

Republic of Tajikistan



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INTEGRITY RISK ASSESSMENT OF WATER SECTOR IN THE REPUBLIC OF TAJIKISTAN

REPORT

Dushanbe 2012

INTEGRITY RISK ASSESSMENT IN WATER SECTOR IN THE REPUBLIC OF TAJIKISTAN

UNITED NATION DEVELOPMENT PROGRAMME IN THE REPUBLIC OF TAJIKISTAN

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The results presented in this publication are the view and opinion of respondents and does not necessarily represent the view of UNDP or other expert participants of this assessment.

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LIST OF ABBREVIATIONS

- ADB Asian Development Bank
- **AWU** Association of Water Users
- CHLS Centre for Healthy Life Style
- **CPI** Consumers Price Index
- **FGD** Focus Group Discussion
- **GBAO** Gorno- Badakhshan Autonomous Oblast
- **GDP** Gross Domestic Product
- **GNI** Gross National Income
- MMS Mass Media Communication
- **PSU** Primary Sampling Units
- **RRS** Regions of Republican Subordination
- Ses Sanitary-Epidemiological Surveillance
- **SUEHCS** State Unitary Enterprise of Housing and Communal Service
- TSVS Tajikselkhozvodoprovodstroi

FIGURES

Figure 1. Figure 2. Figure 3.	Drinking water sources in urban areas Widely spread drinking water sources in Tajik regions Does a drinking water supply system operate in the area (city/ part of a city_district) where respondents live?
	Assessment of the drinking water's availability
Figure 5	Assessment of the drinking water's availability per regions
Figure 6	Number of hours in a day when people have access to
ligure 0.	drinking water
Figure 7.	Awareness about the schedule of water supply in the regions
Figure 8.	Sources of information about the water supply schedule
Figure 9.	Equitable distribution of water among residents
Figure 10.	Problems of limited access to water
Figure 11.	The condition of water supply pipes in homes
Figure 12.	The condition of water supply pipes in homes per regions
Figure 13.	The period of restoring water delivery in the centralized water
	supply system after breakdown
Figure 14.	Evaluation of the repair works of water supply facilities
Figure 15.	Were there any cases, when Vodokanal employees received
	payment from the population to repair the water
	supply systems?
Figure 16.	Does the payment receipts for the repair of water supply
	system's elements is issued?
Figure 17.	Population's awareness about tariffs of payment for water
	supply services and their changes
Figure 18.	Are the population informed about the tariffs of payment for
	water supply services in the regions
Figure 19.	Type of accrual amount payable for water
Figure 20.	Presence of seals on meters
Figure 21.	Do urban residents pay for water supply services?
Figure 22.	Type of payments for water by the population
Figure 23.	Main drinking water sources in rural areas
Figure 24.	Operability of the system in the villages of respondents, who
	do not have individual access
Figure 25.	Operability of the drinking water supply system in the villages
	of those respondents, who don't have individual access
	(across regions)
Figure 26.	Reasons of the lack of individual access to water supply lines in
	the villages having an operational system
Figure 27.	Accessibility of drinking water in the villages
Figure 28.	Accessibility of drinking water in the villages across regions

Figure 29. Figure 30. Figure 31. Figure 32. Figure 33. Figure 34.	Number of hours a day rural residents have access to water Population's awareness about the water supply schedule Do respondents agree with the following statements? Do you agree with the following statements? Drinking water problems in rural areas Time required for the resumption of water supply in the villages in case of accidents, breakdowns in the system Who repairs water supply lines in respondents' villages?
Figure 36.	performed in water supply lines
Figure 37.	Payments for the drinking water supply services
Figure 38.	Are respondents provided with receipts for the amount paid?
Figure 39.	To whom village residents pay for the drinking water?
Figure 40.	Principle based on which payment is charged for drinking water
Figure 41.	Are respondents informed about to which needs the money
	collected for drinking water is spent
Figure 42.	Availability of dehqan farms' contract with Water Management Offices
Figure 43.	Are dehqan farms always provided with irrigation water whenever there is a need?
Figure 44.	The reasons that dehqan farms are insufficiently provided with irrigation water
Figure 45.	Does a water distribution schedule exist among dehqan farms?
Figure 46.	Who sets the irrigation water distribution schedule?
Figure 47.	Compliance with the water distribution schedule
Figure 48.	Are there special people, who control the correct water distribution?
Figure 49.	Dehqan farms' problems associated with the irrigation water
Figure 50.	Who is usually responsible for maintenance and repair of irrigation systems in dehqan farms
Figure 51.	Quality of work for repair and maintenance of irrigation systems

TABLES

Table 1.	Tajikistan: Development indicators
Table 2.	Tajikistan: economic indicators, 2006–2010
Table 3.	Tajikistan water resources
Table 4.	Focus group discussions in the cities
Table 5.	Sampling distribution from the city/village viewpoint
Table 6.	Water sources used by urban residents who do not have
	access to a centralized drinking water supply system
Table 8.	Does a drinking water supply system operate in the area (city/ part of a city, district), where respondents live in different
	regions of Tajikistan
Table 9.	Water supply hours divided by regions of the Republic
	of Taiikistan
Table 10.	Equitable distribution of water among residents by regions
Table 11.	Respondents recognizing the existence of some problems in
	the residence area
Table 12.	Organizations engaged into the repair of water supply facilities
	in case of accident
Table 13.	Cases of pocketing payments by controllers
Table 14.	Receiving a payment receipt
Table 15.	Focus group discussions in rural areas
Table 16.	Sampling distribution from the city/village viewpoint
Table 17.	Main drinking water sources used by rural residents
	across regions
Table 18.	Accessibility of drinking water in terms of the water sources
Table 19.	Sources of information about the water supply schedule
	in rural areas
Table 20.	Assessment of priority issues related to drinking water supply
	in rural areas across regions, according to residents
Table 21.	Time required for the resumption of water supply in the
	villages in case of accidents, breakdowns in the system
	(by regions)
Table 22.	Who is engaged into repair works and maintenance of water
Table 22	supply system? (by regions)
Table 23.	Payments for the water supply services (by regions)
lable 24.	to whom village residents pay for the drinking water,
Table 25	by regions Sources of obtaining information
	Distribution of dobgon forms by regions through general
	sampling and selected sampling
Table 27	Distribution of debran farms by regions of Taijkistan

Table 28.	Are dehqan farms always provided with irrigation water whenever there is a need? (across regions)
Table 29.	The reasons that dehqan farms are not always provided with irrigation water (by regions)
Table 30.	Who sets the water distribution schedule? (by regions)
Table 31.	Dehqan farms' problems associated with the irrigation water (by regions)
Table 32.	Who is usually responsible for maintenance and repair of irrigation systems in dehgan farms (by regions)

CONTENT

1. INTRODUCTION	7
1.1 Information about the country	7
1.2 Public administration in Tajikistan	8
1.3. Brief overview of water resources in the Republic of Tajikistan	9
1.4. Research methodology	10
2. GENERAL OVERVIEW OF THE TAJIKISTAN WATER SECTOR	12
2.1 General organizational structure of the water sector	12
2.1.1. Drinking water supply sector	12
2.1.2. Irrigation sector	16
2.2. Policy and legal regulation in the water sector	19
2.2.1. Strategic directions of development in the water sector	19
2.2.2. Legal framework of the water sector	20
2.2.3. Regulation in the water sector	22
3. DRINKING WATER SUPPLY SECTOR	24
3.1 Risks of corruption in the drinking water supply sector in urban areas	24
3.1.1 General overview of respondents, research characteristic	24
3.1.2 Access to drinking water supply services	26
3.1.3. Maintenance of the drinking water supply systems	34
3.1.4. Transparency and accountability while delivering drinking water supply services	38
3.1.5. Overview of the existing corruption risks	42
3.2 Risks of corruption in the drinking water supply sector in rural areas	43
3.2.1 General overview of respondents, research characteristic	44
3.2.2 Access to the drinking water supply services	45
3.2.3. Maintenance of the drinking water supply systems	55
3.2.4. Transparency and accountability while delivering drinking water supply services	57
3.2.5. Overview of the existing corruption risks	62
4. RISKS OF CORRUPTION IN IRRIGATION SECTOR	63
4.1 General overview of respondents, research details	63
4.2 Access to water resources for irrigation	65
4.3 Providing water resources for irrigation	67
4.3 Maintenance and operation of irrigation systems	71
4.4 Existing risks of corruption in the irrigation sector	73
	73
5. CONCLUSIONS AND RECOMMENDATIONS	75
5.1. Legislation and regulation	75
5.2. Urban and rural water supply development	75
5.3. Irrigation sector development	76

SUMMARY

This report provides an overview of the risk of corruption in the drinking water and irrigation sectors ¹ of the Republic of Tajikistan. Information and data used in the report were obtained as a result of research commissioned within the framework of UNDP project "Sector Integrity Vulnerability Risk Assessment in Water Sector of the Republic of Tajikistan". Qualitative and quantitative methods – conducting focus group discussions and interviews with people and desk research methods – learning materials, publications, laws, decrees, regulations, etc. as well as interviews with key respondents holding key positions in the respective organizations were used to collect and analyze information. All of the used methods have been inter-linked; the obtained information is verified against the information from the other sources. Results of the study, depending on the context and the degree of information value that actual on the date of their realization, conclusions and recommendations are those of the author's position as a group of researchers.

The report is intended for a wide range of professionals and the public, including, the representatives of state agencies making and developing solutions in the water sector, decision-makers to fight corruption and reduce poverty. The report can also be useful for the donor community, international development organizations operating in this sector of the Republic of Tajikistan and the region as a whole.

As shown in the report, the challenges the drinking water and irrigation facing today are deeply rooted in processes of country's political and economic policy transformations since the early days of independence. Specifically these challenges define the nature and extent of the identified risks of corruption in the water sector. The breakup of economic management systems and relationships, in some cases, the need for radical transformation and creating a new kind of relationship at times led to a lack of understanding of the needs and priorities in the sector. Inertial processes brought with them the usual approaches to resolve new and unusual challenges, as a consequence, led to a failure to act, or lack of viable alternatives to an existing economic management system, which in turn has resulted in lack of proper maintenance of water sector systems over the past two decades.

Another important constituent problem of post-Soviet period has been the lack of a clear legal regulation in the sphere. This concerns not just the water sector, and not only Tajikistan, but also the post-Soviet countries, where the dominant feature in all areas of law were the regulation of administrative control of all areas of life by state authorities, rather than a contractual relationship between equal subjects of law. As the result, issues of administrative regulation of the water supply relationships in the legislation are still dominating today, leading to a state that a water supplying organization does not "provide water services" but "supply water to population". This figurative legal structure on a psychological level releases suppliers

¹ Hereinafter, the term "water sector" denotes only "the drinking water supply and irrigation sector"

from responsibility, makes the customers dependent, as evidenced by the predominance of state ownership of the water sector. Ideally, it should have been formed at an equal standard contractual supplier-customer relationship that, for example, most clearly established in the power supply sector.

The third group of problems the sector is facing can be conditionally called as the "implementation cost". From the earliest days of independence, the process of reform commenced in all sectors of the country's economy, the water sector has also undergone significant changes in management structure, with respect to the state, concerning the issues of providing financial and material maintenance of the system, new suppliers and service customers reached a fundamentally different level of relationships. All constrained innovations engendered discrepancies and disagreements, agency-level controversies, and accompanied by the public rejection and resistance, as a result, in major cases, aspects of the reforms were not carried to completion. In order to avoid increasing social tension, the reforms were taken one-sided and inconsistently, without the economic and legal framework supporting them. As a result, ineffective, incapable "symbiosis" of old and new rules and legal relationships has been obtained instead of clear service delivery schemes, which in practice is difficult to apply, incomprehensive and cumbersome.

Problems in two studied sub-sectors of the water sector – water supply and irrigation are identical, but the specifics of each sector contribute its own features and adjustments to the new relationships being developed after independence. The main difference between the studied sub-sectors is that the drinking water is used by citizens to meet everyday needs, and water is primarily used for irrigation by dekhans (farmers), their farms and associations aimed at extracting further profit from the land use. This underlines and prioritizes these sectors, the basic of which, perhaps, is the fact that water for everyday needs is a natural human requirement; water for irrigation bears secondary nature.

As already mentioned above, risks of corruption revealed in both sub-sectors in the report are the direct consequences of the above-described problems in the sector; these risks can also be conditionally subdivided into the following groups:

- Systemic risks: all risks associated with the systemic political and economic changes in the sector;
- Legal risks: all risks associated with inadequate legal regulation of the sector, and as a consequence, lack of transparency and accountability.
- **Risks of the transition period:** risks associated with "conflict" between the old and new relationships in the sector.

To reduce the impact of these risks, the expert panel developed a set of measures and recommendations that should be integrated into the ongoing process of reforming in the investigated sub-sectors, as well as these measures may provide an additional important material for decision-making in the field, especially when making investment decisions. The package of measures includes the following activities under the relevant sub-sectors:

Drinking water supply:

- Seek consolidated source of financing for the acquisition and installation of water meters to consumers in Tajikistan, using foreign investments, government budget, drinking water suppliers' budget, and local budgets;
- Consider the transfer of local water supply systems for the use of rural residents and their associations;
- Develop a system of payment for water supply services via ATM machines;
- Create and implement a computerized database of consumers for water suppliers, aimed at computerized debts record, and regulate debt receivables and payables of the parties;
- Organize and conduct courses on financial and business planning for drinking water suppliers;
- Organize and conduct courses on legal awareness for the consumers on protection of their and legitimate interests;
- Organize an informational campaign in the media to educate the parties, to inform about changes in public discussion of issues among experts and stakeholders;
- Develop localized, economically feasible, long-term tariffs for drinking water, based on the needs of individual water supply systems, rather than normative calculations;
- Establish permanent public committees to improve the drinking water supply at the level of regions, districts, cities, and who will monitor and analyze the problems and prospects in the field of drinking water supply;

Irrigation:

- Find one-time financial assistance sources for rehabilitation and reconstruction of the country's irrigation systems, using as a source of budgetary aid programs on a returnable basis - loans with low interest rate, for providing a foreign aid budget program based on repayment and partial grant;
- Develop localized, economically feasible, long-term rates for the maintenance and operation of irrigation systems based on the needs of individual irrigation systems, rather than normative calculations;
- Organize and carry out technical inventory of irrigation system nationwide;
- Further assist in the establishment of WUAs nationwide, promote their institutional advancement;
- Install water-measuring devices for the irrigation water recipients;
- Revise the contractual legal relationships between suppliers and recipients of irrigation water in terms of the parties' responsibilities to maintain systems and their obligations;
- Organize and conduct courses in financial and business planning for members of the WUA, water management, farmers' households;

Recommendations in terms of sectoral legislation and regulation: Drinking water supply

- Develop and adopt a customer-driven standards of the drinking water supply services, having a detailed description of the order of rendering the services, mandatory items in the contract clauses, a clear responsibility before the consumer for supply violations, issues to inform consumers about interruptions;
- Develop and adopt a clear legislative regulation of the boundaries of responsibility for the maintenance of the water supply systems in apartment buildings;
- Assign in the legislation the obligation to sign a drinking water supply agreement, its mandatory annual update, develop a standard contract for drinking water supply;
- Assign in the legislation the supplier's responsibility for the adequate maintenance of the drinking water supply systems;
- Create uniform rules and principles for the development of drinking water supply tariffs, to ensure transparency and participation of citizens and their representatives in the process of their development;
- Consider the issue of monetization of benefits to pay for drinking water supply services with targeted social safety net for consumers, recognized as the poor;
- Develop and implement mechanisms to inform and educate citizens in the area of drinking water supply, including mechanisms for the protection of their rights and promote their legitimate interests and social security in the sector;

Irrigation

- Develop and legally fix a clear pattern of relationships between the irrigation water recipients and providers, while establishing liabilities for the parties;
- Establish economically feasible and effective mechanisms for the maintenance and servicing of irrigation systems, including the limits of economic management responsibilities between on-farm and off-farm systems;
- Develop and legally implement fixed measures to save and rationally use the irrigation water;
- Legally establish national rules to inform representatives of dehqan farms about investment projects implemented by agencies and development banks, the possibilities to participate in the process of development, implementation, completion and evaluation of projects aimed at reconstruction and rehabilitation of the irrigation systems;
- Establish mechanisms to attract dehqan farms for public discussion of new regulations, tariffs, legislative acts in the irrigation sector;

1. INTRODUCTION

1.1 Information about the country

Tajikistan is located in the southeast of Central Asia. It is a landlocked country with an area of 143 100 km2. In the north Tajikistan borders with Kyrgyzstan, in the east - with China, in the south - with Afghanistan and in the north and west - with Uzbekistan. Badakhshan Mountainous Autonomous Region occupies approximately 45% of the country. The population of Tajikistan is about 7.5 million people, more than 73% live in rural areas. The average density of population is 47.5 persons per 1 km2. Tajikistan is a mountainous country. Mountain ranges occupy 93% of the country.

