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Component 3

**STATUS OF WATER USERS' ASSOCIATIONS IN
KYRGYZSTAN**

Version 2

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ABBREVIATIONS

CAADP	Chui Area Agricultural Development Project
CSU	Central WUA Support Unit
CTCI	Centre for Training, Consultation and Innovation
DWRLI	Department of Water Resources and Land Improvement
FAO	Food and Agriculture Organisation (of the United Nations)
ha	Hectare
I&D	Irrigation and Drainage
ISF	Irrigation Service Fee
MoALI	Ministry of Agriculture and Land Improvement
NGO	Non-Governmental Organisation
NWRMP-1	National Water Resources Management Project - Phase 1
OIP-1	First On-Farm Irrigation Project
OIP-2	Second On-Farm Irrigation Project
OIP-2 AF	Second On-Farm Irrigation Project - Additional Financing
OSU	Oblast WUA Support Unit
PAD	Project Appraisal Document
PIU	Project Implementation Unit
RVK	<i>Raivodkhoz</i> (Raion Irrigation Department)
RSU	Raion WUA Support Unit
ToR	Terms of Reference
USAID	United States Agency for International Development
UWUA	Union of WUAs
WMIP	Water Management Improvement Project
WUA	Water Users' Association

1 INTRODUCTION

This report describes the status of the water users' associations (WUAs) in Kyrgyzstan at the end of 2015 based on data available within the Department of Water Resources and Land Improvement (DWRLI) of the Ministry of Agriculture and Land Improvement (MoALI).

1.1 Irrigation Development in Kyrgyzstan

The development of irrigation has a long history in the area that constitutes the Kyrgyz Republic. Especially in the Ferghana Valley, the remains of primitive intake structures and canals have been found that were developed by the earliest inhabitants. At the end of the 1920s, the total area served by irrigation in the Kyrgyz Republic was about 300,000 ha. During the first two and half decades of the USSR, the irrigated area was expanded rapidly to approximately 740,000 ha at the beginning of the 1940s. Between 1945 and the collapse of the Soviet Union in 1991, another 260,000 ha of arable land was brought under irrigation. At present, about 1,07 million ha has been developed for irrigation, which covers about 80% of all arable land in the country.

Before the collapse of the Soviet Union, the irrigation systems were well engineered and maintained with all O&M costs paid from the state budget by the Irrigation Departments at Raion and Oblast levels. Water was supplied to the head gate of the tertiary irrigation networks (i.e. on-farm systems) that belonged to the state and collective farms (i.e. sovkhoz and kolkhoz). Prior to the land reform, a total of 504 on-farm systems were managed by 465 state and collective farms, 2 experimental farms and 37 inter-farm organisations. The on-farm system with an average size of about 2,000 ha were operated and maintained by irrigation brigades.

Following the collapse of the Soviet Union, the economy of the newly formed Kyrgyz Republic faced a serious crisis. Due to lack of public funds for the O&M of the irrigation systems, the irrigation infrastructure deteriorated rapidly and the irrigation services also declined. With the dissolution of the state and collective farms, the irrigation brigades also ceased to function. As a result, the new landowners immediately faced a serious problem concerning the O&M of the on-farm system as there was no internal organisation responsible for the supply of irrigation water to the fields of thousands of small farmers in an adequate, reliable and timely manner. Consequently, the agricultural production decreased significantly during the first half of the 1990s.

1.1.1 Irrigated Agriculture

The agricultural sector is characterised by irrigated agriculture covering about 1.05 million ha or 75% of the total arable land. The annual water deficit is in the order of 950 mm in the wetter areas of the north-east of the country and 1450 mm in the comparatively drier areas of the south. Irrigation is therefore critical to agricultural production since rainfall is clearly insufficient during the main growing season from April through October.

The main crops grown (area-wise) are winter and spring wheat, perennial grasses, sunflower and other oil crops, potatoes, maize, cotton, vegetables, sugar beet, fruit, and grapes. Cropping patterns are strongly influenced by location, climate (temperature, rainfall, evapotranspiration, and duration of growing season), the status of input supply and markets (accessibility, agro-processing facilities, cost of inputs, etc.), and the economic status of the farming community. The most profitable crops are vegetables, cotton, and sugar beet. Wheat is the most popular and widespread due to its importance as a subsistence crop, its marketability and its use as collateral within the traditional barter system.

1.2 Land and Agrarian Reforms

After independence in 1991, state and collective farms were privatised. The land and agrarian reforms resulted in the allocation of privately-owned land shares with an average size of 1.5 ha to about 532,000 families (53% of the population). However, many individual farmers decided to operate their newly acquired lands collectively for various reasons, including lack of credit for financing their own farm operations, high input prices, limited access to markets and obsolete machinery. Consequently, new business entities were gradually established to overcome these problems, including agricultural cooperatives, joint stock companies and collective peasant farms.

1.3 Establishment of Water Users' Associations

Immediately after the privatisation of the state and collective farms, new cadres of farmers and farming groups, including unions of water users, were spontaneously formed on a limited number of on-farm systems. In other cases, the management of the former state and collective farms maintained control over water management in order to deal with the needs of the new water users. However, most water users faced serious problems with regard to the supply of irrigation water to their fields as no organisation was responsible for the operation and maintenance (O&M) of the on-farm system.

In an attempt to resolve the problem of the O&M of on-farm system following the dissolution of the state and collective farms, the Government issued a decree in August 1994, under which the ownership of the on-farm irrigation infrastructure as well as the O&M responsibility were transferred to the Village Councils (i.e. *Ayil Okmotu*). The local governments were expected to use a part of the collected Land Tax for the O&M of the on-farm irrigation systems. As the Village Councils were also responsible for the O&M of local roads, schools, water and sanitation schemes and health services, they lacked sufficient staff and the necessary financial resources to ensure that the on-farm systems would be properly operated and maintained. As a result, the on-farm systems continued to deteriorate and the farmers were not satisfied with the delivered irrigation services.

In another attempt to find a solution for the O&M problem at on-farm level, Government Resolution No. 473 on the establishment of WUAs was signed on 13th August 1997 by the Prime Minister, which allowed for the legal establishment of WUAs and specified the procedures for the formation and management of WUAs. The Resolution also allowed the transfer of on-farm irrigation infrastructure to legally established WUAs, including the responsibility for the O&M of the transferred on-farm systems. However, neither the Government nor the water users had previous experience in establishing and managing WUAs as independent participatory farmers' organisations. As a result, most WUAs were formed without any assistance and technical support. In many newly established WUAs, the water users selected the former managers of the state and collective farms as Chairmen of their WUA, who continued to manage the WUAs in the same manner as they had managed the state and collective farms. Between the end of 1997 and the beginning of 2001, a number of pilot WUAs were formed with the financial support of the FAO, USAID, ADB and World Bank, but most of these pilot WUAs were also strongly dominated by their Chairmen.

At the end of the 1990s, the Government realised that a resolution is not a strong and clear legal basis for the establishment and management of complex organisations such as WUAs. As the Government had fully accepted the WUA concept, it agreed to start the process of drafting a comprehensive law on WUAs. With the support of the Parliamentary Committee on Agriculture, the draft WUA Law was ready for discussion in the new Parliament in 2000. In 2002, the new WUA Law was passed, which allows the establishment of a WUA as: *"a participatory non-commercial organisation that acts in the public interest for the purpose of operating and maintaining a specified irrigation system so as to provide the owners and users of agricultural land with irrigation water"*.

Following the promulgation of the WUA Law 2002, all WUAs established and registered under the superseded Decree of 1997 had to be re-registered under the new law in 2002 and 2003. One of the major improvements is that the WUA Law ensures a clear separation between the governance of the WUA by the WUA Council and the execution of the Council's decisions by employed staff under the supervision of a hired Director. In February 2012, the WUA Law was amended with the support of the WMIP to facilitate the establishment and registration of Union of WUAs.

WUAs are now firmly established within the institutional structure of the irrigation sub-sector. Almost all WUAs have offices, management systems are in place and functioning, information is available and shared with water users, irrigation water supplies are being allocated more equitably and recorded, and ISFs are being collected.

