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## **IWRM-Fergana Valley Project**

### **REPORT**

**on Position B 1.1. «Develop a user-friendly water governance manual  
based on IWRM approach of SDC»**

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**Project “Integrated Water Resources Management in the Fergana Valley”**

**IWRM IMPLEMENTATION MANUAL  
(Institutional Aspects)**

**Tashkent – 2011**

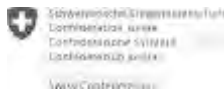
Project “Integrated Water Resources Management in the Fergana Valley”  
(IWRM-FV)



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## Background

*“...The water crisis is mainly a crisis of governance” (Report “The Framework for Action by the Global Water Partnership (GWP) at the Second World Water Forum in the Hague”, 2000).*

*It is necessary to “govern water wisely to ensure good governance so that the involvement of the public and the interests of all stakeholders are included in the management of water resources” (Ministerial Declaration of the Hague).*

The Manual deals with the institutional aspects of IWRM and is designed for water management organizations and other stakeholders who have realized that in order to obtain equity, uniformity, stability, and efficiency of water distribution, the following have to be done:

- Wider public involvement in water governance through the establishment and strengthening of Water Users Associations (WUA), public associations of water users in the form Unions of Canal Water Users (UCWU), joint water governance bodies in the form of Canal Water Committees (CWC), and water and land resources use governing bodies in the form of Water & Land Commissions (WLC) of districts.
- Transition from the administrative-territorial to hydrographical principle of establishing water management organizations that are in charge of water supply to water users.

The Manual has been prepared based on the analysis of foreign literature, synthesis of materials and documents developed in the course of the investigations and practical works within the IWRM-FV Project implemented by SIC ICWC and IWMI in association with the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, Ministry of Agriculture, Water Resources, and Processing Industry of the Republic of Kyrgyzstan, and Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan on the following pilot canals: South-Fergana (Fergana and Andijan provinces of Uzbekistan), Aravan-Akbura (Osh province of Kyrgyzstan), and Khodja-Bakirgan (Sogd province of Tajikistan) Canals.

The Manual is intended for a wide audience (water management organizations, water users, public officers, and other stakeholders) who concern with the institutional aspects of water governance and management improvement and are involved in the development and implementation of institutional reforms. The Manual is designed to serve as an auxiliary material on the basis of which, allowing for local conditions, stakeholders implement (disseminate) IWRM principles.

## Abbreviations

<b>AAC</b>	Aravan Akbura Canal
<b>AAC MO</b>	AAC Management Organization
<b>AAC UWU</b>	AAC Union of Water Users
<b>ARB WC</b>	Akbura River Basin Water Committee
<b>BISA</b>	Basin Irrigation System Administration
<b>BWC</b>	Basin Water Committee
<b>BWO</b>	Basin Water Organization
<b>BWMA</b>	Basin Water Management Administration
<b>CAR</b>	Central Asian Region
<b>CMO</b>	(Pilot) Canal Management Organization
<b>CWC</b>	Canal Water Committee
<b>CWMA</b>	Chief Water Management Administration
<b>DF</b>	Dekhkan farm
<b>FV MCSMO</b>	Fergana Valley Main Canals System Management Organization
<b>DWMA</b>	District Water Management Administration
<b>GMWUR</b>	General meeting of water users' representatives
<b>HGRE</b>	Hydrogeological Reclamation Expedition
<b>HL</b>	Homestead land
<b>ICWC</b>	Interstate Commission for Water Coordination
<b>IF</b>	Farm/individual farm
<b>ISA</b>	Irrigation Systems Administration
<b>ISF</b>	Irrigation service fees
<b>ISFP</b>	Irrigation service fees payment
<b>IWMI</b>	International Water Management Institute
<b>IWRM</b>	Integrated Water Resources Management
<b>KBC</b>	Khodja-Bakirgan Canal
<b>KBC MO</b>	KBC Management Organization
<b>KBC WC</b>	Khodja-Bakirgansay Canal Water Committee
<b>KBRB</b>	Khodja-Bakirgansay River Basin
<b>KBRB UWU</b>	Khodja-Bakirgansay River Basin Union of Water Users
<b>KBRB WC</b>	Khodja-Bakirgansay River Basin Water Committee
<b>MAWR</b>	Ministry of Agriculture and Water Resources of the Republic of Uzbekistan
<b>MC</b>	Main canal
<b>MFP</b>	Membership fees payment
<b>MLR&amp;WR RT</b>	Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan
<b>MTF</b>	Machine and Tractor Fleet
<b>MWUR</b>	Meeting of water users representatives
<b>NGNPO</b>	Non-Governmental & Non-Profit Organization
<b>PC-CF</b>	Production cooperative-collective farm
<b>RBMC</b>	Right Bank Main Canal
<b>RBMC MO</b>	RBMC Management Organization
<b>SAC</b>	Small-Scale Agricultural Cooperative
<b>SDC</b>	Swiss Agency for Development and Cooperation
<b>SFMC</b>	South Fergana Main Canal
<b>SFMC MO</b>	SFMC Management Organization
<b>SFMC UWU</b>	SFMC Union of Water Users

<b>SIC</b>	Scientific Information Center of ICWC
<b>ICWC</b>	
<b>SUE</b>	State Unitary Enterprise
<b>TISC</b>	Transfer of irrigation systems control
<b>STR</b>	Small Transboundary Rivers
<b>UCWU</b>	Union of Canal Water Users
<b>UHSWU</b>	Union of hydraulic site water users
<b>UWUA</b>	Union of WUAs
<b>WLC</b>	Water & Land Commission
<b>WMO</b>	Water Management Organization
<b>WU</b>	Water User
<b>WUA</b>	Water Users Association
<b>WUG</b>	Water Users Group
<b>WUU</b>	Water Users Union

## Terms and definitions

Term	Definition
1. Decentralization	Transfer of decision-taking power from the central authority to lower structures at the regional and local level within the same governmental organization.
2. Irrigation and drainage system	Complex of technologically interconnected hydraulic structures, facilities, equipment, and irrigated lands intended for growing agricultural products.
3. IWRM	Management system based on the accountancy and coordination of all available water resources (surface water, groundwater, and return water) and relevant land and other natural resources within hydrographic boundaries; it links the interests of different branches and water use and nature use hierarchy levels by involving all stakeholders in the decision-taking, planning, financing, protection, and development of water resources for sustainable development of the public and protection of nature.
4. Objects of water use	Agricultural crops, population, facilities, nature, etc.
5. Social mobilization	The process by means of which all stakeholders are involved in the water resources management at the level of key decision making.
6. Subjects of water use	Agricultural, industrial, public utility, and cultural & entertainment enterprises (organizations).
7. TISC	Transfer of the responsibility for irrigation systems control from one organization to another in the result of changing from the government structure to the public (or private) one.
8. Transparency	Possibility to track the actions of the persons taking decisions on water use.
9. Water distribution	The activity related to water withdrawal and delivery to water users.
10. Water industry	Branch of economy dealing with supply, use, conservation, and reproduction of water resources.
11. Water management organizations	Legal persons dealing with water control, delivery, restoration, and conservation, water treatment, waste water disposal, as well as utilization of water bodies.
12. Water productivity	Quantity of agricultural products produced per unit of the water used for irrigation.



13. Water resources	Total volume of all types of available water (surface, subsurface, return) which is used or can potentially be used by people or nature.
14. Water saving	System of measures ensuring efficient and effective use of water resources.
15. Water use <sup>1</sup>	In the broad sense of the word, the activity related to water resources management, including water control, withdrawal, delivery, and use.  In the narrow sense of the word, the activity related to water use.
16. Water users	In the broad sense of the word, all physical and legal persons (stakeholders) who bear a direct or indirect relation to water use in the canal (system) zone.  In the narrow sense of the word, all physical and legal persons who use water for production, cultural and technical, environmental, and other purposes.
17. Water supply system	Complex of interconnected water bodies and hydraulic structures designed to ensure efficient use and protection of water resources as well as dispose waste water.

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<sup>1</sup> In the Republic of Uzbekistan, another interpretation of the terms “water use” and “water users” has been adopted in accordance with the amendments introduced in the Law on Water and Water Use.

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## Foreword

Since September 2001, the Project Integrated Water Resources Management in the Fergana Valley (IWRM-FV) has been carried out with the financial support of the Swiss Agency for Development and Cooperation (SDC). The project execution is entrusted to the Association of IWMI and SIC ICWC.

The Project is implemented with the support from the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, Ministry of Agriculture, Water Resources, and Processing Industry of the Kyrgyz Republic, and Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan.

The project facilities are represented by the following main canals of the Fergana Valley: South Fergana Main Canal (SFMC), Aravan-Akbura Canal (AAC), Right Bank Main Canal (RBMC), and Khodja-Bakirgan Canal (KBC).

The ultimate goal of the IWRM-FV Project is contribute to the improvement of livelihood, environment, and social harmony by restructuring rural areas in the republics that participate in the Project, viz. Kyrgyzstan, Uzbekistan, and Tajikistan. This restructuring includes implementation and pilot testing of IWRM principles, including both the involvement of water users in the water governing institutions' activities in the Fergana Valley and improvement of the water management tools.

The project goal at the pilot canal level is to improve the quality of water distribution in systems (canals) on the basis of water distribution stability, uniformity, and efficiency principles. This goal is to be achieved through the activity which includes the following aspects: organizational, technical, technological, and capacity building. All of these aspects are reviewed within the IWRM-FV Project.

The majority of the problems that water managers face are not new for them. However, since the nature and scale of those problems differ from region to region and from basin to basin, the decisions taken vary within wide range. There are no and cannot not be uniform decisions.

Nevertheless, solution of these problems is usually found in two key areas as follows: solution of (technical and technological) structuring problems, including data collection, building of infrastructure, operation and maintenance; and solution of institutional problems (they are often called "soft" measures); those cover such aspects as the organizational structure of water management organizations, public participation, payment for water services, conflicts, training, information exchange, etc. Both areas are important and interrelated.

Since they provide services, the structural arrangements are, as a rule, evident enough, attractive, and costly. At that, they draw most attention. Institutional arrangements are much lower in cost and sometimes are quite disputable from the political and social points of view, and often are less evident, and so they have, unfortunately, much lower support.

This Manual focuses only on institutional, or "soft", solutions, because already there is huge amount of scientific and technical information on the solution of technical and technological problems. There is much less amount of information related to institutional issues. However, only when solving institutional problems, one can guarantee that the structural arrangement will properly be carried out and give an expected effect.

Development of appropriate institutional solutions underlies the IWRM approach and allows governments and managers of basin water management organizations to make significant contribution to resources governance and management on equity and sustainability basis.

The Manual deals with the hydrographization, public participation, and integration problems, as well as issues associated with the establishment and organizational management of new institutional structures (WUA<sup>2</sup>, CMO, UCWU, and CWC) which are designed to integrate the subjects of water distribution and water use:

- WUA is designed to integrate water users at the low level (farms).
- CMO is designed to integrate canal water suppliers (water management organizations).
- UCWU is designed to integrate water users at the main canal level (WUAs).
- CWC is designed to integrate main canal stakeholders:
  - CWC Board's purpose is to integrate water suppliers and, chiefly, agricultural water users.
  - CWC Council's purpose is to integrate all stakeholders: water management organizations; water users; local authority; ecological organizations; water suppliers; clergy; NGNPO; etc.

The Manual has been prepared based on the analysis of foreign literature, synthesis of the materials and documents developed in the course of the investigations and practical works within the IWRM-FV Project; it is designed for a wide audience (water management organizations, water users, public officers, and other stakeholders) interested in the institutional aspects of water governance and management improvement and involved in the development and implementation of institutional reforms.

The Manual is aimed at acquainting the employees of water management organizations, WUAs, and other stakeholders with the experience of implementation of public participation principle in the Fergana valley to ensure the following:

- The community and authorities get well informed of the basic IWRM principles, project activities, and the job of governmental and public water management organizations.
- The community supports and the authorities assist in the implementation of the Project, activities of governmental and public water management organizations towards the implementation of IWRM principles.
- Keeping informed of the project achievements really serves the purpose of understanding, accept and implementation of IWRM principles.

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<sup>2</sup> Taking into account the great number of the publications covering the issues of WUA establishment and organizational management, this Manual focuses mainly on such “exotic animals” like UCWU, CWC, and WLC.

# 1. General water governance and management problems

Scientists have long ago noted that in the Central Asian Region (CAR) water productivity in low-water years are, as a rule, substantially higher than in neighboring (non-low-water) years.

*For example, in Uzbekistan irrigation water productivity in the low-water year 1974 increased up to 103.8 Soviet rouble/1000 m<sup>3</sup>, while in the water abundant year 1973 it came to 80.4 Soviet rouble/1000 m<sup>3</sup>. Maximum irrigation water productivity in Central Asia in whole (87.6 Soviet rouble/1000 m<sup>3</sup>) was also in the low-water year 1974.*

Such a “paradox” can probably be explained by that in low-water years the water governance and management quality sharply improves at all levels of water distribution. This is achieved though by short-term but great efforts by both water management organizations and water users.

To ensure not short-term but regularly high organization of water distribution and water use without heroic mobilization of forces in very low-water years, it is necessary to reform the water industry of CAR by implementing integrated water resources management (IWRM).

In the world irrigation and drainage science and practice they pay great attention to the IWRM problem. It should be noted that theoretically IWRM is not a new phenomena for the irrigation and drainage science of CAR (as well as for the whole former Soviet Union). Suffice it to look through the books of the academicians A.N. Kostyakov and I.A. Sharov as well as professor M.F. Natalchuk and others to see that these mention the basic principles of IWRM, i.e.:

- Hydrographic principle.
- Holistic consideration of all types of water and all types of water users.
- Charging for water services.
- Water supply and water demand management.
- Taking into account cultural and technical needs.
- Maximization of water and land productivity.
- Public participation (participation of water users in the discussion of water use plans, khashars<sup>3</sup>, etc.).
- Capacity building (computerization, development of water specialists’ skills) and so on.

The value of IWRM consists in that it integrates all the above-listed principles in an integrated system.

“IWRM is a management system based on control and coordination of all available water (surface, ground, and return water) and associated land and other resources within hydrographic boundaries; it links different branches and levels of the water management and nature management hierarchy by involving all stakeholders in the process of decision making, planning, financing, protection, and development of water resources for sustainable development of community and conservation of nature” (Prof. V.A. Dukhovny).

The non-market and non-democratic Soviet system has led to that the principle of charging for water services was not introduced in CAR before the Soviet Union collapse despite the calls to transit to paid water use and despite many experiments on the transition to charged water use.

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<sup>3</sup> Specially organized unpaid work with public participation on a voluntary basis aimed at the improvement of a particular area, e.g., cleaning of territory, canals, etc.

The same goes for public participation: public involvement in water resources management has practically remained only at the makhalla<sup>4</sup> level. The experiment with land reclamation associations in the 1920s was also stopped before long. Collective farm (kolkhoz), which basically was one of higher forms of agricultural production and in which the public participation principle as such was supposed to be implemented, was only de jure a public association of water users, while de-facto it was a state-operated enterprise.

They always used to talk about land reclamation as a means to maintain environment, but in fact vast land areas became salted. They always used to talk about rescuing the Aral Sea and regarding it as a separate water user, but discharge to the Aral Sea was made based on the leftover principle.

We mostly used to deal with water (supply) management rather water demand management; we used to pay more attention to the construction of irrigation and drainage systems rather than improvement of their operation; we used to be more concerned about fighting against the consequences of wasteful water use rather than about water saving; we used to spare no money for automated management systems, concrete, hardware, etc., but we were paying too little to the people working with those; we used to take much care of skill development, but people's career did not depend directly on their knowledge and professionalism.

It follows from the above-stated that IWRM is urgent for us not only and not so much in theoretical terms as in practical terms. It is not only a matter of principles of IWRM, but also the methods of effective implementation of these principles that are dependant on socio-economic and political situation in the CAR countries.

So what has changed in CAR today and why are there chances to change water management practice and take actions in accordance with IWRM principles? Those changes are not radical, but they are appreciable though because the following have become relatively available:

- More access to the achievements of the world science and practice.
- More democracy.
- More market relation elements.
- More integration of CAR into the international community.
- Less finances allocated to irrigation and drainage.
- Less water resources per unit irrigated area.

Unlike developed and even developing non-CIS countries, the CAR countries are in very difficult situation in terms of water industry reformation. The below-stated ideas on the water condition in Chile are quite relevant to the CAR countries too: "Recall that a 20-year period is a very small time span when used in respect of water policy and governance: it took the US almost 200 years to completely introduce public participation related components into its water governance system... The experience of developed countries in the water management area was developed and accumulated for many years, even centuries along with carrying out consecutive activities subject to specific call of the times. Developing countries are *simultaneously* faced with similar urgent development problems, but they cannot afford solving those step by step, executing actions after actions *in succession*. Water crisis requires that the countries take actions now, and they cannot afford to delay attaining the sustainable development goals or sequential addressing pressing problems as it was in historical cases". (Peter Rogers).

The state of the CAR agricultural and water sectors is such that if we do not want to drive the community to social catastrophes and aggravate the ecologic disaster, we have to pay due

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<sup>4</sup> Local self-government institution.

attention to the role of IWRM in the world today. From this perspective, the significance of the IWRM-FV Project can scarcely be overestimated.

### **1.1. Water resources management**

Water resources management methods include two important components:

- Water (supply) management.
- Water demand management.

Depending on the irrigation development level and scale and, most importantly, depending on the type of social and economic system of the country, emphasis in water use management is to be made either on water resources management or water demand management.

At early irrigation development level and during mass development of new lands, and, accordingly, building and operation of large irrigation facilities irrespective of the type of economic system, they usually focus on water resources management (in Uzbekistan, building of the Big Fergana Canal, South Golodnaya Steppe Canal, etc. – Soviet land reclamation period (1917-1991); in the USA, Rio Grande project, etc. – U.S. land reclamation period (1902-1960)).

At a farther stages of irrigation development and after the mass land development period is finished (or before it), market-economy countries lay stress on water demand management, while in non-market economy countries water resources (supply) management traditionally prevails.

Water resources management is characterized by structural (technical) approach when they are oriented towards building of water management infrastructure: dams; reservoirs; canals; etc.

### **1.2. Water demand management**

Water demand management is characterized by nonstructural means towards an end that are focused not on technical objects but on the human component. The human component in water supply systems is represented by both individual water users and persons employed in water supply organizations. In many countries worldwide, they have come to realize that nonstructural means towards this end more meet the interests of the community than merely greater number of dams and reservoirs.

When addressing the water demand management problems, we have to go beyond the range of engineering and technical problems and delve deeply into political, legal, social and economic, and mental and ethical ones. This is inevitable because the fundamental water use problems are beyond the water sector and, more specifically, in the agricultural sector.

Without having solved the principal agricultural problems, it is impossible to solve water management problems. Unless and until the dekhkan-water user is not financially solvent enough, until he is ready to pay well for water services, until he is interested to invest to land, to water saving, to the improvement of environmental conditions, the main water management problem – water resources deficit problem – cannot be solved.

#### ***Institutional arrangements***

Water demand management is carried out through institutional and cognitive measures.

Institutional arrangement is a term implying interrelated combination of two wide types of arrangements (coordination):

- Systems (structures) of incentives and rules, and
- Systems of organizations.

Institutional arrangements allow coordinating human activities towards the achievement of the goals set before the community, in particular, to ensure the most desirable mode of water use. Comprehensive institutional arrangements oriented to water saving (property rights, price-formation policy, etc.) are appropriate only where water is scarce and is valued very highly.

Incentive and rule structures influence the individual behavior, making people do what they would not otherwise. These structures have many forms; one of those is financial one which provides for enforcement using punitive sanctions and inducement using monetary rewards.

*At present, despite the application of charging for water use in some CAR countries, there are no economic incentives for water saving for both water management organizations and water users. Furthermore, water saving turns out to be unprofitable where charged water use system is introduced because the financial position of water suppliers becomes worse. CMOs and WUAs cannot be interested in saving water as the earnings for CMO and WUA water services depend, basically, on the volume of water “sold”: the less water supplied the less payment for irrigation services (ISFP).*

*Farms are not interested in water saving because CMO and WUA water services is paid, as a rule, based on per-hectare method, in other words it does not depend on the volume of water taken by a particular farm.*

*WUA pays for CMO services on the basis of per-volume method, but collects water service fees from farms based on per-hectare one. In some WUAs (for example, the WUA “Gulyakandoz”, Sogd province, Tajikistan), volume-based payment by water users for CMO water services has been introduced. This can be regarded as a great progress, but such WUAs are rather an exception to the rule than a rule. As for the WUA water service fees, per-hectare payment method is traditionally applied everywhere. Most water management organizations and water users realize the necessity of the transition to the volume-based payment for water services (based on two-part or one-part tariffs). Nevertheless, there is no understanding that in order to transit to the volume-based principle one does not have to wait until all WUAs are fully equipped with gauging stations; neither there is understanding that the problem of water accountancy organization in WUAs is a problem of not only technical and economic, but also of institutional nature.*

Another form is the package of rules that permit or restrict certain behavior of people involved in the water use process. The rules include both informal traditions and customs and official laws that guide people behavior and encourage proper behavior.

Organizations may have the form of hierarchies (state-operated or private bureaucratic structures) or voluntary associations and may be found in water resource supply systems on both the water demand side (users) and water supply side (suppliers).

On the water supply side, usually state-operated bureaucratic structures function (for example, ministries, basin water management organization BWO, provincial water management organization “oblvodkhoz”, district water management organization “rayvodkhoz”, etc.); they control water withdrawal, storage, delivery, and distribution from irrigation sources.

With centralized management of agricultural production (under non-market relations), the government gives instructions to all farms about planned level of crop yield set based on the normal water availability principle. The objective of the kolkhoz (sovkhoz) is to gain **maximum possible crop yield** by any means.



In this situation, inaccurate forecasting dryness of year and irresponsibility in water use planning, adjustment, and implementation is not so essential for agricultural producers as it is the case for the transition to market relations when the objective of agricultural producers consists in the acquisition of *maximum income*, and they have to take into consideration the expenditures for resources including that for water.

The market supposes, on the one hand, increased exactingness by water users with respect to water management quality and, on the other hand, increased responsibility of the organizations on the water supply side for water management quality.

With centralized water use management method, organizations on the side of water supply are established, as a rule, on the basis of administration principle. The decentralized method is characterized by the hydrographic approach that ignores administrative boundaries.

Water users' organizations (WUO) on the water demand side are formed at the low level of water use management with the purpose, for example, to represent the interests of those who use water for irrigation, as well as to ensure water supply to farms-water users, and maintain irrigation and drainage systems in operating condition.

The most common form of WUO for market-economy countries is the Water Users Association (WUA)<sup>5</sup>. The main advantages of WUO as compared with governmental organizations are as follows: more efficient and reliable water supply; timely settlement of water related conflicts; reduction of financial burden of the government; etc.

Under market conditions, more emphasis is made on the structures of incentives and rules rather than of organizations. The main rules represent the laws that establish property rights and ensure the execution of agreements (contracts). However, they give certain consideration to organizations too.

The complicacy of institutional measures required for effective and equitable use of water system on a basin-wide scale is usually poorly realized. This complicacy is caused by the following reasons:

- Different water needs of a great number of people, enterprises, and institutions.
- Physical linkages between water users, for example, quantity and quality of arriving water depend on the actions taken upstream.
- Natural variations of water resources quantity and quality.

In particular, probability of considerable unaccounted water volume infiltration through defective walls of irrigation structures is an additional aspect for the irrigation systems.

The water allocation purposes determine the meaning of the institutional measures. The following purposes can be marked out:

- Economic optimality (efficiency).
- Equity (securing equal treatment of one's equal: equal distribution of income and equitable cost sharing).

Also, other options of purposes that combine the two mentioned types are possible. With market approach, the most preferable water allocation principle is that of economic optimality; with state approach, the principle of equity in the form of proportional decreasing of water users' right for water depending on water supply level in irrigation sources.

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<sup>5</sup> In Uzbekistan, the main form of WUO is the Water Users' Association.

To achieve economic effectiveness purposes, the institutional measures should have the following characteristics:

- *Stability*. Stability means protection from legal, physical aspects of uncertainty as well as from uncertainty in rights of ownership. Users make long-term, profitable investment to get and use water users subject to sufficient stability of their rights for water.
- *Flexibility*. System of granting rights is considered flexible if water allocation among water users and types of its use in different regions with the course of time can be changed at low costs. Flexibility involves the possibility to react to the changes in water demand by reallocating water to the new activities that yield highest value.
- *Certainty*. Water use rules are to be easy to become familiar with and understand.

Thus, the institutional regulations for water resource allocation have to provide for a system of granting rights. It is necessary that these rights be well defined, practicable, provide for their transfer, and indicate to users all social costs of their effects. Such features allow establishing water rights market that will be able to react to the changes in water demand.

### ***Cognitive measures***

Cognitive measures are those by means of which they try to change human behavior through education, persuasion, and distribution of information of the achievements in science and technology (skill development courses, training centers, etc.).

Application of cognitive measures contributes to the enhancement of the water use process participants' intelligent potential.

Cognitive approaches aimed at changing human behavior usually provide for the communication of information to water users. These methods are sometimes called voluntary, since in this case there is neither stick in the form of regulations nor carrot in the form of incentives. These can be exemplified by the education and informing programs applied with the view to change notions or motivations.

To impart knowledge, one can employ mass media, organize workshops on training and sharing of best practices, etc.; both oral and written means can be used. As an example of changing notions, which was taken from the area dealing with groundwater, can serve communication of the data of the annual water withdrawal aggregates along with the forecasts of relevant changes in aquifer depth to individual water users. Another example is informing about negative consequences experienced by a third party, such as ingress of saline water into groundwater or land subsidence. A call on a group of people to set the collective interests above individual ones is an example of an attempt to change the motivation.

Cognitive solutions are attractive from some points of view; however, disadvantages are characteristic of those too. Avoidance of evident or actual restraint is good from the standpoint of respect for personal freedom. Use of cognitive methods costs usually by far cheaper than the solutions given on the water supply side or structural approaches.

A critical weakness of cognitive methods consists in limited effectiveness of those. Individual notions and behavior are difficult to be changed, and changed behavior often does not become permanent. Although information about the effects of collective influence is important in default of appropriate policy, the main problem of water resources management is lack or inappropriateness of incentive system.

Nevertheless, thanks to its relatively low cost, the cognitive approach can successfully be used along with structured and/or non-structured methods. It can especially be helpful in achieving better understanding and recognition of required expenditures associated with alternative approaches.

The executives who are charged with water supply system management are, as a rule, technical specialists and prefer structured approach to water use management being not very keen on the difficult sphere of people management.

Both the approaches can contribute to the solution to water use problems, and it is evident that an optimum way would be the combination of the approaches that use the strengths of both.

## ***Conclusion***

- The historical evolution of irrigation in CAR passed a series of stages characterized by different water supply and water demand ratio. At first, water demand level was lower than that of water supply; then (during the last half a century) water demand has dramatically increased due to large-scale development of virgin lands; and if previously water deficit was local, recent years we face physical, total deficit.
- To mitigate the consequences of ecological catastrophe in CAR, one should focus only on environmentally pure water resources when developing the strategy of water use in the region.
- Under water resources shortage, the only way to attenuate the discrepancy between water supply and water demand is to reduce water demand through all possible water saving ways and increase water productivity.
- Water should be saved, on the one hand, by maximum approaching the actual water demand to standard rate and, on the other hand, by reducing the standard water demand owing to scientific and technological advance in water management and agriculture.
- Water saving in the irrigation network and in the field should be achieved through hydrotechnical, agrotechnical, and organizational methods;
- Water users' right for water must be fixed proceeding from standard water demand, and water distribution in the farm must be based on the principle of economic optimality, viz. on the basis of economically optimum irrigation regimes and cropping pattern.
- Water resources management is characterized by structural (technical) approach at which they focus on the establishment of water management infrastructure: dams, reservoirs, canals, collectors, etc. Today, the water management system of CAR is at the stage when in order to save water the priority should be given not to construction but modernization of the infrastructure and improvement of water management facilities and methods as well as maintenance of irrigation and drainage networks.
- Water demand management is characterized by non-structural means towards this end that are focused not on technical objects but on the human component. Without detracting from the significance of the technical methods of solving water use problems, one should acknowledge that in CAR it is time to radically change the attitude towards the people participating in the water use process from both water supply and water consumption sides.
- The state of the agricultural and water sectors of CAR is such that if we do not want to bring the community to social disasters and aggravate the ecological disaster, we ought to pay proper attention to the role of IWRM in the present-day world.

## 2. Hydrographization

Water within the hydrographic basin is in continuous motion and naturally traverses different administrative boundaries defined by people for geopolitical reasons. Thus, it is clear that to control all possible factors influencing the hydrological cycle, it is necessary that the whole river basin be also within sight of the zone of managerial influence of a single organization (Prof. V.A. Dukhovny).

Organizational building of water structures within the administrative boundaries that do not match with hydrographic ones entails weakening of controllability of individual hydrological cycle elements, which effects on water distribution stability and uniformity, i.e. on the accomplishment of the main water management goal. The above-mentioned is true for both the whole river basin and individual irrigation systems.

The result of such an approach is “administrative hydroegoism” and the well-known problem of “head-tail” when under water deficit (sometimes even when there is no water deficit) the downstream water users (republic, province, district, WUA, farm) are in infringed conditions compared to the upstream ones. This leads to conflicts and controversies at the boundaries of administrative units and loss of crops.

One of main directions for organizational improvement of water management quality is implementation of hydrographic principle or, to be more precise, return to the hydrographic principle, since it is known that formerly (before the 1960s) water organizations in CAR were formed, as a rule, on the basis of hydrographic principle.