Table 1. Tajikistan: Development indicators				
Population, mln.	7,63 (2010)			
Annual population growth (%)	2,3 (2008–2010)			
Annual population growth (%)	2,3 (2008–2010)			
Literacy level among adult	99,7 (2008)			
population (%)				
Percentage of population	26,5 (2009)			
living in urban areas				
Percentage of population living with	21,5 (2004)			
less than \$1,25 a day				
Percentage of population living	46,7 (2009)			
beyond the national poverty line				
Mortality rate for children	61,0 (2009)			
aged under 5, per 1000 live birth				
Percentage of population using	70,0 (2008)			
improved sources of drinking water				
Sources: ADB. 2011. Main statistical data 2011.				
Manila; UNESCO. 2011. Data Centre of the Statistics Institute;				
World Bank. 2011. World Development Indicators, Interne	et version			

Tajikistan remains one of the poorest countries in the world². Tajikistan ranks 127 out of 182 countries in terms of the human development index (2007). Foreign exchange earnings into the country mainly come from the cotton and aluminum export as well as remittances from Tajik labor migrants abroad, primarily in Russia. About 53% of the population lives below the poverty level. In 2008 the population was more than 7.3 million people, of whom 73% lived in rural areas.

Tajikistan has a presidential ruled system. The official language of Tajikistan is Tajik, and Russian is the language of international communication. The real Gross Domestic Product (GDP) between 2003 and 2007 is estimated to have increased in aggregate by 26.5%, or an average of 6.6% per year. As a reflection of this growth, the average monthly per capita income increased in real terms, from 119 Somoni in 2003 to 150 TJS in 2007. Due to the global economic downturn and weakening demand for aluminum and cotton (the main export commodities in Tajikistan) and the sharp decline in remittances of migrant workers, the GDP growth in 2009 grew by only 3.4%, as compared to 7.9% in 2008.

² Source: Report of the Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan, Dushanbe, 2010.

Table 2. Tajikistan: economic indicators, 2006–2010					
Economic indicator	2006	2007	2008	2009	2010
Per capita GNP, Atlas method (\$)	390	460	600	700	
GDP growth (in % against the previous year)	7,0	7,8	7,9	3,4	6,5
CPI (in % against the previous year)	10,0	13,2	20,4	6,5	6,4
Unemployment rate (%)	2,3	2,6	4,8		
Fiscal balance (% of GDP)	1,7	(6,1)	(5 <i>,</i> 5)	(5,4)	(4,4)
Export growth (in % against the previous year)	1,2	10,0	18,7	(10,7)	40,9
Import growth (in % against the previous year)	38,0	54,0	54,4	(24,9)	8,2
Current balance of payments (% of GDP)	(2,8)	(8,6)	(7,6)	(5 <i>,</i> 9)	2,2
Foreign debt (% of GNP)	36,0	40,2	36,4	35,0	

() = negative indicator, ... = data not available, CPI = Consumer Price Index, GDP = Gross Domestic Product, GNP = Gross National Product.

Sources: ADB. 2011. Asian Development Outlook 2011. Manila;

Calculations of the ADB employees; World Bank. 2011. World Development Indicators: Internet version.

1.2 Public administration in Tajikistan

Tajikistan is a republic with a presidential form of governance. In terms of the administrativeterritorial boundaries, it is divided into 5 zones: Sughd, Khatlon, Gorno-Badakhshan Autonomous Region and Districts of Republican Subordination.

The head of state and executive authority – president is elected for seven years of office term. The Government issues regulations and orders, implementation of which is obligatory within the territory of Tajikistan. The Government abdicates responsibility to the newly elected president.

Legislative authority is Parliament – Majlisi Oli. It is elected for 5 years office term. In 1999, a unicameral parliament was transformed into the bicameral: the Majlisi Namoyandagon (Lower Chamber) and the Majlisi Milli (Upper Chamber).

Local government consists of local parliament and executive bodies. They enforce the Constitution, laws and regulations. Majlis of people's representatives (local parliament) headed by the chairman is the local government representative body in regions, cities and districts. Deputies of local Majlises are elected for a period of 5 years. This body approves the local budget and reports on its implementation, defines the socio-economic development of the relevant territory and etc. Majlises of lower (district and city) levels exist in the regions.

Executive power in the localities is exercised by the President Representative - chairman of the oblast, city and district. Chairmen of GBAO, regions, Dushanbe, districts and cities are appointed by the President. They are nominated by the related chairmen of local assemblies and after approval of the last; they lead both the representative and executive power in the region.

Self-government institution in the settlements and villages is Jamoat. Functions of local selfgovernment institutions are limited; their activities are directed primarily to maintain order and cleanliness in the streets, observance of sanitary norms, and solving common problems. It's funded from the respective regional budget. Jamoat Chairman, his/her deputies and a secretary are elected for 5 years.

1.3. Brief overview of water resources in the Republic of Tajikistan³

A significant part of Tajikistan's territory is occupied by mountains with elevations above 2000m. The long-lasting cold period at such elevations, rainfalls and relief irregularity turned these territories into the water accumulator. Snow and glaciers melting begins with the advent of spring and summer and thousands of streams and rivers with thousands of high mountain ranges possessing tremendous energy begin to descend into the valley basin of Amu Darya. Glaciers occupy about 8% of the country. Country's water resources are mainly formed due to melting of glaciers and atmospheric precipitations. Most of them are located in the high-mountain parts of the Obikhingov, the Gunt an the Muksu river basins. The total length of rivers, having over 10 km length, exceeds 28,500 km. Tajikistan's rivers belong to the basins of the Amu Darya (including Zerafshan River), Syr Darya, Markansu and drainless basins of Pamir. The large difference in altitude of the sources and estuaries present a significant flow rate and huge reserves of energy. There are over 1,300 lakes in Tajikistan with 46.3 km3 of water, including over 20 km3 of fresh water is concentrated in. Water surface of lakes is 1005 km2, which amounts to about 1% of the country.

10 water reservoirs are built and exploited in Tajikistan – Kairakkum, Norak, Bayghazi, Kattasoy, Muminobpd, Selbur, Sarband, Dahanasoy, Farhad and Sangtuda 1. The total water area of reservoirs is 664 km2, with the total volume of 15.344 km 3, including a useful 7.63 km3, representing 13% of the average long-term annual rivers' flow of the Aral Sea basin.

Potential groundwater reserves are 18.7 km3 per year, while operational ones are estimated at 2.8 km3. The largest reserves of underground water are available in river basins: Vakhsh – 4919 million m3 per year, the Syr Darya – 3579 million m3 per year and Kofarnihan – 2505 million m3 per year. Groundwater is unevenly distributed in Tajikistan, both in scale and depth.

³ Original name of the enterprise – XMK from Tajik "Хочагии манзилию коммунали", name according to the regulations is SUE HCS or in Tajik KBД XMK.

Table 3. Tajikistan water resources ⁴				
Glaciers	845 km ³ (volume), 11 146 km ² (area)			
River flow	64 km³ per year (55.4% of Aral basin flow), 947 (number), 30000 km (total length)			
Lakes	46.3 km ³ (volume), 705 km ² (area), 1300 (number)			
Water reservoirs	15.34 km ³ (volume), 7.63 km ³ - 13% of the Aral Sea basin flow (usable), 664 km ² (area)			
Underground waters	18.7 km ³ per year (2.8 km ³ – operational resources)			
Return waters	3.5-4.0 km ³ per year (3.0 km ³ – collector and drainage use, 0.50км ³ – public supply water use)			

Tajikistan is also rich with various mineral waters. The group of mineral waters is widespread here, identified by specific components – carbon dioxide, hydrogen sulfide, iodine-bromine, siliceous, radon; by mineralization – from fresh to strong brine; by the content of gases - carbon dioxide, hydrogen sulfide, nitrogen, methane; by the temperature – from cold to very hot. Over 200 sources of mineral waters are registered in the territory of the republic.

1.4. Research methodology

Research to identify the risks of corruption in the water sector has been divided into several interrelated components. In particular, a combination of general review of the water resources management and legislation analysis in the water management sector applying qualitative and quantitative methods to collect and verify information was used while commissioning the research. Conducting qualitative survey allowed diving deeply into a problem, drawing a number of important conclusions that were further tested and refined within the frames of quantitative survey. The main practical part of the research, including qualitative and quantitative methods, was carried out by the Consulting Agency "M-Vector". Information analysis, reviews, conclusions and recommendations were prepared by the research project team composed of representatives of government and public organizations in Tajikistan.

"Qualitative survey" component:

A series of focus group discussions (FGD) and in-depth interviews with several target groups of the study were held within the qualitative survey. The focus group discussion method for the first phase of this study was not chosen randomly. Basic hypotheses were made before the FGD, which were to be confirmed or refuted in the qualitative survey. In addition, the FGD helped to expand and complement these hypotheses, and identify some unexpected and interesting moments. One of the main purposes of the FGD was to apply the results aimed at compiling a questionnaire for the next stage – quantitative study. A total of 28 focus group discussions have been conducted. Target groups, such as those receiving and providing water

⁴ Original name of the enterprise – XMK from Tajik "Хочагии манзилию коммунали", name according to the regulations is SUE HCS or in Tajik КВД XMK.

supply services, as well as the authorities in controlling their operation were selected to conduct the FGD. Geography of the FGD respectively covered all areas of the country as well as Dushanbe city.

Two in-depth interviews with representatives of executive state government bodies were conducted in the second phase of qualitative survey. Information received in the course of the in-depth interviews, helped to supplement the information obtained from focus group discussions and develop a more complete picture of the problem from different target groups' viewpoints.

"Quantitative survey" component:

Another important component of the study has been quantitative survey following the qualitative methods. A formalized individual (face-to-face) interview that allowed to maximum achieve the goal, assigned to the researchers, was used as a tool for this part of the study.

Questionnaires for the quantitative interviews were developed by those national experts engaged into the study and specialists of the Consulting Agency "M-Vector", based on information obtained through a series of focus group discussions. The total sample size for the quantitative study was 3,000 respondents, including 600 representatives of dehqan farms and 2,400 urban and rural residents. Individual questionnaires were developed for these two groups of respondents, respectively, as well as for sub-irrigation and urban and rural drinking water supply.

Study of materials, publications, laws, decrees, regulations, conducting meetings and interviews with key informants was an integrated part of the research. Representatives of the project research group carried out this part of the research as well as analysis of all research-related information obtained, drafting of conclusions and recommendations.

2. GENERAL OVERVIEW OF THE TAJIKISTAN WATER SECTOR

2.1 General organizational structure of the water sector

The established structure of water consumption in Tajikistan has remained largely unchanged over the past twenty years. According to various sources, a rough picture of the average annual water consumption is as follows: 85 percent for irrigation, 7 percent for urban and rural water supply and 3 percent for industrial consumption.

2.1.1. Drinking water supply sector

The most costly and problematic subsector, directly affecting the health and livelihoods of the population is the drinking water supply sector. During the Soviet times, the vertical integrated water sector management system has been based on state and collective-cooperative property to all water supply system facilities. Management was carried out at the ministerial level, and numerous agencies, departments, scientific and research, planning and design institutions, secondary vocational and higher education institutions. The whole system was an administrative economic unit that provides centralized water supply for domestic purposes. Although, the water sector was formally funded by the state, population as well as collective and state farms (kolkhozes and sovkhozes), the system was not constructed on the basis of economic accounting with the recipients of water supply services. The fee charged to consumers, ranged from 2 to 4 percent of the real expenditure value per production unit. The major share funding came from the state budget as well as the budget of state and collective farms. In addition to these funds, the sector received certain funds for development from the central budget of the Soviet Union. The main directions of the water sector usually included water supply to population for domestic use, irrigation and water supply for industrial purposes.

Even during the Soviet times, drinking water supply sector in Tajikistan was the general direction of development that served as a prerequisite for its further economic and institutional division. Particularly, as well as throughout the former Soviet Union, drinking water supply management was carried out separately for urban and for the rural population. A certain part of the water supply system was managed through "departmental" principle of factories in subordinated residential sector. The division principle after the declaration of independence has remained virtually the same, given the sharp decrease of "departmental" sub-sector respectively. Drinking water supply management in urban area is usually considered inseparable from the sewerage system issue.

Presently, according to the data of Poverty Reduction Strategy 2010-2012, in the beginning of 2010 the drinking water supply is 52.3 per cent, including urban population – 90%, and agriculture 47%. And only 20% of the population has access to centralized water supply in rural areas, the rest use water from unprotected sources. The main facilities of the modern drinking water supply sector in Tajikistan, creating the sector foundation, have been built between 1960s and 1980s of the last century. Currently, the system is in a very dilapidated

state, due to the lack of proper care and maintenance for the last twenty years. According to various estimates, some 50 per cent of water networks and pumping stations are now in rundown state.

A conditional economic division of drinking water supply in urban and rural system is formed as a result of reorganizations and changes in the public sector management structure. As before, still in some part of the housing sector, mainly in the towns, drinking water is supplied from industrial enterprises. But in general with regard to drinking water supply in urban areas, the percentage of water supply from industrial facilities is insignificant.

One of the first and most important decisions that initiated the water management reform process can be called the Presidential Decree as of June 25, 1996 under #522 "On reorganization of agricultural enterprises and organizations". This decree defined the fate of the drinking water supply facilities, mostly both in rural and urban areas, and largely became the main successor for making decisions in urban and rural drinking water supply systems. As a result of starting the realization of this decree in the drinking water supply sector, organizations involved in the drinking water supply in urban and rural areas of Tajikistan emerged.

Currently, the main actors of the drinking water supply sector are:

DRINKING WATER SUPPLY IN URBAN AREAS

• STATE UNITARY ENTERPRISE "HOUSING AND COMMUNAL SERVICES (SUE HCS)

Drinking water supply in the cities and regional centers throughout the country during the Soviet period was carried out by the Ministry of Housing. After obtaining independence, the ministry was dissolved and a state concern "Tajikcommunservis" was established instead, which in turn was reorganized by the Government of Tajikistan on 6.06.2001, under No 235. State Unitary Enterprise "Housing and Communal Service" (SUE HCS) was created as a result of this reorganization and being as a concern successor, the SUE is subordinate to the Government. To date, SUE HCS operates in 15 cities and 40 regional centers of Tajikistan. The structure of SUE HCS includes 63 subsidiaries located in these areas. Besides drinking water supply, the SUE HCS also provides maintenance services related to the multi-storey housing, waste removal and other types of housing services in these cities and regions. SUE HCS is not engaged in water supply in rural areas served by them: only regional centers, urban-type communities and cities. SUE HCS uses a single tariff for water supply services throughout its territory that "averages" the costs and revenues of some other subsidiaries, as costs in different units as well as the income are different. Rates are developed by experts of the SUE HSC's central staff and approved by the antimonopoly authority.

