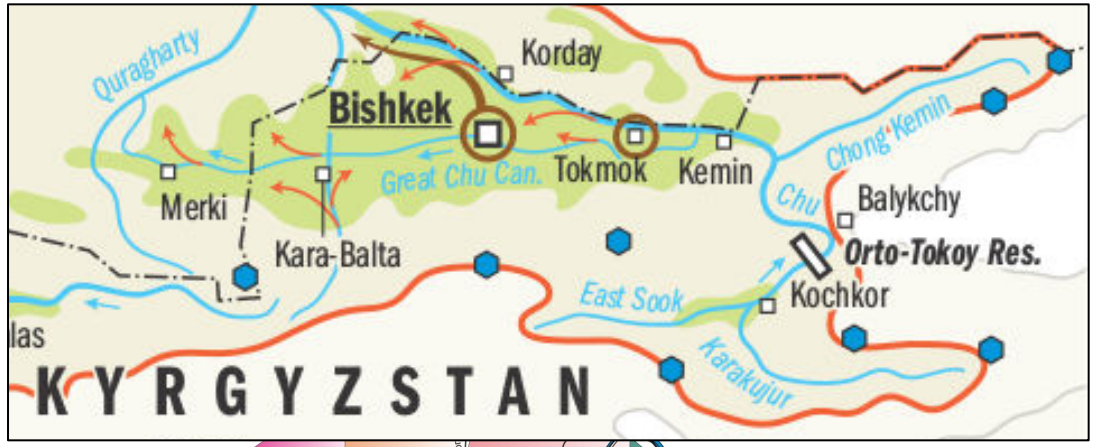
POLICY AND INSTITUTIONAL FRAMEWORK

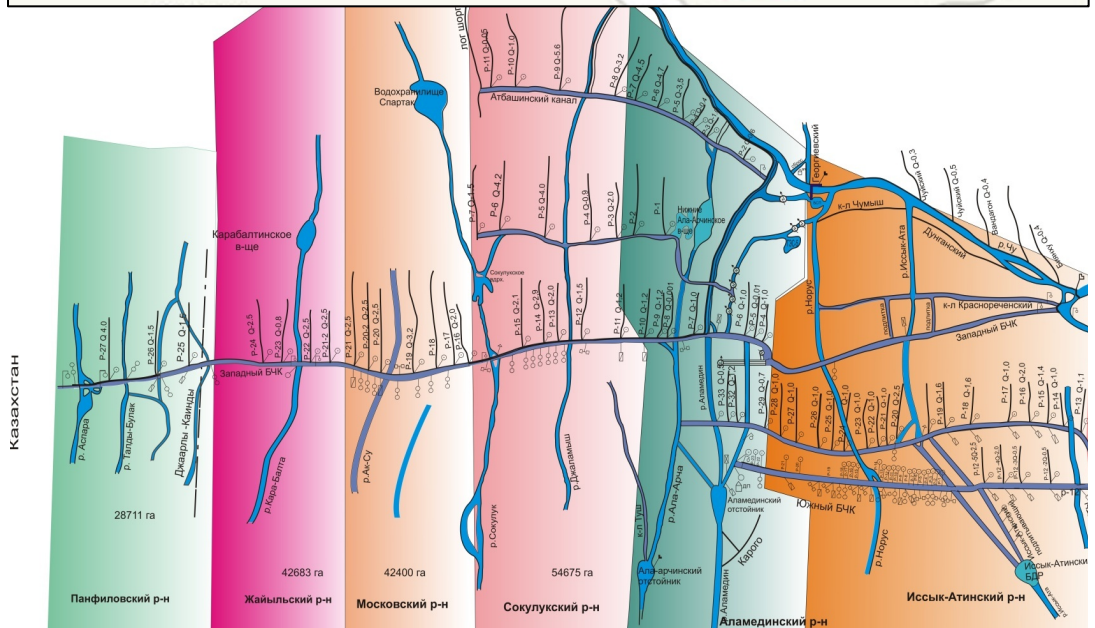
- State Programme for the Development of Irrigation for 2017-2026
- About 1 billion soms (1.2 million dollars) allocated from the state budget for rehabilitation of irrigation system for 2022 and 2023 (six times the budget for 2021)
- **The Chu-Talas Commission suggested to focus on modernization of water distribution systems and water management infrastructure**
- National Action Plan (draft) for the Chu and Talas River Basins (Kyrgyz side) for 2022-2030
  - 1.1.5. Organization of production and processing of drip irrigation systems and sprinklers (at least 2 enterprises for the production and maintenance of drip irrigation and sprinkler installations)
  - 1.2.3. Automatization of water distribution, metering and monitoring systems in watercourses and water management systems for domestic use (at least 40 facilities with water distribution, metering and monitoring systems in watercourses and water management facilities)
- Design and Technological Institute "Vodavtomatika i Metrologiya" based in Bishkek
  - Former center of reference of the USSR on water automatization
  - Hosts the Coordination Metrological Center of ICWC since 2000
  - Only accredited body to test measuring instruments for water level, speed and flow in KR
  - Good experience in the Kyrgyz Republic and Central Asia
  - Long-term support from Switzerland, UNECE and other partners



