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The Development of Sustainable Institutional Structures for Water use in Uzbekistan

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The Development of Sustainable Institutional Structures for Water use in Uzbekistan

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Abstract

Currently the management of irrigation systems in Uzberistan is carried out by state water organizations at all levels (national, regional, and district). As the irrigation system was developing the size of some areas was increasing. An analysis of the current situation illustrates that with increases in yield and water use no proper operation and maintenance of the systems was provided which resulted in their breakdown; so that new investments are required for restoration. However, the structure and functions of existing institutions, resulting in lack of incentives for individuals, are not likely to achieve efficient water use and operation of the system. It is therefore considered that institutional reforms are required to provide incentives for more efficient operation and maintenance of irrigation systems, while reducing costs.

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The main principles, objectives and functions of the Association of Water Users (AWU)

The main objective of the establishment of the Association of Water Users is uniting farmers for common maintenance and operation of irrigation systems, hydrotechnical constructions and installations, and for regulation of use of water resources and performing other irrigation activities. The AWU has all the rights of a juridical entity acting on the principles of total financial autonomy, and responsible for the results of its activities, and for the fulfillment of its obligations in relation to the state water organizations, founders and other institutions.
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The main functions of the Association of Water Users are as follows:

- relationship with water organs and other partners in terms of concluding contracts;
- organization of primary accounting of water and control over water use by the members of the association;
- water take-off, water distribution and draining of water in compliance with the terms of the license for the right of water use, and approved norms, plans and limits for water use, and contracts on water supply;
- technical services and maintenance of the irrigation systems of deLhkan fangs and other water users incorporated in the Association, and of special buildings and constructions located within those irrigation systems; and
- construction, repairs, purification, technical modernization and other measures for maintenance and development of the internal farm irrigation system, improvement of conditions of irrigated, watered and meliorated lands.

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Activities of the Association of Water Users at farm level (international experience)

The world experience shows that as the failure of technical and government approaches to increasing efficiency of irrigation systems becomes more obvious, a prospective contribution of local water users associations attracts more attention. The aim of the research is to give an answer, using the experience of other countries including the republics of Central Asia, to the question in what conditions the performance of the Association of Water Users is efficient terms of water management. The experience with the establishment of Associations of Water Users in such countries as Philippines, Sri Lanka and Pakistan has led to the extension of the policy towards transfer of management of the irrigation systems at farm level from state institutions to users' organizations. The main advantage as compared to state organizations is more efficient services for water supply, and adjustment of design and construction of irrigation projects to local needs. In quantative terms it includes expansion of irrigated areas, higher yields and increase in income of farmers. One of the main factors which is quite important, is a reduction in the financial burden of the government and even a reduction in the negative effect on the environment.

High expenses of organizations which are in charge of operation and maintenance of irrigation systems alongside the impossibility of the government to cover those expenses, accelerated numerous programmes for transfer of control over irrigation systems to AWU's. Systems which require considerable government subsidies for their implementation are unlikely to be maintained by the AWU unless one or more of the following conditions will be fulfilled:

- water users can perform all required functions with lower costs than state organizations,
- farmers are willing to pay more to the AWU than to state organizations in terms of better services;
- the AWU mobilizes other resources such as interests on bank accounts, rent for other assets, etc.

The main factors affecting stable operation of the AWU are presented below. In the longer run, taking into consideration the role of Associations of Water IJsers in Uzbekistan and given the complicated nature of physical resources, technologies, government institutions and causes of market failure, the emphasis should be on the following directions of development:

- the internal structure of the AWU;
- external conditions for acceptable and justified management of irrigation by the AWU;
- the relationship between the AWU and other institutions.

Materials of foreign experts were used in this section: Taug & Ostrom (1992), Baland & Platean (1')')4). Under (1994). Jackson (1991), Galdenson, Small & Carrethers (1991), Merrey (1991), Jan Sing (I')X')) and Ono Shaap (1995), as well documents of the World Bank. Research works were conducted in Philippines. Sri Lanka, Pakistan, Indonesia, Mexico, Morocco, France, Malaysia and Kirgizstan.