• Water utilities

In the five cities and two regional centers of Tajikistan the drinking water supply is performed through water utilities directly created by local authorities. They include cities like Dushanbe,

Khujand, Roghun, Norak, Sarband and regional centers like Varzob and Faizobod districts. This division occurred in the mid 1990s of last century, when the fate of the Ministry of Housing's heritage was being resolved, then the local authorities took the initiative and adopted the responsibilities of managing the water supply systems located within their territories. Local executive state government bodies in these cities and regions have established state-owned enterprises in order to organize the drinking water supply to its population. These state-owned enterprises are economically segregated, legally and economically independent, have the right to economically manage relevant state property and are directly subordinated to its founders - the local executive state government bodies. The largest enterprises of the cities and districts are SUE "Dushanbevodokanal" and SUE "Khujandvodokanal".

Tariffs for water supply services in every water utilities is independently developed, then the proposed rate is reviewed and approved by the antimonopoly authority.

• Drinking water supply from industrial enterprises

Before the Soviet Union's collapse, large and small enterprises in Tajikistan had their own agency-level housing, settlements and everyday life facilities, and sometimes the enterprise was forming a company town. Accordingly, these enterprises at their own expense provided the construction and operation of water supply and sewerage systems for their own facilities. Since the beginning of the industrial enterprises' privatization these facilities and their life support systems had different destinies. Most of the facilities were transferred to the cities respectively, or SUE HCS. Only an insignificant part of the facilities is still under these companies' management respectively and the drinking water supply is also provided by them. For example, aluminum plant provides a part of Tursunzoda district with water, the whole Yovon district is provided by the local chemical plant, water in a few houses of Khujand city neighborhood is provided by enamel production plant.

Tariffs for services are also developed by industrial enterprises based on their costs similar to the rate schemes of other providers.

• Combined schemes of organizing drinking water supply

Combined drinking water supply schemes are used in some instances, when the source of drinking water is under an organization's economic management, while the drinking water supply systems is managed by other organizations. For example, in Isfara, Hisor, Istaravshan, and Kurganteppa cities SUE HCS partially obtains water from TSVS, then delivers it further to customers through its own systems, the rest of the drinking water is supplied through SUE HCS's own capacities. The same combined scheme is used for potable water supply in regional centers of Bokhtar, Vakhsh, Khuroson, Qumsangir and some other areas.

DRINKING WATER SUPPLY IN RURAL AREA

A more complicated situation of water supply exists in rural area. The rural drinking water supply facilities were constructed within the state and collective farms overwhelmingly

at the expense of those organizations. However, the integrated approach to rural drinking water supply was carried out by the production association "Tajikselkhozvodoprovodstroy". The association has built group aqueducts for a few rural areas or collective farms, which in turn built their domestic drinking water supply systems and ensured their operation and maintenance with their own resources, or through the state budget. The role of participants in the agriculture and water supply has changed after independence.

• Government institution

Chief directorate of "Tajikselkhozvodoprovodstroy"

Design and construction association "Tajikselkhozvodoprovodstroy" was established in 1983, subordinatetothe "Soyuzselhozvodosnabzhenie" association of the Ministry of Land Reclamation and Water Economy of the USSR. The Republican Association "Tajikselkhozvodoprovodstroy" (TSVS) carried out the design and exploratory work, construction and operation of group aqueducts assigned for drinking water supply and pasture irrigation.

Since 1995, TSVS was joined to the Ministry of Water Resources of the Republic of Tajikistan as a structural unit. In 1996 it was renamed to the State Institution "Chief directorate "Tojikobdehot". As before, the main function of TSVS today remains the maintenance and operation of the group, trunk and pasture pipelines and design and exploratory work. Such pipelines were built in 24 out of 67 districts of Tajikistan during the Soviet period. And despite of fact that "Tajikselkhozvodoprovodstroy" was not functioning and almost not operational presently in the remaining 43 districts, major part of rural areas receives water from TSVS or is directly supplied by TSVS. Expanding the network of rural water supply is now almost non-existent.

TSVS today consists of more than 30 state-owned enterprises in the form of unitary state and subsidiaries of public enterprises. Tariffs for water supply services are developed independently by each department in accordance with its expense and are approved according to the established procedure.

• Drinking water supply at the level of Jamoats

During the Soviet period, the Ministry of Water Resources of Tajikistan built a system of agricultural water supply and sewerage systems in the new state farm settlements and nahded them over the Tajikistan Ministry of Agriculture that had a ramified system of "Rayselkomkhoz" being subordinate to the "Tajikselkomkhoz" Association. Tajikistan Ministry of Agriculture had been fulfilling the customer's function to build drinking water supply systems and sewerage facilities in rural areas and in six hundred existing state and collective farms ⁴. Currently, the Ministry of Agriculture lacks services for the construction and operation of drinking water supply and sewerage systems. As a result, these drinking water supply facilities remained ownerless. Furthermore, in major cases, those drinking water supply facilities being under collective and

⁴ Source: Report «Problems and recommendations of inter-ministerial level in rural water supply of the Republic of Tajikistan », June 2009, UNDP, MLRWR

state farms' management became ownerless as well. According to the Presidential Decree as of 25 June 1996, under No 522 "About reorganization of agricultural enterprises and organizations", on-farm water supply and sewerage facilities have to be transferred to the balance of the relevant ministries and agencies. Commissions had to be established by the local state government authorities for this purpose, who after holding technical inventory should have perform a formal transfer of drinking water supply facilities under the management of relevant ministries and departments – SUE HCS, TSVS, or the Ministry of Land Reclamation and Water Resources. Finally, it has to be taken on its balance sheet, or transfer to the Jamoat balance. The complexity of process consisted in the fact that emerging local commissions must differentiate between a property built or acquired in the collective farms on account of state budget funds and property built on account of collective and state farms. As the fate of the systems built on account of collective and state farms, should be decided by their legal successors.

This process is formally held only in a few districts and jamoats. Some jamoats spontaneously and informally took over responsibility for operation and maintenance of drinking water supply systems in their territory, as a response to the accident and damage occurred in the system. Usually it is natural, non-recurring charges for troubleshooting.

Depending on local conditions, the rural drinking water supply system may sometimes consist of only one well and several main pipes and a single well connected to two or three dozen households. In some cases, during the reorganization of collective farms and state farms, the technical documentation for the drinking water supply system was simply lost.

2.1.2. Irrigation sector

The irrigation and drainage system in the economy of the Republic of Tajikistan plays an important role in the life of the rural population that makes up 70 percent of the total population. Large-scale systems built during the Soviet period, in 1930-1980 is basis of the irrigation and drainage infrastructure. Modern irrigation and drainage system is a complex infrastructure in terms of technical equipment and technology services, which includes different types of intake facilities, pumping stations of various types and capacities: approximately 515 pumping stations, large and small irrigation canals with total length of 26,194 km, 8320.2 km of various drainage systems and structures, 1823 units of land reclamation and irrigation wells, 377 units of substations and 145.6 km of transmission lines, 10 water reservoirs for irrigation and energy purposes and other supporting infrastructure. About 60% of irrigated land in the country is served by self-flowing irrigation system with hydraulic structures built in the middle of the last century, over 50% of which are physically worn out. About 40% of the irrigated lands are located in the areas of pumping stations and wells. However, due to wearing-out of about a third of pump-and-compressor equipment, pressure pipelines, high cost of electricity and its deficit during the spring, actually pumps irrigate approximately 262.0 thousand hectares⁵.

⁵ Source: Brochure of the Ministry of Land Reclamation and Water Resources, Dushanbe 2010 r.

Legal, institutional and management issues in the sector adds to numerous technical problems today. Irrigation sector was also an extensive network of state organizations and institutions, both technically and economically integrated into the vital activities of the collective farms and state farms. This sub-sector of the water system has been under the authority of the Soviet time's ministries responsible for water management. Since 2006, the Ministry of Water Resources of the Republic of Tajikistan has been renamed to the Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan. The Ministry's structures also carried drinking water supply in most rural areas of the country. Shared facilities of irrigation systems were government property, a part located in collective and state farms, was collective-cooperative property. Funding for maintenance and development of irrigation systems and reclamation activities was appropriately carried out. Future plans for expanding the irrigation network were developed for five-year period and funded on account of combined budget resources. Scientific feasibility of plans to expand irrigation networks were developed by design and research-research institutions who linked these plans with the overall plans to increase the volume and range of agricultural products. With the Soviet Union's collapse, the basic institutional problem in the irrigation system became reorganization of state and collective farms, giving a burning question about the ownership issues, and respectively, management aimed at maintaining a part of irrigation system, run by collective and state farms, particularly on-farm irrigation and drainage systems.

KEY ACTORS OF THE DRINKING WATER SUPPLY SECTOR

Irrigation sector was not originally so multi-faceted, as the drinking water supply management sector was concentrated in the hands of the Ministry of Water Resources. People's Commissariat of Water Resources of the Tajik SSR was established in 1940, being the first independent body of water management in the country. Later Commissariat became the Ministry, and since 2006 it is today's Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan. According to its mandate, the Ministry is the central executive government body in the field of water resources and land reclamation, responsible for drafting a unified state policy and regulatory framework in the area of irrigated land reclamation, operation and maintenance of water facilities, formation, use and protection of water resources, construction, agricultural water supply and pasture irrigation.

In 1996, the Resolution of the Government of the Republic of Tajikistan was adopted as of June 25, under No 281 "About approval of Regulations concerning the procedure of charging for water supply services to consumers from public irrigation systems". This decision marked the transition of irrigation system to the principle of self-repayment, water for irrigation to agricultural enterprises began to release on a fee basis. Regulation, tariffs development, distribution and control have been performed by the Ministry.

Recent changes in rates for irrigation water were approved by the antimonopoly service as of April 1, 2011, as per recommendation provided by the Ministry of Land Reclamation and

Water Resources. Previous changes in tariffs were adopted in 2008. The new tariffs, as before, consist of two groups of prices: for users with meters on irrigation water and for users without water meters. For users without meters it offers a detailed list of rates for fares, depending on the type of proposed agricultural products. For example, for cotton irrigation: 10 thousand cubic meters of water per 1 hectare for 150 Somoni, potatoes 6.5 thousand cubic meters per hectare for a 98 Somoni, etc.

Water for irrigation is directly purchased by dehqan farms from the following organizations:

• State enterprises

Today, direct water distribution and collection of water fee is carried out by state-owned enterprises established by the Ministry of Land Reclamation and Water Resources. These companies, founded according to the territorial criteria, operate in Sughd, Khatlon, Badakhshan and districts of republican subordination, and are located at the Ministry's territorial subdivisions. Sub-divisions of these companies - district water management units exist in every region of the country. A standard contract between the water provider and user is attached to the Decree of the Ministry of Land Reclamation and Water Resources as of April 1, 2011.

• Water users associations

The need to establish water users associations (WUAs) emerged both throughout the former Soviet Union, after the reorganization of collective farms and establishment of farm enterprises on their basis. As a result, after the reorganization process a farm could be split into tens and sometimes hundreds of large and small dehqan farms. In this case, question arose about operation and maintenance of on-farm irrigation and drainage systems. Another important issue – a fair, scientifically and economically sound distribution of irrigation water between the newly established farms. In order to resolve these problems in group, unification of these farms and individual farmers into a water users association is effective.

The Law of the Republic of Tajikistan "About the water users associations" was adopted in November 2006. Association is a voluntary unification of water users, not pursuing commercial goals. Usually, establishment of WUA is limited to a particular locality, total irrigation and drainage system, utilities, etc.

One of the Association' functions is to purchase water from water management and subsequently sell with appropriate extra charge to its members and users. Size of the Association's extra charge is defined by themselves, based on the needs to support their onfarm irrigation systems, canals, drainage and other expenses of the association. Association may choose any other format and relationship with the Water Resources Management Office and their members.

According to the Ministry of Land Reclamation and Water Resources 227 WUAs are created in Tajikistan today that serves 221,221 hectares of land. They include 85 Associations in Sughd,

102 Associations in Khatlon, 30 Associations in the Districts of Republican Subordination and 10 Association in Badakhshan. 32 percent of the WUAs serve the land area ranging from 100 to 900 hectares, 68 percent serve the land area ranging from 1000 to 5000 hectares.

Activities of the WUAs have some difficulties, primarily indicated in voluntary creation and functioning of such organizations. A high degree of association's members should contribute to the success of such organizations. However, in practice, dehqan farms prefer to buy water for irrigation directly from the district's water management unit, thus avoiding WUA's extra charge. In many WUAs members don't see the margin as joint additional costs of the commonly used on-farm irrigation and drainage systems, but as the income for the WUA, and sometimes its management. Reason for this perception is the lack of WUA members' awareness, poor work of separate WUAs, low degree of WUA members' participation in the association management, establishment of the WUA "from the top", but not on farmers' initiatives, etc.

2.2. Policy and legal regulation in the water sector

2.2.1. Strategic directions of development in the water sector

Basic document determining the strategic direction in developing the water sector in Tajikistan is the National Development Strategy (NDS) for the period until 2015. This document aims to systematize the long-term development process in line with the Millennium Development Goals. NDS, as a key strategic document of the country, identifies priorities and general thrust of government policy aimed at achieving sustainable economic growth, facilitating public access to basic social services and poverty reduction.

The main priorities in the water supply sector as reflected in the NDS⁶ are defined:

- 1. To reform the system as a whole through the improvement of sectoral policies;
- 2. To increase sector's investment attractiveness;
- 3. To efficiently use the existing potential of the sector.

One of the specific priorities for the development in manufacturing section of NDS⁷, needed to increase agricultural productivity, is defined as "the restoration and development of irrigation systems". NDS plans seek funding for the rehabilitation of irrigation systems and introduction of new land, reconstruction of water supply sources.

The document of the NDS medium-term implementation is the Poverty Reduction Strategy Paper (PRSP-3) for 2009-2012. This document defines the main directions of country's socio-economic development during this period.

⁶ Source: National Development Strategy Paper RT up to 2015, Section 7.4. Expanding access to water supply, sanitation and housing and communal services

⁷ Source: National Development Strategy Paper RT up to 2015, Section 6. Ensuring economic growth

Several programs for the development of drinking water supply and irrigation sub-sectors have been developed based on two key national development papers. Particularly:

- Program to improve provision of the population of the Republic of Tajikistan with clean drinking water for 2008-2020;
- Plan for opening up new irrigated land in the Republic of Tajikistan for 2008-2012;
- About measures to improve the irrigated agricultural lands of the Republic of Tajikistan for 2010-2014;
- Program to restore the pressure pipelines of pumping stations of the Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan for 2010-2015.
- As part of these and other programs a number of projects are being implemented through the state budget, grant and loan funds and investments from foreign donors and other means.

2.2.2. Legal framework of the water sector

• International legal instruments

In July 2010, in its resolution 64/292, the United Nations General Assembly recognized the right to safe and clean drinking water and sanitation as a human right having essential importance for healthy life and full enjoyment of all human rights. Following this, in its resolution 15/9 adopted at its 15th session in September 2010, the United Nations Human Rights Council confirmed that the human right to safe and clean drinking water and sanitation is inseparable from the right to an adequate standard of living.

According to Para 1 of Article 25, the Universal Declaration of Human Rights implicitly recognizes the right to drinking water and sanitation services, which stresses, "everyone has the right to a standard of living, including food, clothing, shelter, medical care and necessary social services, adequate for the health and well-being of him/herself and his/her family".