Head office location
(source: DTI "Vodavtomatika i Metrologiya")

MODERNIZATION OF WATER DISTRIBUTION SYSTEMS AND WATER MANAGEMENT INFRASTRUCTURE IN THE CHU-TALAS BASIN (KYRGYZ SIDE)

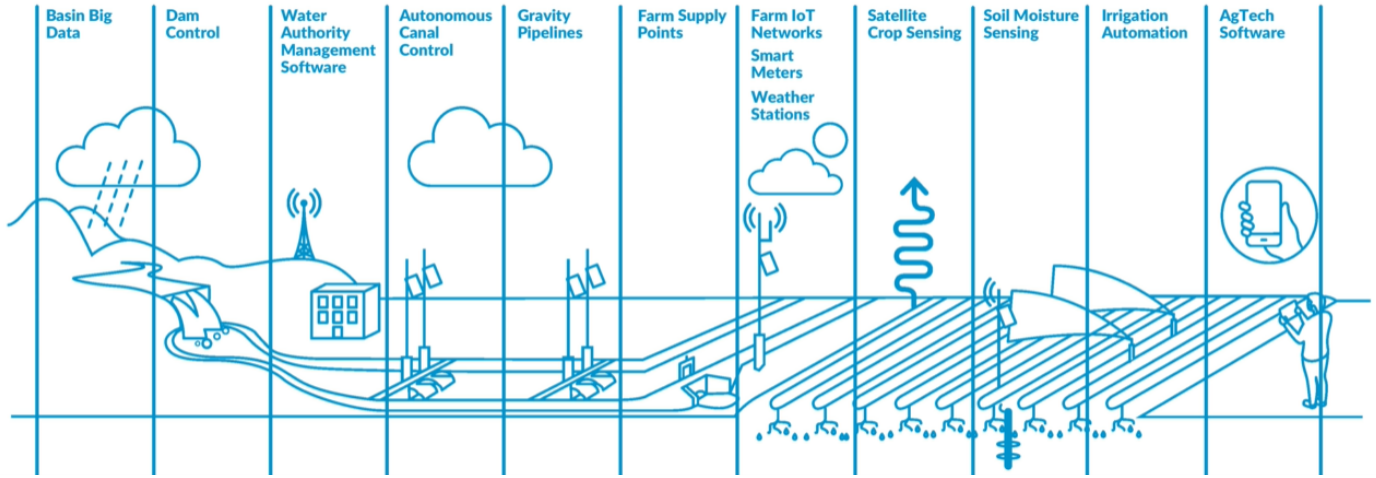




Automated system of the WBCC Headworks (source: Alexander Belokurov, UNECE)

CONTEXT DESCRIPTION

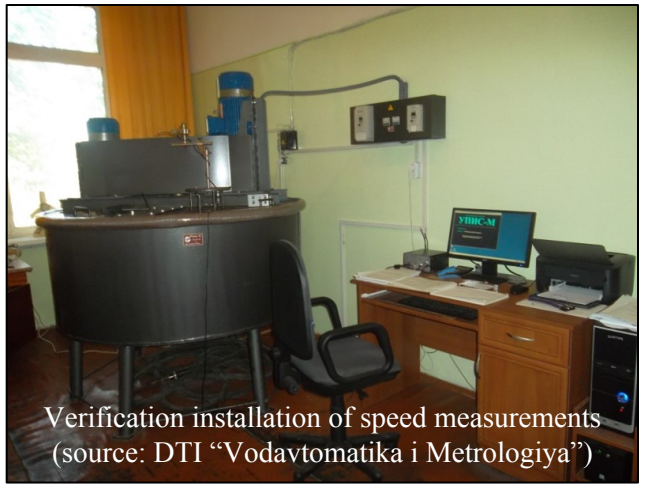
- Irrigation automation is expected to grow from $4.2 billion in 2022 to $9.2 billion worldwide, annual growth of 17.2% (source: Research & Markets 2022)
- New generation of canal automatization systems, as part of smart agriculture: low-cost, solar-powered, connected, etc.
- Quickly developing canal automatization in the region: Kazakhstan, Uzbekistan, Pakistan, India, etc.
- DTI “Vodavtomatika i Metrologiya” pioneered canal automatization in the USSR and is a unique structure in Central Asia
- DTI “Vodavtomatika i Metrologiya” is currently a division of the Water Resources Service of the Ministry of Agriculture (19 staff members), but is expected to undergo a merger with OJSC “Kyrgyzindustriya”



