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# WOMEN IN WATER RESOURCES MANAGEMENT: CASE STUDY OF WATER USER ASSOCIATIONS IN KARASUU DISTRICT, KYRGYZSTAN

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The goal of the study is to learn the level of education and participation of women in Water User Associations (WUA) of the Karasuu district and based on the results to develop recommendations for improving the role of women in WUAs. This study uses field research in five WUAs, which located in different parts of Karasuu district. Questionnaires were taken from 10 women from each WUA in order to learn the level of education of women and their participation in WUA. Based on a field research, recommendations developed to improve the role of women in WUAs. Most women in the WUA of Karasuu district are connected to the WUA through the work of family members or through their own position in the village leadership, which further increases their participation. For some, their husbands or male relatives attend meetings and therefore do not feel the need to participate themselves. Others, although interested in participating, but they did not know when and where these meetings were held. In order to promote the full participation of women, it is essential to raise public awareness of WUAs as a key player. However, questioners show that female farmers with higher education are more likely to participate in WUA meetings than women with school education.

**Key words:** women, water user association, participation, education, Karasuu district, Kyrgyzstan.

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## INTRODUCTION

Women play a leading role in the providing and safeguarding water in many contexts. However, this role is usually not reflected in informal and formal institutional arrangements for water management (Haile et al., 2018). In this regard, gender relations and how they are reflected in water management have implications for environmental protection and sustainable irrigation water management.

There are hundreds of Water Use Associations (WUA) in Central Asia. However, these WUAs have not become organizations of water user (Abdullaev et al., 2009). Understanding women's participation and learning about their level of education is critical for improving the effectiveness of WUAs. Women should be more actively involved in various water management bodies as water user associations.

The goal of the study is to learn the level of education and participation of women in Water User Associations of the Karasuu district and based on the results to develop recommendations for improving the role of women in WUAs.

## METHODOLOGY

An article based on field research which was held in the spring of 2021 in the Karasuu district of the Osh region of Kyrgyzstan. It is generally, involved 50 women farmers, 6 employees of the Karasuu District (KD) Water Management Department, 5 WUA leaders (Chairman), and 2 employees of the WUA Support Department for the Osh region under the Government of the Kyrgyzstan. For determine the women level of education and their participation in WUAs, questionnaires taken from 10 women-farmers from each WUA.

Based on a review of the literature and field research, recommendations developed to improve the role of women in WUAs.

**Criteria's of choosing WUAs in Karasuu district**

Water User Association is a group of water users, such as irrigators, who pool their financial, technical, material, and human resources to operate and maintain the water system. The WUA usually selects leaders, resolves internal disputes, collects fees, and provides maintenance. In most areas, WUA membership depends on a person's relationship to a water source (for example, ground water or a canal).

This study uses field research in five Associations of Water Users: Zhany - Aryk, Maz-Aikal, Rakhmat, Myrza-Azhy, Mongu Suu, located in different parts of Karasuu District (KD) (table 1). WUAs selected based on the following requirements:

- Active interaction of WUAs with local self-government bodies, organizations and projects;
- Geographical location: close to regional centers;
- More stable and developed WUAs.

Table 1

General information about 5 Water User Associations
(MC - Main Channel)

| Aiyl Okmotu | Name of WUA/ | Served area, ha/ | Registration date | Main channel |
|---|---|---|---|---|
| Toloikon | Zhany – Aryk | 1037 | 10/15/2003 | MC Kaiyrma |
| Otuz-Adyr | Maz-Aikal | 1830 | 3/31/1997 | MC Uzhnyi |
| Mady | Rakhmat | 1171 | 10/31/1997 | MC Uzhnyi |
| Kyzyl-Kyshtak | Murza-Azhy | 1406 | 7/23/1999 | MC Aravan-Akbura |
| Saray | Mongu - Suu | 2100 | 9/30/2003 | MC Otuz-Adyr, Savay,Konurat Prisavai |

Note – made by author. The data for the table were taken from the Osh Basin Water Management Department and the Karasuu district Water Management Department

**Criteria of choosing respondents for the questionnaires**

To achieve the goal of the study, it is important that women engaged in agriculture participate in the survey, so that they interact with irrigation water and WUAs. Women farmers were selected for the survey based on the following data (criteria):

- On the recommendation of WUA managers;
- On the recommendation of women farmers themselves;
- At the location of the WUA.

**IMPORTANCE OF WOMEN PARTICIPATION IN WUAS**

Participation is often seen as associated with empowerment, but participation does not inherently question internalized inequality or contribute to self-efficiency. Participation is a complex definition, described and interpreted in various disciplines and by many participants, and is therefore ambiguous. Participation is seen as a way to achieve sustainability; the underlying premise is that if individuals or groups engage in events, they will be more likely to embrace and endorse a new development plan. It is also seen as a mechanism for the government to achieve better policy outcomes and basic human rights, with the primary goal of fostering equity, empowerment and institution building. It is considered to be a method of changing the power ties between managers and employers.

The first and most critical prerequisite for ensuring the participation and execution

of women's surveys in water sector is the recognition at all levels of the role of women as resource consumers and managers, as well as the recognition of the legitimate needs and management of women's resources.

In the form of irrigation, and probably with the exception of female-headed fields, women mostly tend to be seen as supporting their husbands. Men are perceived to better serve the water-related desires and needs of households at the group level and it is believed that the desires of both men and women align. These theories are partially, and mostly indirectly, based on the unitary model of the household and the hierarchical division of the world into two distinctly defined spheres of operation – public and private. A man is the paradigmatic subject of the socio-economic sphere and a woman is the subject of the internal sphere. Water or irrigation is not limited to men only; women use water for both industrial and domestic purposes.