In accordance with Para 1 of Article 11 of the International Covenant on Economic, Social and Cultural Rights, States should recognize "the right of everyone to an adequate standard of living for himself and his/her family, including adequate food, clothing and housing, and continuous improvement of living conditions".

The UN Committee on Economic, Social and Cultural Rights, noted in its General Comment No 15 of 2002 that in paragraph 1 of Article 11, the Covenant concretely specifies a number of rights arising from the right to an adequate living standards and necessary rights for the exercise of this right, including "adequate food, clothing, and housing. The word "including" indicates that this list is not exhaustive. The right to water undoubtedly falls into the category of guarantees essential for securing an adequate standard of living, especially given the fact that water is an essential prerequisite for survival. The sanitary conditions of the environment, as one aspect of health, referred to in paragraph 2 b) of Article 12 of the Covenant, involve taking actions on a nondiscriminatory basis to prevent threats to health from unsafe and toxic water sources. For example, member-states should ensure that natural water resources are protected from contamination by harmful substances and pathogenic microbes. Similarly, member-states should monitor and take appropriate action in relation to situations where aquatic ecosystems serve as breeding-grounds for infection carriers that threaten the human environment.

Finally, the Committee draws attention to the importance of ensuring sustainable access to water for agricultural purposes in order to implement the right to adequate food. Attention should be paid to ensuring that disadvantaged and marginalized rural inhabitants, including rural residents from among women have equitable access to water and water resources, including sustainable watering technologies by means of sprinklers and irrigation practices. Considering the obligations given in paragraph 2 of Article 1 of the Covenant, according to which no nation can in any case "be deprived of livelihood means belonging to him/her", member-states should ensure adequate access of indigenous peoples to water resources for the maintenance of agriculture and livelihood.

• National legislation

A list of major national laws and regulations governing the most important aspects of water relations includes:

- Constitution of the Republic of Tajikistan, adopted on November 6, 1994 (amended following a referendum on June 22, 2003). According to Article 13 of the Constitution, "... water is the exclusive property of the state and the state guarantees their effective use for the interests of the people";
- Water Code of the Republic of Tajikistan, adopted on November 10, 2000 (amended in 2006, 2008 and 2009). The objectives of the Water Code are the "regulation of economic relations in the sphere of using and protecting water resources, legal basis for support and development of water use and protection of water resources and the determination of the basic principles, directions for use and protection of water resources, Article 2;
- Law of the Republic of Tajikistan "About the Water Users Association," adopted on November 21, 2006, etc., regulates the legal basis for the organization, operation and management of water users association as a nonprofit organization to operate and ensure maintenance of irrigation systems for the public interest;
- Law of the Republic of Tajikistan "About the Drinking Water and Drinking Water Supply" was adopted on December 29, 2010, regulates relations in the field of drinking water and its supply and establishes state guarantees to ensure clean drinking water;

Additional note: The relationship of drinking water consumers and suppliers are regulated through separate provisions of the Civil Code (Parts 1-2), Law of the Republic of Tajikistan "About the Protection of Consumers' Rights", as well as a number of regulations. General

provisions of the Civil Code apply to the relationship between providers and users of water for irrigation and watering. Provisions of the legal acts of special legislation in the field of sanitation, ecology and others are also applicable in the relationships within the sector.

2.2.3. Regulation in the water sector

Regulation in the water sector of Tajikistan is carried out by public organizations of general and specialized competence, from the core ministry to agencies, departments and subdivisions responsible for managing various aspects of the water sector and emerging relations in the area.

• Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan

The Ministry is the central executive authority in the field of water resources, implementation of unified state policy and regulatory frameworks in rural water supply sector, operation and maintenance of water facilities. Its authorities also include coordination of activities of enterprises and organizations of the ministries and departments, local executive authorities and international organizations, regardless of their form of ownership, dealing with water supply, coordination in authorizing permits to construct water management facilities, coordination to locate construction of facilities that exert impact on the state of water.

• Ministry of Health

The Ministry, including the Sanitary and Epidemiological Surveillance (SES) and the Center for Healthy Lifestyle (CHL) provides sanitary and epidemiological surveillance of the environment and drinking water in centralized and decentralized systems and sources of water supply. It oversees compliance with health legislation, and participates in the development of appropriate draft laws and other regulations, informs the executive bodies of state authorities and the population about sanitary and epidemiological situation.

• General Directorate of Geology under the Government of Tajikistan "Tajik Geology"

Department of Geology deals with the development and implementation of measures aimed at meeting the state economy's needs in the groundwater, implementation of institutional control over the sustainable and integrated management and protection of groundwater. Besides, it implements state registration of geological information about Tajikistan subsoil wealth in the state fund, carries out licenses (permits) and contracts for all types of using mineral resources, including groundwater, from the competent authorities according to the arranged procedures.

• Environmental Protection Committee under the Government of Tajikistan

Committee for the Protection of Environment carries out state supervision over the observance of country's water protection legislation by all water users, standards and guidelines for the rational use and protection of water resources, as well as licensing a special water use (excluding irrigation) from all natural sources according to the established procedure.

• Local executive bodies of state government in regions, cities and districts

Within their limits of competence, local authorities work to secure drinking water and sanitation, protect and develop centralized and decentralized systems and distribute drinking water to consumers, coordinate placement and commissioning of enterprises, facilities and production activities in water facilities within their respective territory. According to the norms of the Water Code local authorities shall authorize the use of groundwater, not used for centralized water supply and working without forced water level decline.

• Self-governing bodies of settlements and villages (jamoats)

Self-governing bodies of settlements and villages—Jamoat is elected by the voters of settlements and villages and addresses issues of local importance within their delegated responsibilities. Jamoat also deals with issues of local importance (maintenance and improvement of roads, streets, squares, cultural facilities, water sources, local markets, as well as maintenance of cemeteries and provision of location's cleanliness from debris) and adopts rules for their implementation. Besides, according to the Water Code, Jamoat issues permits for the use groundwater not used for centralized water supply.

• Antimonopoly Service under the Government of Tajikistan

Antimonopoly Service implements the state regulation and control over the implementation of tariff policy in the Republic of Tatarstan, including drinking water supply and sanitation, irrigation. Additionally, the Department of Consumer Protection of the Antimonopoly Service is the principal government agency to protect the rights of consumers, including drinking water consumers.

• Tajikstandard

Agency for Standardization, Metrology, Certification and Trade Inspection under the Government of the Republic of Tajikistan "Tajikstandard" provides solutions to the issues of standardization, metrology and certification in the field of drinking water supply and sanitation. Moreover, the Agency is a public body exercising control over the quality and safety of goods (works, services) based on the Law "About Protection of Consumers' Rights", as well as within its competence, it also receives applications from citizens, has the right to initiate appropriate inspection of drinking water supply facilities.

3. DRINKING WATER SUPPLY SECTOR

This section of the report presents the research findings about the risks of corruption in the drinking water supply sector. The overall picture of urban and rural drinking water supply is presented in separate subsections.

According to the information provided in the country's National Development Strategy from among the 699 existing centralized water supply systems 113 do not actually operate, and 358 do not meet sanitary requirements. According to different estimates 59% of the population has access to centralized water supply systems, including 93% in the cities and towns and 47% in rural areas. The situation with effective access to centralized systems is complicated due to the irregularity and poor quality of electricity supply.

3.1 Risks of corruption in the drinking water supply sector in urban areas

Cities and urban-type settlements of the Republic of Tajikistan are well-off in terms of institutional restructuring of relations in the drinking water supply system. As previously mentioned in this report, state unitary enterprises "Vodokanal" were created in large cities, on the basis of former water supply sewerage enterprises, and subsidiaries of the State Unitary Enterprise "Housing and Communal Services" were established in small towns and regional centers that generally helped finding drinking water operators and responsibility for the maintenance and use of systems.

3.1.1 General overview of respondents, research characteristic

According to the Statistics Agency at the President of the Republic of Tajikistan⁸, the proportion of urban population in 2009 was 26.4 per cent from the total permanent population making up 7529.6 million at the end of 2009. A considerable part of the urban population of about 706.1 thousand people lives in the capital Dushanbe. The share of urban population by regions: 13.5 percent from the total population in the Districts of Republican Subordination, 25.3 percent from the total population in Sughd, 17.2 percent from the total population in the Khatlon Region, 13.3 percent from total population in GBAO.

The urban area of housing stock as of 2009 amounted to 26,111.4 thousand m2, including 7688.4 thousand m2 in Dushanbe, 592.5 thousand m2 in Badakhshan, 5426.7 thousand m2 in the Khatlon region, 9677.1 thousand m2 in Sughd and 2726.7 thousand m2 in the cities and Districts of Republican Subordination. More than 90 percent of the population living in the urban housing has access to centralized drinking water supply.

⁸ Source: Statistics digest «Regions 2010», State Statistic Agency under the President of the Republic of Tajikistan, 2010

While holding qualitative survey, target groups were selected representing both the recipient and providers of water supply services, as well as authorities supervising their operation in the cities. The total number of focus groups with an indication of the target groups for urban areas is reflected in the table below:

Table 4. Focus group discussions in the cities						
		Target				
Name of a region	Name of a city	Urban	Water	Total		
		consumers	channels			
Dushanbe	Dushanbe	1	1	2		
Curch of Destination	Chkalovsk	1	1	2		
Sugna Region	Khujand	1	1	2		
Khatlan Bagian	Kurganteppa	1	1	2		
Khation Region	Kulob		1	2		
GBAO	Khorog	1		1		
	Total	5	5	11		

In the course of holding quantitative survey 700 people were surveyed in urban areas, as distributed in the following table:

Table 5. Sampling distribution from the city/village viewpoint							
Region (strata)	Clusters	Population points		Respondents		Total	
		City	Village	City	Village		
Dushanbe	12	12	-	240	-	240	
DRS (Districts of Republican	27	5	22	100	440	540	
Subordination)							
GBAO (Gorno-Badakhshan	4	1	3	20	60	80	
Autonomous Region)							
Khatlon Region	41	7	34	140	680	820	
Sughd Region	36	10	26	200	520	720	
TOTAL	120	35	85	700	1700	2400	

All population of Tajikistan is taken as the sampled population for this phase. The survey was conducted in all areas of the country, in urban and rural areas alike. Sampling during the survey is a simple random sample; therefore any person from the research target group had an equal chance of being selected by the survey sampling.

Research specificity for the subsector

The main hypotheses were developed that should be confirmed or refuted in the qualitative survey prior to arranging focus group discussions (FGD). Conducting FGD helped expanding and complementing these hypotheses, and identify some unexpected and interesting moments. One of the main purposes of the FGD was to apply the results to develop a questionnaire for the next stage – a quantitative study.

A questionnaire was developed for quantitative survey based on the results of the FGD for urban areas. Respondents were drinking water consumers⁹ in urban areas. The questionnaire included questions for following main blocks:

- Public access to centralized water supply systems;
- Maintenance of drinking water supply systems;
- Transparency and accountability in drinking water supply (Assessment of relationships with suppliers)

Each subsection contains direct and indirect questions aimed at identifying the risks of corruption in the corresponding blocks.

3.1.2 Access to drinking water supply services

Access to drinking water supply systems

According to data obtained during the quantitative survey of 703 urban respondents, 645 residents have access to centralized drinking water supply systems in their own home or apartment, which is 91.8% of the total sample. Another 29 people (that is, 4.1% of the total sample) have a single water supply tap point to several households. Thus, almost 97% of consumers receive drinking water from the aqueduct, 91.8% have individual access to a centralized drinking water supply system.



Figure 1. Drinking water sources in urban areas

Other sources of drinking water are used by only 4.1% of the urban population, that is 29 people out of 703. Most of them indicated that they take water from unprotected sources such as river, canal, stream or ditch. Some respondents buy the drinking water, or take it from neighbors, others have their own source of water in the household, and someone uses water from a pond, water reservoir, or fountain as a drinking water. All drinking water sources mentioned by respondents are presented in Table 6.

⁹ Consumer in the context of the present report – individuals using drinking water for personal needs not related with entrepreneurship, editorial note

Table 6. Water sources used by	urban residents who do	not have access	to a centralized
drinking water supply system			

Sources of drinking water	n	%
River/canal/stream/irrigation ditch	9	1,2
It's necessary to buy water	6	0,9
Own source of water in the household	5	0,7
Pond/water reservoir	3	0,4
Water source is in neighbors' houses	2	0,3
Spring	1	0,2
Pump	1	0,2
Another public water supply system	1	0,2

According to the survey in the Tajik capital, Dushanbe, almost all residents have access to drinking water from the tap in their homes – 99.4% of respondents indicated that use water from centralized drinking water supply system. In Sughd and Khatlon regions the percentage of those who have a line of home/apartment plumbing is high – 92.5% and 91% respectively. Plumbing in the street for several households exists for only a small fraction of inhabitants of these areas. In the Districts of Republican Subordination 18% of respondents receive water from the street tap. In urban areas of GBAO – 26.1% use a street running water, and 18.5% use water from other sources.



Figure 2. Widely spread drinking water sources in Tajik regions

Reasons for the lack of access to drinking water supply system

Out of 58 people who have no access to centralized drinking water supply, 49.1% said that only they do not have access to a variety of reasons, but as a whole, the system exists and is functioning in their area (city/part of a city, district). Another 19.7% responded that water supply line does not exist in the area, and never was, and for 28.1% respondents water supply pipe line has been, but long out of service. The distribution of responses is shown in Figure 3.



Figure 3. Does a drinking water supply system operate in the area (city/part of a city, district), where respondents live?

Table 8. Does a drinking water supply system operate in the area (city/part of a city, district), where respondents live in different regions of Tajikistan								
	Dushanbe, %	DRS, %	Sughd, %	Khatlon, %	GBAO, %			
Yes, it operates	100	68,5	-	47,5	83,5			
No, long out of service	-	31,5	13,6	24,2	-			
It does not operate and never operated	-	-	79,8	22,2	16,5			
Found difficulty in replying	-	_	6,5	6,1	-			
Total	100	100	100	100	100			

Responses by regions are divided as follows:

Uninterrupted drinking water supply

An important quality criterion for access to drinking water in centralized drinking water supply systems is uninterrupted. The situation with continuous supply throughtout the country, as shown by the results of the survey, is extremely uneven. Assessment of uninterrupted drinking water supply showed that half of the surveyed residents may get water at any time, i.e., has no restrictions to access water. Another 36.6% of respondents could get water only a few hours a day, and the remaining 11.6% are forced to stock up water for several days at once (see Figure 4).

In Dushanbe, there is a maximum percentage of respondents who can get drinking water at any time – 73.8%. In Sughd 52.1% of respondents receive water at any time, and as much as 28.1% are forced to stock up water for several days in advance. In GBAO and Khatlon Region most of the respondents have access to water only a few hours a day – 55.6% and 59.0% respectively. However, the maximum percentage of respondents throughout the country, who receive water for several hours a day in the DRS, makes up 82.5% (Figure 5).

A total 257 respondents nationwide receive water for several hours a day. Most of them have access to water only 4-6 hours – 44.5%, 25.9% still receive water for 7-10 hours, 16.9% receive it from 11 to 15 hours, 10.2% - from one to three hours, and only 2.6% can receive more than 15 hours per day (see Figure 6).



Figure 4. Assessment of the drinking water's availability



Figure 5. Assessment of the drinking water's availability per regions



Figure 6. Number of hours in a day, when people have access to drinking water

According to respondents, the longest average duration of water supply is in Dushanbe – 41.2% receive water from 7 to 10 hours per day and 28.3% - from 11 to 15 hours a day. Distribution of the water supply duration in other regions is presented in Table 9.