The internal structure of the AWU

The main characteristics of the internal structure of the Association relate to: creation. membership, size and federation.

Creation. Associations of water users, created at the initiative of water users are most common for small irrigation systems, being managed by farmers; associations established by an initiative from outside are typical for large irrigation systems. The source of initial stimulation for the establishment of the AWU (from within or outside) is of great importance for its operation especially during the first years. An association established spontaneously at the personal initiative of users might be more attractive for water users. Success of the AWU will depend on whether the members of the association will have benefits higher than if they were not members of the AWU (higher profit, better services, long term security, etc.).

Membership. The Association of Water Users is to be a voluntary union of water users of all categories within one institutional structure to protect interests of its members. The definition of membership of the AWU is required in order to determine the rights and obligations of its members. The membership of the AWU secures the rights of water users. For the establishment of a viable AWU it is necessary to define the area that will be served and the number of people who will have

access to water. Given the fact that water users are interested in using their own water resources, AWU's are recommended to be formed within the irrigation systems.

Size. There is no "optimal size " for the AWU. The definition of an optimal size depends on the structure of operation, character of monitoring, administrative costs in different countries and systems**.** AWU's created on large farms (in commercial systems in Mexico and Argentina), covering thousands of hectares, may have fewer members, as compared to AWU's created in small areas. A large AWU might achieve reduction in monitoring and transaction costs. The Association of Water Users can be established at the level of the whole irrigation system. Users from that system are supposed to be agricultural producers, industry and urban population. The association of water users in Central Arizona can be considered as an example of the creation of such a structure. Another option which is more acceptable in Uzbekistan during the transition period is the establishment of Water Users Associations at the level of farms (the former kolkhozes and sovkhozes). This type of associations is wide-spread in Kirgizstan. A criterion for the definition of size of the association is that it belongs to a particular irrigation system.

Federation. Due to a federal structure, even a small AWU can fulfil a wide range of tasks and use economy of scale. A federal structure provides coordination of AWUs on each level and gives a possibility to settle problems, arising on higher levels of the system. AWUs should not duplicate state water supply organizations in terms of their structure, i.e. we do not want to create a "National Association of Water Users" headed by a government representative. The base departments of the AWU, connected with each branch of a water distribution system, have the right to send their representative to the AWU on the distribution level. Distribution of water among the branches, settlement of conflicts among the base departments, operation and maintenance of the water distribution system should be carried out on that level.

External conditions for operation of the AWU

Some of the external factors that influence the operation of AWU's are the development of technology and infrastructure, the extent of market penetration, the system of incentives and the financial autonomy.

Technology and infrastructure. The statement, that operation of complicated irrigation systems require state management, has been doubted by the latest research. Currently, there are some examples of management of modern complicated systems (Mexico, Central Arizona). Thus, an advanced technology can not be considered as a barrier for independent management of the AWIJ. Applying advanced technology has an important meaning for the organisationand requires special training courses and appropriate supportive structures. The transport and communication infrastructure, which helps the members of an association to meet, move along a system and observe norms and regulations, are supposed to be a very important indicator for the activities of the AWU.

The extent of market penetration. The general commercialization of the rural economy has contradictory effects on the development of the activities of the AWU. On one side, the extent of market penetration is often associated with the weakening of traditional social links, as individual members of society become to depend more on impersonal markets, not on mutual collaboration in terms of resources. On the other side, the penetration of the market can increase the economic output of irrigated agriculture, thereby motivating farmers to deal with the AWU**.** There are no doubts that farmers will be more interested in the activities of the AWtJ when fruit and vegetables markets emerge in nearby towns, especially during a dry season in which better irrigation is achieved through the AWU.

System of incentives for farmers. An initial success and long term balance of the AWU depend on appropriate incentives for farmers to participate in the activities of the AWU more than on any other factor. Farmers should be aware that there are certain benefits from independent management of assets which were before controlled by the government. There are considerable cash and non cash costs for farmers which are associated with the extension of activities of the AWIJ. In case that those benefits are not great enough farmers would not participate in the management of systems.