Later, under pressure from local authorities (district and province communist party committees – at that time, their power was higher than that of district and province administrations<sup>6</sup>) reorganization took place, in the result of which, instead of irrigation system management organizations (ISMA), rayvodkhozes (district water management organizations) were formed, which divided canal (system) sites among each other (with the exception of water management organizations like inter-district canal administrations (IDCA), Amudarya irrigation canal administration (AICA), and others).

That reorganization complicated the water distribution management process and allowed local authorities to actively interfere with the water distribution process, and that interference did not always meet the equity, stability, uniformity, and efficiency principles.

A green leaf on which its arterial lines are seen is an illustrative example showing the hydrographic principle applied in the water management organization process. Any water management system is arranged in the same way: the whole water usage territory is linked to the hydrography of the main stream – river or main canal from which a number of offtakes – aryks or irrigation canals of next order originate, and through the latter water flows to the last water user (Fig. 2.1) (Prof. V.A. Dukhovny).

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<sup>6</sup> At that time, their power was higher than that of executive authority, i.e. district and province administrations.



Figure 2.1. Green leaf is a single organism.

The above-said regarding the importance of hydrographization applies to both the level of water allocation upstream of the WUA (main canal, river basin) and the WUA as well as farm level. Within the IWRM-FV Project, the hydrographization related work was carried out at the WUA and main canal levels.

Irrespective of water allocation level, prior to carry out hydrographization one should proceed from the following:

1. Hydrographization is not an end in itself. It is to facilitate the water allocation monitoring and assessment process, which, in its turn, is to facilitate the processes of decision making and control over the execution of the decisions made.
2. IWRM is not a dogma:
  - The water management structure improvement problem cannot be considered in isolation from the land management problem and social and other factors. If under specific conditions any other factors (technical, national, ethnic, etc.) more contribute to the abatement of conflicts and improvement of water management quality, then deviation from the hydrographic principle is expectative.

*At first sight, the amalgamation of two water structures, namely “Gidromelioservis” that served the gravity irrigation zone of the Association of Dekhkan Farms named after Samatov and the WUA “Gulyakandoz” that served the pumping irrigation zone, in 2010 seems to be a setback since at that retreat from the hydrographic principle took place, but in fact that is not the case.*

*The experience has shown that in the cases when irrigated zones are interrelated (there are mixed irrigation zones due to diversion of water from one system to another), integration of systems more contributes to water controllability rather than their disintegration even in favor of hydrographization. Besides, in this case the national factor, too, has played an important role.*

- As its name implies, IWRM requires not only organizational disintegration of lands according to their connection to irrigation sources, but also their unification (integration) if this contributes to the solution of water and land problems.
3. Basically, hydrographization must be carried out at all levels beginning from the individual farm level. It is necessary that the farm to be fed from one irrigation canal. At irrigation canals of higher order, it is reasonable to integrate farms as follows:
    - Water Users Groups (WUGs).

- Production cooperatives (PCs).
  - Associations of individual/dekhkan farms (AF/ADF).
  - WUAs.
4. It is advisable carry out hydrographization in the following order and on the basis of the following rules:
- Collection, analysis, and summary of water distribution monitoring results at the main canal (discharge stability and water availability at control points of the main canal; stability and uniformity of water supply to water users from the main canal; etc.).
  - Collection, analysis, and summary of conflict situation monitoring results (places, causes, types, participants, and frequency of conflicts) in the main canal zone.
  - Assessment of the hydrographization work practicability and possibility to perform this work (availability of hydrographization supporters and absence of strong opposition to the hydrographization process).
  - Working out of a single hydrographization plan (if the assessment has found the hydrographization reasonable).
  - Discussion, coordination, and approval of the hydrographization plan together with stakeholders (representatives of water users, water management organizations, authorities, nature protection organizations, etc.).
  - Implementation of the hydrographization plan with the involvement of stakeholders.
  - Organization of monitoring and assessment of the actual effect from the implementation of the hydrographization plan.

## **2.1. Hydrographization on main canals**

On the main canal, it is very difficult to organize proper water management with the administrative-territorial principle of the establishment of water structures, because the irrigation system has many “owners”, and as is well known “too many cooks spoil the broth”.

Ideally, it is advisable that the Canal Management Organization (CMO) perform the operation and maintenance of the following:

- The whole main canal system beginning from the point of water withdrawal from the irrigation source (river, sai, reservoir) to the points of water supply to water users (WUAs, farms, etc.), as well as points of transit and emergency release irrespective of administrative boundaries (district, province, republic) which are traversed by the main canal and its offtakes of all orders.
- The whole land reclamation system located in the zone command to the main canal.

However, in practice it is quite difficult to attain maximum hydrographization of the main canal for the following both objective and subjective reasons:

- Main canal may flow across the territories of several countries.

*For example, the Big Fergana Canal (BFC) delivers water to two republics: Uzbekistan (major part) and Tajikistan (small end site).*

*Notwithstanding the pilot canals SFMC and KBC flow through the Kyrgyzstan territory, those belong to Uzbekistan and Tajikistan, respectively.*

- Locations of irrigation and reclamation systems in many cases do not coincide in the plan.
- Some representatives of authorities are not interested in hydrographization, since their power

- for unwarranted interference in water related matters becomes limited in that case.
- Irrigation systems (especially in the Fergana Valley) are often interrelated (cross-manifolded) and interdependent. Quite often water transfer from one system to another takes place because of different water availability level in irrigation sources.

*For example, water is often exported from the Karadarya river through SFMC to BFC (Naryn river basin). Water is transferred from the Akburasay river to the Aravansay river through AAC. There are mixed irrigation zones in the Khodja-Bakirgansay river basin, where water flows from KBC by gravity and from the Syrdarya river by means of pumps.*

Taking the above-mentioned into consideration, the hydrographization process can be performed in a few stages – as appropriate conditions develop.

### ***Experience of hydrographization on main canals***

#### ***Initial situation on pilot canals (before the project implementation):***

- *SFMC was under the jurisdiction of three organizations: BFC MO, Andijan and Fergana provincial water management organizations.*
- *AAC was under the jurisdiction of two organizations: Aravan and Karasu district water management organizations.*
- *KBC was under the jurisdiction of two organizations: Gafurov and Rasulov district water management organizations.*
- *Always there were conflicts and contradictions at the borders of provinces and districts.*
- *The chain of coordination at a conflict situation looked as follows (by way of the example of AAC): Aravan district water management organization – Aravan district state administration – provincial state administration – Karasu district state administration – Karasu district water management organization.*
- *It took a few days for endorsement to introduce at KBC water rotation between the Gafurov and Rasulov districts,.*
- *When, according to the schedule of inter-district water rotation schedule, water was being supplied to the Rasulov district, to make water run through to the Samatov kolkhoz (end site of KBC), up to 100 people were permanently present at the KBC upstream for 3 days in order to prevent water theft.*

#### ***What has been done:***

- *In the result of the IWRM-FV Project implementation, 3 CMOs have been established within hydrographic boundaries: SFMC MO, AAC MO, and KBC MO.*
- *On KBC and AAC, transition to the hydrographic principle has been completed, i.e. CMO concludes water supply agreements directly with water users.*
- *In Uzbekistan, transition to the hydrographic principle has taken place countrywide (Decree of the Cabinet of Ministers № 320 dd. 21 July 2003). There is a reason to believe that the Project, too, has contributed to the issue of this Decree.*
- *The process of the transition to the hydrographic principle at SFMC has not completed yet because there is another intermediate level between SFMC MO and water users (WUAs) represented by Irrigation System Administrations (ISA) that are the part of Basin Irrigation System Administrations (BISA). Nevertheless, very important step has been taken towards the improvement of water governance.*
- *The hydrographization process at SFMC is going on step by step:*
  - *First, all gauging stations, beginning from the canal head to the Margilan*

*hydraulic site, were united within one SFMC MO.*

- *Then, 40 km of the Shakhrikhansay canal (up to the Andijan reservoir) and the Margilan and Fayzabad hydraulic sites came to the SFMC's jurisdiction.*
- *Next stage: the WUAs established within the hydrographic boundaries were granted the right to conclude water supply agreements directly with SFMC MO.*

***What has been achieved:***

*In the result of the hydrographization, conflicts at the district and province borders have practically ceased or considerably weakened; decision making process has become simpler, more efficient. And, which is important, that also facilitated the job of the local authority which before had always to deal with water problems. According to specialists' evidence, "now water issue doesn't bother them".*

## **2.2. Hydrographization of water users associations**

Need for the transition to the hydrographic principle at the inter-farm and, especially, main canal levels is undisputed. As for Water Users Associations (WUAs), the practice of WUA establishment within the boundary of former collective farms, being formidable in CAR, indicates that at the WUA level when recognizing the importance of hydrographization one should take into account not only the belonging of the WUA to a single hydrographic network, but also such social factors as ethnic origin, kinship, religion, economic relations established for decades, etc.

Principles of WUA hydrographization:

1. It is advisable that the WUA:
  - «be fed» by water only from one external irrigation source.
  - be within one hydraulic site of the main canal.
  - be on the both sides of the canal, that is to say the canal site should belong to the same WUA (this makes easier to control water distribution and minimizes infringement).
2. It is advisable that other water users become WUA members (or set up unions (WUGs)) and deal through those with CMOs (e.g. other water users in the SFMC zone: silkworm breeding farm; fattening farm, High-Tech Institute of the Academy of Sciences in the Margilan city, homestead lands, and others have become WUA members).

An exemplar for the establishment of WUA within hydrographic boundaries is the case when a main system has nodal structure (Fig. 2.1, the leaf to the right). In this case, the WUA is fed only from one canal of lower (second) order.

When a main system has herringbone structure (Fig. 2.1, the leaf to the left), the WUA is fed from a few canals of lower (second) order (in this case, if possible, it is advisable to build a uniting canal).

*As a rule, main canals have herringbone structure with nodal-structure elements. There are large secondary canals both at AAC (Kairma), KBC (Khitoyreza, Bystrotok), and SFMC (KPK, Margilansay, etc.).*

### ***Experience of WUA hydrographization***

#### ***Kyrgyzstan***

*The AAC and RBMC zones are fully covered with WUAs; at that, most WUAs are*



*established within hydrographic boundaries (relative to main canals), but still there is potential for hydrographization (relative to secondary canals).*

*In the RBMC zone (Union of WUAs “Uvam”), the boundaries of some WUAs have been adjusted based on the hydrographization principle. Before the hydrographization, the tertiary canal “Guch-Gunan” irrigated the lands of three water users: WUA “Shark-Uvam”, WUA “Rakhmat”, and kolkhoz “Ayti”. After the hydrographization, the canal “Guch-Gunan” irrigates only the lands of the WUA “Uch-Kunan formed anew”.*

#### **Tajikistan**

*At KBC, the WUA establishment process has step-by-step nature. Here, there are also possibilities of hydrographization, but one should be very careful with this process in the Khodjabakirgan river basin, because there are mixed irrigation zones where water is supplied by both gravity and pumping.*

#### **Uzbekistan**

*Given the SFMC system is much larger and more complex than KBC and AAC, and production cooperative (shirkat) reorganization related work there was executed on a very tight timetable, many WUAs were established within the shirkat boundaries, i.e. not within hydrographic boundaries. Therefore, most of all the hydrographization problems were in the SFMC zone. To date, the WUA hydrographization in the SFMC zone has almost been completed: with few exceptions, all the WUAs are fed only from SFMC.*

### 3. Public participation

Having admitted the significance of the transition to the hydrographic principle, one should acknowledge that the transition to the hydrographic principle per se does not make the decisions of water management organizations more equitable and effective. This only creates possibilities (prerequisites) for taking fairer and more effective decisions.

Whether or not the water management organization uses these possibilities to enhance water management quality depends on a number of subjective and objective factors, the main of which is the extent of involvement of water users in the decision making process.

The executives entrusted with responsibility for water management are generally technical specialists and prefer structural approach to water use management refusing to deal with the complicated sphere of people management.

*There was no problem with the transition from the administrative-territorial to the hydrographic principle within the IWRM-FV Project, because that was beneficial to water management organizations (though at that there is a risk of changing from “administrative” egoism to “professional” egoism – “hydroegosim”).*

*As for the public participation, the situation is different here. For common water management organization employees, public participation is generally beneficial, while it is not the case for water officials from top to bottom. Therefore, paying lip-service to the leading role of water users represented by UCWU, even having introduced amendments to the CMO Charter, they are trying to turn the UCWU into “puppet”, i.e. make it obedient.*

Why is there a reason to believe that public participation will essentially improve water management quality, i.e. make it equitable and effective? The point is that water governance with public participation must be carried out by the persons selected by water users themselves, that is by the persons who depend not on the “upper strata” but on the “lower strata”. Certainly, water users should be interested to choose people who are *the fairest, skillful, and aware of local conditions*.

Unfortunately, in fact, not always the most worthy people are elected for many reasons. The mechanism of democratic election of the WUU manager often fails (the leader is either forced from above or elected taking into account his/her clannishness or for other reasons). As a consequence, some of managers are unfit from both ethical and proficiency standpoints, and this affects the water governance and management quality in WUU.

Public participation is designed to create an environment of *transparency* and *openness* under which the probability of making decisions that do not meet public interests is minimized. The more public participation, the less favorable conditions for corruption and ignoring of public interests.

*As a matter of fact, the private interests of water decision makers often do not identify those of the civil society. Concrete examples of negative internal aims can be the intention to overstate the budget, use of unjustified costly high-tech decisions, and straightforward non-performance of duties.*

*For example, sprinkling or drip irrigation systems can be recommended where the application of cheaper but more reliable ways is more economical. The most “cutting-edge” control systems (e.g. automated control systems) can be designed and even*

*installed despite the installation of less complex system would be efficient in the social, operational, and financial terms.*

*Finally, organization employees may be induced through various gifts or other ways to break the existing rules for a few “favorites”.*

*During the Soviet period, the role of the public represented, for example, by trade unions, people’s deputies, etc. was formally rated very high, but in effect it was wretched. Certain changes for the better took place in CAR nowadays; however, the role of the public in general remains insufficiently low.*

Public interests ought to be watched over by the government, but it, often in the pursuit of political and economical goals, ignores social factors and therefore the public must have the possibility to take part in the process of making decisions in principle.

At present, it becomes obvious that the lack of public participation in agriculture and water resources management is one of limiting factors that constrain the improvement of the agricultural production effectiveness and water allocation management quality in the region.

*In past centuries, public participation in water management (usually, in the activities to maintain irrigation systems) in CAR was a common occurrence (so called “khashars”, “suv vakili”, “arik oksokoli”). Now this method also occurs but in lesser scale.*

*In CAR, as was mentioned above, centralized water management method prevails. However, even in this case at the lowest water management hierarchy level (“makhalla”) local water allocation management has been kept for centuries.*

*The community of the “Vuadil” village (Fergana district of the Fergana province) permanently lives in irrigation water deficit condition and has to efficiently use every liter of water. For this purpose, every makhalla on the Navruz holiday days elects a senior “mirab”<sup>7</sup> who throughout the year is to control water supply, for which makhalla fixes for him/her payment in kind, viz. agricultural products.*

*Because of permanent water shortage, mirabs organize water allocation based on water rotation: schedule of hourly water supply to every homestead of the makhalla is set.*

*As a rule, water is supplied to each homestead for one hour once a week. The whole community faultlessly obeys the water discipline, and if anyone breaks the water supply schedule, which happens very rarely, the one will not be provided with water for one week.*

*Thus, they achieve even water supply both to the families located at the head and those at the end of irrigation channels. Irrigation channels are cleaned 2-3 times a year by organizing khashars. Effective water management in the makhalla is attained owing to that there are strong social relations among people and public opinion is a very important factor of behavior.*

*With irrigated agriculture in CAR, the objective consists in that the public take part in water governance (directly or indirectly) at all levels of the hierarchy: on-farm; inter-farm; inter-system; inter-state.*

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<sup>7</sup> Field irrigator.

In this connection, democratization through the involvement of the community in the water governance process by setting up new types of water organizations – organizations of water users themselves (WUA, UCWU) – becomes topical (Fig. 3.1).

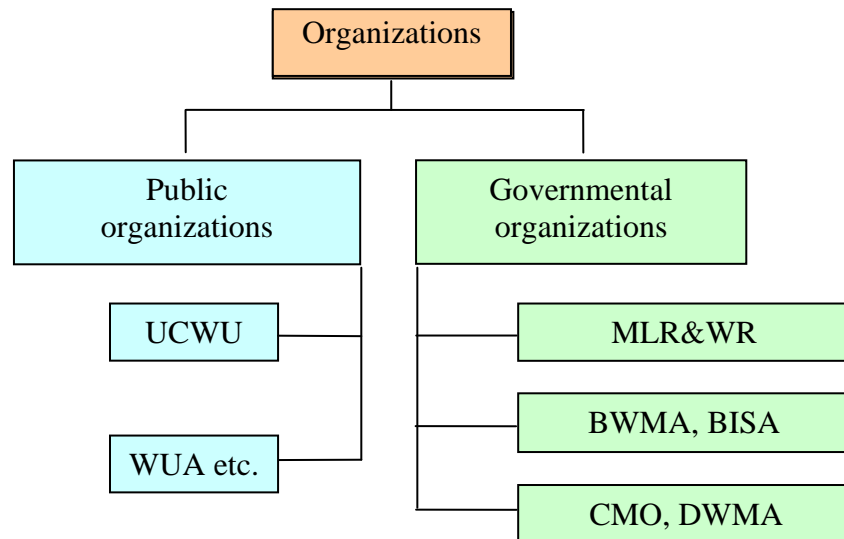


Figure 3.1. Water organizations

Necessity of public participation in the water use management process is determined by the nature of water itself. Water as a natural resource, depending on the purpose of its use, can be: a) *private* or b) *public* good.

As a private good, water is used, for example for:

- Domestic water supply (for drinking, cooking, meeting sanitary needs, etc.).
- Fishery.
- Crop irrigation and leaching of saline lands.
- Power production, etc.

The examples of water use as a public good are as follows:

- Regulating releases (e.g. in the Sub-Aral area, or Priaralie).
- Water bodies-nature preserves for the conservation of flora, fauna, and natural habitat.
- Water bodies for recovery (rehabilitation) purposes.
- Water bodies for the recreation of population.

Like waste absorption, the recreational and aesthetic values by their nature are also closer to public goods. Enjoyment from the appearance of a wonderful water body does not impede taking similar enjoyment by others.

As a rule, water management is carried out so that some water users are provided with water in the first place, that is they are priority water users (domestic, industrial, and technical needs), while the rest are provided on the basis of the leftover principle (maintenance and restoration of ecosystems, regulating release), which causes damage to nature (tragedy of the Aral Sea).

Public participation is the very factor that is to change the situation and prevent further degradation of the region's ecosystem and help to restore what still can be restored.

The matter is not that water management organizations are “bad” and water users are “good guys”. There are “bad guys” both among water management organizations and water users. The point is that the “good guys” from among water users must unite in public structures in order to assist the “good guys” from among water management organizations to equitably and effectively distribute water.

By tradition, local authority performs water governance. The point is not that the local authority poorly carries out the governance – the experience shows that the leading role of the local authority both favorably and adversely affects water management quality.

Transition to the public participation principle aims, in particular, to strengthen the positive and reduce the negative roles of the representatives of local authority through the democratization of the water governance process.

#### ***Forms (types) of public participation***

- Manipulative: participation for show.
- Passive: when they only inform of what has been decided or already done. Only external professionals master information.
- Consulting: when consulting and answering questions. There is neither a share nor the right to take part in the decision making process, and professionals do not have to take into account people's opinions.
- Under material incentive: participation for meal, money, or other material rewards; as rewards are stopped, the participation is stopped too.
- Functional: it is considered by external agencies as a means to achieve project goals, especially with respect to cost reduction.
- Interactive: participation in joint analysis which results in an actions plan or formation and strengthening of local groups and organizations with the end to find out how the accessible resources are used; cognitive methods are employed to learn diverse points of view.
- Self-mobilization: participation on one's own initiative irrespective of external organizations; at that, they conclude contracts with external organizations for making contributions and technical support, but keep control over the use of the resources.

#### ***Advantages of public participation***

- Consideration of the interests of all stakeholders.
- Informed taking decisions.
- Consensus minimizes the conflict probability.
- Public control over the operational activity.
- Enhancement of the activity effectiveness thanks to continuous feedback.
- Improvement of the knowledge and skills of stakeholders.
- Builds up trust between the government and community and leads to long-term cooperation.

### **3.1. Water Users Association**

A great many publications are devoted to the WUA establishment and functioning issues. Therefore, below we have given just the experience and lessons of the WUA introduction within the IWRM-FV Project and in CAR in whole.

## ***Experience and lessons of WUA introduction***

*The reforms in the agricultural and water sectors of CAR have been carried out for over ten years. The Project Integrated Water Resources Management in the Fergana Valley (IWRM-FV) also takes part in the implementation of these reforms in the three republics of the Fergana Valley since 2001.*

*The uniqueness of this project consists in the realization of not one of the IWRM principles, as is the case with other projects with the same title, but a number of the basic principles, including institutional ones: hydrographization and public participation.*

*The reforms carried out within the IWRM-FV Project have yielded good results. At the same time, it should be noted that certain experience has been gained in the course of the project implementation, which allows taking stock of the job done for these years as well as learning some lessons.*

*There is a reason to suppose that the effect of the Project and reforms performed in CAR would be even higher if they had not faced some negative occurrences in the course of the reformation, which resulted in decreased level of cooperation in agriculture and dramatic decline in water controllability.*

## ***Experience of the reformation***

*After the Fergana Valley countries (Kyrgyzstan, Tajikistan, and Uzbekistan) had become independent, agrarian reforms started there, in the result of which kolkhozes (later large cooperatives too) were liquidated.*

*Kolkhozes, as known, appeared in the CAR territory in the 1920-1930s. That time, there were neither internal nor external conditions for wide cooperation and therefore the collectivization was forced. In spite of their forced nature, kolkhozes for many decades after that stood on their own feet and certain successes were achieved. After the disintegration of the Soviet Union, again on the initiative from higher-ups, a reform began, but that was of opposite nature this time, i.e. decollectivization.*

*The root cause of low performance of collective farms, inherited from the Soviet times, consisted (and still does in some republics) in that the market economy and democracy principles were ignored. Those had to act not on the basis of their official charters but in accordance with the directions from above. In other words, in practice those were not the real collective farms which theoretically are one of the highest forms of agricultural enterprises, and those were not to blame for the recession of agricultural production during the last years of the Soviet power.*

*The objective of the agriculture reformation at the first stage should essentially had consisted only in enabling those farms to act in accordance with the rights fixed in the Civil Code, that is in order that the ones to be independent public associations of water users not only de jure but also de facto.*

*The agrarian reform has eventuated in what can be described by a well-known expression: «We wanted the best, but it turned out as always»:*

- 1. A large number of land owners-water users have arisen.*

*Kyrgyzstan. In the course of the agrarian reform, the land was divided into shares depending on the number of residents in every rural settlement and available irrigated lands. The land share per capita, including children, varied from 0.05 to 1 ha. As a result, the number of water users in Kyrgyzstan has sharply risen: in 1999, 131.5 thousand land users and consequently water users arose, while before 1990 that figure was 858-900, i.e.*

*the number of water users has increased by 150 times and over.*

*Such increase in the number of water users caused serious difficulties in the operation of irrigation network and water allocation. Before long, in Kyrgyzstan they reached a view that peasants had to set up cooperatives, at least small-scale ones, in order to enhance the effectiveness of agricultural production (optimization of cropping pattern, organization of crop rotation, land development, effective use of large equipment and machinery, etc.) and improvement of water controllability.*

*Several years ago, the Decree of President of Kyrgyzstan on cooperation was even issued. However, this process is going on very slow, although many peasants recognize the need for cooperation and call the government to speed up the process. In some WUAs, they already feel the necessity of charging the WUAs with not only water but also agrotechnical functions. There are no prizes for guessing that in future this tendency will bring to that “single-purpose” (only in the water field) WUAs will begin to be transformed into multi-purpose organizations of water users. That is return, to a certain extent, to the structure which was destroyed by the reforms.*

*Uzbekistan. In Uzbekistan, kolkhozes first began to become transformed into production cooperatives (shirkats), which was a right step because very high level of public participation is required for proper operation of real kolkhozes (e.g. kibbutz in Israel). Since the kolkhozes did not account for the production recession, there was no effect from the reorganization. Therefore, the reorganization process went on: production cooperatives were liquidated and individual farms were established instead of those. As a result, sharp rise in the number of water users (farmers) and dramatic decline in water controllability took place there too. Yet, unlike Kyrgyzstan, the number of water users in Uzbekistan has not increased to so enormous extent. Nevertheless, measures are being taken at present to reduce the number of water users through the “optimization” (enlargement) of farms.*

- 2. As a rule, squandering of the kolkhoz (cooperative) shared-use infrastructure (buildings, cattle farms, garages, central repair shops, community facilities, etc.) took place as well as elimination of the following services: irrigation; farming equipment; seed growing; plant protection; marketing, etc.*

*That all, in turn, resulted in that the following capacities have dramatically diminished:*

- Effective water management at all water distribution levels and, particularly at the former on-farm level, since the irrigation and drainage systems in CAR were for the most part designed and built for collective farms.*
- Keeping of lands in good ameliorative condition. Considerable part of the drainage network, which belonged to former kolkhozes and sovkhoses, has practically become interfarm. That network was not maintained so well enough even before, and now it is completely going to pieces.*
- Maintenance of soil fertility by organizing crop rotation.*
- Use of large farming equipment, etc.*

*As a result, the crop yield has become still lower even compared to that of the Soviet period. To improve water controllability at the low level, they started setting up water users associations (WUA). The established WUAs have not solved or have not yet completely solved the water controllability increase problem and, consequently, the land and water productivity improvement problem. That took and has taken place because:*

- After the destruction of the shared-use infrastructure, the WUAs turned out to be virtually helpless in the organizational and technical terms (some WUAs even have no spaces for office).*
- The WUA is not able (after many decades of the Soviet rule) to become for a short*

*period a really democratic structure, i.e. an organization where water users take active part through WUA Councils in water governance and ensure water allocation effectiveness and equity.*

*Water users' organizations in the form of "associations" themselves are not to blame for what have happened because this form is convenient and efficient for auxiliary (servicing) industries of virtually any type of business.*

*However, if in Pakistan, Sri Lanka, and other similar countries the establishment of the WUA is one of the first steps towards the cooperation of water users, in the case of the CAR countries although that was also a step forward but made after at least one step backward.*

*The point is that the untimely (and hence forced) collectivization in the 1930s had also positive consequences: it allowed implementing planned water use, solving the "head-tail" problem at the on-farm level, and thus substantially improving water controllability.*

*If carefully review the Civil Codes of the CAR countries, one can easily ascertained that kolkhozes are in essence public associations of water users, though being commercial but multipurpose.*

*If compare with the WUA, the head of the farm ("rais") is analogous to the WUA chair (president, director) elected by the collective farm (cooperative) members at a general meeting, and the chief irrigator is similar to the WUA director appointed to this position by the "rais" and being in charge of irrigation and land reclamation.*

### **Lessons of the reformation**

*Today, understanding that when solving one type of problems (implementation of the market economy principles by privatizing means of production and restructuring agricultural enterprises) during the reforms in CAR other problems have been created is increasing. The land privatization was followed by "decollectivization", that is creation of numerous independent small-scale farms by liquidating kolkhozes and production cooperatives.*

*That resulted in the destruction of nearly the whole shared-use infrastructure and rural services. That has led, in turn, to sharp decline in water controllability due to dramatic increase in the number of water users.*

*The sharp decline in water controllability at the former on-farm network level compelled the governments of the CAR countries (1995) to initiate a cooperation process in one field – water field, that is establishment of WUAs. Setting up of WUAs started in almost all CAR countries (and not only in CAR, but also in Armenia, Ukraine, etc.).*

*The WUA establishment process helped to better the situation in the water sector; yet, water controllability remains insufficiently low.*

*The water users organization in the form of an "association" as such is not to blame for this, because this form is convenient and efficient for auxiliary (servicing) production of any type of business because being a non-profit organization it is not to be imposed by the value-added tax (VAT).*

*The main conclusion drawn from the above-stated is that when carrying out reforms in an irrigated agriculture zone, where water deficit occurs, one must not take steps that may conduce to the decline in water controllability.*

*History has no subjunctive mood. If the reforms took this course and not another, then probably there were some causes about which we can only guess. However, a question*



*arises: why not try, without triggering a backlash, to continue the reforms in somewhat different direction. The way supposed does not offer soon and great successes, but this at least will not aggravate the status quo if additional mistakes are made.*

### Tajikistan

*In the zones where large collective farms are not liquidated yet (such farms still exist in Tajikistan) one should try to take the way with which restructuring will not bring to further destruction of shared-use infrastructures and rural services.*

*The mass “dekhkanization” (development of dekhkan farms) process did not take place in Tajikistan. This fact cannot be estimated unequivocally – good or bad. However, there is a reason to believe that that was good from the water controllability standpoint.*

*The reformation strategy in this zone must consist in facilitating the process of the establishment of the following:*

- Dekhkan farms (DF) on the basis of former brigades by voluntary cooperation of land owners (owners of land shares<sup>8</sup>).*
- Multipurpose association of dekhkan (individual) farms (ADF) by organizing dekhkan farms into cooperatives.*
- Non-profit service units as part of ADF (on the basis of still existing services in kolkhozes) that are designed for servicing DFs (agricultural service, irrigation and drainage service, technical service, etc.).*
- DFs and ADFs within hydrographic boundaries (when reasonable, i.e. where this improves water controllability).*
- Conditions that ensure real participation of dekhkans in the decision making process.*

*The following proposals go beyond the scope of the collective farm reorganization concept, but without the implementation of the ones, approved by KBRB WC, it is hard to expect that the above-stated concept will be successfully implemented and distributed.*

*It is advisable that:*

- The ADFs in the main canal zone should unite into Unions of Canal Water Users (UCWU). This will enhance the role of water users in water governance.*
- Privileged tax and other conditions should be created so that the cooperation would be beneficial to water users for economical reasons. This will encourage physical and legal persons at different water use levels to unite on a voluntary basis and set up farms, cooperatives, etc.*
- The legal space should be extended and strengthened: this will allow the unions of water users to function according to their charters.*
- The water service tariffs of governmental water management organizations should be raised along with the increase of water users’ ability to pay for the water services. Otherwise, it would be difficult to expect the improvement of water productivity and water saving.*
- The water service tariffs of governmental water management organizations should be differentiated by seasons (tariffs during the non-vegetation period are advisable to be decreased to stimulate water-charging as well as other non-vegetation irrigation).*
- The governmental water management organizations should not be considered as unitary (profit-making) enterprises and are exempted from the value-added tax (VAT).*

<sup>8</sup> In the vernacular languages, “share” is said as “sakhm”, “ulush”.