1.3.1 Registration of WUAs

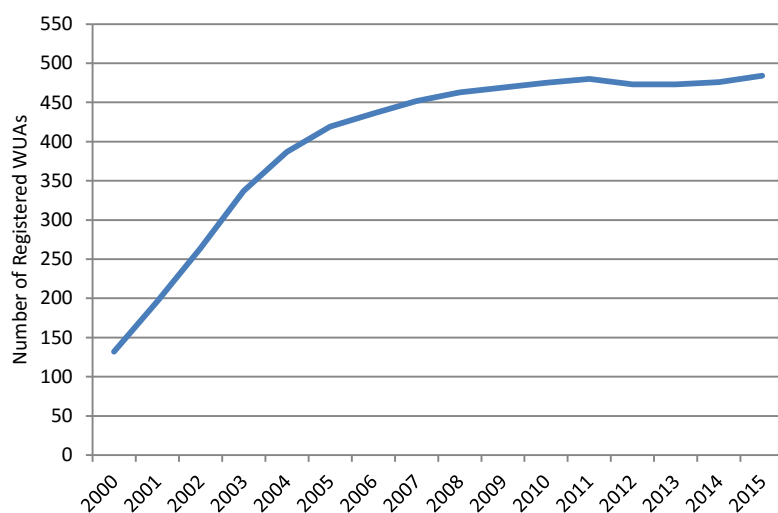
Taking into account the difficulties with establishing WUAs in other countries in Central Asia, the progress regarding the formation and registration of WUAs in the Kyrgyz Republic is a clear indication that farmers have recognised the need to have an organisation at on-farm level aimed at the O&M of the on-farm irrigation infrastructure. The number of WUAs that were registered at the end 2000, 2005, 2010 and 2015 is presented in Table 1-1:

Table 1-1: Number of Registered WUAs (2000 - 2015)

Year	2000	2005	2010	2015
Number of Registered WUAs	132	419	475	484

The annual increase in registered WUAs from 2000 until 2015 is shown in Figure 1-1:

Figure 1-1: Annual Increase in Registered WUAs (2000 - 2015)



2 SALIENT FEATURES OF WATER USERS' ASSOCIATIONS

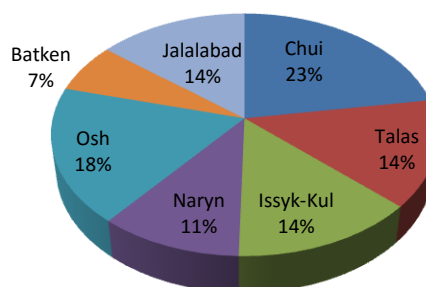
2.1 Number of Registered WUAs

The number of registered WUAs in the Kyrgyz Republic as of 30 September 2015 is presented in Table 2-1:

Table 2-1: Number of WUAs

Name of Oblast	Registered WUAs	
	Number	% Total
Chui	109	23%
Talas	69	14%
Issyk-Kul	66	14%
Naryn	51	11%
Osh	88	18%
Batken	32	7%
Jalalabad	69	14%
Total	484	100%

Proportional Distribution of Registered WUAs



By the end of 2015, a total of 484 WUAs were formally registered. A total of 109 WUAs or 23% of all registered WUAs have been registered in Chui Oblast compared with 32 WUAs or 7% in Batken Oblast. A map with the location of 475 WUAs is attached in Annex A.

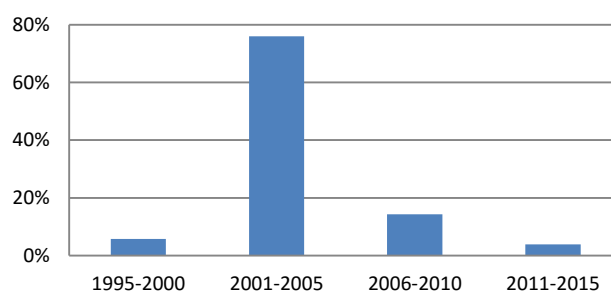
2.2 WUA Registration

The time of registration of the WUAs in the seven Oblasts is shown in Table 2-2:

Table 2-2: Registration of WUAs

Name of Oblast	Number of Registered WUAs				
	1995-2000	2001-2005	2006-2010	2011-2015	Total
Chui	0	94	11	4	109
Talas	0	52	12	5	69
Issyk-Kul	2	44	20	0	66
Naryn	3	40	8	0	51
Osh	4	68	10	6	88
Batken	16	15	1	0	32
Jalalabad	3	55	7	4	69
Total	28	368	69	19	484

Proportional Distribution of WUA Registration



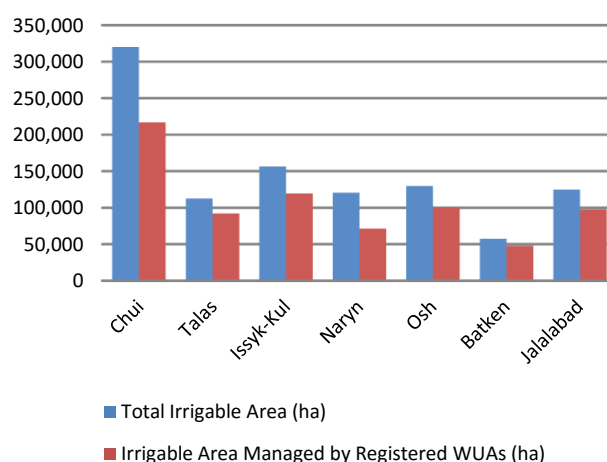
A total of 368 WUAs or 76% of all 484 registered WUAs were formally registered between 2001 and 2005 followed 69 WUAs (14%) between 2006 and 2010, 28 WUAs (6%) between 1995 and 2000 and 19 WUAs (4%) between 2011 and 2015.

2.3 Irrigable Area Managed by WUAs

The irrigable area managed by registered WUAs in the seven Oblasts is shown in Table 2-3:

Table 2-3: Irrigable Area Managed by Registered WUAs

Name of Oblast	Total Irrigable Area	Irrigable Area Covered by Registered WUAs	
	ha	Ha	% Total
Chui	320,200	216,800	67%
Talas	112,700	92,300	82%
Issyk-Kul	156,400	119,400	76%
Naryn	120,500	71,300	59%
Osh	129,600	100,500	78%
Batken	57,500	48,100	84%
Jalalabad	124,800	97,700	78%
Total	1,021,700	746,100	73%



By the end of 2015, 746,100 ha out of a total irrigable area of 1.02 million ha (73%) was managed by WUAs ranging from 59% of the total irrigable area in Naryn Oblast to 84% in Batken Oblast.



WUA service area in Osh Oblast (left) and irrigated fields in Jalalabad Oblast (right)

2.4 Size of WUA Service Area

The number of WUAs per service area size category is shown in Table 2-4:

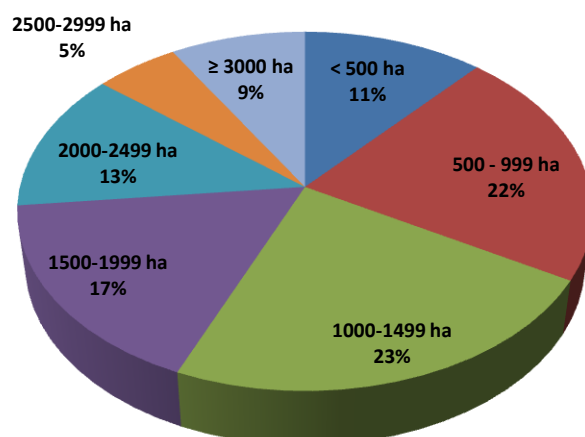
Table 2-4: Size of WUA Service Area

Name of Oblast	Size of WUA Service Area (ha)						
	< 500	500 - 999	1000-1499	1500-1999	2000-2499	2500-2999	≥ 3000
Chui	3	21	18	20	23	6	18
Talas	10	21	14	8	8	5	3
Issyk-Kul	4	13	15	12	5	7	10
Naryn	5	11	16	9	5	3	2
Osh	19	22	21	14	8	1	3
Batken	3	8	7	6	3	3	2
Jalalabad	12	9	21	13	9	1	4
Total	56	105	112	82	61	26	42

A total of 56 WUAs or 12% of all 484 WUAs have a service area smaller than 500 ha, whereas 217 WUAs (45%) have a service area between 500 and 1,499 ha and 143 WUAs (30%) manage a service area

between 1,500 and 2,499 ha. The remaining 68 WUAs have a service area of 2,500 ha or larger. The proportion distribution of WUA by the size of their respective service area is shown in Figure 2-1:

Figure 2-1: Proportional Distribution of WUA by Size of Service Area



Issue: WUAs with a service area smaller than 1,000 ha may not have the necessary economies of scale to establish a fully equipped office, to employ all necessary staff and to procure the needed equipment for the effective and efficient O&M of the on-farm I&D system.