Financial autonomy. The linkage between the budget of the AWIJ and fees of fanners creates the system of reward that motivates rural populations to participate. The impact of fees for the utilization of systems on the performance of the AWU depends on whether the AWU is financially autonomous or financed by centralized state funds. Small and Carruthers (1991) believe that financially autonomous AWIJ's will be more efficient in terms of organization of irrigation and will achieve better results. Payment of all subsidies associated with use of irrigation is not necessary or sufficient condition for the establishment of more perfect incentives for the AWIJ's. A certain amount of subsidies is rather compatible with financial autonomy if subsidies represent a fixed amount, and the main part of expenses is to be covered by income from payment for services. Financial autonomy exists in the Philippines (within centralized control over the irrigation systems) and in South Korea.

Relationship between AWU and other water organisations

As the extent of involvement of state institutions and farmers' organizations is often dependent on organizational and technical performance, it appeared that the more competent the state organization the less apparent the requirement is for an AWU. Irrigation systems well managed by state organizations in Morocco, France, Malaysia and Hong Kong motivate farmers to self-government of the associations. The development of local self-government and increase in competence will change the character of government role. It will transfer from the function of control to the function of assistance. For this reason it is very important to develop options for partnership between the government and farmers' organizations in terms of irrigation. Categories of joint management can be classified as follows:

- Total control of water organizations in practice is getting more unusual
- because water users are to some extent involved in management;
- Maintenance and repairs are obligations of water organizations with the participation of water users;
- Joint equal management is characterized by representation of water users through the AWIJ, while the water organization is responsible for maintenance and operation of the irrigation system. This is the most common form of joint management;
- Control of maintenance and operation is transferred to the AWU, water organizations remain owners of the system and play a regulatory role.
- Ownership of the AWU means that the AWU is also responsible for the maintenance and operation of the system and representation of water users, while the state organization keeps the role of government regulation.
- Total control of the AWIJ including functions of regulation is not common in practice with the exception of the most remote districts where state organizations are not effective.

The distribution of functions between water organizations and the AWU depends on the level of the system. The stronger control by water organization is observed at the higher level of the system, the stronger influence of the AWU is observed at the lower level of the system. At the level of the river basin where the majority of the irrigation systems start from, the government plays the major role at the level of the main system Water users can participate in adopting decisions but water organizations remain owner and conduct maintenance and operation of the systems. The smaller systems such as in the Philippines or Nepal recognize the ownership of the AWU even at the level of the main systems. Joint management can be observed at the level of distribution. At the end of water distribution the participation of the water organization is minimal.

Based on world experience some indicators of productive efficiency AWU's are given below. In the Dominican Republic the control over the irrigation system was transferred to the AWU, which increased efficiency of water supply (i.e. water losses were reduced) by savings of irrigation water as much as 25-30%. In the Philippines, for example, after the introduction of systems with the participation of farmers, irrigated areas increased by 35%, which is twice as high as in the systems without such participation. Average saving of state funds in the Philippines was as much as 12 USD per 1 ha. In Nepal the aggregate contribution of farmers resulted in a 15% saving of capital costs.

Applicability of new institutional structures in Uzbekistan

The establishment of Cooperatives for Irrigation and Land Improvement not typical for Uzbekistan. Some cooperatives were created in Surkhandarya region and in the Republic of Karakalpakstan. It is necessary to emphasize that the proposed structure is more progressive as compared to the existing Service for Irrigation and Land Improvement. Although a bank account is set up for the farm, the cooperative settles independent reciprocal payments for services with farmers, and conducts measures for the environment protection in the farm. However, there are many factors causing non viability of this form of activity in market conditions. The cooperative does not have its own bank account and is not considered to be a juridical entity and independent economic subject. The manager is subordinated to the Chairman of the Association of Dehkan Farms who can directly interfere with the policy of water distribution in the farm which, in its turn, does not allow for free decision making and inhibits long term sustainability in market conditions.