### Integration of farms-waters users

*To enhance the capacity of the WUAs in the zones where the shared-use infrastructures and services destruction process has already taken place, it is necessary to promote the following processes:*

- Integration of small individual farms and dekhkan farms as well as homestead lands' owners into
  - *Water Users' Groups (WUG) and*
  - *Small-scale agricultural cooperatives (SAC) (Kyrgyzstan).**
- Enlargement of small farms through building up a land rights market (Kyrgyzstan).*
- Extension of WUA functions and turning it (in future) into the multipurpose WUA.*
- With the assistance of local self-government bodies, involvement of homestead lands' owners in WUAs (having preliminarily united those into water users groups – WUGs).*

### WUG

*Establishment of WUG on the basis of farms is significant and relevant for Kyrgyzstan where the farm size is not big. For Tajikistan and Uzbekistan, WUG establishment by uniting the owners of the homestead lands located in the territory of makhalla is significant and relevant. Such a WUG will considerably facilitate the water management process and collection of WUA irrigation service fees.*

*The Project pays great attention to the process of the establishment of such WUGs since money receipts from homestead lands' owners can improve the financial position of the WUAs. Nowadays, the majority of homesteads in villages (djamoats) are already involved in WUGs and “pay” for irrigation services. Though the substantial part of the services is paid by carrying out works during khashars for cleaning aryks and so on.*

### SAC (Kyrgyzstan)

*The process of setting up small-scale agricultural cooperatives, a few years ago initiated by the government (Kyrgyzstan), is in slow progress despite its importance in many respects (especially in terms of the improvement of water controllability in WUA) has already been recognized by water users themselves.*

*It should be noted that not all experts regard the calls for cooperation with favor, finding these calls as the nostalgia for soviet kolkhozes. Unlike these experts, the mission members expressed “positive attitude towards the cooperation process”*

*From our point of view, foundation of cooperatives within territorial boundaries is not a fundamental defect because the basic purpose of the cooperative is not water delivery, but joint organization of agricultural process.*

*One should not contrast the WUA with the agricultural cooperative; they have different functions and are mutually complementary, and can “live together in peace”. At that, SAC can be founded within both hydrographic and territorial boundaries.*

*The cooperative “Najot” in the Karasu district of the Osh province is a classic example of such mutually beneficial coexistence. The irrigated area of this cooperative is 167 ha, and its members are at the same time the members of two WUAs: WUA “Guch Kunan” (162 ha) and WUA “Shark Uvam” (5 ha). These WUAs have no problems with the collection of the fees for water services provided to the “Najot” cooperative members: payment is made through the cooperative on a centralized basis. It is possible (but not necessarily) that with the lapse of time the merger of the cooperative with the WUA and formation of the multi-purpose WUA will take place here too.*

*Farm enlargement (Uzbekistan)*

*The farm enlargement process through its “optimization” is intensely carried out in Uzbekistan. This process is performed not on a market basis, but on “administrative” one though. Nevertheless, even this “mechanical” course is helpful for the improvement of water controllability.*

### 3.2. Union of Canal Water Users

Union of Canal Water Users (UCWU) is an association of legal persons in the form of a union which is an independent non-profit public organization that unites legal persons on a voluntary basis proceeding from community of interests with the purpose to coordinate their activities and protect their interests and rights.

UCWU operates in accordance with the UCWU Charter (Annex 1) approved at a general meeting of water users; it has its own stamp and bank account.

#### *UCWU structure*

Depending on the number and composition of water users, size of canals, as well as the stage of its development, UCWU may have different functional and spatial structures (Figs. 3.2, 3.3) that are represented by UCWU members at a general meeting of water users’ representatives (GMWUR).

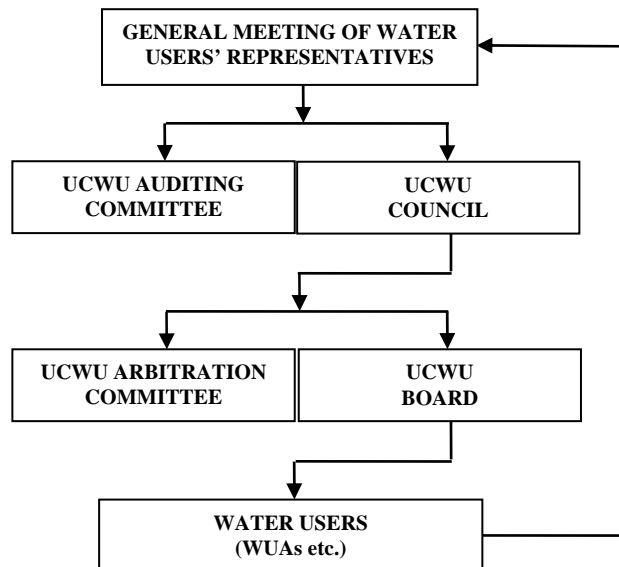


Figure 3.2. Functional structure of UCWU.

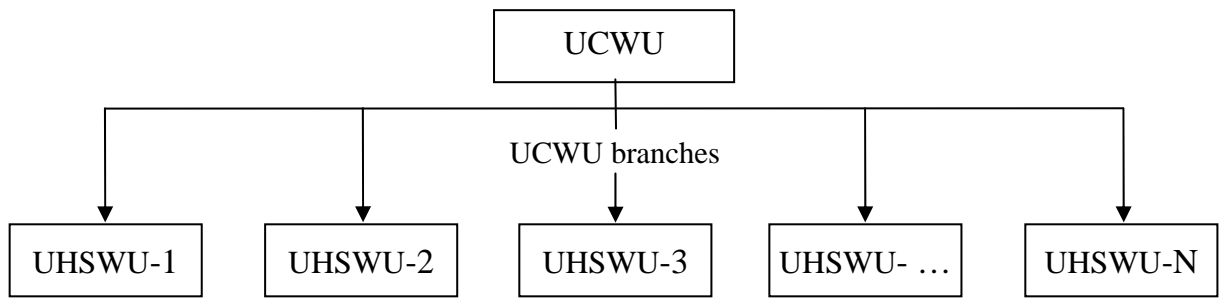


Figure 3.3. Spatial structure of UCWU.

At the beginning stage of the development, it is expedient that the UCWU structure should be simplified: without UCWU Council and auditing committee which can really be required only when the UCWU has money on its bank account and capabilities to enhance and extend the scope of its services.

### ***UCWU tasks and functions***

UCWU, as a non-profit public organization which unites water users from different sectors of economy that are concerned with rational and equitable water management (farming agriculture, ecology, drinking water supply, hydropower industry, fishery, etc.), is established with the purpose to have the opportunity to participate (through their representatives in Canal Water Committee – CWC) in the water governance process and defend the interests of water users.

UCWU’s purpose is not to duplicate and coordinate the activities of WUAs and other interested subjects in order to achieve, first of all, high-quality water delivery to the gates of water users (UCWU members).

To this effect, UCWU (through its representatives in CWC) together with WMO and CMO representatives should take part in the execution of the following functions:

- Working out of proposals on the irrigation and reclamation development in the canal zone.
- Coordination of water distribution plans and limits.
- Control over the observance of the water distribution equity, uniformity, and effectiveness principles.
- Coordination of technical maintenance and repair plans.
- Coordination of CMO estimate of expenditure.
- Monitoring and assessment of CMO and WUA activities.
- Attraction of required additional sources of financing CMOs.
- Rendering (in future when there are finances) consultation services within (as well as outside) the CMO zone in water governance and management, and organization and coordination of the activities of WUAs and other water users.
- Extension and activation of the participation of non-agricultural water users, aksakals (elders), and women in the UCWU activity (at the initial stage, UCWU membership consists, chiefly, of agricultural water users).
- Enhancement of the financial and organizational sustainability of UCWU (increase of membership fees collection rate).
- Raising the awareness of UCWU and WUA members.
- Activation of the works with donors, etc.

In future, transition from the joint water governance form to public governance form is possible (see Section 4). With public water governance form, CMO is to enter UCWU membership and become its component. In this case, the UCWU Board (Council) will become the governing body of the UCWU, and CMO will become the executive body of the latter.

However, one cannot artificially force hand and sharply transit from the governmental form of water governance to the public one. Under the CAR conditions, such a revolutionary approach will not in the least anticipate the implementation of the public participation idea; quite the opposite, the idea may become discredited.

A transition stage is needed, i.e. the stage of joint water governance by two leading legal entities: UCWU and WMO which, on the basis of the Joint CMO Management Agreement, will establish a co-governance body – Canal Water Committee (CWC).

Duration of the transition stage (water co-governance stage) depends, on the one hand, on the rate of CAR countries democratization and, on the other hand, on the rate of the reconstruction of irrigation systems most of which need overhaul.

*It is known that in Kyrgyzstan the higher authority has taken a decision and is intensely pushing forward the idea of the WUA Federation establishment in the form of the Union of WUAs (for example, like the UWUA “Uvam”). The UWUA, unlike the UCWUs (AAC UCWU and RBMC UCWU) established under the IWRM-FV Project, is fully in charge of operation and maintenance (O&M).*

*The UWUA establishment idea is per se very progressive, but the point is that currently not all UWUAs are able to manage this function even if the government preliminarily completely overhauls the interfarm network to be transferred to the UWUA authority. Therefore, one should take weighted attitude towards the selection of the Union of water users association model and not force the events.*

## ***Establishment of UCWU***

### Initiative Group

Establishment of Union of Canal Water Users (UCWU) begins from the formation of an initiative group. The Initiative Group is composed of the representatives of water management organizations, water users, and other stakeholders who have begun to realize the necessity of transition to IWRM. The purpose of the Initiative Group is to determine to what extent the IWRM ideas are supported by water users and other stakeholders.

### Sociological survey

First, the Initiative Group should start searching for local public activists (catalysts) and at the same time, as far as possible, carry out sociological survey (by polling) in order to find out to what extent the IWRM ideas are supported by water users and other stakeholders.

As an initial data collection method, the purpose sampling based questionnaire poll allowing for age criteria, education, job, and job title can be used. The basic issues that should be considered when carrying out the survey are as follows:

- What percentage of the respondents have negative attitude towards the existing administrative-territorial system of water resources management.
- What percentage of the respondents thinks that water allocation on all the pilot canals is

- carried out unfairly.
- What percentage of the respondents declares for the necessity of UCWU establishment.
- What percentage of the respondents speaks well about the readiness to support in UCWU establishment.
- What the level of the social support to UCWU establishment is in general.

### Reporting by Initiative Group

If the social support to the UCWU establishment idea from the respondents is high, the Initiative Group is to prepare a report where the following is given:

- Schedule of the Working Group work related to the establishment of UCWU.
- Composition of the Working Group.

The schedule of the Working Group is to include the following:

- Plan of social mobilization of water users.
- Stages of the preparation of a draft UCWU Charter.
- Stages of the preparation and conduction of the founders' meeting of water users' representatives on the establishment of UCWU, etc.

### Working Group

The Initiative Group members compose the main body of the Working Group. The Working Group acts as the center of community consolidation for supporting the transition to IWRM.

A most important component of the activities of the Working Group and local public activists is the work aimed at social mobilization of water users for widespread explanation of the IWRM, UCWU, CMO essence, etc.

### Social mobilization

The main purpose of the social water users mobilization is to broaden the circle of IWRM advocates as much as possible and thus create favorable social environment for solving the problem posed.

The following work is performed in the course of social mobilization:

1. Organization of at least three meetings of the Working Group on UCWU establishment.
2. At the first meeting of the Working Group, the following decisions are to be taken:
  - Support the idea of UCWU establishment.
  - At the same time, carry out the work on UCWU establishment.
  - Develop a draft UCWU Charter.
  - Distribute the draft UCWU Charter among stakeholders.
  - Collect and take into consideration all corrections and proposals related to the draft UCWU Charter.

At the second meeting, the following issues are to be considered:

  - Determination of organizational cooperation of the Working Group with stakeholders.
  - Consideration of the draft UCWU Charter.
  - Consideration of the circle of supposed UCWU Board membership candidates.
  - Organization of a mobilization campaign, formation of a field group for carrying out of the organizational and mobilization campaign.
3. At the third meeting, the following issues are to be considered:
  - Approval of the final version of the draft UCWU Charter.
  - Discussion of the mobilization progress.
  - Allocation of responsibilities among the Working Group members and public activists for

the conduction of familiarization and election meetings in the canal zone.

4. Working Group's progress reports on the organizational and mobilization works are considered and approved.
5. The progress of the social mobilization of the community for UCWU establishment is reported at working meetings on a regular basis.
6. Working meetings are held in the field – at the levels of district, large-scale water users, etc. At the meetings:
  - Basic ideas of IWRM are stated.
  - Necessity of the establishment of UCWU is justified.
  - Composition of the delegates (representatives) from water users to take part in the first (founders') meeting of water users' representatives (MWUR).
  - Draft UCWU Charter is discussed.
7. Active members of non-governmental non-profit organizations (NGNPO) are involved in the UCWU establishment process. NGNPO activists participate in the social and mobilization work.
8. An important aspect of the social and mobilization work consists in the following:
  - Activation of women involvement in the IWRM process. This applies to both women-water users and women-representatives of other stakeholders (local administration, NGNPO, etc.).
  - Definition of UCWU goals and functions.
  - Involvement of potential CMO personnel in the social and mobilization activity.

#### Founders' Meeting

The final stage of the social and mobilization work at the canal level is preparation and conduction of the General Meeting of Water Users' Representatives (GMWUR). For large canals (like SFMC), two-stage system of the holding of GMWUR is advisable: first, at hydraulic sites and then at the canal in whole.

It is known that agriculture is the major consumer of the whole water taken from rivers, lakes, and surface water bodies. Hence, any attempt to achieve optimum water use should be begun from the water supplied to irrigation. In this regard, at the initial stage mainly agricultural water users join in UCWUs. At the next stage, other water users are also involved in UCWU.

Since not all water users but only founders are to participate in the first GMWUR, it is named "Founders' GMWUR". At the Founders' GMWUR:

- The UCWU Charter is to be discussed, finalized, and approved.
- UCWU Board members are to be elected.
- UCWU Chair is to be elected (alias UCWU Board Chair).
- Auditing and Arbitration Committees are to be formed.
- The UCWU Board members are entrusted with the preparation of a draft annual schedule of the UCWU activity.

Given that 90 % of water is consumed for irrigation, it would be reasonable if agricultural water users constitute the majority in the UCWU Board, and it is very important (but not necessary) that a representative of agricultural water users (at the end site of the canal) is elected as the UCWU Board Chair.

*At present, the WUA model in which the WUA Council headed by Council Chair is the governing body and WUA Board headed by Director is the executive body of the WUA has*

*been adopted in CAR.*

*Since the position of the WUA Council Chair is not paid and the finances are commanded by the WUA Director, then the Director is the key figure here, and the role of the WUA Council and its Chair is, as a rule, formal and minor.*

*In Turkey, another model is adopted according to which the WUA Chair is the key figure. At the initiative of the general meeting participants, the same model has been introduced in the SFMC zone, in the WUA “Kuva Urta Buz Anori”.*

*Thus, different options of the WUA model are acceptable in practice – the main thing is that water users really and not formally participate in water governance.*

### UCWU Board

At its meetings, UCWU Board considers a draft annual schedule of the UCWU activity and submits it to GMWUR. After the discussion and approval of the schedule by the UCWU Board, its further work goes according to this plan.

### UCWU Chair

- UCWU Chair (alias UCWU Board Chair) is elected at a meeting of the canal water users’ representatives for a three-year period. When electing, the priority should be given to the representative of agricultural water users of the canal’s lower reach zone.
- UCWU Chair can be removed from its position on the basis of his/her resignation or by the decision of the UCWU Board if the latter finds that the UCWU Chair is not able to fulfill the duties entrusted. Instead of him/her, the UCWU Board has the right to elect another person as an acting UCWU Chair by secret ballot.

### Arbitration Committee

The most important function of UCWU is addressing controversial issues and conflict situations arising among water users as well as between water users and CMO. The Arbitration Committee is accountable to UCWU GMWUR.

### Auditing Committee

At GMWUR, Auditing Committee composed of three members is elected. The Auditing Committee audits the financing activity of UCWU.

### UCWU Council

As public participation develops and UCWU activity extends depending on the main canal size and naturally number and composition of water users, a need may arise for the formation of UCWU Council, which includes broader spectrum of water users’ representatives and addresses water use issues in the canal zone for mid-term and long-term outlooks,.

## **3.3. Organizational management of UCWU**

### ***How to draw up an annual UCWU operating schedule***

UCWU operation is carried out in accordance with the schedule approved at GMWUR.

***The schedule*** includes the following items:

- Type of work.
- Time for the execution of the work.



- Executive (co-executive) in charge of the work.
- Result of the work (output).

***Types of the works*** included in the schedule:

- Conduction of UCWU Board meetings.
- Participation in CWC meetings.
- Raising the awareness of UCWU members (publication of booklets, information sheets, statements given in mass media).
- Involvement of new members from among canal zone water users in UCWU.
- Organization of measures aimed to increase WUA and CMO water service fees collection rate.
- Organization of the works related to cleaning and planting of greenery on the lands of canal water protection zones (WPZ) with the involvement of stakeholders through “khashars”.
- Introduction of written notions concerning the removal of pollution and clogging in WPZ and pilot canals (PC) to the authorities of cities, districts, and provinces located in the PC zone.
- Organization of joint inspection by UCWU members and nature protection organizations’ representatives with the purpose to survey the environmental condition of WPZs and the human settlements adjacent to pilot canals.
- Meeting with the settlement residents concerning prevention of canal and WPZ pollution.
- Development of a canal operating regime during the non-vegetation period allowing for drinking water shortage in the PC zone and coordination with CMO.
- Organization and maintenance of relationship with potential donors to initiate projects aimed at the solution of drinking water supply and water protection zone related problems, etc.

*One should keep in mind that UCWU does not duplicate the work of WUA Councils and other structures, but identifies the problems common for water users, coordinates the water users’ activities aimed to solve these problems, and represents the water users’ interests in CWC.*

*The main task of UCWU is to contribute to equitable and stable water supply to water users.*

## ***How to prepare and conduct UCWU meetings***

***Types of the meetings:***

- UCWU Board meeting.
- UCWU Council meeting.
- Water users’ representatives meeting.

***Meeting preparation and conduction procedure:***

- Preparation of draft:
  - agenda including the composition of participants.
  - decisions of UCWU meetings.
- Coordination and approval of the agenda, date, time, and venue of the UCWU meeting, and the list of the persons in charge of meeting preparation and conduction.
- Drawing up of the notice for meeting participants and invited persons.
- Notification to meeting participants and invited persons by distributing preliminarily printed notices (along with the Agenda) approximately 5-6 days prior to the UCWU meeting.

- Additional notification to meeting participants and invited persons by telephone 1-2 days prior to the UCWU meeting.
- Setting of time limit for the speakers, participants of discussions, etc.
- Ensuring of equal rights for the participants to state their views on the issues being discussed.
- Thorough minuting of UCWU meetings.
- Consideration of draft meeting decisions and taking the final version of the decision.

***Venue of meetings:***

- UCWU office.
- Hydraulic sites.
- Offices and facilities of water users (offsite meetings).

*Some UCWU meetings were held at the hydraulic sites of SFMC, AAC, KBC, and at the head waterworks facility (KBC) with the participation of local farmers, hydraulic engineers, hydrometers, and observers of pilot canals.*

***Periodicity of meetings:***

- During the vegetation period, UCWU representatives-members of the CWC Board participate in CWC Board meetings on an every-ten-day basis.
- UCWU Board meetings are conducted at least once a month in accordance with the schedule established.
- UCWU Council meetings are conducted at least once a quarter.
- MWUR at least once a year.

***Composition of UCWU meeting participants:***

- UCWU members.
- Invitees: representatives of water management organizations, farmers, nature protection organizations, NGNPOs, WUAs, local authority, neighboring WMOs, etc.

*Workers of the Lyaylak district water management organization in Kyrgyzstan took part in the operation of KBC UWU.*

***What issues should be considered at UCWU meetings***

***Key issues:***

- Execution of the decisions taken and assignments set at the previous meeting of UCWU.
- Effectiveness of water distribution on the pilot canal for a reporting period (based on the analysis of water distribution monitoring results).
- Analysis of CMO and WUA water service fees collection rate.
- Conflict situations, disputes, violation of agreements at the CMO-WUA and WUA-WUA levels, etc.
- Ways to improve the financial condition of CMO and UCWU.
- Ways to improve the environmental situation in the PC zone (water protection zone (WPZ), land reclamation state, groundwater level).
- Safety of the public.
- Dissemination of IWRM experience, etc.

***Other issues:***

- Introduction of changes in the UCWU Charter;

- Introduction of changes in the UCWU Board (Council) composition, etc.

At UCWU meetings, it is necessary to detect and discuss the problems which cause the degradation of water distribution quality, etc.

### ***How to enhance the organizational and financial sustainability of UCWU***

This requires:

- Registering UCWU and opening a personal account in the bank in the established order.
- Organizing partial self-financing of UCWU at the expense of water users and donors.
- Involving authoritative aksakals and active women in the work within UCWU.
- Enhancing representation of water users in the UCWU Board.
- Observing the following principles and procedures:
  - Democracy in the election of UCWU Board (Council) members and the UCWU Chair.
  - Succession of the Board (Council).
  - Rotation of the UCWU Board (Council) composition.
- Raising the awareness of water management organizations and water users.
- Training of water users at special workshops as well as during UCWU meetings.

It should be noted that the rise of the awareness of water management organizations and water users prevents officials from breaking the water distribution equity principle. Therefore, not all officials who represent local authorities and water structures like the idea of public participation and they, of course, create obstacles.

The resistance of the opponents of public participation can be overcome through systematic building the organizational and financial potential of UCWU and carrying out broad propaganda and agitation of the idea that the economic, environmental, and social sustainability of the region depends on public participation in the decision making process.

### ***Experience of UCWU establishment and operational management***

#### ***Initial situation***

*Before the Project, the public participation principle was only at the makhalla level and began to be implemented at the level of former kolkhozes and sovkhoses by setting up Water Users Associations (WUA). At the main canal level, that process began only in the course of the project implementation.*

#### ***What has been done***

- 1. Union of Canal Water Users (UCWU) have been established and legally registered:
 
  - SFMC UWU.
  - AAC UWU.
  - RBMC UWU.
  - KBC UWU.*
- 2. UCWU Boards have been established and are functioning. UCWU Board meetings are conducted on a regular basis (once a month).*
- 3. Since SFMC is a very large canal (as compared to AAC and KBC), to improve the effectiveness and efficiency of the SFMC UWU operation, it is necessary to set up its branches at 10 hydraulic sites of SFMC.*
- 4. Through its representatives in CWC, UCWU takes part in taking the decisions on joint water governance at the canal level.*

5. *At SFMC UWU meetings and analysis of monitoring results, such problems as instable power supply to pumping stations, water theft and discharge, inaccurate irrigated areas planning information, etc. arose.*
6. *Formation of the UCWU Council, through which representatives of related (non-agricultural) sectors (drinking water supply, energy) are involved in the water governance process, is going on.*
7. *The process of searching additional sources of financing UCWU to secure its sustainability is going on: dealing with donors in order to receive grants (SFMC UWU won American Embassy grants twice for the organization of workshops and other actions at the SFMC hydraulic site level).*
8. *The awareness of water users is rising. In the course of UCWU meetings preparation and conduction, the awareness of both water management organizations and water users rises. Moreover, at that the issues about which they previously would prefer to keep silent (interference of local authority in the water distribution process) or which were paid insufficient attention to (uncoordinated actions of energy organizations that cause abrupt shutting down of pumping stations and, consequently, instable water supply from canals to offtakes; excessive withdrawal of gravel from the Khodjabakirgansay river channel causing stream-bank erosion, washout of trees, and following reduction of hydraulic work safety) are touched upon.*
9. *The process of studying intersectoral interests and networking within the main canals zone and involvement of stakeholders in the UCWU operation is under way. Water management problem case study in linkage with the problems of other sectors is not an end in itself. The purpose is to develop appropriate actions plans based on this study and organize their implementation. Analysis of collected materials has shown that the following problems, which have direct relation to water use and water users, are the most urgent for all main canals:*
  - *Unidentified boundaries of water protection zones (WPZ). Political, legal, and financial problems restrain clear identification of the boundaries and owners of pilot canal WPZs. This has caused:*
    - *Pollution of the WPZs (garbage, washing, water closets, pumps, garages, etc.).*
    - *Unauthorized acquisition of WPZ lands.*
    - *Water pollution (garbage, drowned people and animal bodies, diseases).*
  - *Poor water supply to population and livestock during both vegetation and, especially, non-vegetation periods. This problem is extremely pressing because of great deficit of drinking water in the main canals zone.*
  - *Deteriorated state of the lands: rise of groundwater table at the downstream sites due to irrational water use at the upstream sites.*
  - *Poor safety of the public. At the main canals (this especially characteristic of SFMC), people often drown. As a result, frequent stopping of the canals takes place, which causes decline in water withdrawal stability and, consequently, decline in water supply from the main canals.*
10. *Raising awareness and understanding of water users is performed through the conduction of training workshops, publication, and distribution of bulletins and booklets, and employment of mass media.*

## 4. Joint water governance

Today, the idea that insufficient public participation in agriculture and water management is one of the limiting factors restraining the improvement of agricultural production effectiveness and quality of water allocation in the region is becoming increasingly evident.

When it comes to public participation, its opponents have the anxiety that water users will begin dealing with the operation of irrigation and drainage systems (IDS). Certainly, this is not the case. Irrigation experts should deal with the operation of irrigation and drainage systems. Then what is the purpose of the participation of water users? To comprehensively understand the role of water suppliers and users in the water management process, one should clearly understand the difference between water management and governance bodies and, accordingly, the difference between their functions.

### 4.1. Water governance and management

*Management in its broad sense* is the term which is used in the abbreviation of IWRM and implies the activity that involves the whole spectrum of the following functions related to ensuring of water allocation and water use: political, legal, social and economic, engineering and technological, etc., that is to say it includes the concept of both governance and management.

Water *governance* is the term implying the activity that involves political, social, economic, and legal aspects aimed at the achievement of equitable, effective, and environmentally acceptable water management.

*Management (O&M) in its narrow sense* is the term implying the activity that involves planning and implementation of engineering, technological, financial, and organizational measures aimed at water distribution and keeping IDS in operating conditions, that is in this case the term “management” is regarded as a synonym of the term “operation and maintenance (O&M)”.

It becomes apparent from the above-stated that the community must participate in not just water management (in its narrow sense), but in water governance in its broad sense.

The role of the “governance” which shows mainly in the political and partly in social and economic spheres consists in the creation of atmosphere (environment) for the implementation of IWRM, where managers and stakeholders could successfully cooperate and become integrated.

#### *Levels and functions of governance and management*

In functional terms, the following levels of governance can be marked: *internal* and *external*.

- Internal governance (sector level) includes allocation of finances, limits, structure of organizations, personnel, directions, etc.
- External governance (constitutional level) is carried out on the basis of international rules and agreements, laws, property rights, market relations, water charge, water right, market of water rights, investments, etc.

In terms of the process participants, the types of governance can be marked out as follows:

- State.
- Joint.
- Public.

## ***Governance bodies***

- State governance:
  - o External governance: President, Parliament, Government.
  - o Internal governance: institutions in charge of water resources (Ministry of Public Utilities, State Committee of Environment and Energy, Ministry of Land Reclamation and Water Resources, etc.) and their units.
- Joint governance (at the main canal level): CWC.
- Public governance: UWUA, WUA Council.

The state governing bodies that carry out direct management of CMO are as follows: for AAC MO and RBMC MO – Osh BWMA; for SFMC MO – FV MCSMO; for KBC MO – MLR&WR of the Republic of Tajikistan.

Along with state governing bodies, also representatives of water users (UCWU), i.e. the community, take part in joint water governance through CWC.

## ***Management bodies***

At the pilot canals, AAC MO, RBMC MO, SFMC MO, and KBC MO are management bodies (executive agencies of CWC).

## ***Difference between governance bodies and management bodies***

The difference between governance bodies and management bodies consists, chiefly, in that the governance body: 1) is composed of elected representatives; 2) takes decisions based on voting and; 3) a governing body may or may not be a legal entity.

The governance body and management body either may or may not be members of the same organization. WUA is an example demonstrating that a governance body and a management body are in the single organization (WUA Council, WUA Board).

Separation of governance bodies from management ones in the WUA is characteristic of developed countries that have considerable democratic traditions. Such separation is needed also for developing countries, but, as a rule, it is ineffective for some reasons: the governance body (WUA Council) either does not work or works passively.