Women provide labor or other services to maintain irrigation systems and profit directly or indirectly from the use of irrigation water. They do so primarily as state farmers, working closely with their husbands to grow irrigated crops on the property of their husbands (or their families). In this case, the essence of the water needs of the husband and wife is typically very similar: both want and need enough water to grow one or more crops each year. However, differences in opinions and priorities about timing and timing of water supplies that occur on the basis of gender-based division of tasks and responsibilities or different crop priorities. Women often use water for specific purposes other than main crop irrigation, such as livestock irrigation or household irrigation, or for more detailed explanations of gender disparities in water needs. It is stated that the number of women who use water for irrigation as heads of farms is steadily rising in most developed countries. Female farm managers may have different water needs than male farmers, either because of the limited availability of male family jobs, or because irrigated agriculture has a different significance in the family livelihood strategy.

The gender disparities in water needs have not been well known. Nor are there several records related to women's use of water resources or women's participation in WUAs. Increasing the awareness and validity of women's water-related needs and interests, as well as the gender context as a source of disparities in these needs and interests, is crucially dependent on additional knowledge and analysis to gather this knowledge.

**WUAs and women education**

In many developing countries, services such as social development and development support institutions are more open to men and closed or less accessible to women. In many countries, women's access to education has always been limited. This was due to a number of restrictions, some of which are sociocultural in nature, especially in Muslim societies (Maphosa-Dube, 2010).

Most governments have stepped up their efforts to educate their people since independence. This applies in particular to primary education, but opportunities for women continue to lag behind opportunities for men. Educational opportunities for men and women are not the same. Women's access to education and participation in specific vocational training programs open the way for their participation in the fields of their choice.

Jobs in the water sector and in WUA are based mainly on scientific knowledge, which is dominated by engineers and scientists. Indeed, with the exception of political positions such as ministers, all very high positions in the water sector are held by people with a scientific background.

Most of the literature shows that women in WUAs manage water resources in households, and yet very few of them become decision makers or leaders of WUA (Gafurchonova et al., 2018). This is largely due to the fact that women do not have enough mentors who can look up to them or guide them. The lack of role models to show women what career paths to follow has led many to find themselves in professions that are extensions of their gender roles. As the main collector of water for their families, women in regions that are not provided with water often do not have time for free education. One of the main reasons why lack of access to water affects women's access to education is opportunity costs. They give up tasks like school work

as a compromise to spend time collecting water, which can lead to a vicious cycle of poverty and vulnerability.

**WUAs in Kyrgyzstan**

Kyrgyzstan has accumulated extensive experience in involving water users in the process of water resources management through WUAs established and supported by the state (fig.1). In Kyrgyzstan, field level irrigation water supply is mainly carried out by water user associations, public non-commercial associations established based on the hydro graphic principle within the service zone of a certain irrigation system. WUAs are headed by chairpersons elected by WUA members. In their turn, WUAs are members of the WUA Federation and the WUA Republican Union. WUA members independently establish water tariffs which include the state tariff paid by district water management department. Currently, 488 WUAs operate in Kyrgyzstan, including 9 headed by females. WUA membership and staff are male-dominated (Sakhvayeva, 2020).

**Overview of Karasuu district**

Karasuu district is located in the Fergana Valley in southwestern part of Kyrgyzstan on the border with Uzbekistan. It covers an area of 3,616 square kilometers and had a permanent population of 440 400 in 2020. The administrative capital is Kara-Suu city. In total, Karasuu district includes 1 city and 122 localities in 16 rural communities (ayil okmotus). Each rural community may consist of one or more villages (Abdykalykov et al., 2010). Most of the region has employed population works in agriculture. As of 2004, 21 WUAs were registered in Karasuu district, serving 78% (32,982 ha) of the total 42,453 ha of irrigated land in the district.


***Fig. 1.*** *Map of Karasuu district, 2021 (https://www.worldatlas.com/r/w768/upload/05/e2/d5/regions-of-kyrgyzstan-map.png).*

**Karasuu District Water Management Department**

The structure of the Kyrgyzstan Water Management Agency includes 40 district water management departments and 7 basin departments. This structure was formed during the Soviet period and basically coincides with the administrative and territorial borders (Ivanova et al., 2021).

Karasuu District Water Management Department consists of the following scheme: State Water Resource Agency under Ministry of Agriculture of the Kyrgyz Republic - Osh Basin Water Management Department - Karasuu District Water Management Department - Water Users Associations - Water Users. Each water management organization has its own powers and responsibilities, which you can see below.

**Osh Basin Water Management Department**

Osh Basin Water Management Department (OBWMD) is one of the structural divisions of the Department of Water Management and Melioration (DWMM) of the Kyrgyzstan Ministry of Agriculture. OBWMD performs the functions of the state management and regulation body of the water fund (except for medical-mineral and terminal waters), forms and implements a unified technical policy in the field of design of construction and operation of water management systems and structures with a complex of regulatory and other devices and facilities intended for water use (Osh Basin Water Management Department, 2021)

Deputies, chief engineer, chief accountant of the Department of internal Affairs are appointed and dismissed on the recommendation of the head of the Department of internal Affairs by the order of the Department of internal Affairs. A basin board consisting of 7-9 members, consisting of the head and his deputies, as well as other managers and specialists of the management apparatus of the water management Department, is established to consider the most important and complex issues of current and prospective activities and development of irrigated agriculture and water management. The head is also the Chairman of the basin Board. The scientific and technical Council is created to address the most important and complex issues of the technical policy of the BWH. The regulations for the activities of this Council, as well as its personal composition, are approved by the head of the Department of internal Affairs.