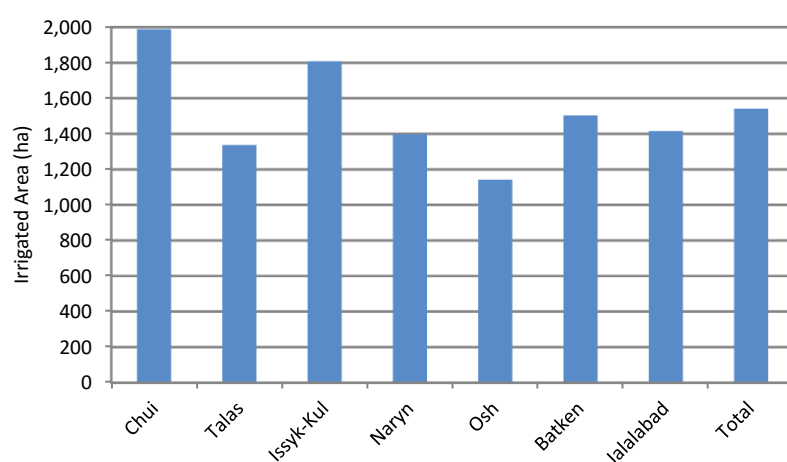
Recommendation:

WUAs with a service area smaller than 1,000 ha should merge with each other or with a larger WUA in order to have the minimum economies of scale to have a fully equipped office, to employ all necessary administrative and technical staff and to procure the equipment required for the O&M of the on-farm I&D system in an effective, efficient and sustainable manner.

2.4.1 Average Size of WUA Service Area

The average size of the service area of the WUAs in the seven Oblasts is presented in Figure 2-2:

Figure 2-2: Average Size of WUA Service Area



The overall average size of the WUA service area is 1,542 ha, ranging from 1,142 ha in Osh Oblast to 1,989 ha in Chui Oblast.

2.5 WUA Founders

The type and number of WUA Founders per Oblast are summarised in Table 2-5:

Table 2-5: WUA Founders

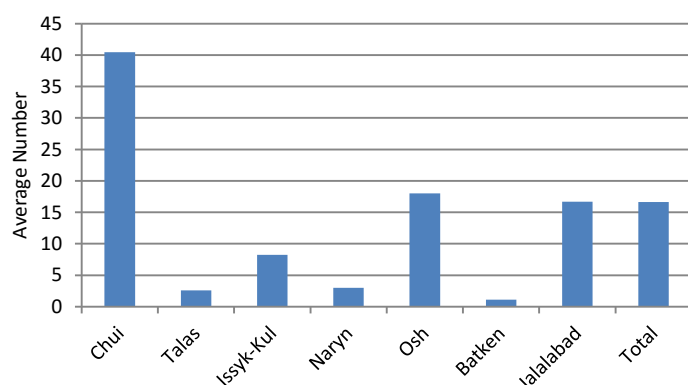
Name of Oblast	WUA Founders		
	Private Legal Entities	State Legal Entities	Individuals
Chui	4,410	61	13,497
Talas	177	0	15,248
Issyk-Kul	544	82	35,446
Naryn	152	3	11,321
Osh	1,583	160	45,314
Batken	35	7	3,840
Jalalabad	1,151	39	50,473
Total	8,052	352	175,139

The 484 registered WUAs have a total of 8,052 private legal entities, 352 state legal entities and 175,139 individual persons as founders at the time of the registration.

2.5.1 Average Number of Founders per Registered WUA

The average number of private legal entities as founder per registered WUA is presented in Figure 2-3:

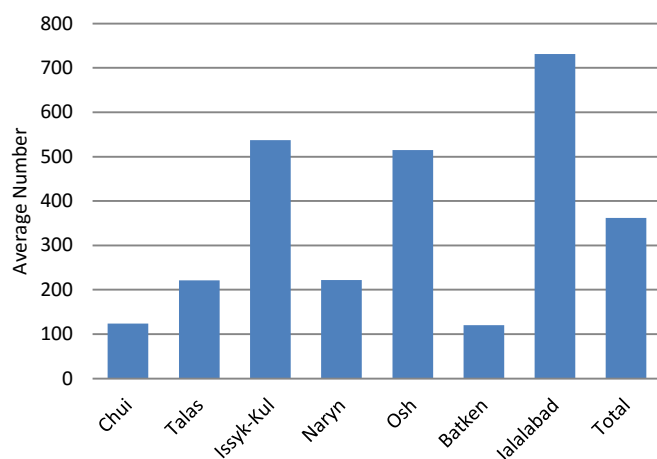
Figure 2-3: Average Number of Private Legal Entities as Founder per Registered WUA



The 484 registered WUAs have an overall average number of 17 private legal entities as founder per registered WUA, varying from only one private legal entity as founder per registered WUA in Batken Oblast to as many as 40 in Chui Oblast.

The overall average number of state legal entities as WUA founder is only 0.7 per registered WUA, ranging from none in Talas Oblast to 1.2 and 1.8 in Issyk-Kul Oblast and Osh Oblast respectively.

The average number of individual persons as founder per registered WUA is shown in Figure 2-4:

Figure 2-4: Average Number of Individuals as Founder per Registered WUA

Overall, the 484 registered WUAs have an average number of 362 individual persons as founder, ranging from 120 individual persons as founder per registered WUA in Batken Oblast to 731 individual founders in Jalalabad Oblast.

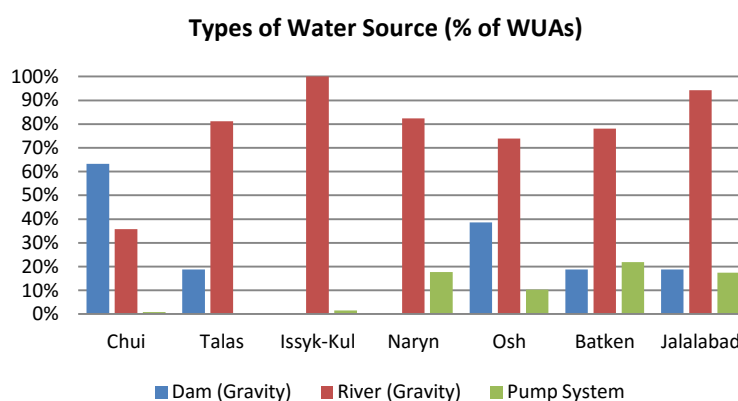
3 OFF-FARM IRRIGATION AND DRAINAGE SYSTEM

3.1 Type of Water Source

The number of WUAs receiving canal water from different types of water sources is shown in Table 3-1:

Table 3-1: Types of Water Source

Name of Oblast	Water Source		
	Dam (Gravity)	River (Gravity)	Pump System
Chui	69	39	1
Talas	13	56	0
Issyk-Kul	0	66	1
Naryn	0	42	9
Osh	34	65	9
Batken	6	25	7
Jalalabad	13	65	12
Total	135	358	39



A total of 135 WUAs or 28% of the total number of 484 registered WUAs in five Oblasts are supplied with water from a dam, ranging 13% of the registered WUAs in Jalalabad and Talas Oblasts to 69% in Chui Oblast. A total of 358 WUAs or 74% of all registered WUAs in all seven Oblasts obtain their irrigation water directly from a river by gravity, ranging from 36% of the registered WUAs in Chui Oblast to 100% in Issyk-Kul Oblast. A total of 39 WUAs or 8% of all registered WUAs in six Oblasts receive irrigation water from a pump station, varying from 1% of the registered WUAs in Chui Oblast to 22% in Batken Oblast.



Off-farm I&D system in Chui Oblast

3.2 Rehabilitated and Non-Rehabilitated Off-Farm I&D Systems

The number and percentage of WUAs supplied with irrigation water by rehabilitated and non-rehabilitated off-farm systems are shown in Table 3-2:

Table 3-2: WUAs with Water Supply from Rehabilitated and Non-Rehabilitated Off-Farm Systems

Name of Oblast	WUAs Served by Rehabilitated Off-Farm I&D System		WUAs Served by Non-Rehabilitated Off-Farm I&D System	
	Number	%	Number	%
Chui	0	0%	109	100%
Talas	5	7%	64	93%
Issyk-Kul	0	0%	66	100%
Naryn	0	0%	51	100%
Osh	22	25%	66	75%
Batken	9	28%	23	72%
Jalalabad	25	37%	44	64%
Total	61	13%	423	87%

By the end of 2015, 61 out of total of 486 registered WUAs (13%) in four of the seven Oblasts received irrigation water from (partly) rehabilitated off-farm I&D systems.