*At present, the widespread WUA model in CAR is the one when the WUA Council headed by the Council Chair is its governing body, while the WUA Board headed by the Director is the executive body. Since the position of the WUA Council Chair is not paid, and the finances are commanded by the WUA Director, the latter is the key figure here, and the part of the WUA Council and its Chair is, as a rule, formal and minor.*

*In Turkey, another model is adopted according to which the WUA Chair is the key figure. At the initiative of the participants of the general meeting, the same model has been introduced in the WUA “Kuva Urta Buz Anori” in the SFMC zone.*

*Thus, different options of the WUA model are acceptable in practice – the main thing is that water users really and not formally participate in water governance.*

*Understanding of the WUA Council role and functions is increasing however very slowly. In the WUAs where the Council Chair is a respectable and competent person, the work of the WUAs is established more efficiently: less conflicts and higher ISF collection rate.*

## *Theory and practice of the delegation of water governance and management powers*

In the world practice, there are the following types of water governance and management:

- By state (centralized).
- By public (decentralized).
- Joint (for transition period).

Transition from one water governance and management form to another is carried out by transferring relevant powers. Transfer of water governance and management powers in the agricultural and water sectors reformation practice is understood to be full or partial devolution of the responsibilities and authorities of water governance and management from the government to water users themselves in the form of various cooperatives (consumer's, production, etc.), partnerships, associations, unions, federations, and so forth.

The world experience shows that such a transfer, taking into account local peculiarities, conditions, as well as capabilities of the sides both transferring and receiving the governance and management functions, may have different forms and scales and is carried out based on an agreement between governmental and public water organizations.

The water governance and management bodies at different levels of the water hierarchy are shown in Fig. 4.1.

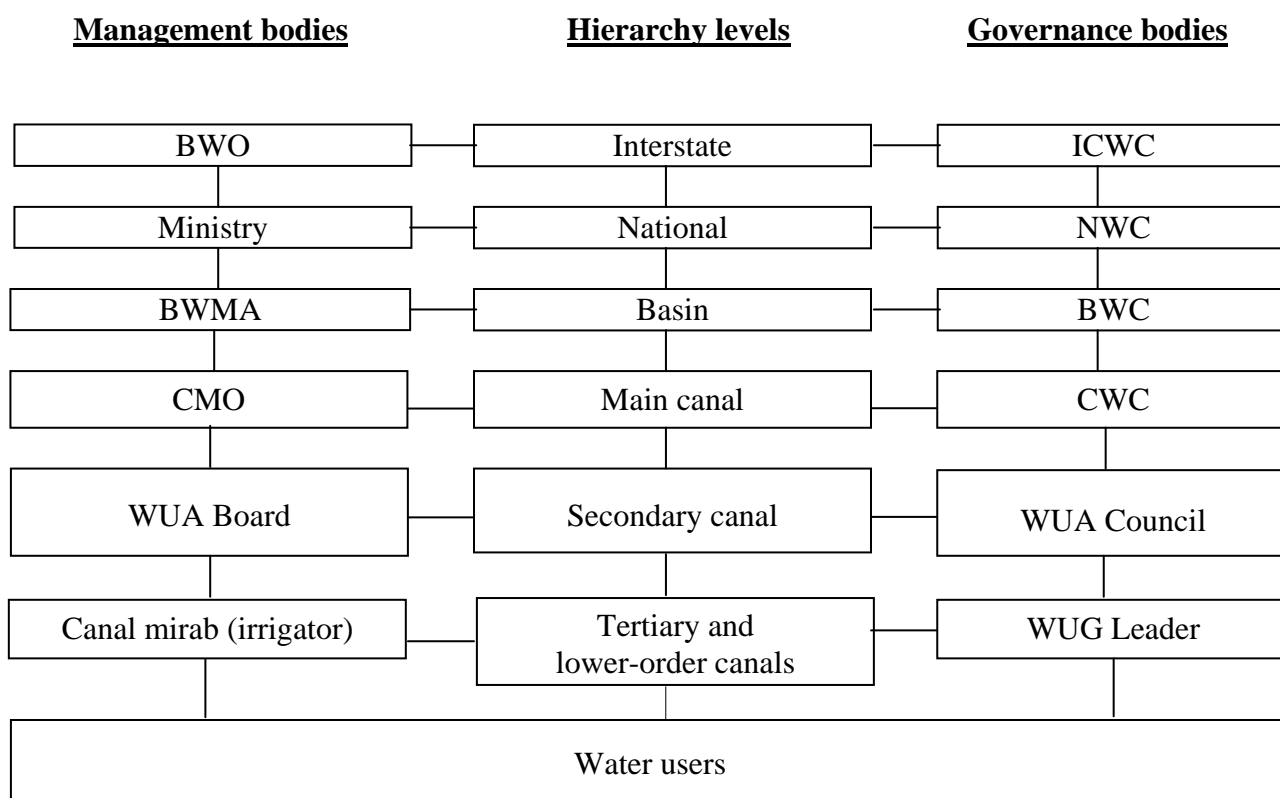


Figure 4.1. Water governance and management bodies at different levels of the water hierarchy  
 BWO – Basin Water (Management) Organization (BWO “Syrdarya”, BWO “Amudarya”),  
 BWC – Basin Water Committee (Council), NWC – National Water Committee (Council).

## ***Why may the government have an interest in the delegation of powers?***

It is known from the world practice that the main reason for which the government decides to delegate the management of operating organization is, generally, lowering water controllability as well as deterioration of the conditions of irrigation and drainage systems and services due to:

- Sharp increase in the number of water users and complication of water supply and distribution by old methods.
- Short government funds for financing water management agencies.
- Poor collection of irrigation and other water management service fees etc.
- Insufficient skill of and low material incentives to the bureaucratic apparatus and personnel of water management agencies for working under changed reforming conditions.

Therefore, attraction of water users themselves to the management of operating organizations at the lower hierarchy level (lower than the main canal level) has become the call of the times and one of the most common way in the world to get out of the crisis situation in water sector.

*Unlike developing foreign countries that have executed reforms in the water sector and where water users were initially presented by farms and inter-farm networks belonged to the government, the farms in CAR were as a rule of collective form and already had de jure water governance and management powers.*

*During the reforms, after the reorganization of collective farms, the former on-farm network turned out to be abandoned and water controllability at the low water hierarchy level dramatically declined which inevitably negatively affected the agriculture productivity. Then CAR states initiated the process of establishing WUAs to which the government began automatically transferring water governance and management powers in the former on-farm network zone.*

*Thus, not counting this short “abandonment” period, transfer of the water governance and management powers from restructured (or completely dissolved old-pattern large water users) to water users associations of new type – WUA has virtually taken place in the result of the reforms.*

*As for the level of large canals, here, unlike the WUA level, just yet partial transfer of water management powers, viz. transition to joint water governance, is planned today.*

## **4.2. Establishment of Canal Water Committee**

### ***Joint water governance***

The Project developed the “Concept of joint governance...” of the pilot canals which proceeds from the premise that at present one cannot artificially force the events and try to abruptly transit from the governmental to public form of water governance at the main canal level.

In CAR, such a revolutionary approach will not in the least approximate the realization of the public participation idea; furthermore, this idea may become discredited. A transition stage is needed, i.e. the stage of joint water governance by two legal entities, UCWU and WMO, through the establishment of a joint-governance body in the form of CWC.

*The term “joint water governance” implies, thereby, involvement of water users and other stakeholders in the decision making process related to the management of water structures*



*that are in charge of irrigation systems O&M.*

*The term “joint irrigation system management” also implies involvement of water users in irrigation management together with governmental structures (Douglas L. Vermillion), but it is not so accurate in comparison with the term “joint water governance”, because it employs the concept “management” in its broad sense which includes both the process of governance and that of management in the narrow sense (in terms of O&M process).*

*Besides, it should be noted that the term “joint irrigation system management” is sometimes improperly used when, for example, the governance and management of the upstream irrigation system is carried out by a governmental WMO, while the downstream irrigation system by a public organization (WUA) established in the result of transfer of irrigation systems control (TISC), i.e. by replacing the governmental structure by a public one.*

*The “joint water governance” process does not mean the process of water management decentralization, but this is the process that leads to decentralization and TISC.*

### **CWC role**

CWC is an agency for joint (governmental and public) governance, which is founded based on the agreement between the government (represented by WMO) and the public (represented by UCWU) concerning the joint governance of CMO activity (Fig. 4.2). CWC operates in accordance with the Statute of CWC (Annex 2).

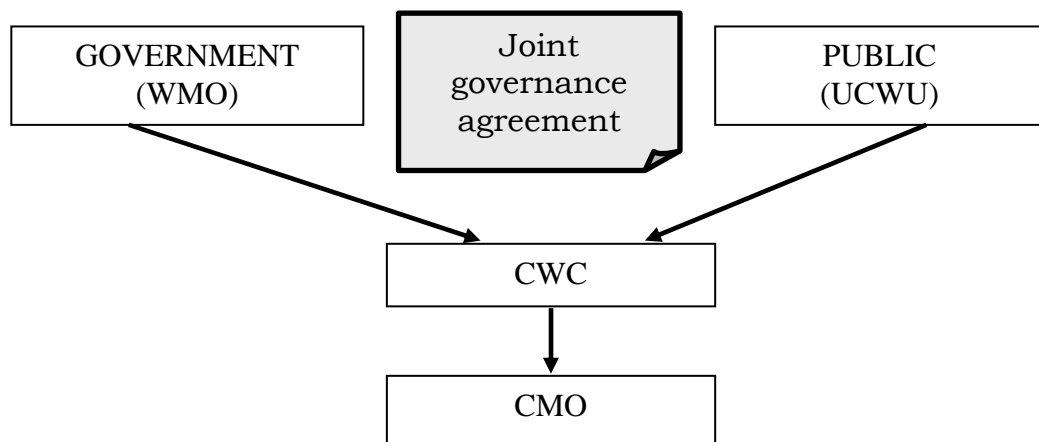


Figure 4.2. Joint water governance scheme (Appendix 3).

The “staff” that have been established in the CAR water and agricultural sectors since the Soviet times in case of force majeure circumstances (water shortage, flood, mud torrent, etc.) is an analogue of CWC.

CWC, unlike the “staff”, is a continuously working governing body designed to solve not only operating (emergency) but also mid-term and long-term tasks.

*In future, joint (governmental and public) governance and management form can transform to the public form, at which CMO can join UCWU and become its part. Then the need for CWC will fall away. In this case, the UCWU Board (Council) will perform the public water management functions and CMO will perform the functions of the executive body of the*

UCWU.

*The duration of the transition stage (joint water governance stage) will depend on the rate of the democratization of the CAR countries.*

### **CWC functions**

- Initiation, consideration, and approval of the long-range plan for water distribution and water use improvement in the pilot canal zone; water distribution plans; water distribution limits; etc.
- Organization of setting equitable ten-day limits for water distribution on the pilot canal based on coordination of water supply and water demand.
- Control over the observance of ten-day water distribution limits.
- Increase of water supply service fees collection from water users.
- Participation in solving the issues of environment (WPZ), drinking water supply, etc.
- Monitoring and assessment of the CMO activity.
- Participation in the prevention and settlement of conflict situations and controversial issues arisen between water users and between water management organizations and water users;
- Others.

At first, CWC represented by its Board performs limited range of functions associated with water distribution and payment for water services. Further, as its capacities and capabilities increase, the CWC functions and powers can extend. Many things depend on the extent the government represented by WMO will support the idea of joint water governance.

### **CWC structure**

**CWC Board.** At the beginning, CWC is composed only of the Board (Fig. 4.3) which is formed from WMO and UCWU representatives, i.e. representatives of water management organizations and water users. At that, mainly representatives of agricultural water users from UCWU are members of CWC Board.

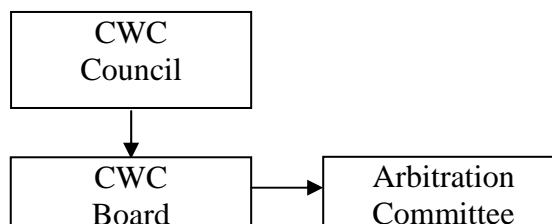


Figure 4.3. Functional organization of CWC.

**CWC Council.** Further, the CWC Board composition can (must) be extended owing to other stakeholders and, if needed, CWC Council can be formed.

Necessity (or absence of necessity) for CWC Council is determined by CWC members depending on the canal size and, consequently, number and composition of the water governance process participants.

One of the main tasks of the institutional building is to improve the CWC performance by involving representatives of the above-listed structures. The necessity to involve the representatives of local authority into CWC Council is obvious, because it will be impossible to

make and, especially, implement important decisions related to the canal zones without their participation.

Also involvement of the representatives of environmental and drinking water supply institutions (even if they are not direct water consumers) in the CWC activity is very important, since the water protection zone state and drinking water deficit in the canal zone exercise a significant influence on the canal operation conditions and life of water users.

When forming the CWC Council composition, it is necessary to consider the share of water use (for example, agricultural water users are the major consumers), share of the contribution from the government and water users to the financing of CMO, etc.

In addition to the CWC Board members, the CWC Council composition (Annex 4) can include the representatives of local authorities (LA) of different levels (province, district, etc.), the clergy, NGNPOs, agencies (hydropower, public utility, nature protection, sanitary-epidemiological service, etc.), water inspectorate, and other stakeholders.

Approximate composition percentage of the stakeholders in the CWC Council can be as follows (Figure 4.4, Annex 4). Here: LA – local authorities; WS – water suppliers; WU – water users; OT – others.

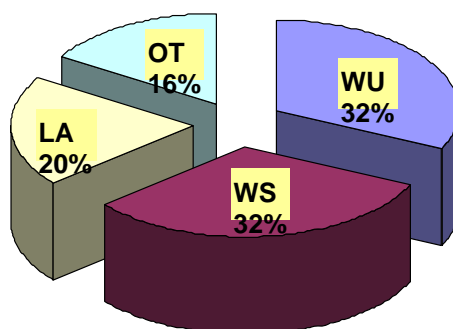


Figure 4.4. Percentage composition of the stakeholders in the CWC Council (approximate).

### 4.3. Organizational management of Canal Water Committee

#### *Organization of drawing up and implementation of the CWC operation schedule*

1. CWC operates on the basis of a detailed, coordinated, and approved annual schedule. The annual CWC operation schedule includes the following:
  - List of planned measures aimed to improve water management quality.
  - List of responsible persons from WMOs, UCWUs, and other stakeholders.
  - Time of the measures execution, etc.
2. The list of the planned measures includes the following:
  - Preparation of mid-term and long-term programs for the water industry development in the canal zone.
  - Water distribution monitoring and assessment.

- Involvement of other stakeholders in CWC.
- Enhancement of the organizational sustainability of CWC: organizational management of the CWC branches at all hydraulic sites of the canal.
- Raising the stakeholders' awareness (preparation and distribution of bulletins, booklets, publications, and speeches in mass media).
- Conduction of CWC Board (Council) meetings (hereinafter CWC Meetings) to discuss the issues that fall within the jurisdiction of CWC, and taking relevant decisions.
- Organization of CWC members' visit to the facilities for the performance of the monitoring over the execution of CWC decisions and taking operating decisions on water distribution, collection of water service fees, and settlement of conflict situations.
- Arrangement of meetings with stakeholders and donors. Organization of spot inspections of WPZs
- Organization of messages to stakeholders concerning the issues that fall within the CWC jurisdiction, etc.

***Organization of CWC meetings includes the following:***

- Coordination of the CWC meeting date, time, and venue as well as the composition of the meeting participants by the CWC Chair with CWC Board (Council) members (hereinafter CWC members).
- Preparation of a draft agenda and CWC meeting decisions by the CWC Chair (in coordination with Board members).
- Notification to CWC members. The notification is to be performed by the distribution of preliminarily made Notice about 2-3 days prior to the meeting. Additional notification to CWC members is performed by calling around 1 day prior to the CWC meeting.
- Consideration of the draft meeting decision and acceptance of its final version.
- Drawing up and distribution of the meeting minutes.

***Timing of the meetings:***

- The CWC Board meeting shall be held every ten-day period: it is preferable on the 2<sup>nd</sup>, 12<sup>th</sup>, and 23<sup>rd</sup> of each month (if needed more often).
- CWC Council meeting shall be held every three months (if needed more often).

***Composition of the meeting participants:***

- CWC members.
- Invitees from stakeholders.

***Main issues of CWC meeting agenda:***

- Discussion of the execution of the previous meeting decisions.
- Analysis of water distribution for the previous ten-day period.
- Taking decisions for the following ten-day period, etc.

***Organization of the stakeholders' involvement in the CWC activity***

Approximate order of stakeholders' involvement in the CWC activity can be as follows:

- Drawing up of a complete list of organizations-stakeholders with specification of their addresses, phone numbers, and full name of key employees.
- Organization of meetings between the CWC management and that of organizations-stakeholders to familiarize the latter with the goals and objectives of CWC and particularly CWC Council.
- Exchange of materials (regulations, constituent documents, booklets, bulletins, etc.) related to the establishment and activity of CWC as well as organizations-stakeholders, as well as study of these materials.
- Organization of the organizations-stakeholders' participation in CWC meetings and in workshops as invitees.
- Achievement of mutual understanding with the management of organizations-stakeholders regarding the membership in CWC and cooperation in the canal zone on the issues that are of mutual interest.
- Signing of a cooperation agreement between the organization-stakeholder and CWC, which covers the rights and obligations of the parties as well as sets the order of the organization of cooperation.

## **Experience of CWC establishment and operational management**

### ***Initial situation (before the Project implementation)***

- *The pilot canal management organizations are ruled only by the superior water management organization.*
- *Water users do not take part in the decision making process. They act only as applicants for water.*
- *The openness and transparency principles do not work.*

### ***Experience of CWC establishment***

- *The “Concept of joint governance...” has been introduced on all pilot canals.*
- *«Agreements on joint governance...» have been developed, coordinated, and signed:*
  - *In Kyrgyzstan, an agreement between the Osh BWMA and AAC MO has been signed.*
  - *In Tajikistan, an agreement between FV MCMSO and SFMC MO has been signed.*
  - *In Uzbekistan, an agreement between the Osh BWMA and AAC MO has been signed.*
- *Based on the «Agreement on joint governance...», joint governance bodies have been established: Canal Water Committee Boards (SFMC WC, AAC WC, KBC WC) which include the representatives of:*
  - *Water management organizations (WMO).*
  - *Water users (UCWU).*
- *CWC Councils have been set up (Annex 4) by which representatives of mixed (non-agricultural) sectors (ecology, drinking water supply, energy) as well as those of local authorities, women, and aksakals get involved in the water governance process.*
- *Water users are involved in the water governance process: UCWU water users through their representatives in the CWC Board take part in making decisions on joint water governance at the canal level.*

### ***CWC activity***

- *During the vegetation period, CWC Board meetings are conducted every ten days; at the ones, water distribution state at the pilot canal in the previous ten-day period is assessed on the basis of the water distribution monitoring results and decisions for the next ten-day period are taken.*

- *CWC Council meetings are conducted every three months, where wider range of issues are considered: ways to reorganize collective farms; (KBC) MO water service fees; drinking water supply; land reclamation; water protection zones (SFMC); enhancement of water supply stability (SFMC); increase of (KBC, AAC) water service fees collection rate; and organization of water service fees payment by homestead lands owners; etc.*
- *Constructive relationship between established institutional structures and higher water management bodies and local authorities has been established. Especially the KBC WC activity livened up and its relationship with MLR&WR RT and local authorities has deepened.*
  - *KBRB WC solicited the local authorities for the assignment of lands for the organization of subsidiary plots in WUAs with the view of improving their financial sustainability and facilitate the implementation of measures in WPZs, etc.*
  - *KBRB WC addressed a few proposals to MLR&WR, in particular, concerning lowering the KBC MO water service fees especially during non-vegetation period, rehabilitation of the “Lovchi” canal, etc. At present, these proposals are under consideration of authorities.*
- *UCWU/CWC/WUA activity monitoring and assessment works are carried out. To that end, the system of the tables of monitoring of the institutional changes in the main canal zone has been developed and introduced (Annex 6).*
- *Cooperative actions of CWC and the representatives of environmental and drinking water supply organizations have been intensified.*
- *“Khashars” for cleaning canal channels and water protection zones from garbage and silt were organized. Especially great scope of works was executed by water management organizations with the participation of water users at the SFMC end part.*
- *The drinking water supply facilities in the pilot canal zones have been inventoried. In the SFMC zone, one settlement (14,000 people) was included in the SDC project plan on drinking water supply for 2010 for the construction of new and reconstruction of old water conduits; for the “Ovchikalacha” village (over 4,000 people) in the KBC zone, also a project was prepared and given to be included in the project plan for 2010.*
- *Spot inspections were carried out together with experts from ecological and water inspection organizations in SFMC WPZ zones; in the result of which they detected 7 facilities in the canal WPZ zone and those facilities were removed out of the zone (3 ones in the Andijan part and 4 in the Fergana part).*
- *Attention to land reclamation problem has been redoubled.*
- *Women and aksakals involvement has been activated. The number of elders and women participating in the UCWU/CWC activity is increasing. In Tajikistan, in particular, special visiting meetings of KBC WC with the participation of elders (World War II and labor veterans) of the Samatov kolkhoz were arranged with the purpose to discuss the problems of kolkhoz reorganization based on IWRM principles. 22 veterans took part in the meetings. They all supported the Samatov kolkhoz reorganization, but with obligatory keeping of the collective farm integrity. 175 women (120 people in Uzbekistan, 42 people in Tajikistan, and 13 people in Kyrgyzstan) attended the workshops devoted to environmental and drinking water supply issues (in 2009).*

*The foregoing examples indicate that understanding of the institutional structures’ roles by local specialists and higher water managers has been enhanced. The openness and transparency principles began to work: water users have more access to water information and they are more aware of the decisions taken.*

## **Experience of IWRM distribution**

### **Horizontal distribution of IWRM**

*The follow-up of the works within the IWRM-FV Project in Kyrgyzstan consisted in the distribution of the project achievements in horizontal direction: similar to AAC, establishment and organizational management of the institutional structures on the Right-Bank Main Canal (RBMC), i.e. RBMC MO, RBMC UCWU, and RBMC WC.*

*At present, RBMC Union of Water Users (RBMC UWU) and RBMC MO have been established, legally registered, and are actively functioning; a draft agreement between RBMC UWU and Osh BWMA concerning setting up of RBMC Water Committee (RBMC WC) for joint management of RBMC MO.*

*Thus, the horizontal IWRM distribution process in the Akbura river basin is in its final phase. It creates prerequisites for starting the process of IWRM distribution vertically.*

*It should be noted, however, that the horizontal distribution is, in fact, a pure practical job: repetition of the works executed on AAC with respect to a new facility. The difference is that it took years to implement the IWRM principles in the AAC zone, while in the RBMC zone it took much shorter time.*

*In particular, the establishment of RBMC CMO and RBMC UCWU took only a few months. That was due to that, first, the executors had many years' experience in the IWRM implementation on AAC and, second, because of territorial proximity of AAC and RBMC, the process of natural dissemination of the IWRM ideas began long before it was officially started within the Project.*

*The process of vertical IWRM distribution is a different matter. This is process which has no precedents in CAR.*

### **Vertical distribution of IWRM**

*The vertical IWRM distribution process intends implementation of IWRM principles at the higher level – river basin level. Within the Project, such work is carried out in Kyrgyzstan, at the Akbura river (Fig. 4.5).*

*The Project has developed the concept which proposes the following:*

*At the initial stage, establishment of Water Committee of the Akbura river basin (ARB WC) designed to integrate all basin stakeholders including also the representatives from Uzbekistan. At that, we rely on the “bottom-up” principle. That is to say, we come to the river basin level after the completion of the works at the lower level, i.e. WUG, WUA, AAC, and RBMC.*

*In future, setting up of a single Akbura river basin management organization which being an executive body of ARB WC would perform the irrigation and drainage system operation and maintenance functions in the Kyrgyzstan part of the Akbura river as well as deliver transit water to Uzbekistan (Khudjabad district) and feed the Aravan river.*

*Vertical distribution, unlike the horizontal one, is a fundamentally new step since despite the presence of the word “basin” in the names of CAR water management organizations, the management structure there remains based on the administrative-territorial principle rather than on basin that.*

*At the river basin level, the issues of interstate water allocation, optimization of reservoir operation, environment, and drinking water supply are the most topical. For the Akbura river basin, for*

example, the drinking water supply problem is extremely pressing, because, as is known, this is the Akbura river channel from which water is taken for providing the Osh city with drinking water. At that, for certain reasons water is often erratically supplied to the city.

Within the project, the following actions plan has been developed and is being implemented for the initial stage of vertical IWRM distribution in the Akbura river basin:

- Formation of an Initiative Group (IG) for the establishment of ARB WC.
- Development of a draft “Statute of the Akbura river basin water committee (ARB WC)” by IG.
- Discussion of the draft “Statute of the Akbura river basin water committee (ARB WC)” by stakeholders (at special meetings and workshops) organized by IG.
- Completion of the draft “Statute of the Akbura river basin water committee (ARB WC)” by IG taking into account the comments and suggestions given.
- Preparation and conduction of the ARB WC Founders’ meeting by IG.
- Approval of the “Statute of the Akbura river basin water committee (ARB WC)”
- Formation of the governing (Council) and executive (Board) bodies of ARB WC.
- Operational management of ARB WC.

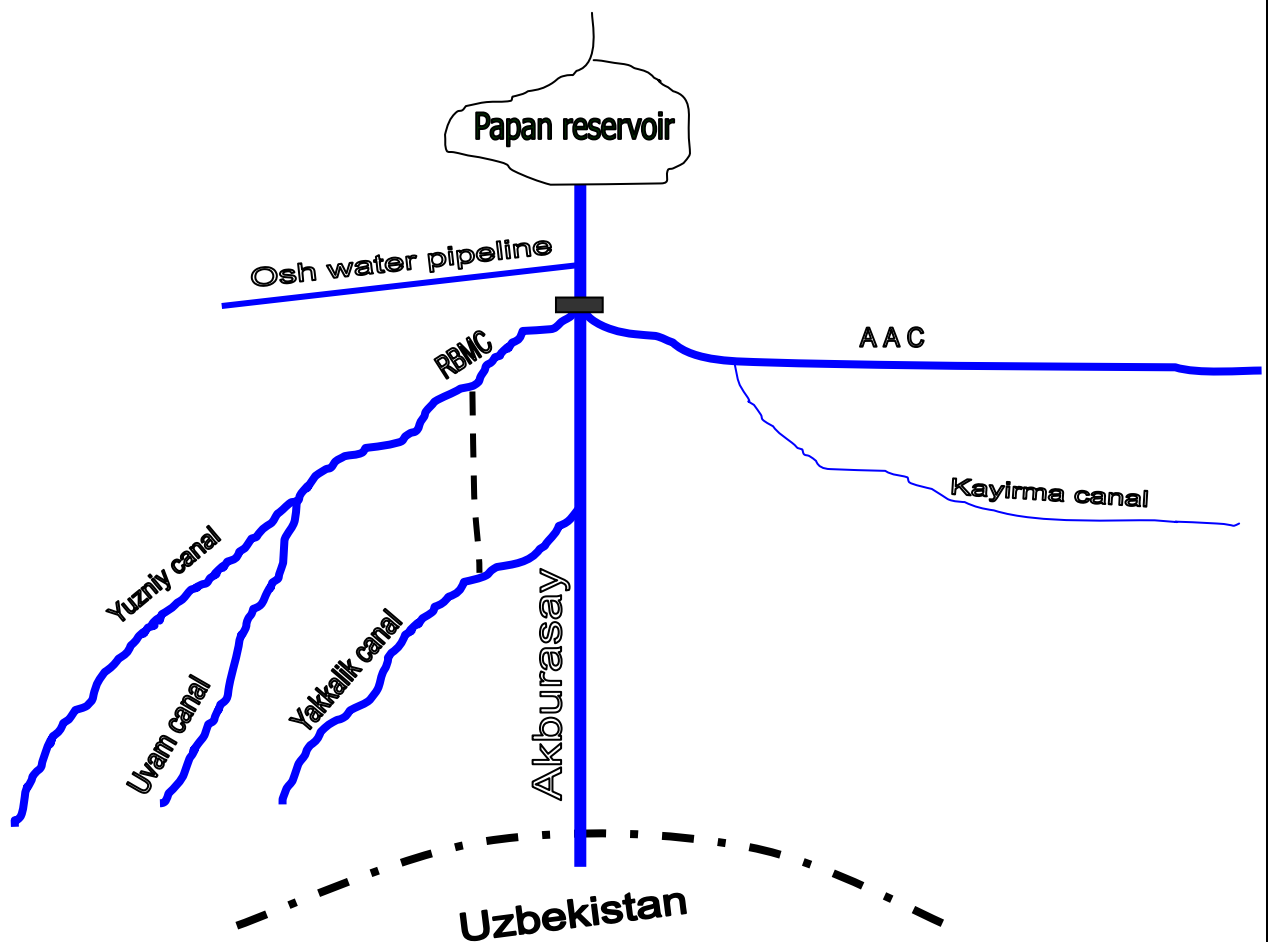


Figure 4.5. Akbura river basin plan.