**Karasuu District Water Management Department**

The state institution Karasuu District Water Management Department (KDWMD) is a territorial subdivision of the State Agency of Water Resources under the Government of the Kyrgyzstan to ensure the management, operation of the state irrigation network facilities and the implementation of services for the supply of irrigation water by the water user (Osh Basin Water Management Department, 2021).

In its activities, the KDWMD is guided by the Constitution and laws of the Kyrgyzstan, other regulatory legal acts, international treaties that have entered into force in accordance with the procedure established by law, orders of the State Water Resources Agency under the Government of the Kyrgyzstan, the Osh Main Water Management Department and this regulation. The organizational and legal form of the administrative administration of the Karasuu district is a state institution.

Goals and objectives of the KDWMD

The main purpose of the KDWMD is to carry out operational work and improve it on inter-farm irrigation systems. The tasks of the administrative department of the KD include:

- Ensuring the guaranteed supply of water resources to water users of the agricultural sector and other water use sectors from the state water management systems of the Osh region.
- Provision of technical and methodological assistance in ensuring the sustainable condition and development of on-farm irrigation infrastructure facilities managed by independent water users on a contractual basis.

Functions of KDWMD

To implement the tasks set, KDWMD performs the following functions:

- Functions of performing works and rendering services;
- Organizes measures for the maintenance of water protection zones and strips of state water management systems;
- Management and use in accordance with the established procedure of the lands of the water fund allocated for state water management systems;
- Participates in the commissioning of water management facilities;
- Organizes the collection of payments from water users for water supply services.

Organizational work of KDWMD

- KDWMD is headed by a manager who is appointed and dismissed by the agency's directors.
- The Chief Engineer and the Chief Accountant of the Department of Internal Affairs are appointed and dismissed by the directors of the Agency.

In general, the water resources management of the Karasuu district implements a unified state policy in the field of rational use

and protection of the water fund, management of water resources and water infrastructure objects that are state-owned, as well as ensuring the water resources needs of all water use entities.

**WUAs in Karasuu district**

In 2021, 31 WUAs were registered in the Karasuu District Water Management Department. Below is a list of all WUAs and local government (aiyl okmotu) (table 2).

Table 2

List of WUAs in Karasuu district 2021

| **Local government (aiyl okmotu) of Karasuu district** | **Name of WUA** |
|---|---|
| Savay | Kydyrsha -Suu |
| | Yntymak |
| Saray | Mongu - Suu |
| Ak-Tash | Muramyt Ata cooperation |
| Nariman | Kara-Dobo |
| | Besh-Moynok |
| | Abror |
| Shark | Muyan |
| Katta-Taldyk | Eshme |
| Zhoosh | Sultan-Nas |
| | Saray Suu |
| Mady | Rakhmat |
| | Uch-Alysh |
| | Birimdik |
| | Arzykulov Tynchtyk |
| Sary-Kolot | Voruh-Ali |
| Zhany-Aryk | Zhany-Turmush |
| Toloikon | Zhany - Aryk |
| Otuz-Adyr | Maz-Aikal |
| | Ene-Sai |
| Zhany - Alay | Kaldar |
| Kyzyl- Kyshtak | Myrza-Azhy |
| | Zhoypas |
| Kashkar-Kyshtak | Zhalaldinov S. |
| | Zhar-Ooz |
| Ak-Tash | Chomo |
| | “Ak-Suu” and “Uvam” WUAs federations |
| **Total:16** | **31** |

Note – made by author. The data for the table were taken from the Osh Basin Water Management and the Department of Water Management of the Karasuu district.

31 WUAs provide irrigation for 86% or 33,287 ha of the 38,545 ha of irrigated land in the district. The length of the internal channels is 1105.15 km, including 1156.77 km of surface channels, 93.11 km of concrete and 55.27 km of grooved channels, 970 hydraulic structures.

Table 3

The volume of spring field work in the region for 2021

| Name of the district | Internal canals length, km | Cleaning of internal canals | | Channel repair, km | Repair and cleaning of hydraulic structures, one thing | All amounts are provided, som |
|---|---|---|---|---|---|---|
| | | Human labor | Mechanisms | | | |
| Karasuu | 1 205, 15 | 437,0 | 1 14,0 | 24,0 | 619 | 7 140 000 |

Note – made by author. The data for the table were taken from the Osh Basin Water Management and the Department of Water Management of the Karasuu district.

Financing of operation and maintenance of internal irrigation systems is planned in accordance with the capacity of each WUA. Article 22 of the Law of the Kyrgyz Republic «On Water User Associations» provides that the amount of contributions of WUA members is determined by the WUA charter and the provision of water supply services. The amount of contributions of WUA members is determined by the general meeting, and the cost of providing WUA members with irrigation water is determined by the WUA itself. It is clearly stated that WUAs should use irrigation systems and cover the costs.

Table 4

Assessment of WUA activities in Karasuu district

| № | Name of the district | Number of WUAs | Out of them: | | |
|---|---|---|---|---|---|
| | | | Good | Middle | Bad |
| 1 | Karasuu | 31 | 14 | 12 | 5 |

Note – made by author. The data for the table were taken from the Osh Basin Water Management and the Department of Water Management of the Karasuu district.

Based on the results of the monitoring conducted by the WUA Support and Regulation Department, the assessments of WUA activities were made. Table 4 shows that out of 31 WUAs in Karasu district, 14 WUAs are developed, which means that they are well interconnected with state authorities and water users. Also, the collection of payment for the use of water is good. Many WUAs have collaborated with international donors, who have provided financial support for the development of technology and the reconstruction of canals. 12 WUAs are rated as average, which means that they are on the path of development. Most of them changed their leaders, and they began a new policy of expanding and improving WUAs. The remaining 5 WUAs are classified as bad, because one of the main problems of WUAs is the late payment of water budgets by water users, which negatively affects their budgets. 25% of the above mentioned 9 WUAs are not rehabilitated and do not have their own equipment for cleaning channels and ditches. In addition, in all WUAs, personnel issues remain acute,

managers change frequently, and salaries are low.