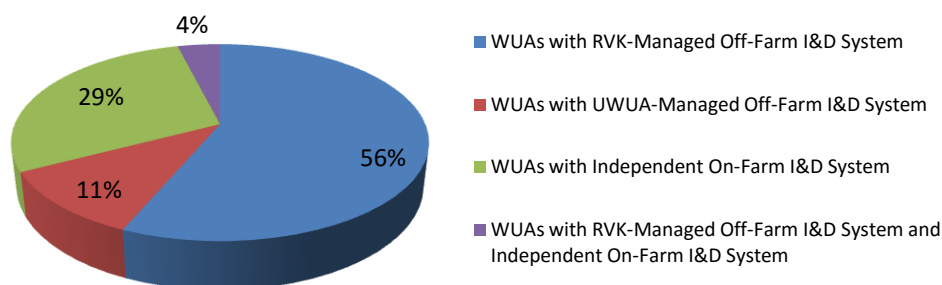


Non-rehabilitated off-farm canal in Chui Oblast (left) and rehabilitated off-farm canal in Jalalabad Oblast (right)

3.3 Management of Off-Farm I&D Systems

A total of 273 registered WUAs (56%) are supplied with irrigation water by an off-farm I&D system that is managed by the RVK, whereas 53 registered WUAs (11%) receive irrigation from off-farm I&D systems that are managed by UWUAs. A total of 139 registered WUAs (29%) have an independent on-farm I&D system and 19 WUAs (4%) have an independent on-farm canal system and receive irrigation water from RVK-managed off-farm I&D system.

Figure 3-1: Proportion of Registered WUAs with Water Supply from Off-Farm I&D System and Independent On-Farm I&D System

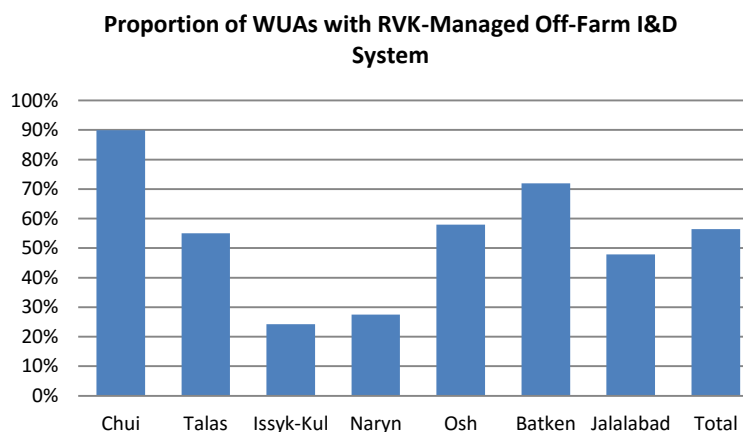


3.3.1 WUAs with RVK-Managed Off-Farm I&D Systems

The number of WUAs with an off-farm I&D system managed by the RVK is presented in Table 3-3:

Table 3-3: WUAs with RVK-Managed Off-Farm Systems

Name of Oblast	WUAs with RVK-Managed Off-Farm I&D System	
	Number	%
Chui	98	90%
Talas	38	55%
Issyk-Kul	16	24%
Naryn	14	27%
Osh	51	58%
Batken	23	72%
Jalalabad	33	48%
Total	273	56%



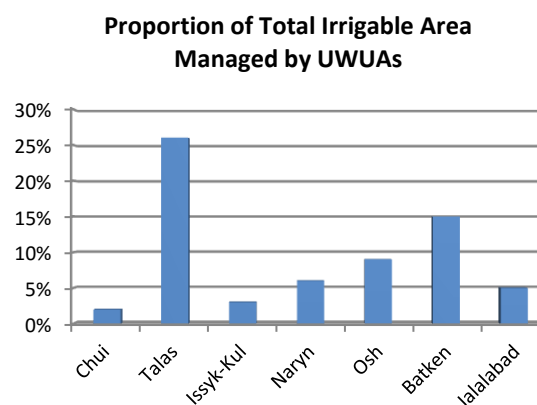
A total of 273 WUAs or 56% of all 484 registered WUAs are supplied with irrigation water by an off-farm I&D system that is managed by the RVK, ranging from 24% of all registered WUAs in Issyk-Kul Oblast to 90% in Chui Oblast.

3.3.2 WUAs with UWUA-Managed Off-Farm I&D Systems

The number of UWUAs managing off-farm I&D systems and the corresponding size of the irrigable area are presented in Table 3-4:

Table 3-4: Number of UWUAs Managing Off-Farm I&D System and Size of Irrigable Area

Name of Oblast	UWUAs Managing Off-Farm I&D System		
	Number	Irrigable Area (ha)	% of Total Irrigable Area
Chui	1	6,619	2%
Talas	4	29,087	26%
Issyk-Kul	1	5,255	3%
Naryn	1	7,511	6%
Osh	2	11,809	9%
Batken	1	8,851	15%
Jalalabad	1	6,810	5%
Total	11	75,942	7%



A total of 11 UWUAs managing off-farm I&D systems with a total irrigable area of 75,942 ha or 7% of the total irrigable area of 1.02 million ha, ranging from only 2% of the total irrigable area in Chui Oblast to 26% in Talas Oblast.

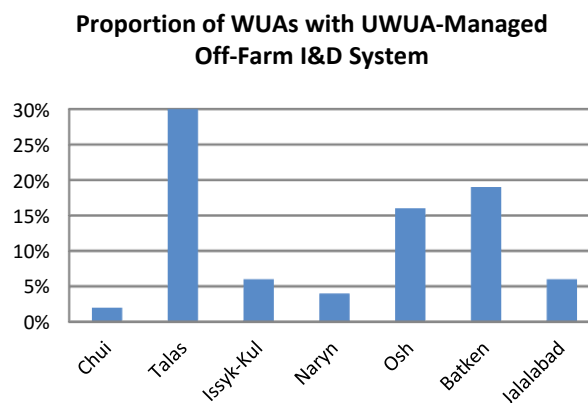


Rehabilitated off-farm canal in Talas Oblast (left) and non-rehabilitated off-farm canal in Jalalabad Oblast (right)

The number and percentage of WUAs with an off-farm I&D systems managed by an UWUA are shown in Table 3-5:

Table 3-5: WUAs with UWUA-Managed Off-Farm I&D Systems

Name of Oblast	WUAs with UWUA-Managed Off-Farm I&D System		
	Number	%	Number of WUA Members
Chui	2	2%	1,901
Talas	21	30%	4,098
Issyk-Kul	4	6%	2,087
Naryn	2	4%	1,432
Osh	14	16%	5,383
Batken	6	19%	7,623
Jalalabad	4	6%	2,600
Total	53	11%	25,124



By the end of 2015, 53 WUAs out of a total of 486 registered WUAs (11%) receive irrigation water from an off-farm I&D system, ranging 2% of all registered WUAs in Chui Oblast to 30% in Talas Oblast. A total of 25,125 WUA members rely of the supply of irrigation water from off-farm I&D systems that are managed by an UWUA.



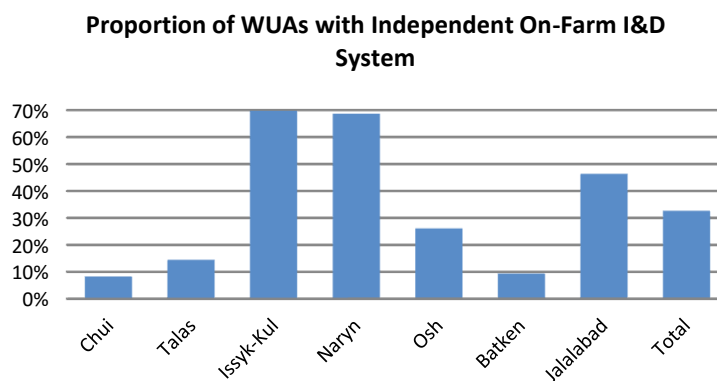
UWUA-managed off-farm canals in Talas Oblast

3.4 WUAs with Independent On-Farm I&D Systems

The number of WUAs with an independent on-farm I&D system is presented in Table 3-6:

Table 3-6: WUAs with Independent On-Farm Systems

Name of Oblast	WUAs with Independent On-Farm I&D System	
	Number	%
Chui	9	8%
Talas	10	14%
Issyk-Kul	46	70%
Naryn	35	69%
Osh	23	26%
Batken	3	9%
Jalalabad	32	46%
Total	158	33%



A total of 158 WUAs or 33% of the total number of registered WUAs have an independent on-farm I&D system, including 19 WUAs in Issyk-Kul Oblast that also receive irrigation water from RVK-managed off-farm systems, ranging from 8% of all registered WUAs in Chui Oblast to 70% in Issyk-Kul Oblast.