*Representatives from the following structures are planned to be included in the ARB WC Council:*

*Osh Province State Administration.  
Karasu District State Administration.  
Aravan District State Administration.  
Khudjabad District Khokimiat.  
Osh BWMA.  
Papan Reservoir (PV).  
AAC UWU.  
RBMC UWU.  
AAC MO.  
RBMC MO.  
Osh Water Supply System.  
BISA Naryn-Karadarya.  
ISA Akbura (Uzbekistan).  
Aravan District WMO.  
Osh Nature Protection Committee.  
Sanitary and Epidemiologic Station.  
Etc.*

### **IWRM distribution on STR**

*It should be noted that the IWRM-FV Project's experience is disseminated as well to the small transboundary river (STR) zone of the Fergana Valley: Khodjabakirgansay and Shakhimardansay.*

*Basically, it would be logical and effective if the experience dissemination works at the STR level were carried out taking into account the IWRM principles dissemination experience in the Akbura and Khodjabakirgansay rivers basins (Tajikistan part), that is based on the "bottom-up" principle. In Tajikistan, an important step was made for horizontal and vertical distribution of IWRM within the Project: coverage of the mixed irrigation zone allowed transforming KBC UWU and KBC WC into basin structures KBRB UWU and KBRB WC. Thus, they accessed the transboundary Khodjabakirgansay river basin level in the water governance plan<sup>9</sup>. Now, KBRB WC can represent the Tajikistan party at Tajikistan and Kyrgyzstan negotiations.*

*However, the STR management problem in CAR is so urgent and acute that one should not confine oneself to the "bottom-up" approach. Here, taking into consideration the urgency and acuteness of the STR problem, it is necessary to carry out simultaneous works additionally based on the "top-down" principle.*

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<sup>9</sup> The process can be considered as completed if a management body will also be established in addition to the joint governance body (KBRB WC): Kodjabakirgan river basin irrigation system administration.

## 5. Joint governance of water and land resources use process

The expediency of creating new institutional prerequisites to improve water management process and getting maximum effect from the investments to the restoration of the water infrastructure is quite evident. Long-term practice shows that without solving institutional tasks (hydrographization, decentralization, public participation) aimed to change the accent from water resources management to water demand management the investment effect may be low.

In the course of the IWRM-FV Project implementation, new institutional structures have been set up as follows:

- WUA – Water Users Association.
- UCWU – Union of Canal Water Users.
- CWC – Canal Water Committee.

It is generally known that the organizational structure of the CAR republics during the Soviet period and after the USSR collapse repeatedly underwent changes. Changes take place there even now. Frequent and not always reasonable reorganization of the CAR water structures takes place due to lack of comprehensible concept of the organizational water economy arrangement. Integration and disintegration of the water resources structures happen without sufficiently sound justification.

During the implementation of the IWRM principles within the IWRM-FV Project, certain experience has been gained, which allows thinking that:

- Significant positive steps have been made, but still there is potential to improve the organizational structure.
- Not everything related to the water management practice should be abolished. And if, at first sight, something looks obsolete but persistently “hangs on for dear life”, then there is a reason to think whether we should be in a hurry to introduce innovations. When reforming, it is very essential not to “throw the baby out with the bathwater”, otherwise we will have that “we wanted the best, but it turned out as always”.
- IWRM is not a dogma. IWRM ought to be implemented taking into account the existing realities. A perfect idea that is used at improper time and place may discredit the idea itself and even result in harm to it.
- Reorganization is a continuous process and should be carried out proceeding from elaborate, theoretically justified, coordinated with stakeholders far-sighted concept based on the evolutionary improvement principle, but not from revolutionary demolition one.

As is known, according to the established regulations, the water management organizations and their subdivisions are charged with both water management and water demand management tasks, that is tasks related to both water supply and water use control. However, for various reasons WMOs chiefly deal with water supply, while water demand (water saving) management is executed on the leftover principle basis, despite the fact that the problem is currently of not less priority for CAR.

It is also known that are the responsibilities for water and land productivity, getting of harvest, income of farmers, and wellbeing of the people who live in certain areas lie on the shoulders of territorial (province and district) authorities which, as a rule, have practically no reliable organizational and financial mechanism of water and land reclamation process management.

The world and domestic experience in building the organizational structure of water organizations allows supposing that the water structures in CAR ought to be reorganized taking into account the fulfillment of the main functions (Fig. 5.1) of:

- Water management;
- Water demand management;

- Control over water supply and use.

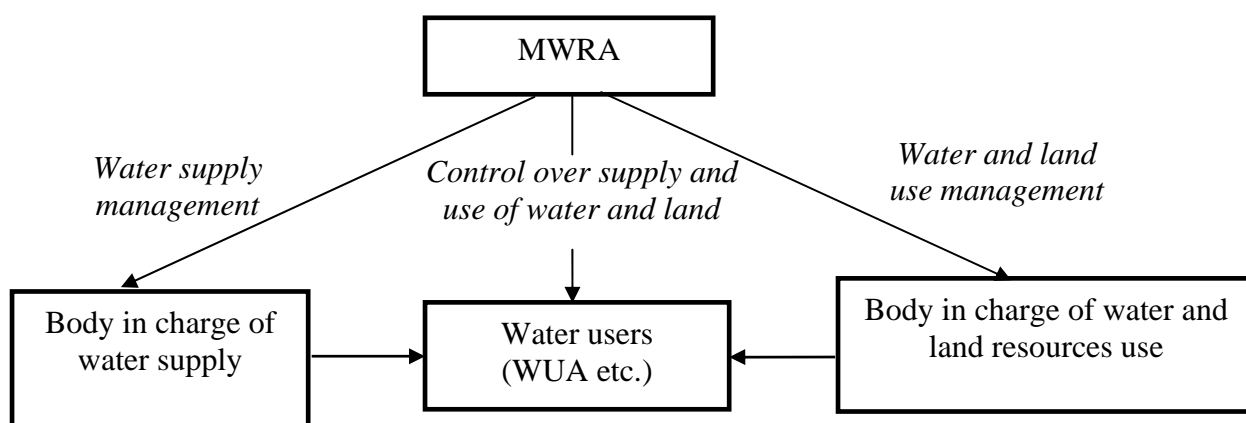


Figure 5.1. Proposed general scheme of water and water demand management.

In addition, one should keep in mind that the water management industry is not able to cope with water problems without all-round involvement of all stakeholders in the water governance process.

The organizational improvement task consists in the creation of such prerequisites with which the local authority, being a stakeholder, could officially (in a civilized manner) participate in both water supply governance and water use governance processes.

It follows from the above-sated that integration of stakeholders is reasonable within not only hydrographic boundaries but also within territorial ones. Integration of stakeholders within territorial boundaries is needed for not water supply governance but for improving water and land resources use.

*It should be noted that in recent years in CAR the interest in the integration of stakeholders for water governance within hydrographic boundaries has substantially increased. For example, the decisions on the foundation of Water Management Councils (WMC) at different water hierarchy levels, including the national and basin ones, are taken and have been fulfilled in Kazakhstan, Kyrgyzstan, and Uzbekistan. There is also the experience of Basin Councils establishment as well as functioning (Kazakhstan).*

*As for the integration of stakeholders for water governance within territorial boundaries, to execute the decisions of the Cabinet of Ministers of the Republic of Uzbekistan № 03-11-8 dd. 30.01.2009 “On additional measures to organize rational management and effective use of water resources”, the khokims of provinces (districts) decide to set up provincial (district) “Councils for Rational and Effective Use of Water Resources (CREUWR)”.*

*Hence, the ideas of stakeholders integration within both hydrographic and territorial boundaries are not new per se; furthermore, those are officially accepted and being implemented.*

*There is formal and actual difference between CWC and WMC as well as between WLC and CREUWR. The actual difference between these is as follows:*

- *CWC and WLC are “joint governance” bodies, while WMC and CREUWR are bodies included in the state structure (for example, the WMC of the Syrdarya-Sokh BISA is a part of the “Central Administrative Office of BISA”).*
- *WMC and CREUWR attach minimum importance to the public participation issues (judging by their membership). Although, for instance, the WMC of the Syrdarya-Sokh*

*BISA according to the Statute is called a “public body”, “the Council Chair is the Head of Basin Irrigation System Administration...”, and “the Deputy Chair is assigned by agreement with the Main Water Management Directorate of the Ministry”.*

- *In the Statutes, there is nothing about ensuring transparency and openness.*
- *Water governance narrows to the technical governance level.*
- *The following functions are not clearly distinguished: 1) water supply, 2) control, and 3) use of water and land resources.*
- *The water governance and management functions are not clearly distinguish.*

*Notwithstanding the above-mentioned drawback, establishment of such structures (WMC and CREUWR) is a certain achievement. The problem is to gradually transform those to the bodies that are more in line with the IWRM principles.*

## Water and Land Commission

Establishment of Water & Land Commission (WLC) is a follow-up of the theoretical and practical works of the Project of the implementation of the IWRM principles in the Fergana Valley. WLC has much in common with CWC, but it has basic difference in terms of its purpose.

District WLC is a public representative governing body established on the basis of the integration of all stakeholders in the district and responsible for the development and implementation of effective policy that ensures high productivity of district water and land resources use.

The general objects of the district WLC is to improve the district community wellbeing by achieving maximum crop yield per water and land unit, along with preventing aggravation of the environmental state. Thus, the district WLC is established based on the territorial principle (Figs. 5.2, 5.3).

### WLC structure

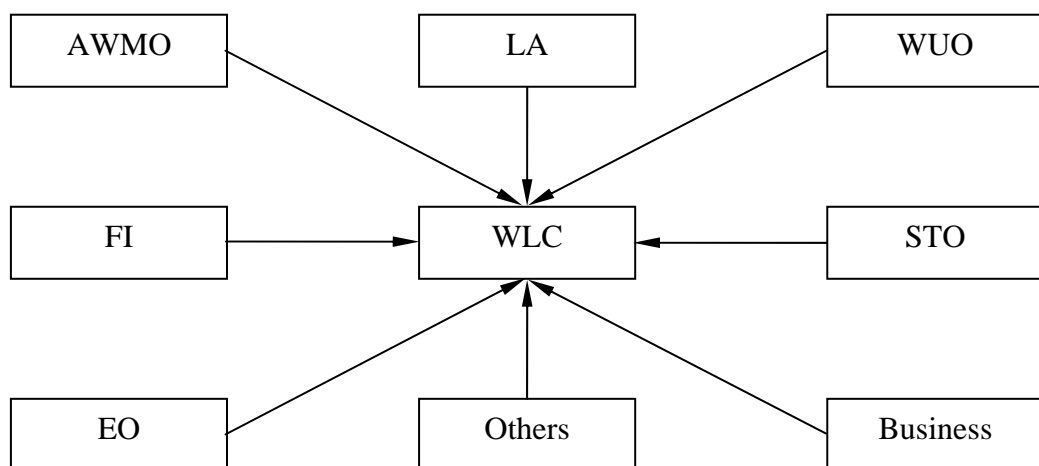


Figure 5.2. Scheme of Water & Land Commission formation.

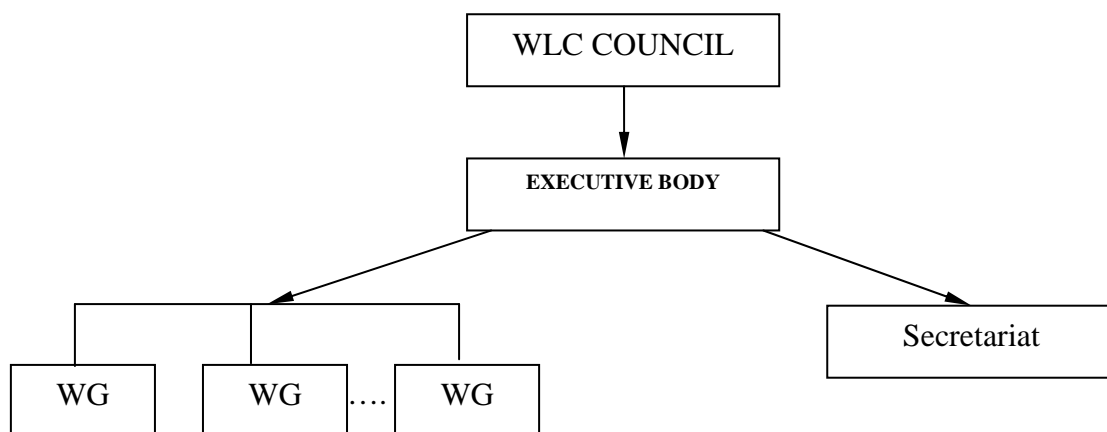


Figure 5.3. Standard structure of WLC.

### *Abbreviations*

<i>AWMO</i>	<i>Agricultural and water management organizations</i>
<i>LA</i>	<i>Local authority</i>
<i>WUO</i>	<i>Water users organizations</i>
<i>FI</i>	<i>Financial institutions</i>
<i>STO</i>	<i>Scientific and technical organizations</i>
<i>EO</i>	<i>Ecological organizations</i>
<i>WG</i>	<i>Working groups</i>

### WLC tasks and functions

1. Initiation, consideration, and approval of the long-term and mid-term actions plans for the water and land use improvement, which are based on the following IWRM principles:
  - Water saving.
  - Integration of WUAs and other stakeholders on the basis of hydrographic principle (to improve the process of water supply from the water withdrawal point to the WUA gate).
  - Integration of WUAs and other stakeholders on the basis of territorial principle (to improve the process of water and land use in WUAs).
  - Accounting and usage of all types of water resources (surface, ground, return waters).
  - Consideration of climatic, hydrogeological, and soil conditions.
  - Priority of ecological requirements.
  - etc.
2. Participation of water users and other stakeholders in making the decisions on water resources supply and use.
3. Openness and transparency of the water and land resources governance and management system.
4. Involvement of all stakeholders, including all categories of water users and land users, in the process of water and land policy development aimed to maximize water and land use productivity.
5. Enhancement of WUA financial sustainability.
6. Organization of the introduction of financial and moral incentives for saving resources.
7. Organization of the application of resource-saving technologies.
8. Strengthening control over the observation of seasonal and ten-day limits on water supply to WUAs.
9. Solution of ecology and drinking water supply problems.

10. Ensuring consensus between water suppliers and water users.
11. Searching and attraction of additional financing sources for the improvement of water and land use, including funds from the private business and foreign donors.

## **Conclusion**

1. Integration of stakeholders depending on the integration purposes can be based on both hydrographic and territorial principles;
2. Water supply organizations (bodies) are advisable to be set up on the basis of the hydrographic principle;
3. Water use (as well as water supply and water use control) organizations are advisable to be set up based on the territorial principle;
4. WLC establishment is a follow-up of the works related to the IWRM principles implementation in the Fergana Valley;
5. WLC resembles the “staff” which, in the water management and agriculture practice, is established now and then with the purpose to solve important topical problems;
6. The difference between WLC and the “staff” consists in the following:
  - first, WLC is not a temporary but permanent body;
  - second, it represents stakeholders, including water and land users, to a broader extent;
  - and third, its purpose is addressing not only current problems, but also working out of strategic district (province) development plans.
7. WLC should be set up taking into account specific conditions in order to prevent “institutional extravagances”. It is possible that in some cases the WLC functions ought to be vested upon already existing structures so that not to “produce” new (excessive) governance bodies.

### **Experience of the establishment and functioning of the Kuva district WLC**

*The WLC establishment process was experimentally started in the Kuva district. Proceeding from the model statute of a district WLC, the initiative group set up under the Kuva district khokimiat worked out a draft Statute of the Kuva district WLC.*

*On 8 August 2010, the Kuva district WLC founders’ meeting was held, where:*

- *The WLC Statute was approved.*
- *WLC Council and WLC Chair were elected.*
- *Khokim of the Kuva district (Mr. Akhad Madaminov) was elected as the WLC Chair.*
- *The working group was formed and was entrusted with the development of the WLC actions plan for the period until the end of 2010.*

*On 4 September 2010, the first meeting of the Kuva district WLC Council was held, at which:*

- *The WLC actions plan for the period of September-December 2010 and for year 2011 was considered and approved.*
- *Instructions were given and executives in charge were assigned:*
  - *Bank executives shall examine the credit receivables and promote the financial sustainability of WUAs.*
  - *Adjust the monitoring of the financial performance of WUAs.*
  - *Carry out the re-registration of WUAs.*
  - *Complete the inventory of irrigation and drainage assets and start their transfer to the WUA balance, etc.*

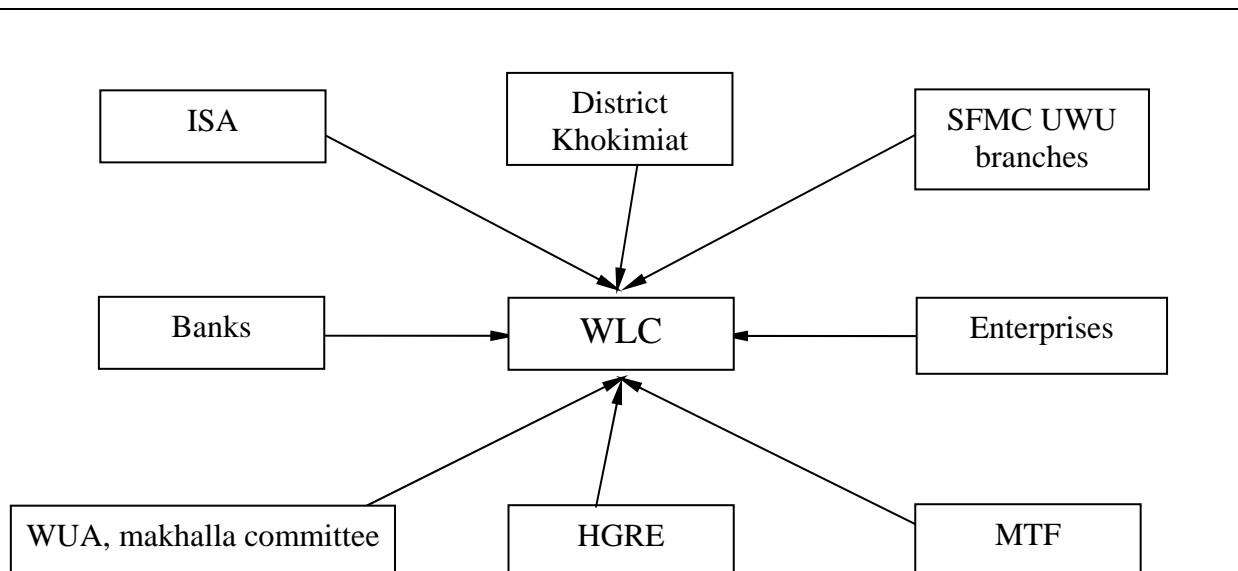


Figure 5.4. Structure of the Kuva district WLC.

*Representatives of the khokimiat, banks, SFMC UWU (UHSWU “Akbarabad”), Fergana Refinery (FR), Syrdarya-Sokh BISA, etc. entered the Kuva District WLC.*

*The Kuva District WLC labor (executive) body’s functions are vested on the District Association of Dekhkan Farms (DADF) (on the part of water users) and DAWMA (on the part of the Government).*

*It is known that, as a rule, there is DADF in every district. It is designed to integrate farmers on the basis of territorial principle for the coordination of their efforts towards rational use of water, land, and other resources (not for water supply!).*

*Usually, both DADF and DAWMA are very weak in organizational and financial terms and for many reasons are in little demand, although the expediency of these organizations is out of question.*

*Use of DADF and DAWMA as the labor body of the district WLC will, certainly, raise their authority and level of being in demand and, hence, the organizational and financial potential of WLC.*

*The working groups (WG) are formed according to territory and target characteristics.*

*Thus, the main executive bodies at the district (territorial) level are DADF and DAWMA which are charged with:*

- *Linkage of water limit to provinces with those to districts and allocation of limits to WUAs.*
- *Linkage of water limit to districts with those to canals (or small basins, or pumping stations).*
- *Organization of support to WUAs.*
- *Organization of the transition from the per-hectare method of WUA water service fees payment to per-volume that.*
- *Organization of extension service for WUAs.*
- *Provision of land reclamation services to WUAs, etc.*

## **Integration experience**

*In the term “Integrated Water Resources Management”, the word “integrated” (from Latin “integrum” – whole) is the key word and reflects the integrity, complexity of the water resources management system.*

*Besides, (from Latin “integration” - union, interpenetration, mutual approach and interconnection establishment process), the word «integrated» means the process of building new structures, what the IWRM-Fergana Valley Project has dealt with for almost 10 years.*

*The integration process is a phenomenon that is very common in any society and at any time. In this context, the project work is not original. But the way how integration takes place is something else again. The integration peculiarity within the Project is that all the above-mentioned structures (except for WLC) were set up based on the hydrographic principle with the end to improve water governance and management, while WLC is based on the territorial principle with the view of improving water and land use governance.*

*The IWRM implementation stages within the Project and integration levels are as follows::*

- 1. WUA is the integration of water users (IFs, DFs, and other WUs).*
- 2. CMO is the integration of main canal water suppliers (water management organizations).*
- 3. UCWU is the integration of main canal water users unions in order to coordinate their activities and protect their interests.*
- 4. CWC is the integration of main canal stakeholders with the purpose to improve water supply:*
  - CWC Board: integration of water suppliers and agricultural water users.*
  - CWC Council: integration of main stakeholders, i.e. water management organizations, water users, local authority, ecological organizations, water suppliers, clergy, NGNPOs, etc.*
- 5. WLC is the integration of stakeholders for the enhancement of water and land resources use effectiveness.*

*The next integration stage is the establishment of BWC with the purpose to integrate stakeholders within the river basin boundaries.*



## 6. Monitoring and assessment

The primary cause of making an incompetent managerial decision is:

- Presence of distorted, superficial, or biased information about the object of management;
- Absence of the information about the trends of the management object development and its motive powers.

Prior to taking a managerial decision, it is necessary to collect relevant information concerning the management object. The more objective and comprehensive the evaluation of the management object state, the more effective and less conflict-causing is the decision taken, and vice versa.

To this effect, it is needed to collect relevant information, organize monitoring and assessment (M&A). Effective M&A is necessary both during the project implementation and in the long term after the project completion. It is a vital part of the overall project cycle. Without M&A, one cannot gain and apply the knowledge required to ensure continuous improvement of operating parameters.

Project implementation effectiveness should be ensured by carrying out regular observations (monitoring) and assessment of the current state of institutional building, water supply system, and its influence on the social and economic indicators of the project zone development.

It is essential to organize monitoring also in an off-project zone and so that one could correctly assess the project impact.

Monitoring and assessment are not an end in themselves. M&A are an important tool for the following:

- Making short-term, mid-term, and long-term decisions on improving the governance of water management.
- Ensuring transparency and openness.
- Evaluation by civil society and authority of the execution of the decisions taken.
- Detection of weaknesses in the water governance and water management, etc.

Indicators are the main elements of the monitoring and assessment system. The following basic groups of indicators can be marked out:

- Technical (level of water supply, stability, uniformity, efficiency factor, specific water supply, etc.).
- Economic (water service fee, payment for irrigation services, O&M costs, etc.).
- Institutional (involvement of IFs/DFs and other water users in WUA, involvement of WUAs in UCWU, involvement of stakeholders in CWC, etc.).
- Ecological.
- Others.

Indicators facilitate finding answers to the key questions at different stages of IWRM planning and implementation, such as: What is the current situation? What direction we want to go to? Whether we have chosen the right direction to achieve the goal set? And, finally, are we still at the same place?

Assessment is the systematic process of comparison of indicators. Each indicator should be compared with either planned ones or indicators of the previous period (before the project), or with standard those, or with the off-project zone monitoring data.

Assessment can be of external and internal type. External assessment characterizes the expenses and results of functioning of irrigation systems; it enables comparison of the functioning of a

system to other similar ones. Internal assessment characterizes the processes progressing inside the system and yielding the results obtained within it; it serves to compare the actual results with the ones that were predicted (planned).

In the course of assessment, it is necessary to continuously seek answers to the following questions:

- Am I doing everything right?
- Is what I am doing right at all?

For example, when assessing water distribution, by having answered the first question you will evaluate the water management quality (compare “actual” to “planned”); by having answered the second question, you will evaluate the water governance quality (compare the achieved with the targeted, with the standard).

In foreign scientific literature, the composition of developed indicators is wide enough and in many respects is identical to that of domestic indicators, but the names of the indicators are somewhat different: available water supply – adequacy (or efficiency) of water supply; stability – reliability (security); canal efficiency – (water) transport efficiency; and so on.

## **Experience of monitoring and assessment**

*Within the IWRM-FV Project, the M&A system that includes several tables with technical, economic, and institutional information on the change of the monitoring object (WUA, UCWU, CWC, and CMO) state in time and space has been worked out. The M&A results are used to both evaluate project impact and evaluate the degree of the project plan execution. Both project executors and WUA, UCWU, CMO representatives are involved in the M&A process.*

*Estimation of some technical indicators, viz. water distribution indicators (level of water supply, stability, uniformity, efficiency factor, specific water supply, etc.) for ten-day periods, months, seasons, and years is carried out by using the “Fergana” Management Information System (MIS). The water distribution parameters in the form of tables, charts, and explanatory notes are regularly:*

- *presented to UCWU and CWC for consideration and making decisions;*
- *distributed among stakeholders by bulletins, posters, etc.*

*Because of the topicality of the works related to enhancing the financial sustainability of institutional structures (WUA, UCWU, CMO) there is permanent acute need for the monitoring of the WUA and CMO water service fees collection rate as well as monitoring of the UCWU membership fees collection rate. The monitoring shows that these indicators are progressing from year to year, but the financial sustainability of the institutional structures in general still remains low (Figs. 6.1-6.6).*

*The following lessons are learnt from the M&A development and introduction:*

- *The main provisions of the M&A system should be developed as early as at the project documents preparation stage. The M&A system must be improved during the project implementation.*
- *The labor and financial resources required for M&A should be estimated and included in the planned budgets and plans for building the capacity of appropriate organizations.*
- *The indicators should clearly interlink the tasks set for the actions, goals and plans of the strategy.*
- *The indicators should be identified and analyzed up as a part of the logical structure of interconnection of the goals, tasks, actions and expected results and impacts.*
- *Beneficiaries should take part in the characterization of the indicators and should clearly understand how the information associated with one or another indicator applies to their*

problems and activities.

- It is necessary to clearly specify who is be responsible for the application of every indicator and how the final information is used in the process – who needs that and when.
- It is necessary to regularly inform the beneficiaries of the M&A results, by contributing thus to the mobilization of the support to the strategy and raising the responsibility.

In order that the M&A practice may be sustainable, i.e. it can be carried out in water structures even after the project completion, appropriate economic and administrative stimulating conditions must be created. The M&A effect will be minimum unless the administrative resource (compulsion from above) is used, there is adequate financial support, and, most important, the salary and career development of water organization employees depend on the water management quality, i.e. water distribution stability and equity.

It is commonly known that water accounting is an important means to ensure perfect monitoring and assessment of the water management system. It is also known that before the reforms there were big water accounting problems at the low water distribution level, i.e. in kolkhozes and sovkhazes. After the reforms, those problems (now already in WUAs) deepened due to sharp increase in the number of water users.

The experience of water accounting organization in the project zone testifies to the effect that the water accounting problem is not only and not so much of technical as institutional nature. It is impossible to solve this problem without cooperation and consolidation of water users as well as creation of necessary (first, financial) incentives and rules.

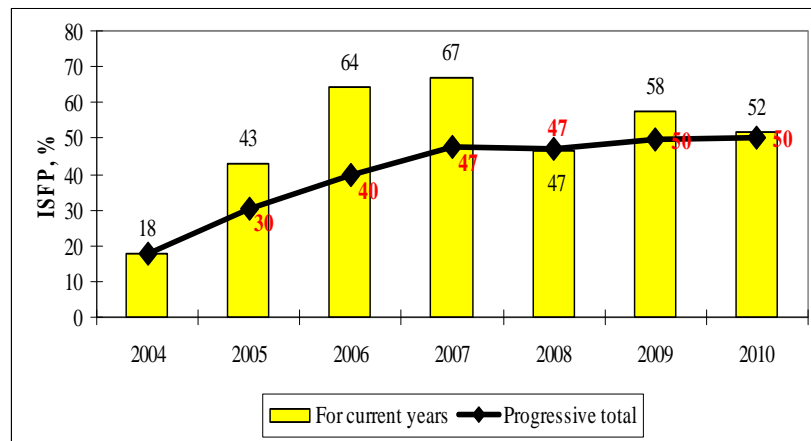
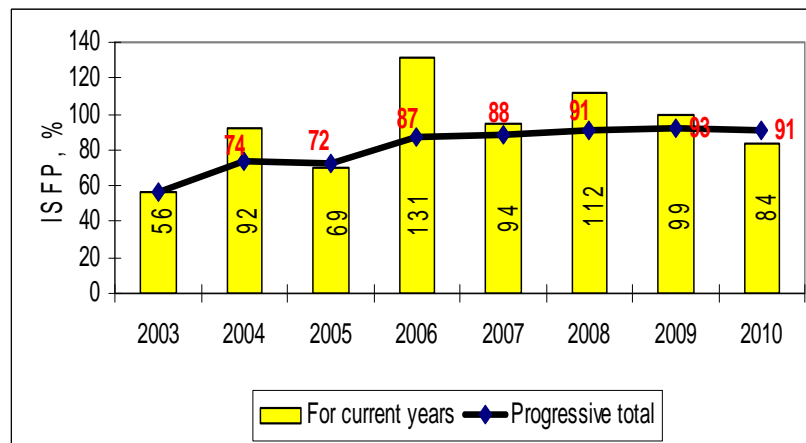


Figure 6.1. Payment for KBC MO irrigation services, %



Figures 6.2. Payment for AAC MO irrigation services, %

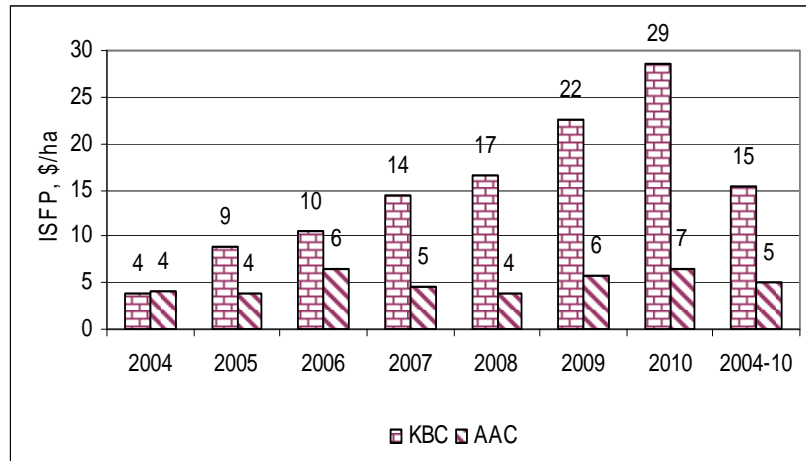


Figure 6.3. Payment for AAC MO and KBC MO irrigation services (by years and progressive total for 2004-2010), \$/ha.