Table 9. Water supply hours divided by regions of the Republic of Tajikistan								
	Dushanbe, %	DRS, %	Sughd, %	Khatlon, %	GBAO, %			
1 - 3 hours	10,7	16,8	10,9	4,5	-			
4 - 6 hours	19,8	47,9	48,6	50,4	53,4			
7 - 10 hours	41,2	22,3	21,8	22,6	33,3			
11 - 15 hours	28,3	13,1	5,2	20,7	13,2			
More than 15 hours	-	-	13,4	1,8	-			
Total	100	100	100	100	100			

Most of those who have access to water for a limited time are not aware of the water supply schedule, 209 people representing 61.3% of respondents. Only 132 people, that is, 38.7% are aware of the supply schedule. Respondents in Dushanbe – 61.5% are best of all aware of the water supply schedule. 55.1% in Khatlon and 46.7% in GBAO are aware about it. Poor awareness exists in Sughd and DRS making up 21.2% and 22.7% respectively.



Figure 7. Awareness about the schedule of water supply in the regions

From among those who know about the water supply schedule (132 respondents), most learn about it from ads in the media (36.6%), controllers (34.2%), or from friends and relatives (11.2%). Also, some people get information from Vodokanal enterprises, while others learned how to determine when water should appear, based on personal experience. Also, a small percentage of the respondents said that water availability depends on electricity, when the electricity is cut off, there is no water then.


Figure 8. Sources of information about the water supply schedule

The highest percentage of residents countrywide is accumulated in Dushanbe that receive information about the water delivery schedule from the media – 88.4%. In addition, 35.1% of residents are receiving it from friends and relatives, and only 3.5% from the controller. In DRS most people obtain their information from friends and relatives (83.6%). In Sughd approximately 40% of respondents get their information from the controller and from friends and relatives. In Khatlon, majority of respondents – 27.2% said that they knew about the time of the water delivery from my own experience, 12.2% get their information from Vodokanal, as well as a small part of the population claims that the water availability depends on the availability of electricity. In Badakhshan, all respondents say they get their information from friends and relatives, in addition, some of them get it from the controller.

Equity of access to drinking water

The majority of surveyed urban residents – 506 people (that is, 71.9% of the sample), believe that the water distribution in their district is fairly arranged, that is, all are supplied with water on an equal footing. Another 20.5% say that they get more water than others; it touches those citizens who live near the water source. Some respondents stated that they takes advantage of officials and wealthy and influential persons to receive water - 4.7% and 4.3% respectively. Only a small number of respondents, less than 1%, said that in order to get water you can use the family or friendship ties (Figure 9).

In almost all areas, as well as country-wide, most respondents recognize the justice of the water distribution among all their neighborhood inhabitants. Only in the DRS, most respondents (79.2%) indicated that those who live near the public source have an advantage in water distribution. Opinions were also most noted evidencing that officials as well as wealthy and influential individuals can use their position in gaining access to water (see Table 11).



Figure 9. Equitable distribution of water among residents

Table 10. Water supply hours divided by regions of the Republic of Tajikistan					
	Dushanbe, %	DRS, %	Sughd, %	Khatlon, %	GBAO, %
1 - 3 hours	10,7	16,8	10,9	4,5	-
4 - 6 hours	19,8	47,9	48,6	50,4	53,4
7 - 10 hours	41,2	22,3	21,8	22,6	33,3
11 - 15 hours	28,3	13,1	5,2	20,7	13,2
More than 15 hours	-	-	13,4	1,8	-
Total	100	100	100	100	100

Problems of access to drinking water in urban areas

Some basic problems inherent in the water sector in urban areas, according to population, were identified during the focus group discussions. Quantitative survey has helped to establish which of these problems exist in the area where majority of the respondents live. According to the survey 22.3% of respondents (157 out of 703) reported that none of these problems exist in their area. Among the rest, most respondents acknowledged the existence of several problems (Figure 10).

The most frequently reported problems were increased wear-out of the water supply system (43% of respondents said that this problem exists in their area), poor water pressure on the upper floors of multi-storey buildings (36.3% of respondents acknowledged the problem), and interruptions in water supply due to electricity cutoff (22.6% of respondents indicated this).

Depreciation of the water supply system was marked by a high percentage of respondents in each of the regions and Dushanbe. Interruptions in water supply due to electricity outages were most marked by DRS residents (73.7% of respondents). Weak water pressure on the upper floors of multi-storey buildings was marked by many residents of DRS (62.8% of respondents) and Dushanbe (50.3%). Most respondents who denied the existence of all the above-mentioned problems in the Khatlon region made up 40.5%.

Table 11. Respondents recognizing the existence of some problems in the residence area						
	Dushanbe, % (n=240)	DRS, % (n=100)	Sughd, % (n=200)	Khatlon, % (n=143)	GBAO, % (n=20)	
Population growth leads to the shortage of water	18,2	19,7	14,0	18,0	48,2	
Depreciation of the water supply system	50,5	35,0	35,9	44,5	51,9	
Lack of funding by the state	14,9	26,1	16,9	9,6	7,5	
Lack of specialists in Vodokanal// housing department	8,6	13,7	4,0	2,5	11,2	
Interruptions in water supply due to electricity outages	13,1	73,7	24,6	3,2	-	
Weak pressure in upper floors of multi-storey buildings	50,3	62,8	19,1	18,6	33,4	
Wasteful use of drinking water	27,9	15,8	10,0	3,6	25,9	
Lack of funds among population to pay for drinking water	13,1	18,1	16,7	8,9	7,4	
None of the above problems exist	27,3	0,7	15,4	40,5	7,4	
Total	223,9	266,3	156,8	149,5	192,8	



Figure 10. Problems of limited access to water

3.1.3. Maintenance of the drinking water supply systems

Assessing the current state of drinking water supply systems

The next block of questions in the questionnaire was devoted to survey consumer opinion about the current state of drinking water supply system. The purpose of this part of the questions is not a professional definition of the systems' condition, but the opinion of respondents concerning the frequency of repairs and corresponding secondary and nearby mainline systems. In this section, those respondents having access to centralized drinking water supply systems were interviewed or 675 out of 703 respondents. As the survey revealed, almost half of respondents assesses the state water supply line to their house as normal – 350 respondents, 15% of respondents believed that little maintenance of pipes in the house is required – 108 people, another 15% believe that major overhaul is necessary – 104 people. 84 people or 12.5% say that the pipe must be completely replaced.



Figure 11. The condition of water supply pipes in homes

In terms of regions, Sughd residents assess the quality of water pipes in their homes as best – 68.9% of them believe that the pipes are in good condition. State of pipes is worst of all according to respondents in DRS and GBAO (see Figure 12).

The quality of works for maintenance and servicing of systems

The same respondents, who have access to the water supply system, were asked questions that characterize the quality of the work required for maintenance and servicing of the drinking water supply systems.



Figure 12. The condition of water supply pipes in homes per regions

When asked about the time of removing the accidents in the system, it was found that when disconnecting the water supply due to breakdowns in the system, restoring the water supply takes place in the following time intervals: for 36.5% of population water delivery is restored during the day, for 32% water supply is restored the next day – even for 19.8% water delivery is restored during the week. Those who wait for the restoration of water supply over a week are 5.3%, or 36 people out of 675. Out of these, for 20 people water supply is restored within a week. Significant differences are not observed for this question from regional perspective.



Figure 13. The period of restoring water delivery in the centralized water supply system after breakdown

In general, according to respondents Vodokanal employees are engaged into repair of water supply facilities in the event of an accident. It was noted by 67.4% of respondents in this category (455 out of 675 people). The second most important organizations that repairs waterworks are the housing department ($X \exists Y$)¹⁰ – their activity is observed by 11.7%, i.e. 79

¹⁰ Housing department (ЖЭУ) - housing and operational management - during the Soviet times, it was the name of the organization responsible for managing and maintaining the housing stock, represented by blocks of flats. These organizations

Table 12. Organizations engaged into the repair of water supply facilities in case of accident				
	Number of respondents	%		
Vodokanal employees	455	67,4		
Representatives of housing department (ЖЭУ)	79	11,7		
Non-governmental and international organizations	12	1,8		
Other organizations	23	3,5		
Nobody repairs	145	21,5		
Found difficulty in replying	26	3,9		
Total	675	109,7		

people. 21.5% of respondents stated that nobody repairs the system in their area. In addition, according to a small percentage of respondents various international agencies and other organizations undertake repair works in their area (see Table 12).

In terms of regions: 43% of respondents in Dushanbe said that in case of an accident nobody repairs the system (carry it out by their own resources and power), and it is the highest percentage of responding this way across the country. In GBAO 36.4% responded that the repairs are carried out by the housing department, but 63.6% in GBAO found it difficult to answer this question.

The quality of water supply systems' repair and equipment, mainly estimated as well by 48.4% of the respondents or moderately (37.2% of respondents), with the DRS, Khatlon and Sughd having higher scores than that in Dushanbe and GBAO (see Figure 14).



Figure 14. Evaluation of the repair works of water supply facilities

provide repair and maintenance of housing stock in the Soviet Union on account of the state budget, including in-house secondary water supply systems (pipes and wiring in the basement, pipes connecting the house with a highway system). Currently, these organizations became self-supporting organizations at the local executive bodies of state authority, or its subsidiaries SUE "Zhilkomkhoz". These organizations today provide services for maintenance and servicing of housing facilities of apartment owners under the contracts. Namely by inertia people call "housing department", today relationship is partially preserved to such organizations by the previous inertia. Editor's note

Charges for maintaining and servicing the systems

In urban areas, water supply system can be subdivided into highway and secondary value. Such a unit usually exists in multifamily housings: systems of secondary value, as indicated in the report, are pipes extending from the house to water main, and a system in the basement of an apartment building. Repair and maintenance of the main drinking water supply systems should be carried out at the water supplier's expense, as these costs should be included in the tariff. The legislation of the Republic of Tajikistan does not practically adjust the responsibility to repair systems of secondary value, as previously these systems were maintained by the Housing Services Department, as the houses were under their economic management. After the privatization of apartments in multifamily buildings, these systems must also be served today due to water suppliers (water utilities' companies) and should also be included into the tariff, but in practice this is not done in almost all cities.

The survey showed that Vodokanal employees received payment from the population to repair the water supply line (see Figure 15). The maximum percentage of people who indicated to this throughout the country those is in Sughd representing 29.1% of respondents.



Figure 15. Were there any cases, when Vodokanal employees received payment from the population to repair the water supply systems?

Besides, the payment receipt for the repair works was issued only in 19.9% of cases and in 70.5% of cases those persons who paid for the repairs did not receive documentary confirmation of their costs. The remaining 9.5% of respondents found difficulty in replying whether a receipt was given or not (see Figure 16).



Figure 16. Does the payment receipts for the repair of water supply system's elements is issued?

Only in the Khatlon region, unlike the general trend, the majority of the respondents say that the payment receipt for the repair of water supply line has been issued (43.8%), and 34.6% found difficulty in replying to this question.

3.1.4. Transparency and accountability while delivering drinking water supply services

Concerning the issues of transparency and accountability while providing treated drinking water, relationships arising from the payment for services were considered. The research found that among all respondents, only 12.2% payment for water supply services is not accrued due to various reasons, the remaining 87.8% have to pay for water services. Out of those 87.8% who pay for water (593 respondents out of 703) almost 67.8% are informed about payment rates for water and their changes, 27.9% of respondents are not informed, 4.3% found difficulty to answer to this question (Figure 17).

As can be seen from Figure 18, indicator of awareness about tariffs of payment for services is highest in Khatlon Region – 79.5% of respondents. Worse indicator is in the DRS – 42.8% are not aware, worst indicator is in GBAO – only 7.6% of the respondents are informed, and 79.9% found difficulty in replying to this question.

Basis for payments to suppliers

Basically, the amount of payments for water supply services is calculated based on the number household members, as noted by 82.7% of respondents. The amount payable for services is



Figure 17. Population's awareness about tariffs of payment for water supply services and their changes



Awareness across regions (Figure 18):

Figure 18. Are the population informed about the tariffs of payment for water supply services in the regions

charged by meter according to 10% of respondents, while 5.7% pay a certain sum of money for the household, regardless of the number of people living there (see Figure 19). Moreover, counters are installed only in Sughd (33.7% of respondents from Sughd use them, mainly in Khujand), and a fixed amount is charged only in DRS and GBAO, regardless of the number of residents living in the family. In DRS – 22.8% and in GBAO – 11.8% of household respondents pay a fixed amount. In Dushanbe all respondents pay for water depending on the number of household members.



Figure 19. Type of accrual amount payable for water

Respondents who pay for water based on meter's calculation (this includes 59 residents of Sughd Region from Khujand and Isfara cities), note that they have a controller. According to the majority of respondents (83.1%), the controller takes meter readings once in a month, yet for 15.3% - more than once in six months, and only one respondent said that the controller visits only once in a year. Almost all respondents (58 out of 59) argue that the controller provide accurate meter readings, but not approximate ones. In case counter's break, according to the majority of respondents (81.7%), they turn to the controller for correcting the damage. Another 11.7% of respondents admitted that they will fix the problem themselves and 6.7% found difficulty in replying to the question of will they do in this case.

For the majority of respondents in this category, seal is placed to control the accuracy of their counter's work. It was noted by 76.2% of respondents, i.e. 45 out of 59. Another 18.7% said that no seal is set in their counter and 5.1% found difficulty in replying.



Figure 20. Presence of seals on meters

Completeness and frequency of consumers' payments

According to the survey, 76.9% of citizens say that they always pay the full amount, 19.3% pay to the extent possible, not always the full amount. Only 3.4% of respondents (i.e. 20 persons) do not pay for water, half of them do not pay due to lack of funds, half do not pay for other reasons.



Figure 21. Do urban residents pay for water supply services?

According to their responses residents of Sughd and Khatlon regions, demonstrated accuracy in payments in these areas, where the full amount is paid by 85.7% and 82.2% of respondents respectively. For comparison, in DRS – only 63.2% pay the full amount.

As it turned out during the study, most people prefer to pay for drinking water through controllers (82.7% of respondents). Only 9.9% of respondents pay for water through cashier's office, while another 6.9% combine these two methods of payment.



Figure 22. Type of payments for water by the population

The maximum percentage of those who make payment through cash countrywide is in Dushanbe making up 17.3% of respondents from the total number of respondents in the city, and in DRS and GBAO almost all respondents pay for water through the controller.

Out of 511 respondents who pay for water through the controller (always or only sometimes), 33 persons (or 6.5%) indicated that there were occasions when the controller pocketed some of their money, or even the entire amount paid for water and another 16 people (3.1%) found difficulty in replying whether there were similar cases (see Table 13). Cases of pocketing paid money are found in all regions of Tajikistan, especially their percentage is high in Dushanbe (12.9% of total respondents in the capital indicated that it has happened).

Table 13. Cases of pocketing payments by controllers				
	Number of respondents	%		
Yes	33	6,5		
No	462	90,4		
Found difficulty in replying	16	3,1		
Total	511	100		

According to 89.4% of respondents, while paying for water they always get a receipt showing the exact amount of payment. Only 7.6% of respondents (43 people) do not always receive a payment receipt and 2% (11 people) did not receive them.

Table 14. Receiving a payment receipt		
	Number of respondents	%
Yes	510	89,4
Give, but not always	43	7,6
No	11	2,0
Found difficulty in replying	6	1,0
Total	571	100

The best result for issuing receipts for payment exists in Sughd and Khatlon regions, where 99.4% and 96.9% respectively receive it constantly, while the worst result is observed in the DRS (where only 61% of respondents receive a payment receipt every time they pay for water).