Intake structure at head of independent on-farm I&D system in Chui Oblast

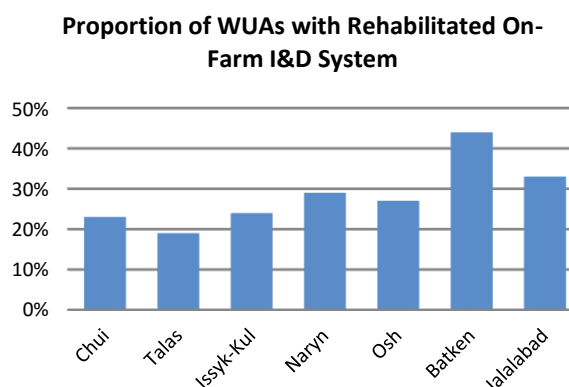
4 ON-FARM IRRIGATION AND DRAINAGE SYSTEMS

4.1 Rehabilitated and Non-Rehabilitated On-Farm I&D Systems

The number of WUAs with rehabilitated and non-rehabilitated on-farm I&D systems is presented in Table 4-1:

Table 4-1: WUAs with Rehabilitated and Non-Rehabilitated On-Farm Systems

Name of Oblast	WUAs Served by Rehabilitated On-Farm I&D System	
	Number	%
Chui	25	23%
Talas	13	19%
Issyk-Kul	16	24%
Naryn	15	29%
Osh	24	27%
Batken	14	44%
Jalalabad	23	33%
Total	130	27%

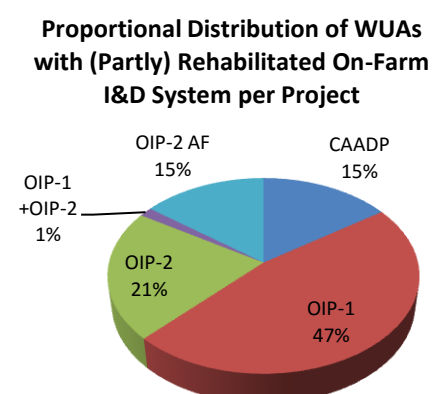


By the end of 2015, a total of 130 WUAs or 27% of all registered WUAs have (partly) rehabilitated on-farm I&D systems, excluding 26 WUAs having benefitted from rehabilitation works under the USAID-funded WUA Support Programme (2004-2009). The proportion of WUAs with (partly) rehabilitated on-farm I&D systems ranges from 19% in Talas Oblast to 44% in Batken Oblast.

The number of WUAs having benefitted from the (partial) rehabilitation of their on-farm I&D systems under different donor-funded projects is listed in Table 4-2:

Table 4-2: Number of WUAs with (Partly) Rehabilitated On-Farm I&D Systems per Project

Name of Oblast	Names of Donor-funded Projects					Total
	CAADP	OIP-1	OIP-2	OIP-1 + OIP-2	OIP-2 AF	
Chui	20	-	3	-	2	25
Talas	-	8	3	-	2	13
Issyk-Kul	-	8	5	1	2	16
Naryn	-	10	2	1	2	15
Osh	-	15	6	-	3	24
Batken	-	7	4	-	3	14
Jalalabad	-	13	5	-	5	23
Total	20	61	28	2	19	130



Between 2000 and 2015, a total of 130 WUAs have benefitted from the (partial) rehabilitation of their on-farm I&D system under the ADB-funded Chui Area Agricultural Development Project (2000 - 2009) and the World Bank-funded OIP-1 (2000 - 2008), OIP-2 (2007 - 2013) and OIP-2 AF (2011 - 2016). The on-farm I&D systems of 61 WUAs (47%) in six Oblasts were (partly) rehabilitated under OIP-1 followed 28 WUAs (21%) under OIP-2 and 19 WUAs under OIP-2 AF in seven Oblasts, whereas 2 WUAs in two Oblasts benefitted under OIP-1 and OIP-2. The remaining 20 WUAs (15%) in Chui Oblast had their on-farm I&D system (partly) rehabilitated under the ADB-funded project.

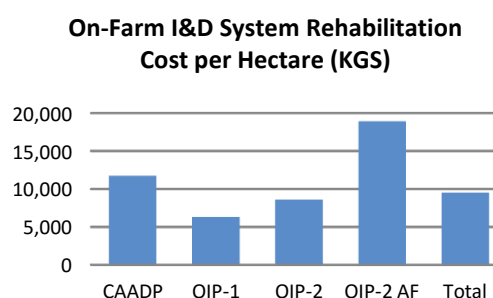
A map with the location of the on-farm I&D systems rehabilitated under different projects is attached in Annex B.

4.2 Rehabilitation Costs

The total costs related to the rehabilitation of on-farm I&D systems under CAADP, OIP-1, OIP-2 and OIP-2 AF as well as the rehabilitation cost per hectare are summarised in Table 4-3:

Table 4-3: Rehabilitation Costs

Name of Project	On-Farm I&D System Rehabilitation		
	Total Cost (KGS million)	Total Area (ha)	Cost/ha (KGS)
CAADP	587.6	50,000	11,750
OIP-1	736.4	116,614	6,315
OIP-2	602.6	70,044	8,600
OIP-2 AF	658.1	34,800	18,910
Total	2,584.6	271,458	9,520



The total costs related to the rehabilitation of the on-farm I&D systems under CAADP, OIP-1, OIP-2 and OIP-2 AF is KGS 2.58 billion. The overall average rehabilitation cost per hectare is KGS 9,520, ranging from KGS 6,315 per ha under OIP-1 to KGS 18,910 per ha under OIP-2 AF¹.



Rehabilitated on-farm I&D systems in Chui Oblast (left) and Jalalabad Oblast (right)

4.3 Repayment of Rehabilitation Cost

All WUAs having benefitted from the (partial) rehabilitation of their respective on-farm I&D systems have to repay 25% of the total rehabilitation costs in accordance with an agreed repayment plan and schedule.

4.3.1 Rehabilitation Repayment Amounts

The 25% rehabilitation repayment amounts are summarised in Table 4-4:

¹ These average rehabilitation costs have not corrected for inflation.

Table 4-4: 25% Repayment Amount (KGS million)

Name of Project	CAADP		OIP-1		OIP-2		OIP-2 AF		Total	
	Total	25%	Total	25%	Total	25%	Total	25%	Total	25%
Amount	587.6	146.9	736.4	184.1	602.6	150.6	658.1	164.5	2,584.6	646.2

The total amount to be repaid by the 130 WUAs is KGS 646.2 million.

4.3.2 Actual Repayment Status

The actual status of the repayment of 25% of the rehabilitation costs by the 130 WUAs by the end of 2015 is shown in Table 4-5:

Table 4-5: Actual Status of Repayment of 25% of Rehabilitation Costs (KGS million)

Name of Project	25% Repayment			
	Total Amount	Actual Repaid		Repayment Mature Date
		Amount	% Total	
CAADP	146.9	6.7	5%	2009 - 2014
OIP-1	184.1	16.9	9%	2008 - 2014
OIP-2	150.6	2.7	2%	2013 - 2017
OIP-2 AF	164.5	-	0%	2019 - 2025
Total	646.2	26.3	4%	-

By the end of 2015, KGS 26.3 million (4%) out of a total repayable amount of KGS 646.2 million was repaid. If the 19 WUAs having benefitted from the (partial) rehabilitation of their on-farm I&D systems under OIP-2 AF are excluded as they have to repay their 25% contribution between 2019 and 2025, 5.5% of the total due amount of KGS 481.7 million was repaid by the end of 2015.



Non-rehabilitated on-farm I&D system (left) and execution of rehabilitation works (right) in Jalalabad Oblast

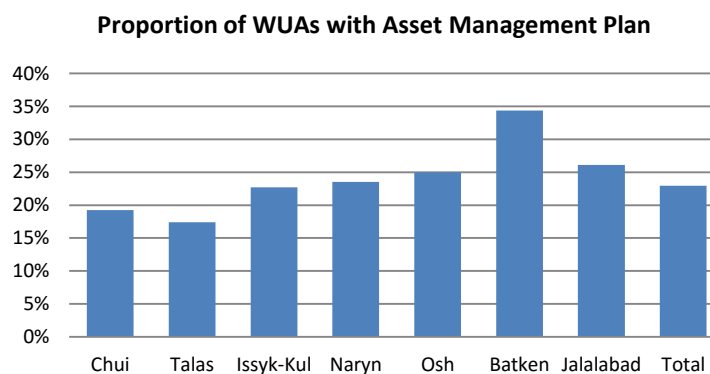
To address the problem with the repayment of 25% of the rehabilitation costs, it was decided in 2015 that the PIU would collaborate with the Ministry of Finance to clarify the amounts owed by the WUAs and to redraft repayment plans and schedules for the outstanding amounts with the concerned WUAs. By the end of October 2015, a total of 107 agreements on the repayment of 25% of the rehabilitation works were signed with the concerned WUAs with repayment schedules up to 2023.