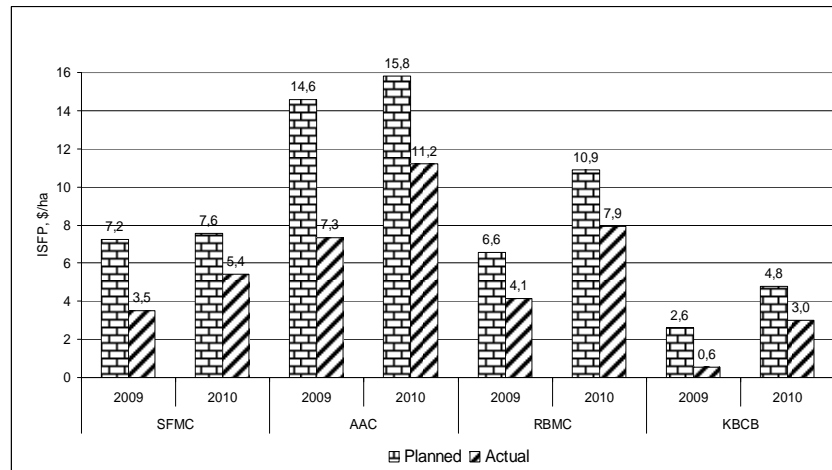


Figure 6.4. Payment for WUA irrigation services, \$/ha

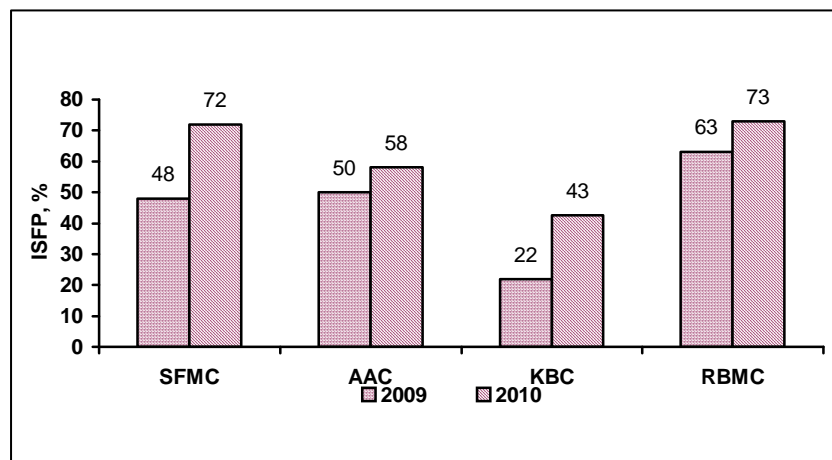


Figure 6.5. Payment for WUA irrigation services, %



Figure 6.5. Payment of UCWU membership fees, %

## 7. Capacity building

Capacity building represents combined efforts for the development, extension, and use of the skills and capacity of people and institutions at all levels so that those could solve more complex tasks.

The capacity is needed at two levels: availability of possibilities to plan and work out IWRM programs and employment of performance potential.

IWRM includes the tools designed for the development of the professional skills and deeper understanding the essence of the issues by decision makers in the public sector, water sector managers and specialists, employees of regulatory bodies, as well as for raising the power capacity of civil society groups.

The activity related to institutional structures' capacity building and raising the understanding and awareness of all water process participants is significant for the implementation of IWRM ideas. This is quite a task since the water management improvement problem was traditionally perceived and continues to be perceived by practitioners as an engineering – financial and technical – problem.

At present, though hardly, but realization of the fact that this problem is of institutional rather than engineering character is increasing. The realization that under the conditions of upcoming water deficit in CAR they currently should focus first on water demand management, i.e. water saving, involvement of water users themselves in the decisions making process and irrigation financing process.

To create and build up the capacity of the institutional structures and raise understanding and awareness of stakeholders, a cognitive method is used, which includes conduction of workshops, trainings, exhibitions, conferences; preparation and distribution of brochures, booklets, bulletins; preparation of posters, stands; etc.

The cognitive method is relatively cheap, but even it supposes the availability of considerable human (intellectual) and physical resources. Prior to training stakeholders in IWRM, the trainers themselves are needed to be trained. Few experts know the fundamentals of IWRM. Nevertheless, owing to its relatively low cost, the cognitive method can be successfully applied along with structural and/or other methods based on incentives system.

In addition to the human capacity factor, which is the central factor, capacity implies the availability of a whole range of physical resources like:

- Monitoring equipment;
- Computer;
- Vehicle by which the project participants can visit controlled sites.

There is a need for capacity building at many levels:

- Civil society;
- Water specialists in all provinces (in both governmental and private water organizations);
- Local and central authorities, water management organizations, and control authority.

### ***Experience of capacity building***

#### ***Training workshops***

*Since the very beginning of the Project, much attention is paid to the capacity building issues: a number of training centers equipped with personal computers were founded.*

*Workshops are held both in the training centers and in the WUAs and hydraulic sites of main canals.*

More than 15 workshops devoted only to institutional aspects of IWRM are held every year.

The target audience is composed of water organization employees, water users, representatives of local self-government authorities, nature protection institutions, etc., including women, elders, college students, and so on.

The topics of the workshops cover the issues related to hydrographization, establishment and organizational management of institutional structures (WUG, WUA, UCWU, CWC, WBC, WLC, CMO), and joint water governance.

The trainers, who themselves prepare presentations and arrange workshops, were trained within the Project.

Number of workshop participants per annum comes to 1000 people, including women and elders.

The participants evaluate the workshops, presentations, job of key executives, etc. through questionnaires (Fig. 7.1). The information of workshops and other events is distributed by mass media, including television.

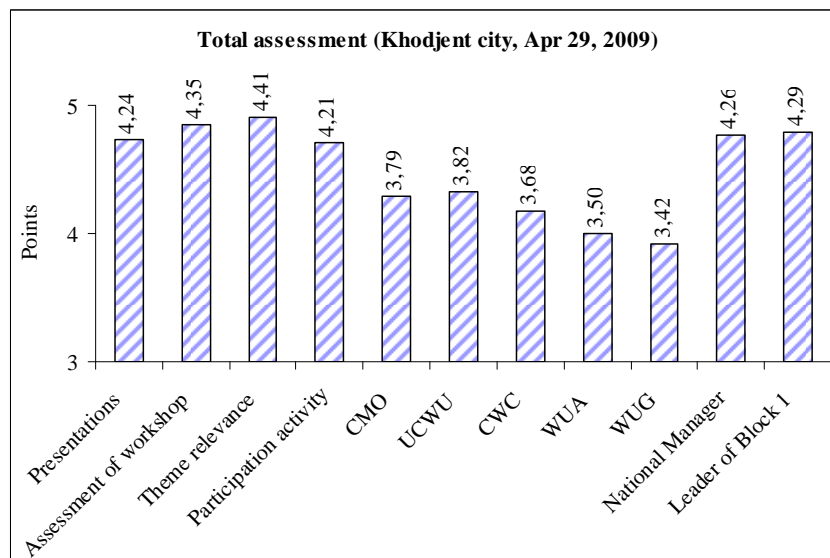


Figure 7.1. Workshop quality evaluation diagram.





Figure 7.2. IWRM-FV Project workshops.



## ***Publications***

Table 7.1. List of the articles published in local newspapers

<b><i>№</i></b>	<b><i>Title of article</i></b>	<b><i>Newspaper name</i></b>	<b><i>Date</i></b>
1	<i>Proper and effective use of water.</i>	<i>Sogdiyskaya pravda</i>	<i>March 25, 2009</i>
2	<i>Az istifodai durustu samaranoki ob...</i>	<i>Khakikati sugd, Mirob</i>	<i>March 21, 2009</i>
3	<i>5th World Water Forum. Speech by Saidi Yokubzoda, ICWC member from the Republic of Tajikistan.</i>	<i>Mirob</i>	<i>March 2009</i>
4	<i>“Mavsum masuliyati”</i>	<i>Fargona khakikati</i>	<i>April 14, 2009</i>
5	<i>The Project promotes the execution of the instructions of the Head of State</i>	<i>Sogdiyskaya pravda</i>	<i>May 2, 2009</i>
6	<i>Maksad: takror nakardani khatogikhoi peshin.</i>	<i>Khakikati sugd</i>	<i>April 29, 2009</i>
7	<i>Reduce the tariffs! Such a view was reached by the participants of the Water Committee meeting.</i>	<i>Sogdiyskaya pravda</i>	<i>May 16, 2009</i>
8	<i>«Khizmatonai obrasoni arzon karda shavad» - bu chunin khulosa omadand, ishtirokchiyoni chalasai kumitai ob.</i>	<i>Mirob, Khakikati sugd</i>	<i>May 20, 2009</i>
9	<i>Keep water clean.</i>	<i>Kyrgyz tuusu</i>	<i>November 13, 2009, № 85</i>
10	<i>We must know how to protect water resources.</i>	<i>Osh zhanzhryzhi</i>	<i>July 2009</i>
11	<i>Women’s role in water management.</i>	<i>Kuva khayoti</i>	<i>June 2009</i>
12	<i>Experience and issues of the collective farm reorganization based on the IWRM principles (WUA level) within the IWRM-FV Project in Tajikistan.</i>	<i>Sogdiyskaya pravda</i>	<i>March 25, 2009, № 25</i>
		<i>Mirob</i>	<i>March 21, 2009, № 1</i>
13	<i>Creation of the common vision on the implementation of IWRM principles within the IWRM-FV Project financed by SDC: we must pool our interests.</i>	<i>Sogdiyskaya pravda</i>	<i>June 3, 2009</i>

## ***Preparation and distribution of information materials***

*Practice of informing water users and other stakeholders about the results of monitoring of WUAs and water distribution on the pilot canals is going on: the information is disseminated at UCWU/CWC/CMO/CMO/CMO meetings, workshops, by means of booklets, bulletins, etc. (Table 6.2, Fig. 6.3).*

*In Table 7.2, only the booklets prepared by the regional group are given. In addition, local specialists themselves prepare booklets and distribute among water organizations employees and water users. They also arranged the bulletins preparation work.*

Table 7.2. List of prepared booklets on institutional aspects of IWRM

<i>Nº</i>	<i>No of booklet</i>	<i>Title</i>
<i>1. IWRM</i>		
<i>1.</i>	<i>1.1</i>	<i>Theory and practice</i>
<i>2.</i>	<i>1.2</i>	<i>Hydrographization</i>
<i>3.</i>	<i>1.3</i>	<i>Public participation</i>
<i>4.</i>	<i>1.4</i>	<i>Water management methods</i>
<i>2. Water demand management</i>		
<i>5.</i>	<i>2.1</i>	<i>Charged water use</i>
<i>6.</i>	<i>2.2</i>	<i>Tariff adjustment (differentiation) method</i>
<i>3. Water management</i>		
<i>7.</i>	<i>3.1</i>	<i>Terms and definitions</i>
<i>8.</i>	<i>3.2</i>	<i>Classification</i>
<i>9.</i>	<i>3.3</i>	<i>Water distribution planning</i>
<i>10.</i>	<i>3.4</i>	<i>Calculation of water distribution parameters</i>
<i>11.</i>	<i>3.5</i>	<i>Monitoring and assessment</i>
<i>12.</i>	<i>3.6</i>	<i>Water rotation</i>
<i>4. Water governance</i>		
<i>13.</i>	<i>4.1</i>	<i>Establishment and organizational management of UCWU</i>
<i>14.</i>	<i>4.2</i>	<i>Establishment and organizational management of CWC</i>
<i>15.</i>	<i>4.3</i>	<i>Water conflicts</i>
<i>16.</i>	<i>4.4</i>	<i>UCWU Charter (model)</i>
<i>17.</i>	<i>4.5</i>	<i>Statute of CWC (model)</i>
<i>18.</i>	<i>4.6</i>	<i>Statute of irrigation and drainage service (model)</i>
<i>19.</i>	<i>4.7</i>	<i>Concept of collective farms reorganization</i>
<i>20.</i>	<i>4.8</i>	<i>Concept of IWRM distribution to the Akbura river basin</i>
<i>5. Water governance and management</i>		
<i>21.</i>	<i>5.1</i>	<i>Water governance and management on SFMC</i>
<i>22.</i>	<i>5.2</i>	<i>Water governance and management on AAC</i>
<i>23.</i>	<i>5.3</i>	<i>Water governance and management on KBC</i>
<i>24.</i>	<i>5.4</i>	<i>Water governance and management on RBMC</i>



Figure 7.3. Booklets on institutional and other aspects of IWRM.

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## **ANNEXES**

## **Annex 1**

### **CHARTER OF UNION OF XXX MAIN CANAL WATER USERS (MODEL)**

**A P P R O V E D B Y :**  
**Founders' Meeting of**  
**the Representatives of**  
**XXX Main Canal Water Users**  
**Minutes №1 dd. «\_\_\_» \_\_\_\_\_ 201\_**  
**XXX UCWU Board Chair**

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**CHARTER**  
**OF THE UNION OF**  
**XXX MAIN CANAL WATER USERS**

**XXX 201\_**

## 1. General provisions

- 1.1. Association of legal entities in the form of a union (Union of XXX Main Canal Water Users, hereinafter referred to as Union) shall be an independent non-profit public organization that unites legal entities on a voluntary basis proceeding from community of interests for the coordination of their activities and protection of their interests and rights.
- 1.2. The Union shall be established and act in accordance with Constitution, Civil Code, Water and Water Use Law, Water Code, Water Users Associations Law, Non-Profit Organizations Law, Government decisions, acts and recommendations by the national water management office and its structural units, as well as other regulatory and legal acts of the Republic of XXX according to this Charter [and Foundation Agreement].
- 1.3. The Union's Charter shall be developed in accordance with the basic provisions of the Concept of the transition to IWRM in the Fergana Valley proposed by the Scientific Information Center of the Interstate Commission for Water Coordination (SIC ICWC) and International Water Management Institute (IWMI) and agreed with the national water management bodies of the three countries some areas of which are located in the Fergana Valley, i.e. Republic of Uzbekistan, Kyrgyz Republic, and Republic of Tajikistan.
- 1.4. The Union shall be established at the Founders' Meeting of water users (water users' representatives) (hereinafter referred to as Water Users Meeting) of the Main Canal XXX (hereinafter referred to as Canal).
- 1.5. The Union can carry on trade or business within the framework allowed for non-profit associations by the Law of the Republic of XXX. The income gained from the business activity can be used for the achievement of the main objective of the Union.
- 1.6. The main objective of the Union is to improve the Union members' wellbeing in the canal zone by promoting the enhancement of water and land use effectiveness on the basis of integrated water resources management (hereinafter referred to as IWRM).
- 1.7. IWRM shall be aimed to ensure sustainable, stable, equitable water allocation and effective water use.
- 1.8. IWRM shall include the following basic principles:
  - 1.8.1. Water management within the hydrographic boundaries of the Canal.
  - 1.8.2. Accounting and employment of all types of water resources (surface, ground, and return).
  - 1.8.3. Consideration of the climatic, hydrogeological, and soil conditions in the canal zone.
  - 1.8.4. Priority of ecological requirements.
  - 1.8.5. Participation of water users and other stakeholders in water governance.
  - 1.8.6. Coordination of all the bodies that are involved in water governance: 1) horizontally – between economy sectors; 2) vertically – between the water allocation hierarchy levels.
  - 1.8.7. Openness and transparency of the water governance and management system.
  - 1.8.8. Water saving, etc.
- 1.9. The Union shall be an association of the water users representing various water using sectors: agriculture, nature, public utility, industry, etc.
- 1.10. The Union shall coordinate the activities of canal water users related to the improvement of water allocation, water use, water quality, state of water protection zone, etc.
- 1.11. The Union together with the water management organization XXX (hereinafter referred to as WMO), which has direct charge of the Canal Management Organization XXX (hereinafter referred to as CMO), shall be involved in the management of CMO.
- 1.12. Authority for official participation of the Union in the management of CMO shall be stipulated in the CMO Co-management Agreement (hereinafter referred to as Agreement) concluded between the Union and WMO. The Agreement shall be approved by the decision of the Water Users Meeting and governing body of the national water management organization of the Republic of XXX.



- 1.13. The Union shall participate in the management of CMO through its representatives in the XXX Main Canal Water Committee (hereinafter referred to as Water Committee) which is to be established based on Agreement as a CMO co-management body.

## **2. Legal status of Union**

- 2.1 The Union shall have a legal entity status according to the existing legislation of the Republic of XXX.
- 2.2 The Union shall accrue the right of a legal entity from the date of state registration in the established order.
- 2.3 The Union shall have autonomous balance sheet, its own personal account in a bank, stamps, and blanks with its own name, and other necessary details.
- 2.4 The Union shall not incur the liabilities of its founders. The founders shall not incur the liabilities of the Union.
- 2.5 The Union shall be liable for its obligations to the extent of all its property.
- 2.6 The Union members shall reserve their legal independence.
- 2.7 The Union can purchase property and non-property rights, can sue and be sued in the court, execute deals within and outside the country in the established order in line with its activity goals and objectives.
- 2.8 The Union shall be established for an indefinite duration.
- 2.9 The Union shall not incur the liabilities of its members.
- 2.10 Legal address of the Union: XXX city, XXX street, building XXX.
- 2.11 The Union can found its non-profit printing office.
- 2.12 The Union can have its own emblem.

## **3. Union membership**

### **Admission to membership**

- 3.1 Admission to the Union membership shall be made based on an official written application from a water user, where the latter states that it agrees with the Union's Charter and is ready to perform the duties of the Union member.
- 3.2 The water users taking water for their need from the Canal can become Union members.
- 3.3 A Water Users Association (hereinafter referred to as WUA) shall be admitted to the Union on the basis of the decision of the WUA General Meeting (meeting of representatives).
- 3.4 When admitting, the statement from the decision of the WUA General Meeting (meeting of representatives) and a written application for Union membership shall be submitted.
- 3.5 Legal entities registered in accordance with the existing legislation of the Republic of XXX can be Union members.
- 3.6 Union membership shall be on a voluntary basis.
- 3.7 Union membership right cannot be transferred to a third party.
- 3.8 Union membership can be stopped voluntarily or by other way.

### **Withdrawal from membership**

- 3.9 Withdrawal from Union membership shall be carried out on the basis of a written application where the applicant must notify the Board Chair of its intention to withdraw from membership. The Board, in case of being agreed with the application submitted, at its regular meeting shall make a decision on the exclusion of the applicant from the Register of Members and proper notification to it.

- 3.10 The date of making the decision is considered as the date of the withdrawal from Union membership.

#### **Termination of membership**

- 3.11 Union membership shall be terminated in the following cases:
- 3.11.1 Liquidation of the Union.
  - 3.11.2 Regular non-observance of the Union's Charter provisions or the Water Users Meeting decisions by a member with the absence of satisfactory explanations.
  - 3.11.3 Discredit of the Union or infliction of harm on it.
  - 3.11.4 Refusal to pay membership fees.
- 3.12 The decision of the Water Users Meeting concerning the exclusion from membership can be appealed in the court.

### **4. Union Objectives**

- 4.1 Implementation of IWRM principles.
- 4.2 Participation in the development of short-term and long-term plans for the improvement of irrigated agriculture and participation in the control over their implementation.
- 4.3 Contribution to the enhancement of water allocation equity and stability and effective water use.
- 4.4 Searching and implementation of the measures to encourage water saving and increase water service fees collection rate.
- 4.5 Maintenance of established water use procedure.
- 4.6 Promoting the safety.
- 4.7 Promoting the improvement of the system of accounting and reporting on water distribution and water use.
- 4.8 Promoting the improvement of the environmental condition in the water protection zone.
- 4.9 Promoting the improvement of drinking water supply condition.
- 4.10 Provision the Union members with scientific and technical, financial, economic, legal, and other consultations; rendering information services.
- 4.11 Assisting WUAs and other Union members in the development and promotion of construction and rehabilitation projects by attracting grants and privileged credits.
- 4.12 Protection and representation of the Union members' interests in different governmental and other institutions, etc.

### **5. Rights of Union**

- 5.1 Conclude agreements and contracts in its own name in the territory of the Republic of XXX, CIS countries, and abroad, purchase property and non-property rights in accordance with legal procedure.
- 5.2 Sue and be sued in judicial organs; use the credits of national, commercial, and other types of banks.
- 5.3 Establish enterprises (including joint ventures), cooperatives, and other organizations with the purpose to realize the objectives of the Union.
- 5.4 Set the order and rate of salary of both full-time and part-time specialists involved in the Union activity.
- 5.5 Open accounts, including those for foreign currency, in banking institutions in both the Republic of XXX and abroad in accordance with the established procedure.
- 5.6 Found mass media concerning irrigation problems in accordance with the legal procedure.

- 5.7 Carry on any type of business activity that is not contrary to the legislation, goals, and objectives of the Union.
- 5.8 The Union can establish its branches. The branches shall not be legal entities and act based on the Statute of Branch approved by Water Users Meeting.
- 5.9 Apply sanctions on the Union members that delay paying its membership fee: if a Union member fails to pay its membership fee by the target, it shall be obliged to pay a penalty at the rate of 0.5 % of the amount of the arrears for each month of delay.
- 5.10 Apply incentives (including financial) to the Union members that pay their membership fees in advance.
- 5.11 In accordance with the established order, request and receive any necessary documents and materials from stakeholders to solve the problems that are within its competence.
- 5.12 Give a view on the documents submitted to the Union regarding irrigated agriculture development in the canal zone, water resources use, and enhancement of water productivity.
- 5.13 Solicit adjustment of planned CMO activity performances.
- 5.14 Recommend candidates for the participation in the contest for the CMO manager post.
- 5.15 Solicit early dismissal of the CMO manager.
- 5.16 Participate in the settlement of conflict situations and disputes, and solicit relevant bodies and institutions for calling to account legal and physical persons for the violation of water use procedure under the existing laws.
- 5.17 Introduce amendments, which are not contrary to the legislation of the Republic of XXX, to the Union's Charter.
- 5.18 Form necessary committees (auditing, arbitration) from among water users.
- 5.19 Purchase property and non-property rights, sue and be sued in the court, make deals that are in line with the goals and objectives both within and outside the country in accordance with established order.

## **6. Duties of Union**

- 6.1 Prepare and coordinate the long-term policy for the implementation of IWRM principles.
- 6.2 Consider seasonal and operating plans of water distribution through the canal.
- 6.3 Control the implementation of water distribution plans.
- 6.4 Match the canal development, operation, and maintenance estimates.
- 6.5 Examine the canal infrastructure maintenance and repair plan.
- 6.6 When needed and with the consent of the Union members, engage labor force, mechanisms, and materials of water users and organizations included in the Union for the execution of some operational, maintenance and reconstruction works.
- 6.7 Elaborate strategy and methods to raise water and other service fees collection rate.
- 6.8 Search additional sources (in addition to budget) of financing CMO activities (by drawing the funds of the organizations-Union members as well as from donor and crediting sources).
- 6.9 Consider annual reports of CMO and preparation of recommendations on water use and water distribution enhancement.
- 6.10 Settle contentious issues arisen between water users within its authority.
- 6.11 Raise public awareness of water problems and current water situation.
- 6.12 Keep the register of members, which is subject to annual reconsideration and updating.
- 6.13 Keep accounts in accordance with the legislation of the Republic of XXX.

## **7. Rights of Union members**

- 7.1 Be elected as a representative of water users for the participation in Water Users Meetings.
- 7.2 Participate personally or through its representatives in Water Users Meetings and be elected as a Board member.
- 7.3 Elect and be elected as the Board Chair.

- 7.4 Elect and be elected as the Council Chair.
- 7.5 Offer candidates for the election in the Union administration and be elected there.
- 7.6 Put forward proposals that fall within the Water Users Meeting's authority to include in the agenda of the Water Users Meeting.
- 7.7 Receive full information about the Union activity as well as get familiar with the accounting and other documents of the Union;
- 7.8 Take part in the management of the Union.
- 7.9 Offer draft amendments and additions to the constituent documents and other deeds of the Union.
- 7.10 Defend its interests at a Water Users Meeting, challenge Water Users Meeting decisions in the court.
- 7.11 Use the services rendered by the Union.
- 7.12 At any time, leave the Union with a preliminary written application submitted not less than one month prior to the calling of a Water Users Meeting.

## **8. Obligations of Union members**

- 8.1 Observe the legislation of the Republic of XXX.
- 8.2 Comply with the provisions of the Union's Charter and any other internal act (regulation) adopted by Water Users Meeting.
- 8.3 Provide the Union with information required to carry on the Union activity.
- 8.4 Execute all sanctions imposed by Union for non-observance of the Charter or any other acts of the Union.
- 8.5 Obey the regulations and decisions of the Union.
- 8.6 Take active part in the implementation of the tasks set before the Union.
- 8.7 Perform commitments undertaken with relation to the Union.
- 8.8 Make timely payment of membership fee and other payments fixed at a Water Users Meeting.
- 8.9 Hold confidential the privileged information taken from the Union.

## **9. Structure of Union**

### **Functional structure of the Union:**

- 9.1 The Water Users Meeting is the managing body of the Union.
- 9.2 The Board is an executive body of the Union, which is accountable to the Water Users Meeting.
- 9.3 The Arbitration Committee is an executive body of the Union, which is accountable to the Board.
- 9.4 The Auditing Committee is an inspection body of the Union, which is accountable to the Water Users Meeting.

### **Spatial structure of Union:**

- 9.5 Union of the Canal.
- 9.6 Union branches at hydraulic sites of the Canal (hereinafter referred to as Branches).

## **10. Union Branches**

- 10.1 Branches shall be established according to the decision of the Water Users Meeting.
- 10.2 Goals and objectives as well as rights and obligations of Branches shall be regulated by the Statute of Branch approved by the Water Users Meeting.
- 10.3 Branch is not a legal entity.
- 10.4 Functional structure of the Branch:

- 10.4.1 The Water Users Meeting of the hydraulic site XXX (hereinafter referred to as Hydraulic Site) is the managing body of the Branch.
- 10.4.2 The Branch Board is the executive body of the Branch, which is accountable to the Water Users Meeting of the hydraulic site.
- 10.4.3 The Arbitration Committee is the executive body of the Branch, which is accountable to the Branch Board.
- 10.5 Branch Board members and its Chair shall be elected at the Water Users Meeting of the hydraulic site.

## **11. Water Users Meeting**

### **Water Users Meeting participants**

- 11.1 The Water Users Meeting shall be composed of the representatives of canal hydraulic sites water users.
- 11.2 The hydraulic sites water users shall authorize one or more representatives to speak for those.
- 11.3 Also, other interested physical and legal persons that are not Union members can participate in the Water Users Meeting work without a vote.

### **Exclusive competence of the Water Users Meeting:**

- 11.4 Make a decision on the establishment of the Union.
- 11.5 Approve the Union's Charter.
- 11.6 Indicate guidelines for the Union's activities.
- 11.7 Approve the Union's action plan.
- 11.8 Approve Board decisions.
- 11.9 Approve the order of representation and membership fee rate.
- 11.10 Introduce amendments and additions in the Union's Charter.
- 11.11 Adopt the internal standard acts (regulations) pertaining to the Union activity.
- 11.12 Approve the size of the penalties upon Union members for late making membership fee and other payments.
- 11.13 Approve the incentives for the Union members that make advance payment of membership fees.
- 11.14 Approve annual report and budget.
- 11.15 Elect and recall Board members and the Chair.
- 11.16 Approve the operation plan and report of the Auditing Committee; elect and recall its members.
- 11.17 Approve the Union Board and its Statute of it.
- 11.18 Approve Branches and the Statute of those.
- 11.19 Approve the operation plans and reports of the Branches.
- 11.20 Approve the regulations for the conduction of a Water Users Meeting and voting procedure.
- 11.21 Hear the reports of the Board Chair and Auditing Committee Chair.
- 11.22 Make decisions on the procedure of entry into Union and withdrawal from it.
- 11.23 Approve the decisions on expulsion from Union.
- 11.24 Make a decision on Union reorganization or liquidation, assign a liquidation committee, approve intermediate and final liquidation balance sheet.

### **Procedure of conduction of the Water Users Meeting**

- 11.25 A regular Water Users Meeting shall be called not less than once a year or as necessary.
- 11.26 A special Water Users Meeting can be called at the initiative of the Board as well as at a written request of 1/5 part of the total number of the Union members or at the request of the Auditing Committee.

- 11.27 The Water Users Meeting shall be considered to be competent if it is attended by not less than 60 % of the representatives of Union members.
- 11.28 The reorganization or shutdown decision shall be regarded as adopted if more than 1/2 of the Water Users Meeting participants voted for it.
- 11.29 The decisions on amendments and additions in the Charter and reorganization or liquidation of the Union shall be taken by not less than 2/3 of the total Union members' votes; other decisions are taken just by a simple majority of votes.
- 11.30 The Board shall notify every member by any available way that allows acknowledging the receipt of the notification with the date, time, and agenda of a Water Users Meeting not less than 15 days prior to the date of the Water Users Meeting.
- 11.31 Before the Water Users Meeting, the Board shall afford an opportunity for the Union members to become familiar with all materials prepared according to the Water Users Meeting agenda and additions to it.
- 11.32 The Water Users Meeting Secretary shall keep minutes of the meeting. The minutes shall be signed by the Board Chair and meeting Secretary and are to be kept in the Union files.