In order to develop the WUA, the WUAs works closely with various donors, conducts seminars with WUA leaders, specialists and actively provides assistance. In addition, USAID, Aga Khan, OSCE, several UN agencies, Helvetas have contributed to the development of WUAs.

**WUA «Zhany Aryk»**

WUA «Zhany-Aryk» was organized in January 1998, on February 24, 1998 it was legally registered in the regional department of Justice, and on October 15, 2003 it was legally re-registered in accordance with the Law «On Associations of Water Users». The WUA service area is 1037 hectares of irrigated land in the rural municipality of Toloikon. The WUA has 261 members, including 2 cooperatives, 258 farms and 1 individual farmer. The highest body of the WUA is the Assembly of Representatives, consisting of 22 representatives from 22 representative zones. The WUA Council of 5 people was elected. According to the staffing table, 11 people work in the WUA: The WUA Directorate consists of 11 people; the director Sasykbayev Tair has the qualification of an economist. 6 members of the directorate work on a permanent basis and 5 mirabs on a temporary basis (during the growing season). The salary of the members of the directorate is in the range of 5000…10000 soms.

The structure of irrigated areas is dominated by crops of cereals (432 ha), corn for grain (126 ha), in addition, vegetables (225 ha), sunflowers (97 ha), melons (35 ha), orchards (910 ha), perennial grasses (26 ha) and potatoes (86 ha) are grown. The main source of WUA is the Ak-Bura River. There are 13 on farm canals with a total length of 67.3 km, 0.2% of which are leveled.

Active role of the Meeting of Representatives and the WUA Council

The highest governing body of the WUA is the Assembly of Representatives, consisting of 43 people elected by 22 representative zones. The Meeting of Representatives meets annually and approves the WUA budget for the coming year.

• The WUA Council, consisting of 9 people and headed by B. Pasanov, meets quarterly.

• The Audit Commission and the WUA Dispute Resolution Commission are actively working.

Transparency of WUA management, compliance with democratic principles

• The Association has adopted a democratic organizational management structure in which the functions of the governing and executive bodies are separated.

• There is a good mutual understanding of the WUA Council and Management with the WUA members, the Karasuu district administration and the Toloikon VC administration.

**WUA «Mongu-Suu»**

The «Mongu Suu» WUA was established in January 2001, it was legally registered with the Regional Department of Justice on January 25, 2001, and it was legally re-registered under the Law «On Associations of Water Users» on September 30, 2003. The service area is 2100 hectares of irrigated land of the Saray VC. The WUA has 535 members, including 2 farms and 533 individual farmers. The highest body of the WUA is the Assembly of Representatives, consisting of 54 representatives from 54 representative zones. A 5-member council was elected. According to the staffing table, WUA employs 8 people: The WUA Directorate consists of 8 people; Director A. Nurmatov has the qualification of a hydraulic engineer. 8 members of the directrate work on a permanent basis, and 5 mirabs work on a temporary basis (during the growing season). The salary of the members of the directorate is in the range of 5000…10000 soms.

The structure of irrigated areas is dominated by cereals (653 ha), corn for grain (280 ha), corn for silage (132 ha), cotton (488 ha) and potatoes (5 ha), as well as vegetables (61 ha), sunflowers (222 ha) and orchards (109 ha). WUAs receive water from the Ak-Bura, Kurshab - Say and Kara-Darya rivers. WUA has 5 on-farm channels with a total length of 126 km, 1.6% of which are aligned. The Association has a well-established record of irrigation water consumption; practices water circulation during water scarcity, water charging and water storage.

Active role of the Meeting of Representatives and the WUA Council

• The highest governing body of the WUA is the Assembly of Representatives, consisting of 54 people elected by the

54 representative zones. The Meeting of Representatives meets annually and approves the WUA budget for the coming year.
• The WUA Council, consisting of 7 people and headed by M. Dadaev, meets quarterly.
• The Audit Commission and the WUA Dispute Resolution Commission are actively working.

Problems in the development of WUAs
• In WUA, there is a shortage of irrigation water due to the loss of water for filtration from earthen channels. There are problems with the lack of exclusion bands for most association channels on the farm.
• The Association is experiencing a shortage of its own earthmoving equipment (bulldozer, excavator and tractors), vehicles and water measuring equipment.

**WUA «Rakhmat»**

WUA «Rakhmat» was organized in September 1997, on October 31, 1997 it was legally registered with the regional Department of Justice, and on December 24, 2002 it was legally re-registered in accordance with the Law on Associations of Water Users. The WUA service area is 3408 hectares of irrigated land in the rural VC of Mady. The Water Users Association has 1,315 members, including 2 farms and 1,313 individual farmers. The highest body of the WUA is the Assembly of Representatives, consisting of 85 representatives from 85 representative zones. A 9-member Council was elected. According to the staffing table, the WUA employs 17 people. The WUA Directorate consists of 15 people; the director Usekov Rakhmatilla has the qualification of a hydraulic engineer. 15 members of the Directorate work on a permanent basis and 10 mirabs on a temporary basis (during the growing season). The salary of the members of the Directorate is in the range of 5000…10000 soms.

The structure of irrigated areas is dominated by cereals (845 ha), corn for grain (599 ha), corn for silage (32 ha) and cotton (1041 ha), as well as vegetables (163 ha), sunflowers (5 ha), potatoes (70 ha), orchards (114 ha) and perennial grasses (19 ha). WUAs receive water from a source, i.e. from the Ak-Buura, Kurshab-Sai and Taldyk-Sai rivers. WUA has 8 on farm channels with a total length of 93.38 km. The Association has a well-established record of irrigation water consumption; practices water circulation during water scarcity, water charging and water storage.