4.4 Asset Management Plans

The number of WUAs with completed inventories and agreed (5-year) asset management plans is listed in Table 4-6:

Table 4-6: Number of WUAs with Agreed Asset Management Plan

Name of Oblast	WUAs with Agreed Asset Management Plan	
	Number	%
Chui	21	19%
Talas	12	17%
Issyk-Kul	15	23%
Naryn	12	24%
Osh	22	25%
Batken	11	34%
Jalalabad	18	26%
Total	111	23%



By the end of 2015, a total of 111 WUAs or 23% of the total number of 484 registered WUAs had an asset management plan, ranging from 17% of the registered WUAs in Talas Oblast to 34% in Batken Oblast.

5 TECHNICAL CREDITS

5.1 Total Amount of Technical Credits

The total amount of technical credit allocated to registered WUAs for the procurement of (small-size) machinery and O&M equipment, office equipment and furniture and/or vehicles is summarised in Table 5-1:

Table 5-1: Allocated Technical Credit

Name of Project	Technical Credit			
	Total Amount (KGS million)	Benefitting WUAs		Average per WUA (KGS)
		Number	% Total	
CAADP	0.9	8	3%	111,351
OIP-1	36.7	214	76%	171,283
OIP-2	45.8	35	13%	1,307,840
OIP-2 AF	30.1	23	8%	1,307,840
Total	113.5	280	100%	405,360

A total of KGS 113.5 million has been allocated to 280 WUAs as technical credit between 2000 and 2015. Under OIP-1, a total of 214 WUAs benefitted from a technical credit with an average amount of KGS 171,283 per WUA. Under OIP-2 and OIP-2 AF, a total of 58 WUAs received a technical credit of KGS 1.3 million per WUA. A total of 10 UWUAs received a technical credit averaging KGS 3 million under WMIP.



WUA office (left) and WUA accountant (right) in Chui Oblast

5.2 Procured Goods

The types of good procured with the allocated technical credits by the benefitting WUAs is summarised in Table 5-2:

Table 5-2: Goods Procured with Technical Credit

Name of Oblast	Procured Goods (Number of WUAs)			
	Machinery	Office Furniture	Computer and Printer	Vehicle
Chui	3	2	4	4
Talas	4	3	3	6
Issyk-Kul	14	14	15	8
Naryn	11	16	18	11
Osh	15	16	17	25
Batken	10	9	9	11
Jalalabad	23	21	24	18
Total	80	81	90	83

A total of 80 WUAs used their technical credit for the procurement of O&M machinery, whereas 81 WUAs bought furniture for their offices, 90 WUAs purchased a computer and printer, and 83 WUAs obtained a vehicle.

5.3 Repayment of Technical Credit

The benefitting WUAs are expected to repay 100% of the allocated technical credit to the Government, except for excavators as they receive 50% subsidy. The amount of technical credit to be repaid by the 280 benefitting WUAs is presented in Table 5-3:

Table 5-3: Total Repayment of Technical Credit

Name of Project	Repayment of Technical Credit			
	Total Amount (KGS million)	Repayable Amount (KGS million)	% of Total Amount	Average Amount per WUA (KGS)
CAADP	0.9	0.9	100%	111,351
OIP-1	36.7	36.7	100%	171,283
OIP-2	45.8	22.9	50%	653,920
OIP-2 AF	30.1	15.0	50%	653,920
Total	113.5	75.5	67%	269, 645

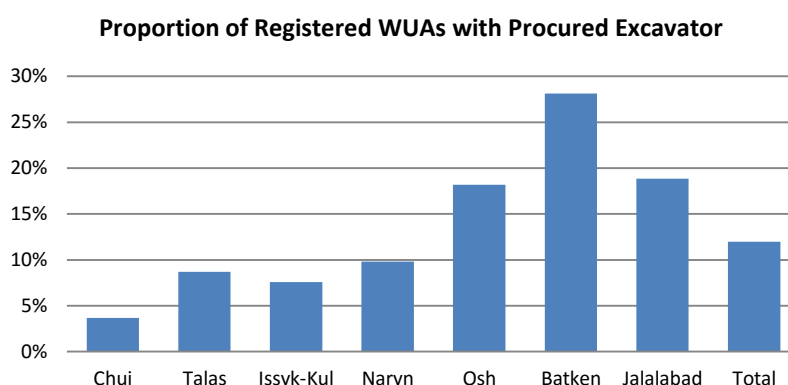
A total of KGS 75.5 million equivalent to 67% of the total allocated amount of technical credit has to be repaid by the 280 benefitting WUAs in accordance with the agreed repayment plan and schedule. The 222 WUAs having benefitted from a technical credit under CAADP and OIP-1 have to repay 100% of the allocated amount, whereas the 58 WUAs having received a technical credit under OIP-2 and OIP-2 AF must repay 50% as they benefit from a 50% subsidy on the procurement of an excavator. The 10 UWUAs having received a technical credit under WMIP have to repay 100% of received amount.

5.3.1 Number of WUAs with Procured Excavator

The number of WUAs having used the allocated technical credit for the procurement of an excavator (model XNW 51180) is listed in Table 5-4:

Table 5-4: WUAs with Procurement Excavator

Name of Oblast	WUAs with Procured Excavator	
	Number	% of WUAs
Chui	4	4%
Talas	6	9%
Issyk-Kul	5	8%
Naryn	5	10%
Osh	16	18%
Batken	9	28%
Jalalabad	13	19%
Total	58	12%



A total of 58 WUAs or 12% of all 484 registered WUAs have procured an excavator with the allocated technical credit, ranging from only 4% of the registered WUAs in Chui Oblast to 28% in Batken Oblast.

5.3.2 Actual Repayment Status

The actual status with regard to the repayment of the technical credit by the concerned WUAs by the end of 2015 is summarised in Table 5-5:

Table 5-5: Actual Status of Repayment of Technical Credits (KGS million)

Name of Project	Repayment of Technical Credit			
	Total Amount	Actual Repaid		Repayment Mature Date
		Amount	% Total	
CAADP	0.89	0.85	96%	2010 and 2014
OIP-1	36.7	3.6	10%	2009, 2010 and 2014
OIP-2	22.9	3.4	15%	2014 and 2015
OIP-2 AF	15.0	2.0	13%	2014, 2015 and 2017
Total	75.5	9.9	13%	-

By the end of 2015, a total of KGS 9.9 million or 13% of the total amount of KGS 75.5 million allocated as technical credit to 280 WUAs was actually repaid. Almost all technical credit allocated to 8 WUAs under CAADP has been repaid compared with 10% to 15% of total repayable amount for technical credit allocated under OIP-1, OIP-2 and OIP-2 AF. Only 4% of the technical credit allocated under WMIP has been repaid by the 10 UWUAs.

To address the problem with the repayment of technical credits provided under OIP-1, OIP-2 and OIP-2 AF, it was decided in 2015 that the PIU would collaborate with the Ministry of Finance to clarify the amounts owed by the WUAs and to redraft repayment plans and schedules for the outstanding amounts with the concerned WUAs. By the end of October 2015, 280 agreements on the repayment of technical credits were signed with the concerned WUAs with repayment schedules up to 2023.

6 IRRIGATION SERVICE FEES

6.1 Introduction of Irrigation Service Fee

Prior to independence, the Soviet system provided the Ministry of Water Resources with assured State funding each year. In 1990, the total State expenditures for the operation and maintenance (O&M) of irrigation systems were in excess of US\$ 35 million. Following the collapse of the Soviet Union, the available Government funds for the O&M of the irrigation systems decreased sharply and most of the irrigation infrastructure began to deteriorate. By 1999, the budget was around US\$ 5 million or only about 20% of the funds that were available for the sub-sector before 1990.

Given the lack of public funding for the O&M of the off-farm irrigation systems, the Government adopted the concept that users should pay for water delivery services as the only solution to sustain the off-farm irrigation infrastructure. As a result, the Government introduced irrigation service fees (ISFs) in 1995, which each water user should pay to the supplier of irrigation water, which is usually the Raion Irrigation Department, also known as *Raivodkhoz* (RVK), in order to cover the costs for supplying water to the head gate of the on-farm system. Until 2005, the level of the ISF was established by the Parliament, but its decisions were based on political rather than economic considerations. With the promulgation of the Water Code in January 2005, the ISFs are not established by Parliament any longer.