3.1.5. Overview of the existing corruption risks

Findings of the research in the cities and urban-type regional centers of Tajikistan, with focus to the risks of corruption occurrence:

- Access to drinking water supply services

Traditionally, the population in urban areas depends on the centralized water supply systems, due to the lack of alternative ways to meet the needs for drinking water. Centralized water supply system in urban areas of Tajikistan was built during the Soviet Union times, no major changes in infrastructure since independence were in place, and almost 100 percent of the residents had access to the system as evidenced by the survey results. Given the availability of

water supply systems, the low rate of new housing construction, corruption risks associated with drawing new lines and connections to the system are minimal at the moment, the risks will emerge with the growth of cities and commissioning new networks. More acute problem remains arranging an uninterrupted water supply, public awareness about interruptions in the drinking water supply, and condition of systems.

- Care and maintenance of the drinking water supply systems

Maintenance and servicing schemes of the service water supply systems to date are not clear to consumers, responsibility for the maintenance and servicing is not regulated in detail. A fifth of those surveyed residents said that nobody is engaged into the system maintenance, one fourth of respondents declared about the availability of systems maintenance as well as paid for repair services, of which receipts were not submitted to 70 out of 100 cases. There is no clear division of responsibilities between various economic entities in the drinking water supply facilities. The population is not sufficiently informed about by whose expense and which organization should take care of systems' maintenance and servicing, provide emergency response to accidents, and troubleshoot.

- Transparency and accountability while providing drinking water supply services According to the survey results, population at large is informed about the tariffs and changes thereto. A vast majority of payments for water supply services is based on a specific tariff for each family member, generally the total of number of residents living in the family. What is a serious risk of corruption, as it may become the subject of conspiracy between the consumer controllers, number of family members often cannot be determined, the official and actual data differ. In addition to this risk: the overwhelming majority of consumers (82.7%) prefer to pay controllers, than in savings bank's cash office. This is due to the underdeveloped banking system, the reluctance of consumers to stand in queues, activity of controllers, who receive a percentage from the collected money, but also an evident risk of corruption.

3.2 Risks of corruption in the drinking water supply sector in rural areas

After independence, the rural drinking water supply sector of the Republic of Tajikistan was in a less favorable position than the cities and district centers. The main causes of difficulty in becoming a system of market economy are, as already mentioned in this report, initial lack of access to centralized water supply systems (about 47 percent of rural population), as well as agricultural reform and subsequent dissolution of collective and state farms that led to subsequent abandonment of local water supply subsystems.

Also a factor aggravating the situation is rural poverty, remoteness as well as the "subsidy" budgets of many rural areas.

3.2.1 General overview of respondents, research characteristic

According to the Statistics Agency at the President of the Republic of Tajikistan¹¹, the proportion of rural population in 2009 was 73.6 percent from the total permanent population making up 7529.6 million at the end of 2009. The share of rural population by regions: 86.5 percent of the total population lives in the Districts of Republican Subordination, 74.7 percent of the total population lives in Sughd, 82.8 percent of the total population lives in the Khatlon region, 86.7 percent of total population lives in GBAO.

While holding qualitative survey, target groups were selected representing both the recipient and providers of water supply services, as well as authorities supervising their operation in the rural areas (see Table 15).

Table 15. Focus group discussions in rural areas						
Name of a	Name of a city/		Target group)	Total	
region	village	Rural consumers	Water utilities	Local executive government bodies		
Sughd region	Zafarobod district		1	1	2	
	Dusti village	1			1	
	Ayni district			1	1	
	Dargh village	1			1	
	Panjakent district					
	Gharibak village	1			1	
Khatlon region	Vose' district			1	1	
	Kaduchi village	1			1	
	Vakhsh district					
	Kirov village	1			1	
DRS	Rusaki district					
	Choryakkoron village	1			1	
	Hisor district			1	1	
	Baghalak village	1			1	
GBAO	Rushon district					
	Derzut village	1			1	
	Total	8	1	4	13	

In the course of quantitative survey 1,700 people were surveyed in rural areas, based on the distribution in the following table:

Table 16. Sampling distribution from the city/village viewpoint

Research specificity for the subsector

Basic techniques have also been applied to conduct the study in this subsector used for all subsectors within the framework of this project: discussions and quantitative method. Besides, the main hypotheses were developed that should be confirmed or refuted in the qualitative survey prior to arranging focus group discussions (FGD), but considering the specifics and

¹¹ Source: Statistics digest «Regions 2010», State Statistics Agency under the President of the Republic of Tajikistan, 2010

situation of water supply in rural areas. FGD results were also applied while developing a questionnaire for the next stage – a quantitative study.

A questionnaire was developed for quantitative survey based on the results of the FGD for rural areas. Respondents were drinking water consumers in rural areas. The questionnaire included questions for following main blocks:

- Public access to centralized water supply systems;
- Maintenance of drinking water supply systems;
- Transparency and accountability in drinking water supply (Assessment of relationships with suppliers)

Structure of the questionnaires for urban and rural areas is similar, the differences is in the content of individual questions, taking into account the appropriate specificity. Each subsection of the questionnaire also contains direct and indirect questions aimed at identifying the risks of corruption in the corresponding blocks.

3.2.2 Access to the drinking water supply services

Access to the drinking water supply systems

The survey determined that 33.3% of respondents in the country (or 572 people) have access to water supply systems¹², which are water supply tap points (crane, column, wells, etc.) located in the street and being used by several households. 19.1% of respondents among rural population (or 327people) use water from rivers, canals, streams, or ditches. 12.5% of the respondents (or 214 people) have individual access to the drinking water supply systems (tap on their yard or house). 12.5% of respondents (or 215 people) use pond or reservoir as a source of drinking water; 7.6% (i.e. 131 people) use from another public water supply system; 5.8% (99 people) has their own source of water in the household (more often it is hand pump system for pumping the groundwater). 4.7% of respondents (i.e. 81 people) said that they have to buy drinking water and another 4.2% (72 people) use water from the spring. Finally, five people, representing 0.3% of the sample said that they use rainwater for drinking (Figure 23).

¹² Centralized drinking water supply system (water supply line for general public use) – a set of devices and structures for the intake, treatment, storage and delivery of drinking water to places of its consumption, open for general use by physical and (or) legal entities

⁻ decentralized system of drinking water supply for public use – devices and facilities for intake and treatment (or without treatment) of drinking water without its delivery to the places of consumption, open for general use by physical and (or) legal persons;

⁻ stand-alone drinking water supply systems – devices and facilities for intake and potable water supply with delivery (without delivery) to its place of consumption, are under individual use (individual homes, farms, suburban area of a single entity)

Source: Law of the Republic of Tajikistan "About the potable water and drinking water supply", page 1.



Figure 23. Main drinking water sources in rural areas

In almost all regions of Tajikistan the main source of drinking water in rural areas is water supply line in the street, except for the DRS (where the majority of respondents – 25% get water from the supply tap in their home).

Rivers, canals, streams or ditches are more often used for receiving drinking water in the Khatlon region (22.4% of respondents use them). In the Khatlon and Sughd – 16.2% and 15.6% of respondents respectively most often receive drinking water from ponds and water reservoirs. Other public water supply systems and own water sources in the household are often used in Sughd (13.5% and 9.8% of respondents respectively). Only respondents from the DRS (8.6%) and the Khatlon region (6.2%) buy water. Concerning the GBAO residents, all 60 respondents referred to their water supply line as a primary source of water, out of which 96.7% use public water supply lines in the street and the remaining 3.3% cited their own water supply line in the household.

Table 17. Main drinking water sources used by rural residents across regions						
	DRS <i>,</i> % (n=440)	Sughd <i>,</i> % (n=520)	Khatlon, % (n=696)	GBAO <i>,</i> % (n=60)		
Water supply line in the street	28,4	33,7	30,7	96,7		
River/canal/stream/ditch	16,4	19,0	22,4	-		
Pond/water reservoir	4,5	15,6	16,2	-		
Water supply line inside the house/ apartment	25,0	7,3	9,3	3,3		
Other public water supply systems	8,9	13,5	3,2	-		
Own source	3,0	9,8	5,0	-		
Need buying water	8,6	-	6,2	-		
Spring	4,5	1,0	6,8	-		
Rainwater	0,7	0,2	0,1	-		
Total	100	100	100	100		

Reasons for limited access to water supply systems, according to respondents, are different – from the physical obsolescence to the initial absence. Respondents, who pointed out the lack of individual access (tap in the house or yard), were asked about the reasons. The largest number of respondents across the country do not have individual access to water supply systems, confirm that such a system in their villages had been, but long out of service (31% of respondents, i.e. 464 out of 1498 people). The absence of such a line that initially provides water supply to the house or yard was stated by 25.4% of respondents, who said that the system in the village provides water only to public water lines in the street, while 20.3% say that a water supply line in their village does not exist at all and never was. And only 11% of respondents said that the water supply system in the village works as intended, that is, supplies water to almost all homes, except in accordance with their home, other 11% agree that the system supplies water to at least some homes.



Figure 24. Operability of the system in the villages of respondents, who do not have individual access

The situation with the presence of water supply lines in rural areas is slightly different across the regions of Tajikistan. For example, in Sughd, majority of respondents (32.9%) say that water supply line in their village does not exist and never existed and in Khatlon region the water line is long out of service (36.8% of respondents). Full picture across regions is presented in Figure 25.

Those respondents who have currently operational water supply line in the village (and there was 730 people), were asked about why they had no opportunity to draw an individual line to their own homes (Figure 26).



Figure 25. Operability of the drinking water supply system in the villages of those respondents, who don't have individual access (across regions)



Figure 26. Reasons of the lack of individual access to water supply lines in the villages having an operational system

It turned out that the main reason for this is lack of funds for drawing a separate line (according to 37.1% of respondents) and the technical impossibility to draw the line, as confirmed by 24.9% of respondents. A large percentage of respondents (20.5%) said they had no need to draw the line; they are satisfied with the existing source. 9.6% of respondents say that it's impossible to draw a line due to the lack of water, and 7.3% found difficulty in answering the

question. Only 0.5% of the respondents (i.e. 4 people), noted that it is impossible to draw a plumbing line home if you have no ties, or it's necessary to pay bribes.

Accessibility of drinking water in rural areas

Based on the limited access to centralized and decentralized water supply systems in rural areas, such a criterion of quality, as continuity of supply in rural areas do not always apply. Therefore, the question posed about the availability of water was not from a position of continuity of its delivery and general physical access to water, that is, whether the respondent may obtain water at any time. Given responses were based on considering the remoteness of the respondents' "non-system" sources of water (pond, river, water reservoir, lake, etc.), operating schedule of public water supply lines, etc.

More than half of respondents said that they could get water at any time when they want to - 55.6%. 20.9% receive water only a few hours a day and 21.3% stock up water once for several days (see Figure 27).



Figure 27. Accessibility of drinking water in the villages

Water availability in rural areas depends on its source, as shown in Table 18. It's observed that the majority of respondents who said they have access to water at any time – 83.8%, are among the group of respondents who have their own source of water in the household (well, water tower, draw well, etc.). Besides, quite a large percentage of respondents who have no restrictions to access water is among those who use public water supply system (76.3% of respondents) or individual water supply line in the house (72.1%). Those villagers whose main source is river/canal/stream/ditch or pond/water reservoir, often forced to stock water for several days at once (in 42.2% and 30.8% cases respectively). The same can be said about those who buy water or use rainwater for drinking.

Table 18. Accessibility of drinking water in terms of the water sources						
	n	At any time, %	Several hours in a day, %	Stock up water for several days, %	Found difficulty in replying, %	
Water plumbing in the house/ apartment	215	72,1	26,0	0,9	0,9	
Water supply line in the street	572	38,1	43,4	14,0	4,5	
Other public water supply systems	131	76,3	5,3	18,3	-	
Own source	99	83,8	11,1	5,1		
River/canal/stream/ditch	327	54,1	3,4	42,2	0,3	
Spring	72	62,5	30,6	6,9		
Pond/water reservoir	214	63,1	1,9	30,8	4,2	
Need buying water	81	49,4	-	50,6		
Rainwater	5	20,0	-	80,0		
Total	1716	55,6	20,9	21,3	2,2	

If we consider the availability of water in the villages across regions, according to respondents, the best situation is in GBAO – there is 68.3% (41 people out of 60) stated that they could get water at any time. Worse situation in Sughd – there is only 40.6% of those surveyed receive water at any time, yet 34.8% - a few hours per day and 24.6% stock up water for several days at once (see Figure 28).



Figure 28. Accessibility of drinking water in the villages across regions

Those who receive water only a few hours a day (359 respondents) were asked about the daily periodicity of water delivery. It was found out that just under half of respondents (48.5%) receive water only 1-3 hours a day, yet 33.4% receive it 4-6 hours a day (see Figure 29). In terms of regions, almost no difference is seen in the situation. Thus, the interval of water supply in rural areas was significantly shorter than in urban areas, where the maximum percentage of respondents could get water 4-6 hours (44.5%) and 7-10 hours (25.9%).



Figure 29. Number of hours a day rural residents have access to water

Also, unlike in urban areas, the majority of respondents in rural areas (72.6%) said they did not have any information about the water supply schedule (while in urban areas only 38.5% do not receive such an information). Distribution of respondents by country and regions is shown in Figure 30.



Figure 30. Population's awareness about the water supply schedule

Those who are informed about the water supply schedule were asked what sources they get relevant information from. It was found out that most people get their information at the village assembly/council (57.7% of respondents indicated this). Quite a large proportion of respondents get their information from friends, relatives or neighbors. Getting information

from employees of the water supply organizations or from information stands in jamoats, or Vodokanal, although rare, but observed (see Table 19). Also, several respondents noted that water supply depends on electricity; there is an access to water when electricity is available. No significant difference on this issue is observed across regions.

Table 19. Sources of information about the water supply schedule in rural areas					
	Number of respondents	%			
Village assembly/council	123	57,7			
Information stands in Jamoats/Vodokanal	9	4,2			
Publications in mass media	1	0,5			
Round of employees of the water supply organizations to inform families	11	5,2			
Friends/relatives/neighbors inform us	73	34,3			
Availability of electricity	7	3,3			
Found difficulty in replying	2	0,9			

Equity of access to drinking water

Public opinion poll in rural areas about the equity of access to drinking water, showed their relative positions of the situation in the village. Lack of potable water, limited access of the population does not produce injustice in access, so about half of the respondents believe that all the village residents receive enough water. In this case, 48.8% of respondents agree or partly agree with the statement that those village residents having individual access, get more water than all the rest, and 46.3% of respondents fully or partially confirm that those who live near public sources, get more water than others.



Figure 31. Do respondents agree with the following statements?

Regarding unfair methods of obtaining privileges for access to drinking water (using one's official position, connections or giving bribes to persons responsible for water distribution), the majority of respondents virtually deny the possibility of such action.



Figure 32. Do you agree with the following statements?

Problems of access to drinking water in rural areas

According to the results focus group discussions held prior to the quantitative survey, the list of most relevant for rural residents problems related to drinking water was identified. In the course of quantitative survey respondents were asked to confirm or disprove the existence of these problems in their villages, as indicated in Figure 33.

As the survey results showed, all problems in this list have been noted by respondents one way or another. Only 20.1% of respondents said that none of these problems are present in their village, the others confirmed existence of one or several problems. Thus, the widely spread problem was the necessity to go very far to fetch drinking water from the source – this problem is pointed out by almost 37% of respondents (634 respondents out of 1716). The second most important issue, according to those surveyed in rural areas, is inadequate funding for the drinking water sector by the state – 27.6% of respondents consider so. The third most important issue marked by respondents in rural areas, is that the drinking water supply systems are in poor condition and need repair – 25.8% of respondents expressed such an opinion.