Like the existing Service for Irrigation and Land Improvement the newly created Cooperatives do not provide the necessary incentives for efficient management and use of water. The following paragraphs will therefore examine the applicability in Uzbekistan of new institutional structures in the form of voluntary Associations of Water Users (AWI J) Long term sustainability and financial viability are of great importance for the existence of AWUs. Sustainability is not necessarily based on the principle of self- financing of the organization, which means a possibility to exist without external assistance and resources In the initial period of existence, AWU's often receive assistance for their establishment and

strengthening, there after they are expected to act without any help and external interference. In practice the associations often can not independently arrange for financial viability. AWU's are not able to operate in conditions of a budget deficit, which can lead to bankruptcy during the initial period of their performance. Therefore, financial viability is a crucial factor for balanced development of the Associations of Water Users. If expenses are to be mainly covered by fees from members, it is necessary to keep these expenses at the lowest possible level.

On establishing the AWU it is necessary to distinguish between organizational and technical roles. Organisational roles (such as the chairmanship) can usually be performed through election from respected residents (acsacals and chairmen of rural societies) Technical roles for the operation of the irrigation systems can be performed by hired specialists. As the AWU starts managing larger scale and more complicated irrigation
systems, accountants, lawyers and proffesional managers are required. Official monitoring of financial management and water use will also be necessary.

Successful performance of the AWIJ mainly depends on the skills of employees. To improve the skills of administration it is necessary to organize a special training course covering complicated accounting and juridical aspects which lie at the basis of activities of the AWU. A training course for technical specialists should include a wide range of subjects from management of water resources to operation of particular equipment Currently, there are no training courses or consulting being conducted in this area. During centrally planned economy the structures involved in extension, training and introduction of new technologies were financed by government. Currently, these structures do not exist.

The basic incentive to ensure the participation of farmers in management of water use is receiving higher profit from irrigated lands. A list of incentives is presented below:

- Increased farm profits and increased yields;
- More efficient and guaranteed supply of water (improvement of water supply in cases when farmers are responsible for maintenance of systems and water distribution, provides long term incentive for farmers);
- Fast solution of conflicts associated with water, which can arise amongst farmers, and between farmers and water organizations (reduction in costs and social tension associated with the solution of disputes);
- More power for farmers (farmers are allowed to participate in the process of taking decisions on issues which influence their welfare and living, such as taxation and definition of water charge, schedule for water allocation, concession and revocation of water rights);
- A potential for technical improvement of the hydromeliorative systems and development of irrigation services,
- Saving of costs for unnecessary physical constructions (farmers who know local requirements well, can help in the development of higher quality irrigation constructions).

For efficient operation of AWUs in Uzbekistan it is necessary to establish a legal basis taking into consideration the private character of water use. The legal basis should be quite flexible, balancing the rights and obligations of AWUs in order to ensure sufficient incentives for the participation in AWUs. The legal (juridical) basis should include the following provisions:

- Possibility to set up and manage bank accounts and to receive credits;
- Recognition of the water rights of the AWIJ members;
- Ownership of irrigation constructions (Ownership by the AWU of irrigation constructions improves the incentives to maintain the constructions properly);
- Freedom to conclude contracts with external contractors to conduct repairs of the irrigation systems in the region;
- Contracts between the AWU and state and other organizations on the basis of willingness of both parties and their equality in rights;
- Flexibility (the legal basis should support not inhibit the activities of the AWU, and allow its members freedom to define precisely the objectives and activities of their organization).

Government support

The government is supposed to play a substantial role to ensure long tend sustainability of AWUs. Although the role of the government would change as AWUs would undertake additional obligations, the support of AWUs by the government would continue. The main government functions ensuring stable development of AWUs include the following: definition and legalization of the rights for water, determination and regulation of external factors affecting the organization of water use, technical training of employees of AWUs, assistance in the development, reconstruction and financing of large scale irrigation projects, and activities associated with the pro tection of the water resource base.

The establishment of AWUs has social advantages. Associations mainly express farmers' interests and meet such social aims as democratization and delegation of authority. That social capital is considered to be a substantial benefit despite difficulties of its assessment. However, the establishment of the institutional structure of AWUs in itself can not solve all problems associated with the period of economic transition, in which farmers do not receive prices for their products which reflect true market values. It may therefore be necessary that during an initial period AWlJs receive financial support from the government in the form of priviliged credits and subsidies.