## **12. Union Board**

- 12.1 At the Founders' Meeting of Water Users, they shall elect the Union Board (hereinafter referred to as Board) composed of XXX people, Union Board Chair (hereinafter referred to as Board Chair), and its deputy. When electing the Board Chair, a priority shall be given to a representative of the water users from the lower reach of the Canal.
- 12.2 The Board shall carry out general management of the Union activity and be responsible for the development of the Union policy, employment and termination of the employment of personnel, sizing the hired personnel salary, development of annual report and budget of the Union.
- 12.3 The Board composition shall be determined for each canal taking into account its category, infrastructure, quantity of main and other water users, and other specific peculiarities.
- 12.4 The Board Chair and its deputy shall be elected for 3 years.
- 12.5 The Board composition shall be changed proceeding from the Union decision to be approved by the Water Users Meeting.
- 12.6 The Board composition shall be renewed taking into account the rotation and succession principles every 3 years or as necessary, not less than by 1/3.
- 12.7 The Board has the right to control over the implementation of the decisions taken by the Water Users Meeting. The results of the activity audit shall be considered at a regular Board meeting or Water Users Meeting
- 12.8 The Board shall deal with all the issues associated with the Union activity, except which are included in the exclusive competence of the Water Users Meeting.
- 12.9 The Board shall be accountable to the Water Users Meeting.
- 12.10 Once a year 20 days prior to the date of a Water Users Meeting, the Board shall prepare the annual report and balance sheet. The Board shall account for the submitted annual report and balance sheet to the Water Users Meeting and provide the necessary information at the request of Union members.

## **13. Board Chair**

### **Board Chair election and removal**

- 13.1 The Board Chair shall be elected by the Water Users Meeting for a period of 3 years.
- 13.2 The Board Chair can be removed on the basis of its statement of resignation or by the decision of Board if the latter finds that the Board Chair is not capable or is unworthy of performing the functions entrusted on it.

- 13.3 Instead of the removed Board Chair, the Board has the right to elect an acting Board Chair until a regular or special Water Users Meeting.

**Board Chair functions:**

- 13.4 Chair Water Users Meetings.  
13.5 Stand as a legitimate representative of the Union in all issues related to its activity.  
13.6 Make a speech on behalf of the Board.  
13.7 Sign agreements and other legal documents according to a Board decision.  
13.8 Execute other tasks set by the Charter and legislative acts of the Republic of XXX.  
13.9 Represent the Union in governmental bodies, public and other organizations and courts of the Republic of XXX as well as in foreign countries.  
13.10 Act by the Board's order on behalf of Union without a power of attorney.  
13.11 Work out the agenda of the Water Users Meeting.  
13.12 Carry out general management of the Union activity in accordance with the instruction of the Board.  
13.13 Conclude agreements and carry out other actions on behalf of the Union and in accordance with the instruction of the Board.  
13.14 Make employment and dismissal of Union regular employees.  
13.15 Open and close accounts in the bank.  
13.16 Issue powers of attorney for the representation of the Union to the persons who act for it.  
13.17 Deal with current issues related to the Union activity in accordance with the instruction of the Board.

## **14. Auditing Committee**

- 14.1 The Auditing Committee shall be set up according to the decision of the Water Users Meeting and is accountable to the latter.  
14.2 The Auditing Committee members (not less than 3 people) shall be elected from among Union members for three years.  
14.3 The Board members and paid personnel shall not enter the Auditing Committee.  
14.4 The Auditing Committee shall be composed of the Auditing Committee Chair and two members who are in charge of the control over the financial and economic activities of the Board.  
14.5 The Auditing Committee shall be liable for continuous monitoring of all financial records, reserve, and bank account of the Union.  
14.6 The Auditing Committee shall independently assign its Chair.  
14.7 The Board Chair shall not be elected as an Auditing Committee member.  
14.8 The Auditing Committee shall control the financial and economic activities of the Union.  
14.9 The Auditing Committee shall carry out at least one audit every year and give a view on the annual report of the Board Chair. Based on the audit results, the Auditing Committee renders annual account to the Water Users Meeting.  
14.10 The Auditing Committee shall have the right to require from Board and other Union members all necessary accounting, financial, and other documents, as well as personal explanations concerning the issues that are under the competence of the Auditing Committee.  
14.11 The Auditing Committee shall have the right to require calling a special Water Users Meeting. It is accountable only to the Water Users Meeting.  
14.12 The Auditing Committee shall control over the financial and economic activities of the Union and report to the Water Users Meeting.  
14.13 To make an audit, the Auditing Committee shall have the right to involve independent auditors.

- 14.14 The Auditing Committee membership shall be elected from among representatives of Union members by voting by the Water Users Meeting.
- 14.15 The Auditing Committee members shall elect its Chair from among its members.
- 14.16 The Statute of the Auditing Committee shall be approved by the Water Users Meeting.
- 14.17 The Auditing Committee shall carry out audit of accounting records, inventory matters, and correctness of keeping accounting records of the Union at least once a year and be able to carry out additional audits at its initiative with the participation of independent auditors.
- 14.18 The Auditing Committee shall carry out additional audits as follows: based on the decision of the Water Users Meeting; at its own initiative, but not more than 3 times a year.
- 14.19 In the case of auditing, the Board and/or other executive bodies shall give their records and receipts to the Auditing Committee and help the auditing being carried out.
- 14.20 The Auditing Committee shall perform additional tasks in accordance with the standard acts adopted by the Water Users Meeting.
- 14.21 The Auditing Committee shall submit its conclusions and recommendations to Water Users Meeting in the form of the report signed by the Committee Chair. If a Committee member's representative disagrees with the conclusion and recommendation given in the report, it can prepare an individual report indicating motives and reasons for the disagreement. Both reports shall be submitted to the Water Users Meeting.
- 14.22 At its own initiative or at the request of 1/5 part of the Union members, the Auditing Committee shall have the right to invite independent auditors to audit the Union activity.

## **15. Arbitration Committee**

- 15.1 The Arbitration Committee shall be composed of five members elected at a Water Users Meeting, who, in turn, shall elect their Chair. The Board members and paid personnel shall not be elected as Arbitration Committee members.
- 15.2 The Arbitration Committee's function shall be to settle conflicts and disputes.
- 15.3 The Arbitration Committee can solicit the senior units for the imposition of penalties on the violators of water use rules.

## **16. Union activity**

- 16.1 The Union shall carry out its activity based on annual time schedules developed and approved by the Water Users Meeting. If needed, amendments and additions can be introduced in the time schedules by a Board decision.
- 16.2 Water Users Meetings shall be conducted at least once a year to assess the Union job in the past year and approve the time schedule for the Union operation in the next year.
- 16.3 Union members and representatives of stakeholders shall bring forward issues to a Board meeting and the Water Users Meeting. The materials necessary for the meetings shall be prepared by the Secretary and/or a Board member according to a Board decision and/or by the commission of the Board Chair.
- 16.4 The Board and Water Users Meeting decisions shall be brought to the notice of all Union members to be considered and executed by them.
- 16.5 The Board shall control over the execution of the decisions taken by the Board and Water Users Meeting. The activity auditing results shall be considered at a regular meeting of the Board or Water Users Meeting.
- 16.6 Board meetings shall be conducted at least once a month. A Board decision shall be valid if a quorum of 2/3 Board members is secured. Board decisions shall be taken by a majority vote.



## **17. Financing of the Union**

- 17.1 The Union is the owner of the property transferred to it by its founders as well as any property purchased in accordance with the laws of the Republic of XXX.
- 17.2 The Union members shall have no right to use the property and assets of the Union for private profit.
- 17.3 The Union's cash assets shall be formed from membership fees as well as voluntary contributions.
- 17.4 The Union founders shall have the right to contribute additional cash funds.
- 17.5 The Union activity shall be financed from the Union budget.
- 17.6 The Union budget shall be formed from the following:
  - 17.6.1 Funds of water users (membership fees).
  - 17.6.2 Other contributions approved at Water Users Meetings.
  - 17.6.3 Funds gained from commercial activities.
  - 17.6.4 Contributions and grants from governmental and other sources.
  - 17.6.5 Assignments from the incomes of legal entities, the Union is among the founders of which, as well as from legal entities established with the participation of the Union.
  - 17.6.6 Any other sources not prohibited by the laws.
- 17.7 The Union budget shall be approved by the Water Users Meeting.
- 17.8 Expenditures for the financing the Union activity shall be provided for in the budget of the water users that are Union members.
- 17.9 Board members' activities shall be carried out, as a rule, on a voluntary basis. Some Board members can work on a permanent paid basis. Their salary size and rules of work shall be determined by a Water Users Meeting decision.
- 17.10 The Union can own buildings, constructions, vehicles, equipment, furniture, various funds (reserve, pension, insurance, etc.), including funds in foreign currency, and other property required to secure the activity specified in this Charter.
- 17.11 The income gained from the business activity shall not be shared among the Union members. It is allocated to achieve the statutory goals of the Union.
- 17.12 The Union's funds shall be used to achieve the statutory goals as well as to maintain the hired personnel.
- 17.13 Among the hired personnel shall be an accountant, engineer, secretary, technician, etc.
- 17.14 The hired employees of the Union may be regular and temporary.
- 17.15 The Chair can hire the above-mentioned hired employees according to the budget and working plan.
- 17.16 The hired employees can be elected to the Auditing Committee.
- 17.17 The hired employees' duties shall be regulated by the Statute of the Board approved by the Water Users Meeting.

## **18. Reorganization and liquidation of the Union**

- 18.1 The reorganization and liquidation of the Union shall be carried out in accordance with the laws of the Republic of XXX.
- 18.2 Announcement of the Union reorganization and liquidation shall be published in official printed matters of the Republic of XXX.
- 18.3 The Union reorganization and liquidation procedure shall be regulated by the laws of the Republic of XXX.
- 18.4 In case of reorganization, the Union's property shall be passed on to its legal successor.
- 18.5 In case of liquidation, the Union's property and cash assets, after all required settlement with creditors, shall be allocated to achieve the statutory goals.

- 18.6 The Union reorganization and liquidation can take place by either the decision of the Water Users Meeting, if this is voted for by at least 2/3 participants, or in the cases stipulated in the laws of the Republic of XXX.
- 18.7 Any Union member shall have the right to bring forward the proposal on the Union reorganization and liquidation.
- 18.8 When liquidating the Union, the authorities to manage the Union shall be transferred to the liquidation commission composed of among the Union members' representatives.
- 18.9 Liquidation shall be recognized to be completed and the Union liquidated from the date of making an entry about this fact by the body that performed state registration of legal entities (striking from the list of operating organizations).
- 18.10 The logs and record books as well as all records of the liquidated Union shall be passed on to the National Archive Fund in accordance with the existing laws.
- 18.11 The Union can also be liquidated based on a court decision in the cases stipulated by the legislation of the Republic of XXX.

## **Annex 2**

### **STATUTE OF XXX MAIN CANAL WATER COMMITTEE (MODEL)**

**A P P R O V E D B Y :**  
**Founders' Meeting of**  
**of XXX Main Canal Water Committee**  
**Minutes №1 dd. «\_\_» \_\_\_\_ 201\_**  
**XXX CWC Board Chair**

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**STATUTE OF XXX MAIN CANAL  
WATER COMMITTEE**

**XXX 201\_**

## **GENERAL PROVISIONS**

- This Statute of the XXX Main Canal Water Committee (hereinafter referred to as Water Committee) is developed in accordance with the main provisions of the concept of transition to IWRM principles in the Fergana Valley proposed by SIC ICWC and IWMI and agreed with national water management authorities of the three countries some areas of which are located in the Fergana Valley.
- Being the governing body, the Water Committee is in charge of the conduct of general technical and economic policy that ensures effective functioning of the whole canal infrastructure to supply water to consumers.

### **Main purpose**

- The main purpose of the Water Committee is to enhance the equity, stability, and efficiency of water distribution in the canal zone by implementing integrated water resources management (hereinafter referred to as IWRM) principles.
- Water Committee is a representative public body established for co-management of the XXX main canal management organization (hereinafter referred to as CMO).

### **Operating zone**

- The Water Committee operating zone is the system of the main canal up to the gate of primary water users (WUAs, production cooperatives, etc.).

### **IWRM principles:**

- Water management within the hydrographic boundaries of the canal.
- Accounting and employment of all types of water (surface, underground, return).
- Consideration of the climatic, hydrogeological, and soil conditions in the canal zone.
- Priority of ecological requirements.
- Participation of water users and other stakeholders in water governance.
- Linkage of all the bodies that participate in water governance: 1) horizontally – between economy sectors; 2) vertically – between the water allocation hierarchy levels.
- Openness and transparency of the water governance and management system.
- Water saving, etc.

### **Legal status**

- The Water Committee shall be established and act in accordance with the Constitution, Civil Code, Water and Water Use Law, Water Code, government decisions, acts and recommendations of the national water management authority and its structural units, as well as legal and standard acts of the Republic of Uzbekistan.
- The Water Committee is not a legal entity.
- The Water Committee decisions shall acquire binding force after they are formalized by appropriate orders and decisions of legal entities-structures that have their representatives in Water Committee.

## **Establishment of Water Committee**

- The Water Committee shall be established based on the CMO Co-management Agreement which is concluded between the government represented by the water management organization XXX (hereinafter referred to as WMO), to which CMO is directly subordinate,

and the community represented by the Union of Canal Water Users XXX (hereinafter referred to as Union).

- The Water Committee can be established as follows: 1) in extended version, with which Water Committee is composed of Council, Board, and Arbitration Committee; and 2) in restricted version in the form of Board (at the initial stage of the Water Committee establishment).
- Representation shall imply the participation of all major parties, which are directly or indirectly interested in high-quality management of the water resources in the XXX canal (hereinafter referred to as Canal) zone, in the management of CMO.
- Representation principle, quantitative composition, and distribution of the seats in Water Committee shall be determined following the results of the negotiations and agreements reached between the government represented by WMO and the public represented by the Union and signing up a respective Co-management Agreement.

### **Water Committee structure**

#### **Water Committee structure:**

- Water Committee Council;
- Water Committee Board;
- Auditing Committee;
- Arbitration Committee;
- Others.

#### **Water Committee Board**

- The Water Committee Board shall be composed of WMO and UCWU representatives, i.e. representatives of water management organizations and water users. The representatives agricultural water users from that consume more than 90 % of water shall be included in the CWC Board.
- Percentage of the Water Committee Board membership is as follows:
  - Water management organizations – 50 %.
  - Agricultural water users – 50 %.

#### **Water Committee Council**

- The Water Council Board shall be set up on the basis of the Water Committee Board by getting involved representatives of local authority, agencies, and other stakeholders in the Water Committee Board activity and extending their representation.
- The Water Committee Board membership shall be composed of the representatives of the following organizations:
  - Water management organizations (land reclamation services, operational services, water inspectorate).
  - Agricultural water users (WUAs, production cooperatives, farms).
  - Other water users (industry, hydropower plants, fishery, public utilities).
  - Local authorities.
  - Nature protection and other organizations.
  - Public (non-governmental) organizations.
  - Private business.
- Percentage of the Water Committee Council membership is as follows:
  - Local authority – 20 %.
  - Water management organizations – 30 %.

- Agricultural water users – 30 %.
  - Non-agricultural water users – 10 %.
  - Other stakeholders – 10 %.
- The Water Committee Council and Board membership shall anyway be renewed every 2-3 years by at least one third.
  - The Council Chair with the consent of the Board shall introduce changes in the Water Committee Council membership as necessary, and this shall be approved by the Water Committee Council.
  - The Water Committee Board membership shall be changed according to the decision of the Water Committee Council.

### **Water Committee Board Chair**

The Water Committee Board Chair (alias Deputy Water Committee Council Chair) is the person elected by the Board for a three-year period on the basis of a simple majority of the votes of all its members.

### **Water Committee Council Chair**

The Water Committee Council Chair is the person elected by the Council for a three-year period on the basis of a simple majority of the votes of all its members.

## **Water Committee objectives and functions<sup>10</sup>**

- Implementation of the integrated water resources management principles.
- Control of the established order of water use on the canal.
- Control of the operational reliability of the canal and water facilities.
- Control over reliable accounting and reporting of water withdrawal, water supply, and water disposal.
- Application of water saving technologies.
- Initiation, consideration, and approval of long-term and short-term working plans for the improvement of water distribution and water use in the canal zone.
- Approval of seasonal water allocation plans.
- Approval of seasonal and ten-day limits for water supply from the pilot canal, which are based on the tradeoff between water supply and demand.
- Control over the observance of seasonal and ten-day-period water supply limits.
- Searching and introduction of water saving stimulating methods and raising water supply service fees collection rate.
- Introduction of water rotation.
- Solution of ecological (WPZs), drinking water supply, etc. problems.
- Prevention and settlement of conflict situations and controversial issues between water management organizations as well as between water management organizations and water users.
- Searching and attraction of additional financing sources.
- Control over the execution of Water Committee decisions. The management audit results shall be considered at a regular meeting of the Water Committee.

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<sup>10</sup> The agreements on joint governance by pilot Canal Management Organizations and on the establishment of pilot Canal Water Committees have been approved by the Chief Water Agencies of Kyrgyzstan and Tajikistan (Water Management Department of the Kyrgyz Republic and Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan). The Agreement on the establishment of SFMC WC has been presented to the CWMD of the Republic of Uzbekistan for approval.

- Giving a view on the documents concerning water resources development and use as well as enhancement of their effectiveness and productivity submitted to it for approval.

### **Water Committee's rights**

- Request and receive the materials and documents needed to solve the issues that fall within its competence from water management and other structures that use water resources as well as from water users (WUAs, PCs, etc.) in the established order.
- Propose a candidate for the position of CMO Head.
- Solicit the higher water management structures for the displacement of CMO Head.
- Solicit the higher water management structures for the adjustment of target figures for CMO.
- Solicit the higher water management structures for bringing legal and physical persons to book for the violation of water use procedures, exceeding permissible water pollution limit, and other violations, under the existing laws.

### **Water Committee's activity**

- Water Committee Council decisions shall be taken by a simple majority of votes.
- Water Committee Board decisions shall be taken unanimously.
- Water Committee Council meetings shall be conducted at least once a quarter and as necessary according to a decision of the Water Committee Chair or offer by one third of all Council members.
- Water Committee Board meetings shall be conducted every ten days during the vegetation period and every month during the non-vegetation period.
- Issues and necessary materials for Water Committee meetings shall be introduced and prepared as needed by all representatives of the parties involved in the Water Committee, including CMO Head who also is a Water Committee member.
- A quorum, viz. presence of at least 2/3 of all its members, is required to take Water Committee decisions.
- According to this Statute, the Water Committee decisions shall be mandatory for the parties and organizations involved in the Water Committee.

### **Annual work schedule of CWC**

- CWC work is executed based on detailed, coordinated, and approved annual work schedule.
- The annual work schedule of CWC includes the following:
  - List of planned measures aimed to improve water management quality.
  - List of responsible persons from WMOs, CWC, and other stakeholders.
  - Schedule times of the measures, etc.
- The list of planned measures includes the following:
  - Preparation of the mid-term and long-term programs for water management development in the canal zone.
  - Involvement of all stakeholders in CWC.
  - Enhancement of the organizational sustainability of CWC: organizational management of the CWC branches at the canal's hydraulic sites.
  - Raising the awareness of stakeholders (preparation and distribution of bulletins, booklets, publications, and speeches in mass media).
  - Conduction of CWC Board (Council) meetings (hereinafter referred to as CWC meetings) to discuss the issues that fall within the competence of CWC and after that take relevant decisions.



- Organization of site visits for CWC members to carry out monitoring over the execution of CWC decisions and taking operating decisions on water distribution, water service fees collection, and conflict situations.
- Organization of meetings with stakeholders and donors. Organization of spot inspection of WPZs.
- Preparation of letters to stakeholders concerning the issues that fall under the CWC competence.

**Organization of CWC meetings includes the following:**

- Coordination of the CWC meeting time, date, and venue as well as its composition by the CWC Chair with the CWC Board (Council) members (hereinafter referred to as CWC members).
- Preparation of a draft agenda and CWC meeting's decision by the CWC Chair (in coordination with the Board members).
- CWC members shall be informed by distributing preliminary notification 2-3 days prior to the meeting.
- Additional notification to CWC members shall be made by calling one day prior to the CWC meeting.
- Discussion of the draft meeting's decision and taking final version of it.
- Preparation and distribution of the meeting minutes.

**Timing of meetings:**

- CWC Board meetings shall be conducted once a ten-day period: it is advisable on 2<sup>nd</sup>, 12<sup>th</sup>, and 23<sup>rd</sup> of every month (if necessary, even more often).
- CWC Council meeting shall be conducted once a quarter (if necessary, even more often).

**Composition of the meetings:**

- CWC members.
- Persons invited by stakeholders.

**Main items on the CWC meeting agenda:**

- Discussion of the implementation of the previous meeting's decisions.
- Analysis of water distribution for the previous ten-day period.
- Taking a decision for the next ten-day period, etc.

**Financing of the Water Committee**

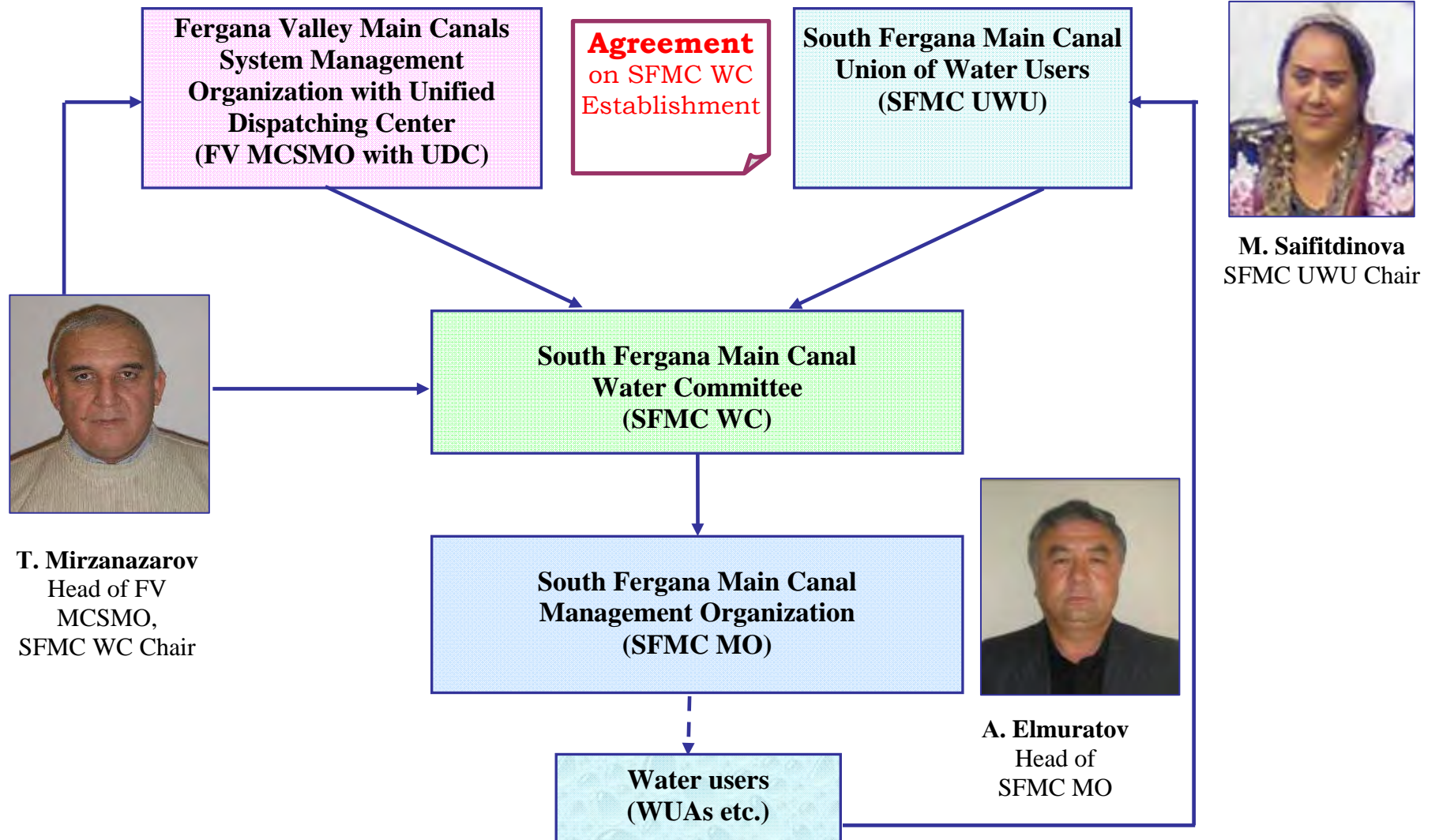
- The status of the Water Committee members shall not provide for the payment for their work, and their activities shall be carried out on a voluntary basis.
- The activity of the Water Committee Secretariat composed of three people shall be financed from the budgets of the Union, WMOs, CMO, agencies, and other Water Committee members as well as donors.
- Terms of office and the issues of remuneration Secretariat members' labor shall be determined by the Water Committee Council (Board).

**Reorganization and liquidation of the Water Committee**

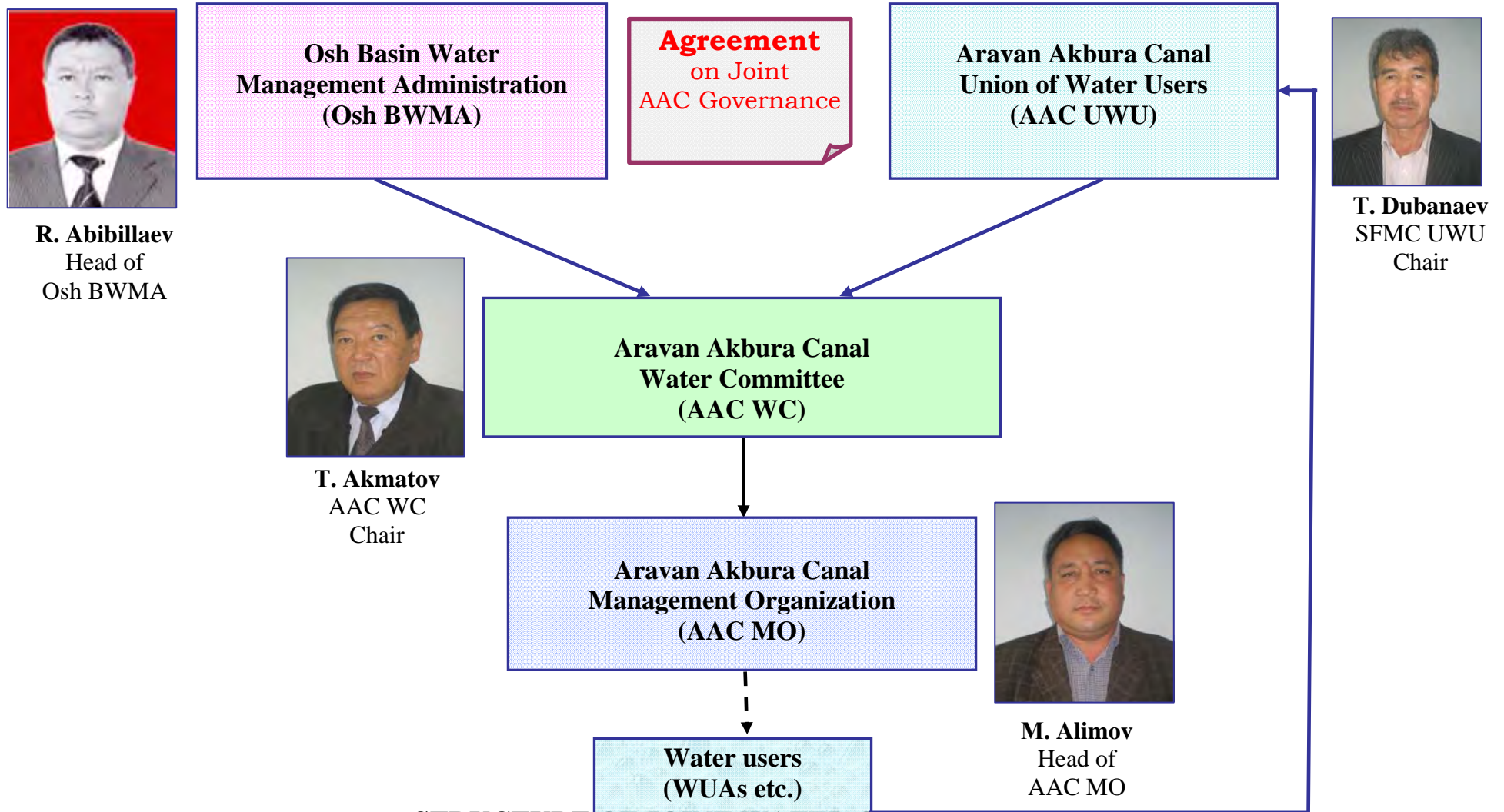
- Water Committee reorganization and liquidation shall be carried out in accordance with a decision of the Water Committee Board.