Data presented in Table 20 were obtained while determining the priority of the opinions, or other perceived problems with drinking water supply in rural areas across regions. In the DRS respondents considered the necessity to go far for fetching the drinking water (44.5%), breakdown of drinking water source (35.2%), as well as contamination of drinking water sources (21.6%) as the main issues. In Sughd region, according to respondents, the problem of inadequate funding of the drinking water sector by the state (43.1%) stands in the first place, followed by the breakdown of drinking water sources (34.2%), and lack of funds for the poor



Figure 33. Drinking water problems in rural areas

people to provide the family with water (29.6%). In Khatlon region, apart from the need to go far for fetching water (41.5%) and lack of funding the drinking water sector (26%), population growth is called as a major problem that leads to water shortage (18.2%).

Table 20. Assessment of priority issues related to drinking water supply in rural areas across					
regions, according to residents					
	DRS,% (n=440)	Sughd,% (n=520)	Khatlon,% (n=696)	GBAO,% (n=60)	
Population growth that leads to the shortage of drinking water	16,8	20,6	18,2	51,7	
Breakdown of drinking water sources and equipments	35,2	34,2	11,2	53,3	
Lack of specialists who can carry out quality repair	10,0	12,9	12,4	35,0	
Uneven water distribution among village residents	12,3	5,0	4,5	18,3	
Necessity to go far for fetching the drinking water	44,5	24,2	41,5	38,3	
Mass diseases due to consumption of poor quality water	8,9	25,2	1,0	-	
Lack of funds from poor people to provide family with water	18,2	29,6	8,9	-	
Contamination of drinking water sources by residents and animals	21,6	26,2	11,5	13,3	
Wasteful use of drinking water by residents	8,2	4,0	6,5	11,7	
Insufficient funding of the drinking water sector	10,7	43,1	26,0	35,0	
None of the above-mentioned problems exist	0,2	26,5	29,0	6,7	
No answer	0,5	-	-	-	
Total	187	252	171	263	

Out of all the regions considered, Khatlon region have the highest proportion of rural residents who believe none of the above-mentioned problems exists in their village. Three most common problems among the rural population in GBAO are the breakdown of water sources (53.3%), population growth (51.7%) and the need to go far for fetching water (38.3%).

3.2.3. Maintenance of the drinking water supply systems

Questions concerning the maintenance and servicing of water supply systems in rural areas were asked to respondents who have access to centralized and decentralized water supply systems (787 people).

When asked about the resumption of supply after damage, accident, or crash of the system, this group of respondents answered as follows (Figure 34):



Figure 34. Time required for the resumption of water supply in the villages in case of accidents, breakdowns in the system

According to the survey results, water supply is restored in only 11.7% of respondents during the day. Water supply resumes for 25.5% of users during the next day. 29% get water once in a week, 17% of respondents receives it a week later. Water supply is resumed within a month or more for 11.5% of respondents. Over 5% of respondents could not remember exactly Table 21).

According to respondents from the DRS, after breakdowns water supply is resumed in most cases in a week (35.7%) or during the week (33.2%). More than 52% respondents in the Khatlon region answered that water supply is resumed during the day or the next day.

breakdowns in the system (by regions)					
	DRS, % (n=235)	Sughd <i>,</i> % (n=213)	Khatlon, % (n=279)	GBAO, % (n=60)	
During the day	0,9	8,5	21,1	21,7	
During the next day	10,2	29,1	31,5	45,0	
During the week	33,2	41,3	16,8	25,0	
After a week	35,7	8,9	10,0	5,0	
During the month	13,6	0,9	2,5	1,7	
It takes more than a month	6,0	7,0	7,2	-	
Found difficulty in replying	0,4	4,2	10,8	1,7	
Total	100	100	100	100	

Table 21. Time required for the resumption of water supply in the villages in case of accidents

Total100100100100When asked who is engaged into repairing water supply lines, the majority of respondents said
that the villagers themselves carry out repairs – 50.7% of respondents consider so. According
to 21.2% and 5.7% of respondents respectively Vodokanal and housing department employees
carried out repair works in the villages. Approximately 14.1% of respondents reported that no

one carries repair in their village (see Figure 35).



Figure 35. Who repairs water supply lines in respondents' villages?

The respondents' answers were distributed in different ways across the regions. Thus, in GBAO about 97% reported that the repair of water supply lines in their village is carried out by residents themselves. In Khatlon region almost a third of respondents (36.6%) said that no one carries out the repair works, while a similar response in DRS and Sughd region is gaven by 2.6% and 1.4% respectively. In their responses respondents from DRS and Sughd region noted about Vodokanal and housing department employees. The greatest number of respondents who answered that repair is performed by non-governmental and international organizations is in Sughd region (7%). The highest percentage of respondents who found difficulty to provide any answer to this question is in the Khatlon region (5.4%).

(by regions)				
	DRS <i>,</i> % (n=235)	Sughd, % (n=213)	Khatlon, % (n=279)	GBAO, % (n=60)
Vodokanal employees	23,0	29,1	18,3	-
Housing department representatives	15,7	1,9	1,4	-
Private organizations	2,1	3,8	3,6	-
Non-governmental and international organizations	-	7,0	-	1,7
There is no special organizations, residents carry out the repair works themselves	55,7	53,1	34,8	96,7
No one carries out a repair	2,6	1,4	36,6	-
Found difficulty in replying	0,9	3,8	5,4	1,7
Total	100	100	100	100

Table 22. Who is engaged into repair works and maintenance of water supply system? (by regions)

Representatives of the villages, where repair of the water supply lines is performed by any of the above-mentioned organizations, were asked to evaluate the repair work of water supply lines. Thus, 7.6% of the respondents referred to excellent quality of repair works. 63.3% of respondents reported that the quality of performance is good. 25.5% responded that the work is of medium quality and only 2% said that the quality is poor.



Figure 36. Respondents' assessment about the quality of repair works performed in water supply lines

3.2.4. Transparency and accountability while delivering drinking water supply services

Questions in this unit have also been addressed only to the village residents, who according to their answers, have access to water, and respectively, use the water supply services. This block also examines the relationship arising from the payment for services.



Figure 37. Payments for the drinking water supply services

Most respondents (66.2%) replied that they always pay the full amount. 8.8% pay for service to an extent possible, sometimes incomplete amount. 18.4% of respondents do not pay for drinking water due to various reasons. More than 6% could not give an answer to this question.

As it turned out, the full amount is paid by majority of respondents from the DRS – 74.7%. The proportion of those who always pay for the use of potable water in Sughd and Khatlon regions is 82.2% and 58.4% respectively. At the same time, in GBAO only 11.7% of respondents always pay the full amount and 70% do not pay at all.

Table 23. Payments for the water supply services (by regions)					
	DRS <i>,</i> % (n=235)	Sughd, % (n=213)	Khatlon, % (n=279)	GBAO, % (n=60)	
Yes, I always pay the full amount	74,7	82,2	58,4	11,7	
I pay sometimes to an extent possible	15,3	9,4	3,9	3,3	
I don't pay due to the lack of money	-	0,9	1,8	5,0	
I don't pay, because my house is located far from the water supply line	-	2,3	2,2	10,0	
I don't pay due to other reasons	8,9	5,2	15,4	70,0	
Found difficulty in replying	0,9	-	18,3	-	
Total	100	100	100	100	

One of the criteria of transparency in payments is giving receipts to customers. To the question about obtaining receipts, slightly more than 70% of village respondents said that they receive receipt upon payment. About 27% said that a receipt is not given to them. 2.9% were unable to specify an exact answer to this question.



Figure 38. Are respondents provided with receipts for the amount paid?

The next question was about the organizations that receive payments. Nearly half of respondents, who pay for drinking water services, make a payment to representatives of the water supply organization – this answer was given by 48.6% of respondents. 26.8% pay for drinking water to local government representatives (as well as mahalla committees, etc.), 16.3% of respondents make payments to representatives of housing maintenance organizations. Only 3.2% responded that they pay to other persons or organizations. 5.1% of respondents found difficulty in replying to this question.

Table 24. To whom village residents pay for the drinking water, by regions					
	DRS <i>,</i> % (n=212)	Sughd <i>,</i> % (n=195)	Khatlon, % (n=174)	GBAO, % (n=9)	
To Vodokanal representatives	44,3	31,3	75,9	-	
To housing department representatives	32,5	6,7	6,9	22,2	
To representatives of local self- government bodies	22,2	52,3	5,2	-	
To other persons/organizations	-	7,2	2,9	-	
Found difficulty in replying	0,9	2,6	9,2	77,8	
Total	100	100	100	100	

Organizations that respondents make a payment to for drinking water services across regions is presented in Table 24. Thus, from among the regions under consideration, the percentage of respondents who pay for water delivery to organizations is maximal in the Khatlon region – 75.9%. Housing department representatives are paid the most respondents in DRS – 32.5%. In Sughd, payment for the drinking water is charged mainly by local self-government bodies (52.3%) and Vodokanal (31.3%). The majority of respondents in GBAO could not give an exact answer as to whom they make payments.



Figure 39. To whom village residents pay for the drinking water?

Basis for payments to suppliers

The next subject of this unit concerns the awareness about principles of payment calculation for the drinking water supply services. The majority of surveyed residents in rural areas (52.5%) responded that the payment for drinking water is calculated based on the number of family members. In 25.3% cases, payment is made from the household, regardless of the number of people living there. 7.8% said they make payment according to the counter reading. 8.8% of households are charged based on a different principle. 5.6% do not know exactly, according to which principle they pay for drinking water.



Figure 40. Principle based on which payment is charged for drinking water

The study also found out, whether they are informed about where that money collected for drinking water is sent or not.



Figure 41. Are respondents informed about to which needs the money collected for drinking water is spent

So 63% of respondents said they did not receive any information about for what the money is collected. 35.5% of respondents said that they are informed about the use of money collected from drinking water services. Only 1.5% could not give an exact answer to this question.

The main sources of information about the use of money: the overwhelming majority of respondents (84.6%) received this information in rural assemblies. 7.1% responded that such an information is available for review at the information stands in jamoats or Vodokanal. A small number of respondents said that they get information from media, receipts from Vodokanal workers and accountants. More than 9% could not remember where they obtain information about the targeted use of funds charged from drinking water supply.

Table 25. Sources of obtaining information				
	Number of respondents	%		
Village assembly/council	237	84,6		
Information stands in jamoats/Vodokanal	20	7,1		
Quarterly mass media publications	5	1,8		
Vodokanal workers deliver information	3	1,1		
Accountant delivers information	1	0,4		
Found difficulty in replying	27	9,6		
Total	280	104,6		

3.2.5. Overview of the existing corruption risks

The findings of the research in rural areas of Tajikistan, focusing on the occurrence of corruption risks:

• Access to drinking water supply services

Initially limited public access, but not an individual access to water supply systems in rural areas of the country leaves its mark on the development of relations and the nature of corruption risks. Similar to Tajik cities fundamental changes in the infrastructure did not happen here, the existing system was built before the independence. However, in rural areas population finds possible alternatives to the existing water supply systems, building stand-alone systems for pumping groundwater, or building wells, reservoirs for drinking water in their backyards. But the use of alternatives is not always possible, and many still have limited access, which raises the value, and accordingly the risk of corruption in any efforts to increase access: attracting investment, using budgetary funds, using targeted taxes from the population.

Besides, a part of population, who has access to water supply systems is exposed to risks of corruption, as interruptions of drinking water does not motivate, village residents are informed about their causes and timings extremely bad.

• Maintenance and operation of drinking water supply systems

Availability of alternative sources of drinking water, as compared to cities, a weak institutional structure of drinking water supply led to an inefficient system, maintenance and operation of water supply systems in rural areas. More than half of rural residents independently maintain and operate the respective water supply systems. Corruption risks in self-maintained systems are minimal, but these actions are rarely based on a professional and periodic care for the water supply system, but rather a spontaneous reaction to the failures and accidents that may eventually make the situation worse and will require large capital investments.

• Transparency and accountability while delivering drinking water supply services

Weak institutional structure in the rural drinking water supply has led to confusing schemes of payment for drinking water services to consumers. More than half of respondents said they pay by the number of living family members, a quarter of respondents paid a fixed, unknown by who, single amount from each household. Consumers are confused with management entities that deal with water supply, with local government authorities, or local self-governing bodies. This situation reduces the responsibility for water supply services and increases the risk of corruption associated with payment for services.

4. RISKS OF CORRUPTION IN IRRIGATION SECTOR

With the reform of agriculture agricultural cooperatives came to replace the collective and state farms and private farms. They became the main water users for irrigation purposes. With the transition to a paid water delivery for irrigation, new relations emerged in the sector between recipients and providers. The purpose of this sub-section of the report is to analyze and assess exposure of relations to corruption risks arising from the receipt, distribution and use of water for irrigation.

4.1 General overview of respondents, research details

Quantitative study – a survey of dehqan farms' managers in Tajikistan was scheduled for the research in irrigation sector. The survey sample of dehqan farms' heads was randomly selected from a list of currently existing dehqan farms.

PPS (Proportional Probability Sampling) method was used for the sampling – a method of random selection from the list, in which the probability of the settlement's inclusion in the sample increases with the number of respondents in this village.

Primary sampling units (PSUs) equal to 10 households was introduced to identify the number of farmer households in each of the areas that fall into the list of the general sampling. The number of PSUs in each region was proportionally determined to the area of dehqan farms in the total number of dehqan farms countrywide. Thus, the distribution of dehqan farms by regions in the sample reflects the distribution in general sampling.

The total number of dehqan farms in 2010 was 16 213. As the result, according to indicated principle, 601 dehqan farms fell into the sample from three regions of Tajikistan – Sughd, Khatlon and DRS, as reflected in the table below.

Table 26. Distribution of <i>dehqan</i> farms by regions through general sampling and selected sampling					
Region	Number of dehqan farms	Percentage of <i>dehqan</i> farms in general sampling	Sample	Percentage of <i>dehqan</i> farms in selected sampling	
Sughd region	1485	9,2%	60	10,0%	
Khatlon region	13554	83,6%	490	81,7%	
DRS	1174	7,2%	50	8,3%	
Total	16213	100%	600	100%	

Table 27. Distribution of <i>dehqan</i> farms by regions of Tajikistan				
Population point	Number of dehqan farms	Sample	Number of PSUs (1 PSU = 10 DF)	
Sughd region	1146	60	6	
Hamari of Asht district	268	10	1	
Ghonchi	166	10	1	
Mastchoh	193	10	1	
Panjakent	138	10	1	
Isfara	292	10	1	
Istaravshan	89	10	1	
Khatlon region	11155	491	49	
Kurganteppa group of districts	10317	450	45	
Vakhsh	610	30	3	
J.Rumi	478	30	3	
Qumsangir	3451	150	15	
Bokhtar	389	30	3	
Panj	3451	130	13	
Yovon	1324	50	5	
A.Jomi	614	30	3	
Kulob group of districts	838	41	4	
Vose'	312	22	2	
Hamadoni	402	8	1	
Danghara	124	11	1	
DRS	1166	50	5	
Hisor	397	20	2	
Tursunzoda	769	30	3	
Total countrywide	13467	601	60	

Distribution of dehqan farms and PSUs by region is presented in the following table.

Study details

Qualitative survey in this sector included holding the same sample principles of 4 focus group discussions for Water Users Association members in Zafarobod, Panjakent districts of Sughd region, Vose district of Khatlon region and Hissar district of DRS.

A questionnaire was developed for quantitative research in irrigation sector. Respondents were dehqan farms' managers. The questionnaire included questions related to two main blocks:

- Accessibility of water for irrigation;
- Relationships emerging in the process of obtaining water for irrigation;
- Maintenance and operation of irrigation systems;

Each section of the questionnaire also contains direct and indirect questions aimed at identifying the risks of corruption in the corresponding blocks.