Off-farm canal in Talas Oblast requiring rehabilitation (left) and poorly maintained on-farm canal in Chui Oblast (right)

As the state and collective farms did not pay for the supply of irrigation water directly, it has taken a number of years for farmers to accept that they have to pay for the irrigation services provided by the RVKs. However, farmers are gradually accepting the necessity to pay for the supply of irrigation water as they also have to pay for any other agricultural inputs, such as seeds and fertilisers. As a result, collection rates have increased steadily since the introduction of the ISFs in 1995. Between 2001 and 2009, the WUA payments to the DWRLI for the bulk water supply to the head of their on-farm I&D system improved from 71% to 99% of the due amounts. From 2006 to 2008, the payments even exceeded the due amounts as WUAs repaid outstanding debts. The WUA payments were a significant contribution to the overall RVK budget as they rose from KGS 19.8 million in 2001 to KGS 42.9 million in 2009 representing 8 to 10% of the total SCWRLI budget or 10 to 15% if the electricity costs for pumped irrigation schemes are excluded.

6.2 Average ISF Rates in 2015

In 1995, the ISF rate was established at KGS 15 per 1000 m³ and it was increased to KGS 30 per 1000 m³ in 1999. Between 2001 and 2006, the average ISF rate in the country increased by 53% from KGS 27.3

per 1000 m³ to KGS 41.8 per 1000 m³, ranging from an average ISF rate of 30.3 per 1000 m³ in Naryn Oblast to KGS 49.6 per 1000 m³ in Batken Oblast. In 2010, the average ISF rate increased to KGS 66.5 per 1000 m³ or 59% compared with the average ISF rate in 2006.

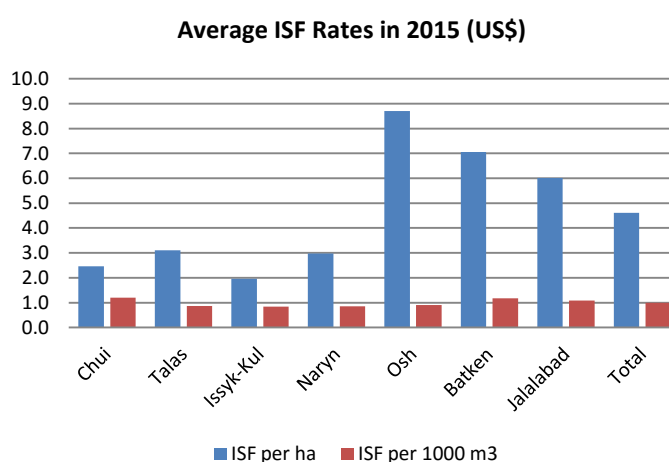
These figures may only refer to the payments that were made by the water users in cash and in kind. However, water users also provide free labour under the *Ashar* system for the cleaning of all on-farm canals before the start of the irrigation season. According to the performance assessment of 26 WUAs in 2005, the *Ashar* system is used in all assessed WUAs, whereby water users in 35% of the WUAs have to contribute one to three days of free labour, 5 to 9 days in 40% of the WUAs, and 10 to 15 days in 20% of the assessed WUAs.

The average ISF rates charged by the WUAs in 2015 are summarised in Table 6-1:

Table 6-1: Average ISF Rates in 2015

Name of Oblast	Average ISF Rates in 2015			
	ISF per ha		ISF per 1000 m ³	
	KGS	US\$	KGS	US\$
Chui	179	2.5	87	1.2
Talas	225	3.1	63	0.9
Issyk-Kul	142	2.0	61	0.8
Naryn	216	3.0	62	0.8
Osh	632	8.7	66	0.9
Batken	512	7.1	85	1.2
Jalalabad	437	6.0	79	1.1
Total	335	4.6	72	1.0

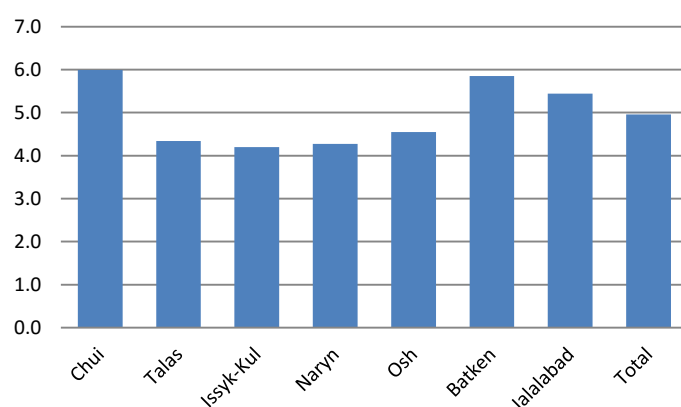
US\$ 1 = KGS 72.6 (March 2016)



If WUAs charge the ISF per hectare, the average ISF rate was KGS 335 per ha (US\$ 4.6 per ha) in 2015, ranging from KGS 142 per ha (US\$ 2.0 per ha) in Issyk-Kul Oblast to KGS 632 per ha (US\$ 8.7) in Osh Oblast.

If WUAs charge the ISF per 1000 m³ of irrigation water supplied, the average ISF rate was KGS 72 per 1000 m³ (US\$ 1.0 per 1000 m³) in 2015, varying from KGS 61 per 1000 m³ (US\$ 0.8 per 1000 m³) in Issyk-Kul Oblast to KGS 87 per 1000 m³ (US\$ 1.2 per 1000 m³) in Chui Oblast.

Figure 6-1: Average ISF Rate per 5,000 m³ (US\$) in 2015



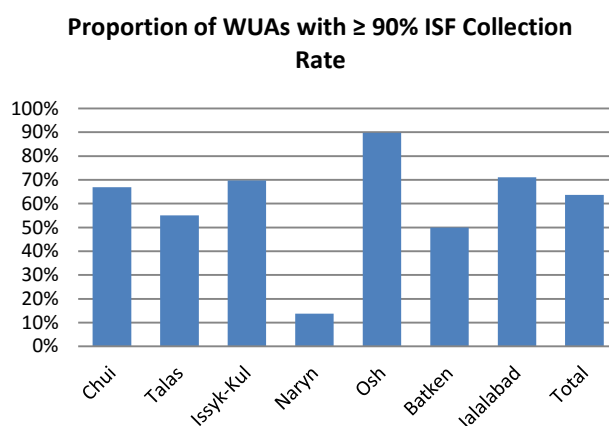
Based on the assumption that an average supply of irrigation water is 5,000 m³ per hectare², the average volumetric ISF rate in 2015 would be KGS 360 per ha (US\$ 5.0 per ha) in 2015, ranging from KGS 305 per ha (US\$ 4.2 per ha) in Issyk-Kul Oblast to KGS 435 per ha (US\$ 6.0 per ha) in Chui Oblast.

6.3 ISF Collection Rate in 2015

The proportion of WUAs having an ISF collection rate that is higher or lower than 90% of the total assessed amount is presented in Table 6-2:

Table 6-2: ISF Collection Rate in 2015

Name of Oblast	ISF Collection Rate in 2015			
	< 90%		≥ 90%	
	Number	%	Number	%
Chui	36	33%	73	67%
Talas	31	45%	38	55%
Issyk-Kul	20	30%	46	70%
Naryn	44	86%	7	14%
Osh	9	10%	79	90%
Batken	16	50%	16	50%
Jalalabad	20	29%	49	71%
Total	176	36%	308	64%



In 2015, a total of 308 WUAs or 64% of the total number of 484 registered WUAs reported to have an ISF collection rate of 90% or higher, ranging from 14% of the registered WUAs in Naryn Oblast to 90% in Osh Oblast.



Execution of repair works on off-farm canal in Talas Oblast

6.4 Annual O&M Cost

In the Project Appraisal Document (PAD) for WMIP (2006) and OIP-2 (2007), it is estimated that the average annual O&M costs are around KGS 1,000 per ha (US\$ 25 per ha), of which KGS 600 per ha (US\$ 15) per ha is required for the O&M of the off-farm I&D system and KGS 400 per ha (US\$ 10 per ha) are the O&M costs for the on-farm I&D system. Taking into account inflation between 2006/7 and 2015, the

² The average amount of irrigation water supplied per hectare will be higher in the Southern Oblast compared with the Oblasts in the North due to different climatic conditions and the cultivation of crops with high water requirements.

average annual O&M costs would be significantly higher. In a report on asset management plans (A. Beadle and M. Burton, 2014), the annual O&M costs are estimated to be US\$ 50 to 65 per ha for 2010 prices.

Issue: In 2015, the average ISF rate was between KGS 335 and 360 per ha, which is about one-third of the average O&M costs for the off- and on-farm I&D system estimated some 10 years ago. Taking into account the increase in material prices and salaries during the last 10 years, the average ISF rates collected by the WUAs in 2015 would not cover more than 20% of the actual O&M costs for the off- and on-farm I&D systems in the country.