Active role of the Meeting of Representatives and the WUA Council
• The highest governing body of the WUA is the Assembly of Representatives, consisting of 85 people elected by 85 representative zones. The Meeting of Representatives meets annually and approves the WUA budget for the coming year.
• The WUA Council, consisting of 9 members and headed by M. Tokurov, meets quarterly
• The Audit Commission and the WUA Dispute Resolution Commission are actively working.

Problems in the development of WUAs
• In WUAs, there is a loss of irrigation water associated with the loss of water for filtration from earthen channels. There are problems with the lack of exclusion bands for most association channels on the farm.
• The Association is experiencing a shortage of its own earthmoving equipment (bulldozer, excavators and tractors), vehicles and water measuring equipment.

**WUA «Maz-Aikal»**

The «Maz-Aikal» Water Users Association was established in January 2003 and registered with the Department of Justice on February 3, 2003. The Association of Water WUA provides irrigation water to 1,249 hectares of irrigated land in Otuz-Adyr aiyl okmotu. The WUA has 1,377 members, including farms, 20 peasant farms, and the rest are private farms. The WUA Manager is represented by a Meeting of Representatives, 40 representatives. 5 people were elected to the WUA Council. The staff of the WUA is 10 people, the head is a lawyer Satybayev Kanybek. The monthly salary of the Management is 5-10 thousand soms. WUA receives irrigation water from the Kurshab River and the Otuz-Adyr inter-farm canal on a contractual basis. The WUA has 12 internal channels with a total length of 25.5 km, including 16 km of concrete channels. Water users are provided with irrigation water on the

basis of a special water supply plan. The budget of the WUA «Maz-Aikal» in 2018 was 1486732 soms, the execution was 1018366 soms or 68%.

Transparency of WUA management, compliance with democratic principles

• The Association has adopted a democratic organizational management structure in which the functions of the governing and executive bodies are separated.

• There is a good mutual understanding of the WUA Council and Management with the WUA members, the administration of the Karasuu district administration and the administration of the Mady VC.

**WUA «Myrza Azhi»**

WUA «Myrza-Azhi» was established in July 1999 and officially registered on December 22, 2001. Re-registered on September 2, 2003. WUA «Myrza-Azhi» provides irrigation water to 1406 hectares of irrigated land of the Kyzyl-Kyshtak aiyl okmotu. WUA has 297 members of water users, including 35 representative offices. The WUA Council consists of 5 people. Chairman Abdullayev Izatila. The WUA directorate employs 5 people, headed by Melis Kamilov.

The last restoration work was carried out within the framework of the project «Internal Irrigation 2» at the expense of the World Bank.

Problems in the development of WUAs

• In WUAs, there is a loss of irrigation water associated with the loss of water for filtration from earthen channels. There are problems with the lack of exclusion bands for most association channels on the farm.

• The Association is experiencing a shortage of its own earthmoving equipment (bulldozer, excavators and tractors), vehicles and water measuring equipment.

**Education and participation level of women in WUAs of Karasuu district**

The following chart shows the age of the women who participated in the survey. The average age of farmers is 34 years this means that in the WUA of the Karasuu district involved young women farmers. The age of the survey participants aged 18-30 years is 32 %. Women aged 31 to 40 years are 24%. Women of average age from 41 to 50 years made up 14%. Women aged 51-60 years make up 20%, and the lowest age of women aged 61 years and older was 14%.

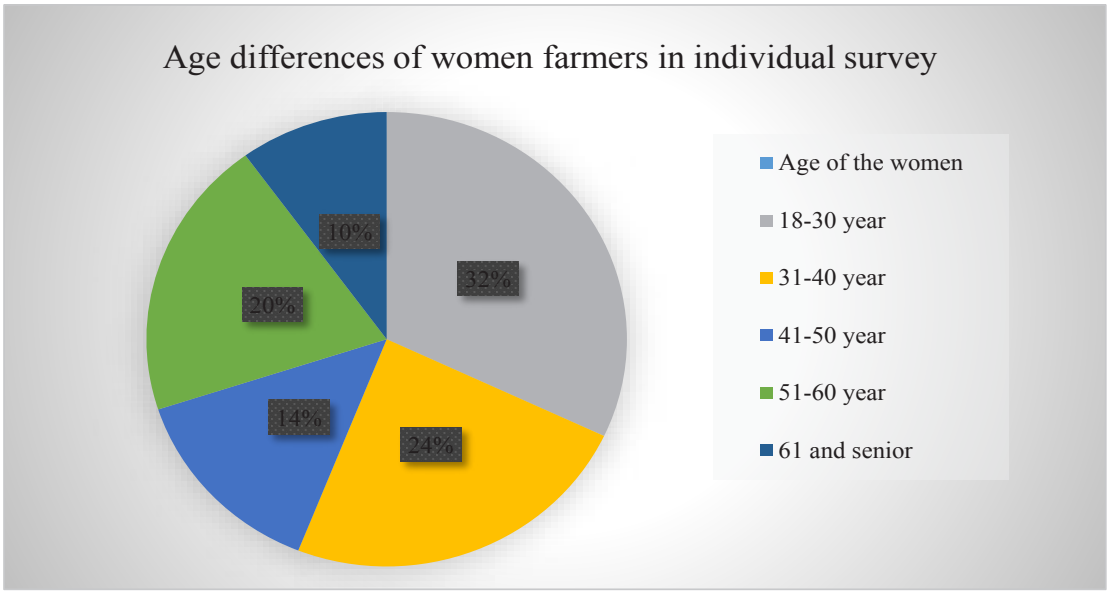


***Fig. 2.*** *Age differences of women farmers in individual survey on 5 WUAs of Karasuu district (Made by author. Source: Field research, 2021).*

The results of field research in five localities showed that the law on WUAs was adopted in 2002 in KR, but the awareness of women farmers about WUAs remains low. Most of the women in the WUA of the Karasuu district are connected to the WUA through the work of family members. For some, their husbands or male relatives attend meetings and therefore do not feel the need to participate themselves. Others, although interested in participating, did not do so because they did not know when or where the meetings were being held.