Annex 3

STRUCTURE OF JOINT WATER GOVERNANCE ON THE SOUTH FERGANA MAIN CANAL (SFMC)



**STRUCTURE OF JOINT WATER GOVERNANCE  
ON THE ARAVAN AKBURA CANAL (AAC)**



**STRUCTURE OF JOINT WATER GOVERNANCE  
ON THE UNION OF KHODJA-BAKIRGANSAY RIVER BASIN WATER USERS (KBRB UWU)**



**R. Bobokalonov**  
Minister of  
MLR&WR

**Ministry of Land Reclamation  
and Water Resources of the  
Republic of Tajikistan  
(MLR&WR)**

**Agreement  
on Joint  
Governance  
of KBC**

**Union of Khodja-Bakirgansay  
River Basin Water Users  
(KBRB UWU)**



**A. Abdusaminov**  
KBRB UWU  
Chair



**A. Koridjumaev**  
KBRB WC  
Chair

**Khodja-Bakirgansay River Basin  
Water Committee (KBRB WC)**

**SUE Khodja-Bakirgan Canal  
Management Organization  
(KBC MO)**



**Z. Makhsudov**  
Head of KBC MO

**Water users  
(WUAs etc.)**

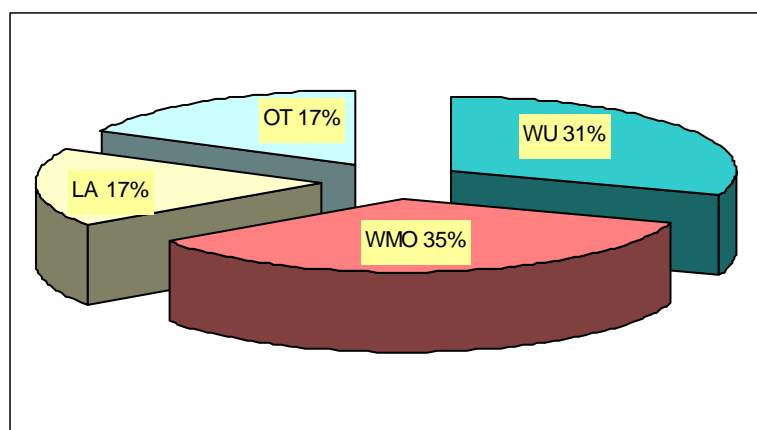
## Annex 4

### SFMC WC Council composition (as of April 2010)

<i>Name</i>	<i>Title</i>	<i>Qty</i>
	<b>Khokimiats (authority)</b>	
Nozirov, U.	Representative of the Fergana province khokimiat	1
Egamberdiev, I.	Representative of the Andijan province khokimiat	1
Saydakhmedov, A.	Representative of the Markhamat district khokimiat (Andijan province)	1
Karaboev, Sh.	Representative of the Kuva district khokimiat (Fergana province)	1
	<b>Aravan district of the Kyrgyz Republic</b>	
Aytiev, K.	Head of the Aravan district water management organization	1
	<b>FV MCSMO with UDC</b>	
Mirzanazarov, T.	Head of FV MCSMO with UDC, SFMC WC Chair	1
Elmuratov, A.	Head of SFMC MO, Board member	1
	<b>SFMC UWU</b>	
Sayfitdinova, M.	SFMC UWU Chair, Board member	1
Turgunov, Zh.	Deputy Chair of SFMC UWU on the SFMC Andijan part, Board member	1
Madrakhimov, K.	Deputy Chair of SFMC UWU on the SFMC Fergana part, Board member	1
Tulanov, K.	Representative of UHSWU K-1	1
Baratov, N.	Representative of UHSWU Akbarabad	1
Otajonov, K.	Representative of UHSWU Fayziabad	1
Sobiroy, M.	Representative of UHSWU Beshalish	1
	<b>BISA "Syrdarya-Sokh"</b>	
Rasulov, P.	Representative of the BISA "Syrdarya-Sokh", First Deputy Chief, Board member	1
	<b>BISA "Naryn-Karadarya"</b>	
Ergashev, Sh.	Representative of the BISA "Naryn-Karadarya", First Deputy Chief, Board member	1
	<b>Andijan reservoir</b>	
Nishonov, M.	Director of the Andijan reservoir	1
	<b>IWRM-FV Project</b>	
Kholikov, A.	Manager of the IWRM-FV Project Phase IV, Board member	1
	<b>State Water Inspectorate "Suvnazorat"</b>	
Isfandiyorov, E.	"Suvnazorat" (Andijan province)	1
Akhunov, M.	"Suvnazorat" (Fergana province), Board member	1
	<b>State Nature Protection Committee</b>	
Babakhodjaev, M.	Representative of the State Nature Protection Committee	1
Nuriddinov, S.	Representative of the Andijan Province Nature Protection Committee	1
	<b>Hydrometeorological Service</b>	
Teshaboev, A.	Head of the Hydrometeorological Service of the Fergana province	1

<b>Total</b>		<b>23</b>
<i>Water users (WU)</i>	35 %	8
<i>Water management organizations (WMO)</i>	31 %	7
<i>Local authority (LA)</i>	17 %	4
<i>Others (OT)</i>	17 %	4
<b>Total</b>	100 %	<b>23</b>

### Stakeholders percentage composition of the SFMC WC Council

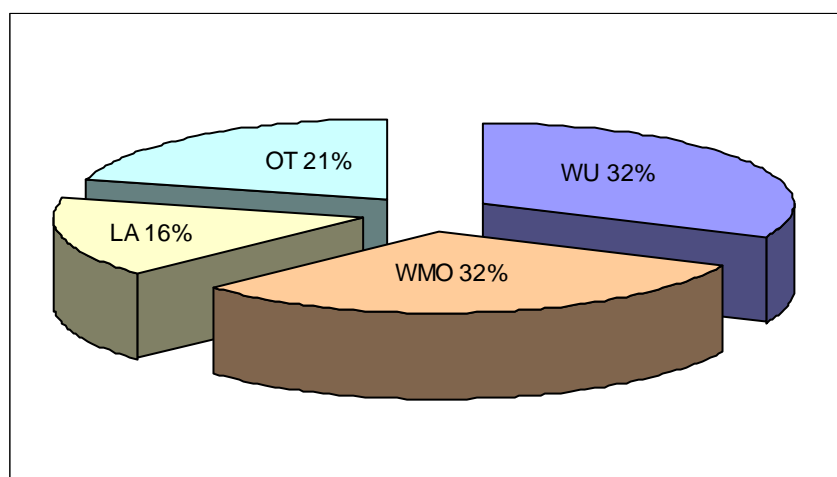


### AAC WC Council composition (as of April 2010)

<i>Name</i>	<i>Title</i>	<i>Qty</i>
	<b>Akimiyats (authority)</b>	
<i>Burgoev, B.</i>	<i>Deputy Head-Governor of the Osh province</i>	<i>1</i>
<i>Djalilov, A.</i>	<i>Deputy Akim of the Aravan district</i>	<i>1</i>
<i>Kulbotaev, K.</i>	<i>Head of the Agrarian Development Administration of the Karasu district</i>	<i>1</i>
	<b>BWMA</b>	
<i>Abibillaev, R.</i>	<i>Head of the Osh BWMA</i>	<i>1</i>
	<b>Aravan district</b>	
<i>Aytiev, K.</i>	<i>Head of the Aravan DWMA</i>	<i>1</i>
	<b>AAC MO</b>	
<i>Alimov, M.</i>	<i>Head of AAC MO, Board member</i>	<i>1</i>
	<b>Water Inspectorate</b>	
<i>Kadyrov, K.</i>	<i>Officer of the State Water Inspectorate of the Osh province, Board member</i>	<i>1</i>
	<b>AAC UWU</b>	
<i>Dubanaev, T.</i>	<i>AAC UWU Chair, Board member</i>	<i>1</i>
<i>Khalmatov, A.</i>	<i>Representative of water users from the WUA “Myrza Azhy”</i>	<i>1</i>
<i>Eshbaev, M.</i>	<i>Representative of water users from the WUA “Isan”, Board member</i>	<i>1</i>
<i>Umurzakov, A.</i>	<i>Representative of water users from the WUA “Djoypas”</i>	<i>1</i>
<i>Kamilov, Zh.</i>	<i>Representative of water users from the WUA “Zhapalak”</i>	<i>1</i>

Abdillaev, Y.	Representative of water users from the WUA “Sakhil”	1
	<b>Osh BWMA</b>	
Akmatov, T.	Deputy Head of the Osh BWMA, Board Chair	1
	<b>IWRM-FV Project</b>	
Tajibaev, K.	Head of the Papan reservoir, Manager of the IWRM-FV Project Phase IV, Board member	1
	<b>Drinking water supply</b>	
Olzhobaev, A.	Senior Engineer of the Operation and Technical Department of the Osh Water Administration “Gorvodkanal”	1
Kurbanzarov, S.	Representative of the Sanitary and Epidemiological Station of the Osh city	1
	<b>Ecological organization</b>	
Ergashev, A.	Officer of the Osh province Nature Protection Committee	1
	<b>Non-Governmental &amp; Non-Profit Organization</b>	
Amatov, Y.	Director of the NGNPO “El Tayanychy”	1
<b>Total</b>		<b>19</b>
Water users (WU)	32 %	6
Water management organizations (WMO)	32 %	6
Local authority (LA)	16 %	3
Others (OT)	21 %	4
<b>Total</b>	<b>100 %</b>	<b>19</b>

**Stakeholders percentage composition of the AAC WC Council**



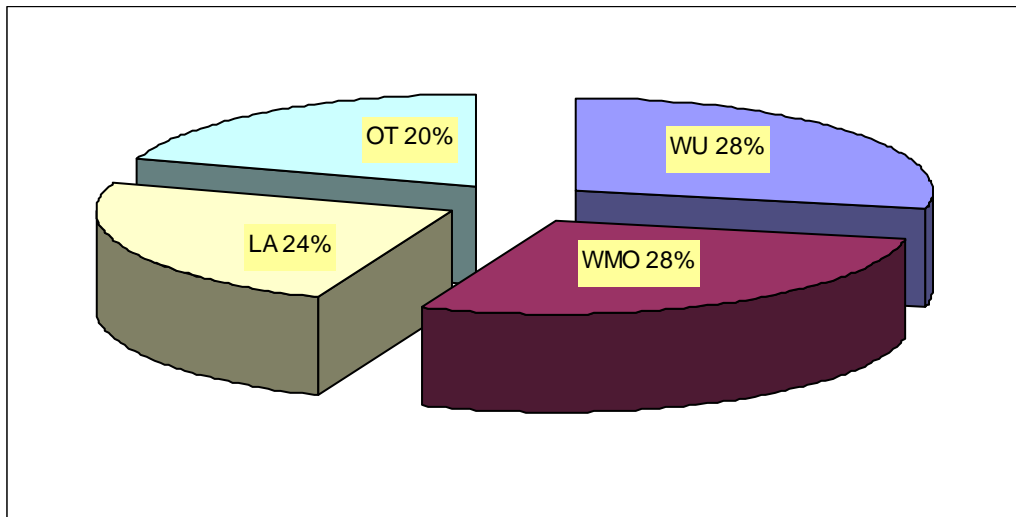
**KBRB WC Council composition (as of April 2010)**

<i>Name</i>	<i>Title</i>	<i>Qty</i>
	<b>Khukumats (authority)</b>	
<i>Bobojonov, S.</i>	<i>Representative of the Executive Committee of the State Authority in the Sogd province</i>	<i>1</i>
<i>Nematov, A.</i>	<i>Chief Hydraulic Engineer of the Agricultural Administration of the Sogd province</i>	<i>1</i>
<i>Akramov, B.</i>	<i>Representative of the Dj. Rasulov District Khukumat</i>	<i>1</i>
<i>Abdulakimov, A.</i>	<i>Representative of the B. Gafurov District Khukumat</i>	<i>1</i>
<i>Kalandarova, M.</i>	<i>Representative of the “Ovchi Kalacha” Djamoat of the B. Gafurov District Khukumat</i>	<i>1</i>
<i>Shokirova, M.</i>	<i>Representative of the “Yangi Khayot” Djamoat of the Dj. Rasulov District Khukumat</i>	<i>1</i>
	<b>Dj. Rasulov District</b>	
<i>Solidjonov, A.</i>	<i>Head of the Dj. Rasulov District WMO</i>	<i>1</i>
	<b>KBC MO</b>	
<i>Makhsudov, Z.</i>	<i>Head of KBC MO, Board member</i>	<i>1</i>
	<b>B. Gafurov District</b>	
<i>Boboev, A.</i>	<i>Head of the B. Gafurov District WMO</i>	<i>1</i>
<i>Koridjumaev, A.</i>	<i>Deputy Head of the B. Gafurov District WMO, Board Chair</i>	<i>1</i>
	<b>KBC UWU</b>	
<i>Abdusaminov, A.</i>	<i>KBC UWU Chair, Board member</i>	<i>1</i>
<i>Yuldoshev, E.</i>	<i>Director of the WUA “Obi Kalacha” of the B. Gafurov District</i>	<i>1</i>
<i>Samatov, M.</i>	<i>Representative of the PC-CF “Samatov”, Board member</i>	<i>1</i>
<i>Khalimov, I.</i>	<i>Representative of the WUA “Gulyakandoz” water users</i>	<i>1</i>
<i>Norboboev, A.</i>	<i>Director of the WUA “Madaniyat” of the B. Gafurov District</i>	<i>1</i>
<i>Khasanov, B.</i>	<i>Director of the WUA “Khistevarz” of the B. Gafurov District, Board member</i>	<i>1</i>
<i>Sultonov, D.</i>	<i>Director of the WUA “Kotma” of the B. Gafurov District</i>	<i>1</i>
	<b>Sogd Provincial Chief Water Management Administration (SPCWMA)</b>	
<i>Sharipov, Z.</i>	<i>Head of SPCWMA</i>	<i>1</i>
<i>Abdurakhmonov, B.</i>	<i>Head of the WUA Support Division</i>	<i>1</i>
<i>Mirzosharipov, A.</i>	<i>Chief Engineer of HGRE of the Sogd province, Board member</i>	<i>1</i>
	<b>IWRM-FV Project</b>	
<i>Abdulatifi Khomidi</i>	<i>Manager of the IWRM-FV Project in Tajikistan, Board member</i>	<i>1</i>
	<b>Household and water supply “Vodokanal”</b>	



<i>Abdujalilov, I.</i>	<i>Executive Director of “Khudjandvodokanal”</i>	<i>1</i>
<i>Rustamov, A.</i>	<i>Director of “Chakovskvodokanal”</i>	<i>1</i>
	<b><i>Egological organization</i></b>	
<i>Khomidov, A.</i>	<i>Head of the water Resources Sector of the Nature Protection Administration of the Sogd province</i>	<i>1</i>
	<b><i>Non-Governmental Organization</i></b>	
<i>Sadykova, S.</i>	<i>Director of the NGO “Bonu”</i>	<i>1</i>
<b><i>Total</i></b>		<b><i>25</i></b>
<i>Water users (WU)</i>	<i>28 %</i>	<i>7</i>
<i>Water management organizations (WMO)</i>	<i>28 %</i>	<i>7</i>
<i>Local authority (LA)</i>	<i>24 %</i>	<i>6</i>
<i>Others (OT)</i>	<i>20 %</i>	<i>5</i>
<b><i>Total</i></b>	<b><i>100 %</i></b>	<b><i>25</i></b>

**Stakeholders percentage composition of the KBRB WC Council**



## Annex 5

APPROVED BY:  
Founders' Meeting of  
Land & Water Commission  
Minutes № \_\_\_\_ dd. «\_\_\_\_» \_\_\_\_\_ 2010  
WLC Chair  
\_\_\_\_\_  
\_\_\_\_\_ 2010

### **STATUTE OF WATER & LAND COMMISSION OF THE KUVA DISTRICT OF THE FERGANA PROVINCE**

**(draft)**

1. This Statute of the Kuva district Water & Land Commission of the Fergana province (hereinafter referred to as WLC) has been worked out with the purpose to develop a concept for the transition to integrated water resources management (IWRM) in the Fergana Valley.
2. WLC is a public representative governing body established on the basis of the integration of all district stakeholders' representatives and responsible for the development and implementation of the effective policy ensuring high productivity of water and land resources use.

#### **MAIN PURPOSE**

3. The main purpose of WLC is to strengthen the coordination of district organizations' activities aimed at enhancing the agriculture and water industry effectiveness by achieving high productivity of water and land use along with meeting ecological requirements.

#### **COVERAGE AREA**

4. WLC coverage area shall be the territory of the Kuva district of the Fergana province.

#### **LEGAL STATUS**

5. WLC shall be set up and operate in accordance with the Constitution and Civil Code of the Republic of Uzbekistan, Law on Water and Water Use, as well as legal and standard acts of the Republic of Uzbekistan with the purpose to execute the decision of the Fergana Province Khokim № 23 dated February 2, 2009 "On enforcing the decision of the Cabinet of Ministers of the Republic of Uzbekistan" № 03-11-8 dated January 30, 2009 "On additional measures to organize rational governance and effective use of water resources".
6. WLC shall be established on the basis of the decision of the Founders' Meeting of the representatives of all the parties interested in rational water and land resources use.
7. The principle of representation of parties in WLC shall be determined by a Founders' Meeting decision.

8. WLC shall not be a legal entity.
9. WLC decisions shall be formalized through minutes and come into effect after being approved by the Chair, i.e. District Khokim.

## **STRUCTURE**

10. WLC structure:
  - General Meeting.
  - WLC Board.
  - WLC Secretariat the functions of which are performed by the District Association of Farms (DAF).
11. WLC shall be composed of the representatives of all stakeholders from the Kuva district:
  - District Khokimiat.
  - Water Users Association.
  - Makhalla Committee.
  - SFMC UWU branches (“Tolmozor”, “Akbarabad”).
  - Administrations of irrigation systems.
  - Hydrogeological Reclamation Expedition.
  - Machine and Tractor Fleet.
  - Agricultural chemicals organization.
  - Enterprises.
  - Banks financing agricultural enterprises and water industry.
12. The WLC Board membership shall be changed by its Chair as necessary with the consent of the Board members.
13. The WLC Board Chair position shall be held by the District Khokim.

## **TASKS AND FUNCTIONS**

- The main task of WLC to coordinate the district organization activities to increase water and land productivity as well as financial sustainability of WUAs and farms.
- Participation of water consumers and other stakeholders in raising water and land productivity.
- Creation of openness and transparency of the water and land governance and management system.
- Operational organization of effective water and land use.
- Widespread practical application of water saving technology and best practice.
- Organization of equipment repair, purchase of new equipment, and widespread practical application of it.
- Providing practical assistance in efficient executing the analysis of the planned measures aimed to mitigate negative consequences of water deficit.
- Organization of agitation and propaganda activities for the presentation of the best water saving practice through mass media.
- Creation of necessary organizational and financial conditions for the realization of new technologies.

- Establishment of public control over the timeliness of payments, credit and mortgage operations in favor of WUAs and farms.

### **ORGANIZATIONAL MANAGEMENT**

14. WLC Board decisions shall be taken by a simple majority of votes.
15. WLC Board meetings shall be conducted at least once a year as well as when needed according to the decisions of the WLC Board Chair.
16. To take WLC Board decisions, a quorum shall be required, i.e. participation of not less than 2/3 of its members in the meeting.
17. WLC Board decisions according to this Statute shall be mandatory for all the parties and organizations involved in WLC.
18. WLC work shall be carried out based on detailed, agreed, and approved annual Work Schedule.
19. Annual Work Schedule of WLC shall include the following:
  - Preparation and coordination of land and water productivity enhancement lines.
  - Preparation and coordination of the activities plan for the participation of WLC members in achieving planned outputs.
  - Monthly reporting of the participants on coordinated actions aimed at increasing land and water use effectiveness.
  - Settlement of controversial issues that have intersectoral nature.
  - Measures to raise the awareness of stakeholders (preparation and distribution of publications and speeches through mass media).
  - Financial analysis of WUA activities.
  - Preparation of mid-term and long-term water and land use productivity improvement programs.

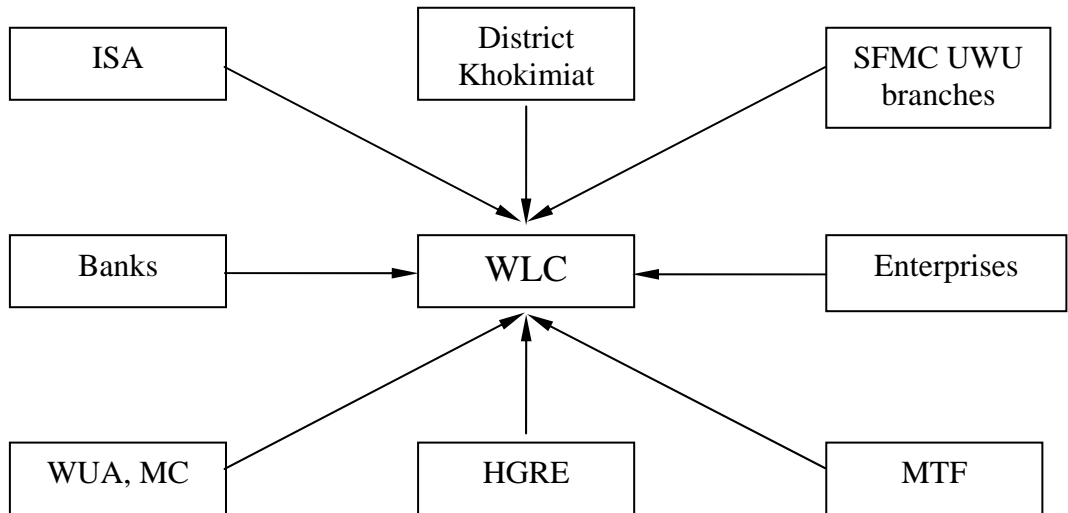
### **FINANCING**

20. WLC members activity shall be carried out on a voluntary basis and the costs shall be covered by contributions for the maintenance of Farms Associations' employees.
21. WLC Secretary shall be appointed according to the decision of the WLC Board.

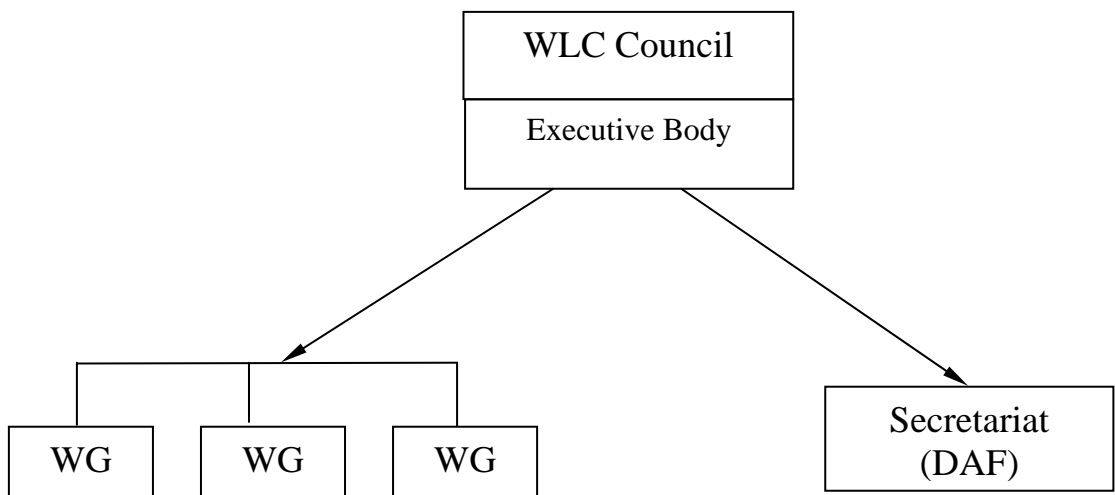
### **REORGANIZATION AND LIQUIDATION**

22. WLC reorganization or liquidation shall be carried out in accordance with the decision of the WLC Board.

Appendix 1. Water & Land Commission formation scheme.



Appendix 2. WLC structure



Appendix 3. Abbreviations.

WLC	Water & Land Commission
DAF	District Association of Farms
MTF	Machine and Tractor Fleet
WG	Working Groups (territorial and target)
MC	Makhalla Committee
SFMC UWU	South Fergana Main Canal Union of Water Users
ISA	Irrigation Systems Administration
HGRE	Hydrogeological Reclamation Expedition

## Annex 6

Summary table of monitoring of WUA/UCWU/CWC in 2010.

Nº	Measures		Unit	SFMC	AAC	RBMC	KBRB	
1	<b>Population in the main canal zone</b>		people	476664	91850	84000	178388	
2	<b>Irrigated area in the main canal zone</b>		ha	89272	6441	9318	24302	
3	<b>Irrigated area of WUAs</b>		Max	ha	5715	1560	1453	5505
4			Average	ha	2240	1074	625	1057
5			Min	ha	407	510	100	27
6	<b>Irrigated area of farms</b>		Max	ha	249.4	8	15	227
7			Average	ha	65	3	7.0	26.5
8			Min	ha	4	0,4	0.5	0.37
9	<b>Number of water users</b>	<b>WUU</b>	Total	units	39	6	14	18
10			incl. WUAs	units	39	6	14	10
11		<b>Other WUs</b>		units	x	25	7	24
12		<b>Total</b>		units	39	31	21	42
13	<b>UCWU members</b>	<b>WUU</b>	Total	units	39	6	14	18
14			%	100	100	100	100	
15			incl. WUAs	units	39	6	14	16
16			%	100	100	100	100	
17		<b>Other WUs</b>		units	0	21	7	2
18				%	0	100	100	100
19		<b>Other WUs</b>		units	39	27	21	18
20				%	100	100	100	100
21	<b>Hydrographized UWUs</b>		<b>WUU</b>	units	x	x	x	2
22				%	x	x	x	100
23			incl. WUAs	units	39	6	14	16
24				%	100	100	100	100
25	<b>Number of CWC Board meetings</b>		Planned	units	12	10	10	10
26			Actual	units	11	4	7	12
27			Actual/Planned	%	92	40	70	120
28	<b>Number of CWC Council meetings</b>		Planned	units	4	4	1	4
29			Actual	units	2	2	0	4
30			Actual/Planned	%	50	50	0	100
31	<b>Number of UCWU Board meetings</b>		Planned	units	12	12	12	9
32			Actual	units	12	12	12	12
33			Actual/Planned	%	100	100	100	133
34	<b>Number of WUA Council meetings</b>		Planned	units	546	36	64	69
35			Actual	units	540	20	44	66
36			Actual/Planned	%	99	56	69	96
37	<b>Number of khashars on MC</b>		Actual	units	59	12	5	2
38	<b>Number of khashars in WUAs</b>		Actual	units	302	37	83	66
39	<b>Number of Contracts</b>	<i>WUA with CMO</i>	Planned	pcs.	32	6	14	10
40			Actual	pcs.	32	6	14	10

<b>№</b>	<b>Measures</b>		<b>Unit</b>	<b>SFMC</b>	<b>AAC</b>	<b>RBMC</b>	<b>KBRB</b>		
41			Actual/Planned	%	100	100	100		
42			Actual	pcs.	32	6	14	10	
43			Actual/Planned	%	100	100	100	100	
44		<i>WUA with farms</i>		Planned	pcs.	2257	143	182	414
45				Actual	pcs.	2257	143	182	414
46				Actual/Planned	%	100	100	100	100
47		<i>WUA with HUs</i>		Actual	pcs.	154	0	0	4
48	<b>CMO water service fees collection</b>	<b>Annual</b>	Planned	\$	x	62468	53861	481651	
49			Actual	\$	x	52381	53059	248989	
50			Actual/Planned	%	x	84	99	52	
51		<b>Progressive total (2004-2009)</b>	Planned	\$	x	332684	143361	177620 4	
52			Actual	\$	x	302894	118484	894432	
53			Actual/Planned	%	x	91	83	50	
54	<b>WUA water service fees collection from farms (annual)</b>		Planned	\$	674591	101883	110861	68495	
55			Actual	\$	484209	72197	80565	43018	
56			Actual/Planned	%	72	71	73	63	
57	<b>WUA water service fees collection from homestead lands (annual)</b>		Planned	\$	87981	x	x	26363	
58			Actual	\$	37477	x	x	22466	
59			Actual/Planned	%	43	x	x	85	
60	<b>UCWU membership fees collection (annual)</b>		Planned	\$	9569	1436	991	1804	
61			Actual	\$	2159	671	527	428	
62			Actual/Planned	%	23	47	53	24	
63	<b>Number of conflicts (disputes)</b>	<i>between WUAs and WMOs</i>	Total	units	5	x	11	8	
64			incl. settled	units	5	x	11	8	
65				%	100	x	100	100	
66		<i>between WUAs</i>	Total	units	x	x	x	x	
67			incl. settled	units	x	x	x	x	
68				%	x	x	x	x	
69		<i>between WUA administration and WUA members</i>	Total	units	x	x	x	x	
70			incl. settled	units	x	x	x	x	
71				%	x	x	x	x	
72	<b>Number of SACs in WUA</b>		Actual	units	x	15	40	x	
73	<b>Number of farms in WUA</b>		Actual	units	2257	143	182	414	
74	<b>Number of WUGs in WUA</b>		Actual	units	246	43	29	104	

Note:

*Information is given for KBC.*

*KBRB stands for the Khodja-Bakirgansay River Basin*

*For AAC and RBMC, irrigated area of PFs (peasant farms)*

**Annex 7**

**PARTICIPANTS OF THE IWRM-FERGANA VALLEY PROJECT**



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Dubanaev, T.A.  
AAC UWU Chair



Berdibekov, B.K.  
RBMC UWU Chair



Abdusaminov, A.  
KBRB UWU Chair



Mirzanazarov, T.  
SFMC WC Chair



Akmatov, T.  
AAC WC Chair



Kirgizbaev, A.  
RBMC WC Chair



Koridjumaev, A.  
KBRB WC Chair



Elmuratov, A.T.  
Head of SFMC MO



Alimov, M.K.  
Head of AAC MO



Akzholova, Zh.  
Head of RBMC MO



Makhsudov, Z.D.  
Head of KBC MO



Participants of the KBC UWU Founders' Meeting, 2004.





Participants of the Workshop “Experience and issues of women involvement in water governance”, Fergana, 15 June 2009.



Participants of the Workshop “Experience and issues of women and aksakals involvement in water governance”, Khodjent, 25 December 2009.