Recommendation:

The actual annual O&M costs for different types of off- and on-farm I&D systems, including rehabilitated and non-rehabilitated off- and on-farm canal systems, should be calculated in order to determine the (minimum) ISF rates to be collected by the WUAs required to cover at least the annual O&M costs.

Recommendation:

Financial sustainability of the WUAs is critical for the effective functioning and sustainability of the (rehabilitated) on-farm I&D systems. Therefore, WUAs should increase their ISF rates so that they have sufficient financial resources to cover at least all costs related to the O&M of their on-farm I&D systems.

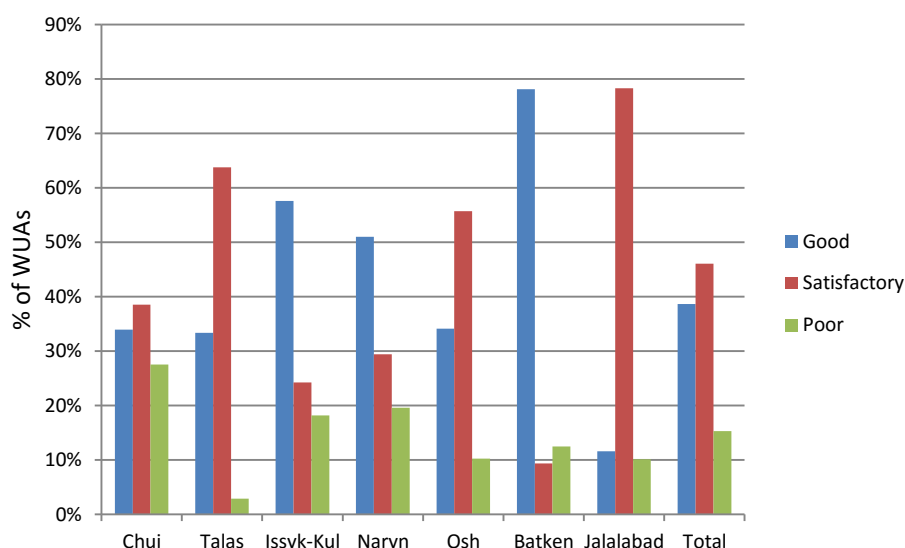
7 PERFORMANCE OF WATER USERS' ASSOCIATIONS

Based on a set of performance indicators used by the CSU, the performance of all 484 registered WUAs is listed in Table 7-1 and Figure 7-1:

Table 7-1: CSU-Based Performance Assessment of WUAs

Name of Oblast	WUA Performance					
	Good		Satisfactory		Poor	
	Number	%	Number	%	Number	%
Chui	37	34%	42	39%	30	28%
Talas	23	33%	44	64%	2	3%
Issyk-Kul	38	58%	16	24%	12	18%
Naryn	26	51%	15	29%	10	20%
Osh	30	34%	49	56%	9	10%
Batken	25	78%	3	9%	4	13%
Jalalabad	8	12%	54	78%	7	10%
Total	187	39%	223	46%	74	15%

Figure 7-1: Performance of WUAs



By the end of 2015, a total of 187 WUAs or 39% of all 484 registered WUAs had a good performance according to the performance indicators used by the CSU, ranging from 12% of the registered WUAs in Jalalabad Oblast to 78% in Batken Oblast. Another 223 WUAs or 46% of all registered WUAs were performing satisfactorily, varying from 9% of the registered WUAs in Batken Oblast to 78% in Jalalabad Oblast. The remaining 74 WUAs or 15% of all registered WUAs had a poor performance, ranging from 3% of the registered WUAs in Talas Oblast to 28% in Chui Oblast.

Issue: At present, the overall performance of each WUA is determined based on the total score using a set of performance indicators. However, the institutional, financial and technical (O&M) performance of each WUA is not determined using the existing set of performance indicators. Furthermore, the performance scores are not used as a tool to identify if the WUA needs (additional) training, support and/or advice related to the internal governance, administrative and/or financial management of the WUA itself and/or the O&M of the on-farm I&D infrastructure.

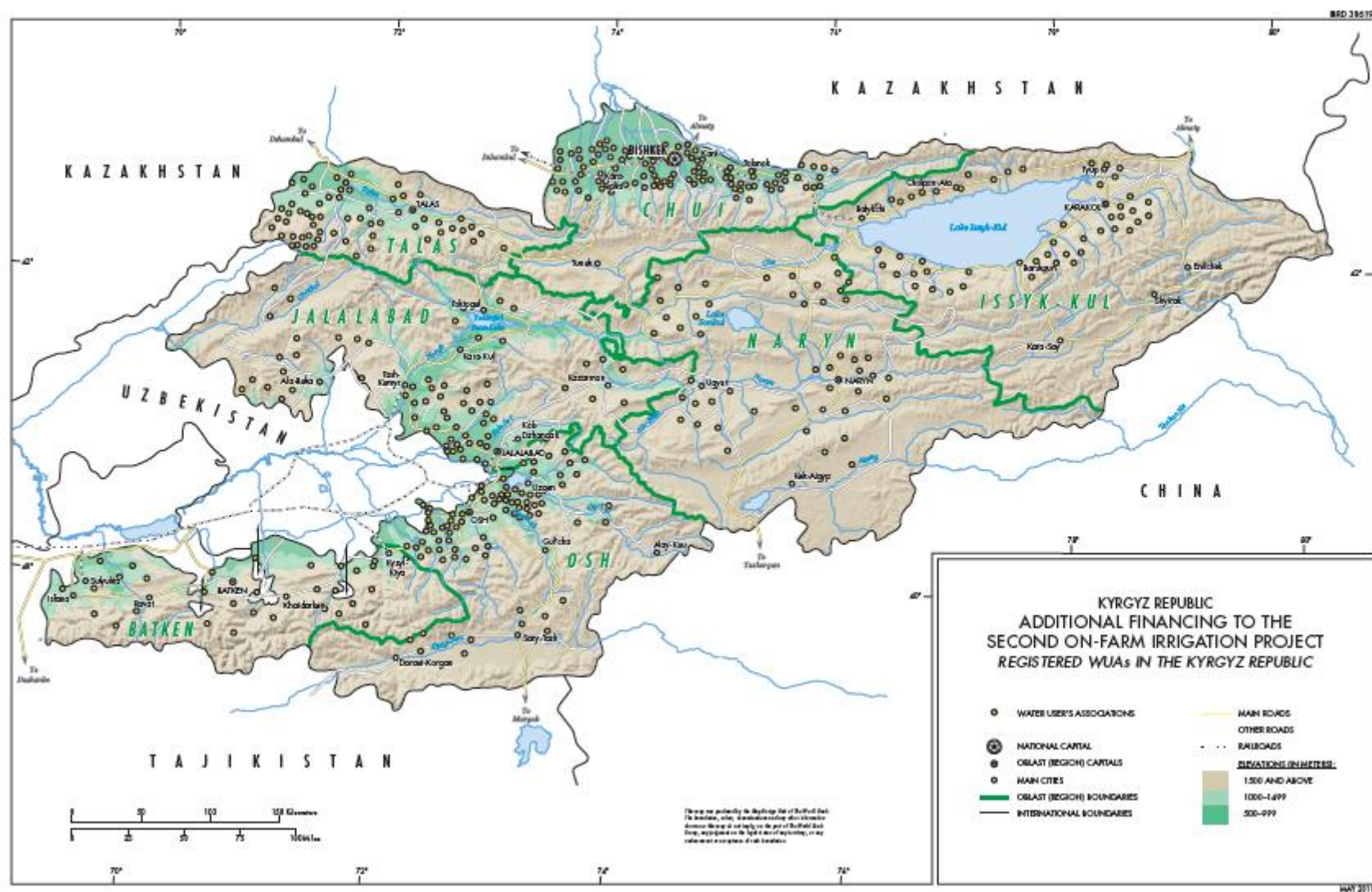
Recommendation:

At least once a year, the institutional, financial and technical (O&M) performance of each WUA should be assessed using a (revised) set of performance indicators and the results of the performance assessment should be used to determine the need for the provision of (additional) training, support and/or advice aimed at improving the performance of each WUA with regard to its internal governance, administrative and financial management as well as the O&M of the on-farm I&D system.



Poorly maintained on-farm canal in Chui Oblast (left) and properly maintained on-farm canal in Osh Oblast (right)

ANNEX A: Map with Location of 475 Registered WUAs (Source: OIP-2 AF Project Paper - June 2011)



ANNEX B: Map with Location of Rehabilitated On-Farm I&D Systems (Source: OIP-2 AF Project Paper - June 2011)