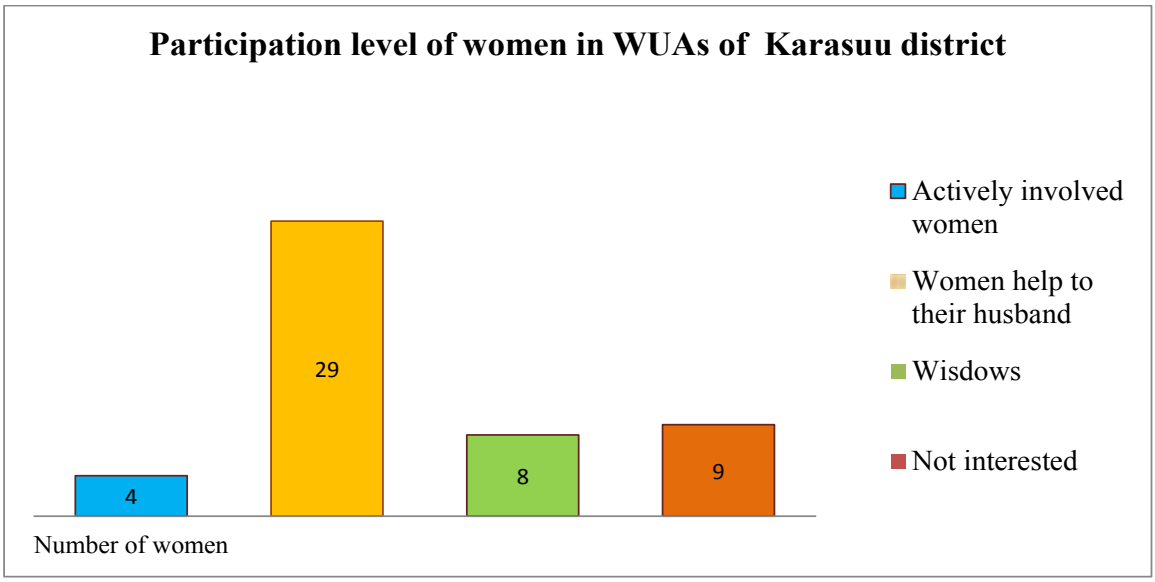


***Fig. 3.*** *Participation level of women in WUAs in Karasuu district. Note - made by author. Source: Field research, 2021.*

The active participation of women in irrigation water management can be seen in those farms where men are in migration or have died. To promote the full participation of women, especially those with limited access to capital, it is essential to raise public awareness of WUAs as a key player in the irrigation system.

Most women after 40…61 have only incomplete secondary education, and for active participation it is important that a woman is educated, knows more than a man, that her men respect her, take into account her opinion.

According to the results of the field study, 6 women farmers in the WUA of the Karasuu district have high education, 16 women have secondary or secondary vocational education and most of them are hairdressers, nurses and teachers. The remaining 28 female farmers finished from grades 9-10-11 due to early marriages and a lack of understanding of the importance of women's education. Questioners show that women farmers with higher education are most likely to participate in WUA activities than the women with secondary education.

Table 5

Education level of women in WUAs of Karasuu district

| Level of education | Number of women |
|---|---|
| High education | 6 |
| Secondary vocational education | 16 |
| Incomplete secondary education (grades: 9-10-11) | 28 |
| Note – made by author. Source: field research, 2021 | |

Women are not trained in accounting of financial and economic activities in WUAs or in the subtleties of managing irrigation systems, how to manage the activities of WUAs. It is important to note that all the survey participants did not know what WUA was, although 4 women were actively involved in water distribution and conflict resolution. From this we can say that they are familiar with the activities of WUAs, but do not know about their main functions, and that there is generally such an association that should help in irrigation issues.

***Fig. 4.*** *Individual survey. WUA «Myrza Azhy», Karasuu district (Minura Begishbek kyzy, 2021).*

***Fig. 5.*** *WUA «Maz-Aikal», Karasuu district (Minura Begishbek kyzy, 2021).*

During interviews with WUA managers, mirabs and KWD workers received information about the structure, functions, and problems of women farmers. It turned out that men are mainly engaged in sowing, water supply, fertilizers and crop processing. This is more difficult for women than for men, because in addition to working in the fields, a woman must take care of the household and children.

According to interviews of women and WUA workers, women are extremely underrepresented as professionals in the water sector, especially at the managerial level in WUA. This can be explained by the heavy engineering focus of the water sector. Over-reliance on engineering technology is a problem in itself; investment is often shifted towards water abstraction, treatment, and transmission through further distribution to households and management of the «soft» parts of the system. The lack of attention paid to the user interface, including reasonable prices for water, services, and connectivity, can be partly attributed to an over-reliance on male engineers.

On a broader level, male dominance and a focus on large-scale engineering are explained by what makes you proud of yourself and what gives you status in the eyes of others. This includes controversial social rewards for women in engineering or executive positions. The water sector is just another manifestation of the traditional roles of women and men in our societies. To break these chains, we need women and men to cross social boundaries. Such bravery, in turn, must be supported by education and enlightenment to ensure that we all measure performance and status in a way that does not discriminate against any individual. We should all have an equal chance to reach our full potential.