Solar-battery powered gates on the Saint Vrain River, Colorado, USA (source: Rubicon)

PROBLEM FORMULATION

- DTI "Vodavtomatika i Metrologiya" and the canal automatization value chain in the Kyrgyz Republic needs investments to innovate and remain competitive on the Central Asian market
- If regional capacity on canal automatization is lost, it will need expensive technological transfer
  - Uzbekistan: $1.5 million for 24 gates and 3 pumps over 13,4 km of canals supplying 5,000 ha
  - India: $500 million for full rehabilitation of 500,000 ha
- Western Great Chu Canal is transboundary, supplying water to 73,000 ha in the Kyrgyz Republic and 12,000 ha in Kazakhstan, located at the end of the canal, at highest risk of scarcity in case of drought, like in the last three years
- The respect of water use quotas is particularly important in a context of draught, water scarcity and increase in water use: it can be ensured only if there is certainty of distribution, control, payments and sanctions
- The main intake of the Western Great Chu Canal was automatized in 2008 by DTI "Vodavtomatika i Metrologiya", still works but needs to be updated
- The Western Great Chu Canal is also a flood-prone area, downstream from melting glaciers and receding forests


Verification installation of speed measurements
(source: DTI "Vodavtomatika i Metrologiya")


WBCC Headworks
(source: Alexander Belokurov, UNECE)

PROPOSED SOLUTIONS

Options

1. Develop the value chain of canal automatization in the Kyrgyz Republic
2. Modernize the main water intake for the Western Great Chu Canal
3. Pilot full automatization also in the first part of the Western Great Chu Canal
4. Implement full automatization of other parts of the canal in follow-up phases
5. Rehabilitate the whole system of canals
6. Implement other water-saving technologies
7. Improve management of irrigation systems
8. Other relevant measures included in the National Action Plan (draft) for the Chu and Talas River Basins

Environmental and social impact

- Increase in water saving by 25% (estimate)
- Adapt to climate change
  - According to the "Climate-proofing cooperation in the Chu and Talas river basins" (2018), the area west of Kara-Balta is among those that will be most affected by climate change
- Improve the management of floods
- Reduce the risk of incidents to operate gates during disaster situations
- Provide water to poorer farmers at the end of canals
- Increase in qualified jobs for design, construction, maintenance and management
- Reduce the need for low-paying and non-qualified jobs
- Improve the livelihoods of about 220,000 people (estimate), about 5% of the rural population

ECONOMIC ASPECTS

Loss of opportunity

- Imported systems are currently 10x more expensive
  - Partial automatization of the Western Great Chu Canal with domestic technologies is estimated at around $1.5 million
  - Full automatization of the Western Great Chu Canal with imported systems would cost around $15 million
  - Full rehabilitation – around $75 million
- At least 25,000 ha in the Kyrgyz Republic and Kazakhstan could be better irrigated
- Floods cause on average more than $100,000 of damage per event, increasing with climate change (source: World Bank, 2005)

Cost of investment

Item	Estimate
Technical assistance to design the intervention	$0.5 mil
Capacity development of DTI "Vodavtomatika i Metrologiya"	$1.0 mil
Pilot full automatization WGCC - first part	$1.0 mil
Deployment full automatization WGCC - other parts	$7.5 > $15 mil
Cost estimates are significantly higher than estimates of DTI "Vodavtomatika i Metrologiya", considering technological upgrade. The higher bracket corresponds to industry standards (estimates).	