4.2 Access to water resources for irrigation

Justification to obtain water for irrigation

As mentioned above, today dehqan farms in Tajikistan receive water for irrigation from the Water Management Offices, which are local units of the Ministry of Land Reclamation and Water Resources, or from Water Users Association. Such a relationship should be formalized through a relevant contract. Studies have shown that similar agreements exist in 86.4% of dehqan farms (519 dehqan farms out of 601), and 13.5% (81 dehqan farms) did not sign contracts. The representative of a farm out of 601 found difficulty in replying to this question.



Figure. 42. Availability of dehqan farms' contract with Water Management Offices

Only a slight difference is observed in relation to three regions under study. The highest percentage of dehqan farms having such an agreement is in Sughd – 88% as compared to the smallest share in Khatlon region – 80%.

Availability of irrigation water

The possibility of obtaining water in sufficient quantities during the irrigation season, according to dehqan farms, was considered as the availability criterion in this part of the study. Irrigation water shortage is a very serious issue that directly affects the yield, hence on the profitability and farms' livelihood as a whole. Respondents' opinion is based on the experience of several previous seasons. In terms of the irrigation water sufficiency the dehqan farms' managers responded as follows: About half of those surveyed dehqan farms' heads (49.1%) felt that their farm is provided with irrigation water whenever they need it, the other half denies it. 1% (6 respondents) found difficulty in replying.



Figure 43. Are dehqan farms always provided with irrigation water whenever there is a need?

While considering the provision of dehqan farms with irrigation water by region it became clear that dehqan farms in Sughd region are the least provided with – only in 40% of cases they can get irrigation water when they need it. Water for irrigation is mostly available in farms located in Districts of Republican Subordination, where 72% of respondents expressed the opinion about sufficiency of irrigation water. Roughly half of dehqan farms in Khatlon region agreed about water availability as well as 1.2% of the dehqan farms' heads found difficulty in replying.

Table 28. Are <i>dehqan</i> farms always provided with irrigation water whenever there is a need? (across regions)			
	DRS, % (n=50)	Sughd,% (n=60)	Khatlon, % (n=491)
Yes	72,0	40,0	47,9
No	28,0	60,0	50,9
Found difficulty in replying	-	-	1,2
Total	100	100	100

The views of dehqan farms' heads about the causes of scanty irrigation water supply: 70.3% of respondents find it impossible to provide water for irrigation due to technical reasons. The second most important reason indicated by respondents is the economic use of water on the supplier's side – 44.7% of the dehqan farms' heads answered so. Additional 41.3% of respondents indicated that water is irrationally distributed amongst dehqan farms and therefore it is not sufficient for all. 10.7% named other reasons.


Figure 44. The reasons that dehqan farms are insufficiently provided with irrigation water

Table 29. The reasons that <i>dehqan</i> farms are not always provided with irrigation water (by regions)				
	DRS, % (n=14)	Sughd,% (n=36)	Khatlon, % (n=250)	
Sometimes, water supply is technically impossible	-	41,7	78,4	
Irrigation water supply is irregular due to cost	-	2,8	53,2	
Water is irrationally distributed among <i>dehqan</i> farms	92,9	55,6	36,4	
Due to other reasons	7,1	27,8	8,4	
Total	100	128	176	

According to respondents the main reason that dehqan farms receive less irrigation water in the Districts of Republican Subordination is that water is irrationally distributed between farms (92.9% response rate). The main problem pointed out in Sughd was also irrational water distribution (55.6%), the second one is inability to supply water for technical reasons (41.7%). The main reasons of scanty irrigation water in Khatlon are an impossibility to provide it due to technical reasons (78.4%), the water supply inconstancy due to cost (53.2%) and irrational distribution among dehqan farms (36.4%).

4.3 Providing water resources for irrigation

Water distribution schedule for irrigation

Heads of dehqan farms were asked whether there is a water distribution schedule among farms. According to 53.7% of respondents such schedule exists, 42.4% said that such a schedule doesn't exist. 3.8% found difficulty in replying to this question. Situation with schedule's availability across regions is similar to the overall situation in the country.



Figure 45. Does a water distribution schedule exist among dehqan farms?

Heads of dehqan farms, who indicated the availability of water distribution schedule (323 people), were asked about who sets such a schedule. In 42.1% of cases, this schedule is set by the Water Management Office. In 37.5% of cases, the schedule is established by Water Users Association. About 15% of dehqan farms set their own schedule of water distribution at a general meeting. In other cases, the schedule is approved by the local government bodies and mahalla chairmen (at 2.8% of responses).



Figure 46. Who sets the irrigation water distribution schedule?

Respondents who indicated that the water distribution schedule is set by the dehqan farms' representatives at a general meeting (78.6%) dominates among the responses provided by heads of dehqan farms in DRS. Irrigation water distribution schedule among dehqan farms of Sughd region is mainly established by the Water Management Office and farmers themselves (according to 48.5% of responses). The water distribution schedule in Khatlon region is mainly determined by Water Management Office (45.0%) and Water Users Associations (44.7%).

Table 30. Who sets the water distribution schedule? (by regions)					
	DRS, % (n=28)	Sughd,% (n=33)	Khatlon, % (n=262)		
Local government bodies	-	3,0	3,1		
Water management office	7,1	48,5	45,0		
Water Users Association	14,3	-	44,7		
Representatives of <i>dehqan</i> farms at a general meeting	78,6	48,5	3,8		
Mahalla representative	-	-	3,4		
Total	100	100	100		

The same category of respondents was asked about compliance with the established water supply schedule for irrigation. Most respondents (78.3%) indicated that the irrigation water distribution schedule among dehqan farms are always clearly observed, 18.9% of the heads of dehqan farms responded that this schedule is not always observed. 2.8% of respondents gave no answer to this question.



Figure 47. Compliance with the water distribution schedule

The next question concerns the availability of special people who control the correct water distribution among farmers. About 56% of respondents said that such a person is in place. Over 40% said no one control the correct water distribution. 4% of respondents do not know about the availability of those involved in controlling the irrigation water distribution.



Figure 48. Are there special people, who control the correct water distribution?

Problems with water supply for irrigation

In the course of carrying out a quantitative survey the views of the dehqan farms' heads about problems associated with the use of irrigation water was ascertained. As shown by the survey, the most acute problem that dehqan farms face is the outage of irrigation systems and equipment, they need complete overhaul - over 40% of respondents answered so. 30% of dehqan farms' heads believe that the state underfunds the irrigation water sector, 23.5% of respondents mentioned the actual problem in the lack of specialists who would be able to perform quality repairs of irrigation equipment. 12.6% responded that local authorities do not pay attention to the problems in irrigation water sector. However, about 40% of respondents believe that none of the above-mentioned problems exist in their dehqan farms.

The most important problem in DRS is considered to be the lack of specialists, who can perform quality repair of irrigation equipment (58%). The most common response in Sughd was inattention of local authorities to the dehqan farms' problems (36.7%). In Khatlon 43.8% considered the issue of irrigation equipment outage as an important one, almost the same number of respondents reported that none of the above-mentioned problems exist.



Figure 49. Dehqan farms' problems associated with the irrigation water

Table 31. Dehqan farms' problems associated with the irrigation water (by regions)				
	DRS, % (n=50)	Sughd,% (n=60)	Khatlon, % (n=491)	
Outage of irrigation systems and equipments	20,0	33,3	43,8	
Underfunding of the irrigation water sector	34,0	16,7	31,2	
Lack of specialists, who can perform quality repair	58,0	11,7	21,4	
Inattention of local government authorities towards irrigation water problems	6,0	36,7	10,4	
None of the above-mentioned problems exist	6,0	21,7	45,2	
Total	124	120	152	

Dehqan farms' problems across regions are presented in Table 31.

4.3 Maintenance and operation of irrigation systems

Timely and proper maintenance of irrigation systems is an important factor to ensure irrigation water for dehqan farms. In the course of quantitative survey it was revealed that in 53.1% of dehqan farms employees of Water Management Office are involved in maintaining and repairing irrigation systems (Figure 50).

36.1% of the dehqan farms' heads said that representatives of dehqan farms are engaged in technical maintenance of equipment for irrigation. In 13.5% of dehqan farms, repair and technical maintenance of irrigation systems is conducted by contractors hired by the Water Management Office, Water Users Associations or local authorities. Only 0.5% of respondents selected the "other" option while answering to this question. More than 5% of respondents said that nobody in their farms are involved in repair and maintenance of irrigation equipment.



Figure 50. Who is usually responsible for maintenance and repair of irrigation systems in dehqan farms

Across regions, the largest percentage of dehqan farms served by the employees of the Water Management Office is in the Khatlon region (58.5%) and the lowest is in DRS (6%). The share of farms engaged in maintenance of irrigation systems, above all is in Sughd – 55%. Contractors hired by the Water Management Office, Water Users Associations or local authorities, serve a significant proportion of dehqan farms in DRS – 40%. Among the three regions studied, the maximum number of those respondents, who said their irrigation systems are not maintained by anyone, relates to DRS – 10% of this region's representatives believe so.

farms (by regions)					
	DRS, % (n=50)	Sughd, % (n=60)	Khatlon, % (n=491)		
Employees of Water Management Office	6,0	48,3	58,5		
Representatives of dehqan farms themselves	44,0	55,0	33,0		
Contractors, hired by Water Management Office, WUAs or local governments	40,0	3,3	12,0		
Others	-	3,3	0,2		
Nobody	10,0	1,7	5,1		
Found difficulty in replying	-	1,7	-		
Total	100	113	109		

Table 32. Who is usually responsible for maintenance and repair of irrigation systems in dehgan

354 respondents, who answered that some organizations are engaged in technical maintenance of irrigation systems in their dehqan farms, attempted to assess the quality of maintenance and repair. Thus, only 5.4% of them rated their performance quality as excellent. Over 36% responded that the quality of work is good. More than 34% said the repair and maintenance of irrigation equipment is of average quality. 24% considered poor quality of their work. 0.3% found difficulty in replying. Thus, the quality of repair and technical maintenance of irrigation equipment is estimated at less than average by 50% of respondents.



Figure 51. Quality of work for repair and maintenance of irrigation systems

4.4 Existing risks of corruption in the irrigation sector

The findings of research in the Tajikistan irrigation sector, focusing on the risks of corruption Access to water resources for irrigation

The most acute problems concerning the use of water for irrigation are fair water distribution among dehqan farms, and sometimes among a group of dehqan farms in adjoining areas, therefore, a clear state regulation, or self-regulation by Water Users Associations, is an important factor for the development of dehqan farms. The lack of contract for irrigation water supply among tenth of those surveyed dehqan farms may say about a possible limitation in receiving water, and conversely, the possible informal scheme of obtaining additional water. Nearly half of respondents feel lack of water for irrigation.

Providing water resources for irrigation

Infrastructure issue and poor financing, and consequently destruction of irrigation systems and equipment and shortage of irrigation water are mentioned as one of the main problems in providing irrigation water to dehqan farms. It says about inefficient, unsustainable pattern of relationships related to servicing and maintenance of irrigation systems, and has a potentially strong impact on the development of corruption, promotion of unfair, unequal access to water for irrigation.

Servicing and maintenance of irrigation systems

Maintenance of irrigation systems is carried out by water management offices on account of funds collected from dehqan farms for irrigation water delivery, subsidies from the state budget, providing incentives for electricity and tax privileges for land occupied by the various water management infrastructure. Ideally, calculations should reflect the reality and cover all costs, including costs for maintenance and servicing. However, majority of respondents believe that the state systems are deplorable, therefore, tariffs for water, state subsidies and support do not meet the reality, or do not reach their destination directly. In general, the heterogeneity of responses to a variety of answers leads to conclusion that there is no uniform practice in the application of relevant rules of law or legislation does not clearly regulate the scope of maintenance and operation of irrigation systems.

The main problem, according to respondents, is the condition of irrigation systems. The continuing deterioration of systems for a variety of institutional, legal and economic reasons might become a serious challenge for the manifestation of the various risks of corruption and spread of hidden, informal schemes in provision and distribution of irrigation water.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Legislation and regulation

Urban and rural drinking water supply:

- Develop and adopt a customer-driven standards for drinking water supply services that provides a detailed description of the service order, mandatory items in the content of the contract, a clear responsibility to the consumer for violations of supply rules, issues to inform consumers about interruptions;
- Develop and adopt a clear legislative regulation of the limits of responsibility for the maintenance of water supply in multi-family buildings;
- Fix mandatory nature of signing the drinking water supply contract, its mandatory annual update, developing a standard contract for drinking water supply in the legislation;
- Fix in the legislation the supplier's responsibility to adequately maintain drinking water supply systems;
- Create uniform rules and principles for the development of tariffs concerning drinking water supply to ensure transparency and participation of citizens and their representatives in the process of their development;
- Consider the monetization of benefits to pay for drinking water supply with targeted social safety net for consumers, recognized as the poor;
- Develop and implement mechanisms to inform and educate citizens in the drinking water supply sector, including mechanisms to protect their rights and promote their legitimate interests and social security in the sector;

Irrigation sector:

- Develop and legally fix a clear pattern of relationships between recipients and providers of water for irrigation that establish liability of the parties;
- Establish effective mechanisms for cost-based maintenance and servicing of irrigation systems, including the limits of economic responsibilities between on-farm and off-farm systems;
- Develop and implement a legally fixed measures about economic and rational use of irrigation water;
- Establish legal national rules to inform representatives of dehqan farms about the investment projects implemented by development agencies and banks, the ability to participate in the process of development, implementation, completion and evaluation of projects for recovery and rehabilitation of the irrigation systems;
- Establish mechanisms to attract dehqan farms for public discussion about new regulations, tariffs, legislative acts in the irrigation sector;

5.2. Urban and rural water supply development

• Seek consolidated source of financing for acquisition and installation of water meters to consumers in Tajikistan, using foreign investment, government budget,

budget of drinking water suppliers, and local budgets;

- Consider the transfer of local water supply systems for use by rural residents and their associations;
- Develop a payment system for water supply services using an automatic payment terminals;
- Create and implement a computerized database of consumers for water suppliers, for computerized accounting, and for regulating debt receivables and payables of parties;
- Organize and conduct financial and business planning courses for drinking water suppliers;
- Organize and conduct legal education courses in the field of consumer protection, their rights and legitimate interests as consumers;
- Organize an information campaign in the mass media to educate the parties, to inform about changes, to arrange public discussion of issues among experts and stakeholders;
- Develop localized, economically feasible, long-term tariffs for drinking water, based on the needs of individual drinking water supply systems, rather than normative calculations;
- Create permanent public commissions to improve the drinking water supply at the level of regions, districts, cities, and to monitor and analyze the problems and prospects in the drinking water supply sector;

5.3. Irrigation sector development

- Seek sources of one-time financial assistance to rehabilitate and reconstruct country's irrigation systems, using loans with low interest rate, ensuring a budget program as a foreign aid on a repayment basis and partial grant as a source of budgetary aid programs on a returnable basis;
- Develop localized, economically feasible, long-term rates for the maintenance and operation of irrigation systems based on the needs of individual irrigation systems, rather than normative calculations;
- Organize and carry out technical inventory of irrigation system throughout the Tajikistan;
- Further assist in the establishment of WUAs countrywide, promoting their institutional advancement;
- Install water-measuring devices for irrigation water recipients;
- Revise the contractual relationships between suppliers and recipients of irrigation water in terms of responsibility for the system's maintenance, responsibilities of the parties;
- Organize and conduct financial and business planning courses for the WUA members, water management office, and dehqan farms;