In order for more women to participate in WUA, it must develop and address today's challenges, it must – for its own sake – break with obstructive gender stereotypes and bring more diversity. This is done not only to gain much-needed additional perspectives and skills, but also to break up homogeneous groups that can themselves become breeding grounds for prejudice and hidden agendas. It is well known that women bear the brunt of unpaid domestic work, including water management at the household level. However, the same type of work, when paid, is usually done by men. The water sellers are almost always men.

Ways to overcome unequal gender relations at the village level may include professionalizing water management. With appropriate training, community «free» labor contributions to projects can be converted into community contracts of skilled women labor. Paying is an underappreciated way of recognizing someone's work. Professionalization promises to revolutionize the broader water sector, which is characterized by self-sufficiency. In this way, community water supply can contribute to both practical and strategic women's empowerment.

**RECOMMENDATIONS FOR IMPROVING WOMEN ROLE IN WUAS**

According to the results of field research the following recommendations were made by women farmers in the hope of improve the role of women in WUAs. Recommendations:

It is necessary to increase women's self-confidence so that they are more actively involved in the life of WUAs:

- Hold meetings only with women;
- Integrate geographically (neighboring lands) female WUA members into women's groups-provide them with capacity-building training on irrigation, accounting, cost calculation, and improving profitability;
- Improve the availability of WUA information for women farmers;
- Increase women's knowledge and skills in water management through short-term courses;
- Increase the number of women in WUAs by involving them in meetings and decision-making;
- Develop guidelines or recommendations for women in WUA.
- Organization of courses, trainings, seminars for women to improve their skills and knowledge in WUAs;
- Exchange of experience and knowledge of women in WUAs between Central Asian countries and other countries by organization of short-term trips or online;
- Creating cost-effective incentive such as organizing small grants for rural women's participants of WUA.

**CONCLUSION**

Water resources management based on broad participation and cooperation, can promote women at the sectorial level, taking into account the interrelated needs of multiple users. Involving both women and men in leadership and decision-making at all levels will optimize water management and increase efficiency, as well as the likelihood of achieving environmental, social and economic sustainability.

The work discusses the problems of women participation in WUAs and their level of education, which affect the role of women in Karasuu district. Therefore, WUA needs the help of women who may suffer from poor management and face difficulties in managing water resources within their borders. Also, the economic stability of women in WUAs is a necessary prerequisite for maintaining the structural environment for initiating and resolving water issues.

Education affects women's participation in WUA, as the water sector often requires specialized technical knowledge, such as civil engineering or environmental sciences, which themselves have a smaller proportion of women who have graduated from school than men. There are a number of reasons why women are underrepresented in technical and managerial positions. First, women are initially underrepresented in engineering, geology, etc. courses when entering university, so this underrepresentation seeps into the labour markets. In addition, there are a number of other factors contributing to this, including barriers to gender equality policies in societies, a lack of political commitment on the part of company management and government agencies, or simple cultural factors, cultural factors that extend to the other two.

Finally, this study shows that the issue of women's participation in the management of WUAs is not paid attention, and women, without examples of support in the person of managers, do not seek to join the councils and managers of WUAs and remain aloof from the issues of water distribution, land use and the sale of agricultural products.

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## APPENDIX

Questionnaire

Dear Respondent!

Thank you for taking the time to conduct this survey. This survey is conducted to determine the level of education and participation of women in the management of Water User Associations of the Karasuu district. The information received will be used confidentially and only for the purpose of writing a master's thesis on the topic «Women in water user associations of the Karasuu district». Your answers will help you understand the situation, identify the key problems and their causes, and offer a number of recommendations for improving the situation. Successful completion

of the work depends on your sincere responses. Filling out the questionnaire will take you no more than 3 minutes.

We express our deep gratitude to you for your participation and help!

Master student: Begishbek kyzy Minura, Kazakh-German University, Integrated Water Resources Management.

Supervisor: Barbara Janusz-Pawletta, Head of the Master's program «Integrated Water Resources Management», Lecturer in International Law, Candidate of Law.

Demographic and professional information:

Place of residence (Ayil okmot):
- o Toloikon
- o Otuz-Adyr
- o Mady
- o Kyzyl-Kyshtak
- o Saray

Your age:
- o 18-30
- o 31-40
- o 41-50
- o 51-60
- o 61 and up

Your level of education:
- o Incomplete secondary education
- o Secondary professional education
- o Lyceum / College
- o Bachelor's Degree
- o Master's degree
- o Doctorate degree

Your profession: _____

Marital status:
- o Married
- o Unmarried
- o Divorced
- o Other

Are you engaged in agriculture? (Do you grow anything?)
- o Yes
- o No

If you are engaged in agriculture, then who is the registered land plot?
- o For me
- o For my husband
- o Other relatives
- o We do not have own, but rent

Questions

1. Do you have any information about the WUA of Karasuu district?
- o Yes
- o No

2. What role do women play in your WUA?
- o Big. WUAs have managers, women farmers, who provide advice to other women and help spread the word about WUAs.
- o Normal. There are women who are actively involved in WUA activities.
- o Low. They do not participate in meetings. We do not have information about WUA.