Return of investment

Grounds for grant component

- Improved livelihoods of poorer farmers at the end of canals
- Reduced damage and losses from drought and flooding
- Technology transfer (possibility of twinning)

Grounds for loan component

- Possibility to participate in tenders for automatization and modernization of canals and other water objects (participation in consortiums or joint ventures)
- Profits of at least $1 million/year, considering a hypothetical market of $100 million/year in Central Asia and market share of 20% for the Kyrgyz canal automatization value chain
- Possibility of increase in fee collection
- Possibility of payment or investment share from Kazakhstan from increased delivery of irrigation water

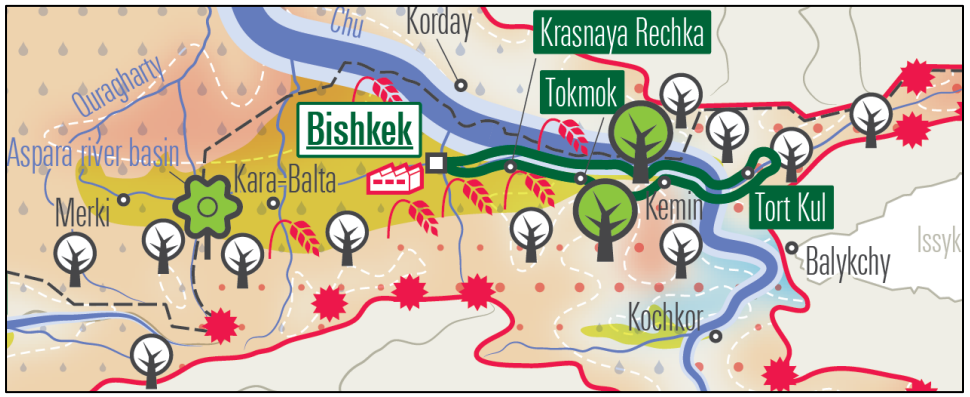
PREVIOUS EXPERIENCE

Previous interventions

- Center of excellence since the Soviet period
- Track record of delivering projects on time, ensuring maintenance, with systems working beyond warranty (unlike systems implemented by other firms in the Ferghana Valley and other parts of Central Asia)
- Automated systems at the hydrotechnical system of the Talas hydroelectric complex, the Tasotkel reservoir and dam, the Asinskiy hydroelectric complex with the Asatalas canal; information-measuring system of water accounting of 22 GP Georgievsky main canal; standard installation UPIS-M for verification of water speed meters; training center for advanced training (Kazakhstan)
- Improvement management of water resources in Central Asia (ADB-funded)
- Development of cooperation on Chu and Talas Rivers between Kazakhstan and Kyrgyzstan (UNECE/OSCE-funded)
- Promotion of Interstate Cooperation on Water Resources Management of the Transboundary Chu River, Phase 1 (Swiss-funded , $0.9 million, 2008-2010)
- Promotion of interstate cooperation in the management of water resources of the transboundary rivers Chu and Talas - Phase 2 (Swiss-funded, $0.9 million, 2013 - 2016)
- Improving water accounting in the Chu and Talas transboundary river basins (Swiss-funded, $2 million 2016-2020)

Project pipeline

- ASBP-4 Project 1.6: Implementation of automated control systems for technological processes related to distribution, accounting and monitoring of water resources in the Syr Darya basin. Development of the national water information systems as a basis for the subsequent integration of a regional information system
- Kazakhstan and Uzbekistan currently investing in the development of automated canals
- Preliminary expression of interest of EU and Germany to also support automatization of main water intakes and other water objects also in the Amu Darya basin
- New investment project of the World Bank for a regional water information system with total budget of $100 million.



POTENTIAL FINANCING

Sources	Amount (estimate)
Grant	
Government	0.2 million
Donor (to be identified)	2.3 million
Loan	
International financial institution (to be identified)	7.0 > 14.5 million
Public or private investment (including joint venture)	0.5 million
Guarantee	
Government	To be calculated
Donor (to be identified)	

6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed

THANKS FOR YOUR ATTENTION!

More information:

Mr. Jon Marco Church, Ph.D.
Senior Technical Expert
UNECE

Email: contact@jmchurch.fr
Phone: +33 (0)6 31 82 41 32

Mr. Erkin Orolbaev
NPD National Coordinator
UNECE

Email: erkin.orolbaev@gmail.com
Phone: +996 707 303 903

Mr. Buzurmankul Toktonaliev
Director
DTI “Vodavtomatika i Metrologiya”

Email: pkti@elcat.kg
Phone: +996 312 541 159