3. Are you actively involved in your WUA?
- o No
- o Yes

4. If the answer is «yes», please specifying how?
- o Participate in meetings, seminars and trainings held by WUA, NGOs, government agencies or other organizations
- o I offer my ideas, suggestions for the development and expansion of WUA activities
- o I am partially involved in WUA activities (fundraising, water distribution, conflict resolution, etc.)
- o I would like to be actively involved, but I don't know how to do it.
- o Other

5. How often do you participate in the activities of your WUA?
- o Whenever any form of event is organized
- o Not often
- o I try to participate as much as possible
- o I have never participated in the

activities of our WUA
o I heard that I organized trainings, seminars, meetings, but I was not invited to participate
o Other

6. The participation of women will lead to the development of WUAs, will help to distribute water fairly in our village, as men do not always understand the need for irrigation water for farms headed by a woman.
o I agree
o I disagree
o Other

7. Through the participation of women in WUAs, they will gain knowledge about the proper use of water, about new irrigation methods that will help them get more crops.
o I agree
o I disagree
o Other

8. Women's participation will give women the opportunity to break out of traditional norms (fear of public opinion, men manage water, women stay at home, women should not go where there are many men) and contribute to the development of irrigation system maintenance, water distribution or general water management.
o Agree
o Disagree
o Other

9. What has your WUA done to inform women about irrigation issues?
o Regularly conduct trainings, meetings and seminars
o WUA managers notify about irrigation problems
o Don't know what a WUA is?
o There were meetings, but I didn't participate for personal reasons
o Other

10. Do you want to learn more about WUAs?
o Yes
o No

11. If so, what information would you like to receive?
o About the structure, functions and tasks of the WUA
o How to become a WUA member
o Advantage of WUA membership
o About collecting money for the supply of water
o How water is distributed across WUAs
o About new methods of land irrigation
o How to make a profit with a good harvest
o Other

12. What role do you think women can play in WUAs?
o Keep accounting records
o Active participation in WUA activities by involving other women
o Assistance in the organizational activities of WUAs
o Women are not smart enough to participate in WUA activities
o Dealing with irrigation issues is not a woman's business
o None at all
o Since women are the key consumers of water, they should be in WUA
o If women have education and work experience in this industry, they can hold high positions in water management and WUAs
o Women in our region are not interested in WUA activities
o They can become mentors (trainers) to share their experience in WUA
o WUA leaders should be men, as they are better able to handle this position than women
o Other

13. Are there any suggestions on WUAs and the role of women in them?
o Yes
o No

If the answer is «yes», please indicating your suggestions:

_____

## ЖЕНЩИНЫ В УПРАВЛЕНИИ ВОДНЫМИ РЕСУРСАМИ: НА ПРИМЕРЕ ОБЪЕДИНЕНИЙ ВОДОПОЛЬЗОВАТЕЛЕЙ В КАРАСУЙСКОМ РАЙОНЕ, КЫРГЫЗСТАН

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Цель исследования – изучить уровень образования и участия женщин в Ассоциациях водопользователей Карасуйского района и по результатам разработать рекомендации по повышению роли женщин в АВП. В данном исследовании используются полевые исследования в пяти АВП, расположенных в разных частях Карасуйского района. Анкеты были взяты у 10 женщин из каждой АВП с целью изучения уровня образования женщин и их участия в АВП. На основе полевых исследований разработаны рекомендации по улучшению роли женщин в АВП. Большинство женщин в АВП Карасуйского района связаны с АВП через работу членов семьи или через собственное положение в руководстве села, что еще больше увеличивает их участие. У некоторых мужья или родственники-мужчины посещают собрания и поэтому не чувствуют необходимости участвовать в них сами. Другие, хотя и были заинтересованы в участии, но не знали, когда и где проводились эти встречи. Для обеспечения полного участия женщин важно повышать осведомленность общественности об АВП как о ключевом игроке. Однако опросы показывают, что женщины-фермеры с высшим образованием чаще участвуют в собраниях АВП, чем женщины со средним образованием.

**Ключевые слова:** женщины, ассоциация водопользователей, участие, образование, Карасуйский район, Кыргызстан

## СУ БАҒДАРЛАМАСЫНДАҒЫ ӘЙЕЛДЕР: ҚЫРҒЫЗСТАН ҚАРАСУЫ АУДАНДАҒЫ СУ ПАЙДАЛАНУШЫЛАР ҚАУЫМДАСТЫҒЫНЫҢ МЫСАЛЫНДА

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Зерттеудің мақсаты – Қарасу ауданының Су пайдаланушылар қауымдастығындағы әйелдердің білім деңгейін және қатысуын зерттеу және оның нәтижелері бойынша Су пайдаланушылар қауымдастығындағы әйелдердің рөлін арттыру бойынша ұсыныстар әзірлеу. Бұл зерттеуде Қарасу ауданының әр жерінде орналасқан бес су пайдаланушы қоғамдастықтың далалық зерттеулері пайдаланылады. Әйелдердің білім деңгейін және олардың ЖСҚ-ға қатысуын зерттеу үшін әр ЖСҚ-дан 10 әйелден сауалнама жүргізілді. Далалық зерттеулер негізінде су пайдаланушы қауымдастықтардағы әйелдердің рөлін арттыру бойынша ұсыныстар әзірленді. Қарасу аудандық су пайдаланушылар қауымдастығындағы әйелдердің көпшілігі отбасы мүшелерінің жұмысы арқылы немесе ауылдағы басшылық қызметтері арқылы Су пайдаланушылар қауымдастығына біріккен, бұл олардың қатысуын одан әрі арттырады. Кейбіреулердің кездесулерге күйеуі немесе еркек туыстары қатысады, сондықтан оларға өздері қатысудың қажеті жоқ.

Басқалар келуге қызығушылық танытқанымен, олар бұл кездесулердің қашан және қайда өткенін білмеді. Әйелдердің толыққанды қатысуын қамтамасыз етудің негізгі ойыншысы ретінде әйелдер туралы қоғамның хабардарлығын арттыру маңызды. Дегенмен, сауалнамалар көрсеткендей, жоғары білімі бар фермер әйелдер орта білімі бар әйелдерге қарағанда ЖСҚ жиналыстарына жиі қатысады.

**Түйін сөздер:** әйелдер, су пайдаланушылар қауымдастығы, қатысу, білім, Қарасу ауданы, Қырғызстан