

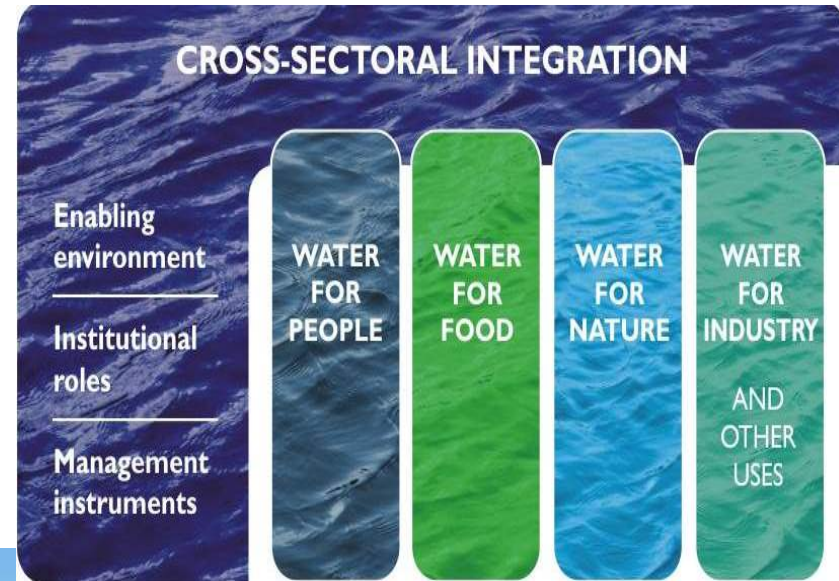
# INTERNATIONAL COMMISSION ON IRRIGATION AND DRAINAGE (ICID)

## WORKING GROUP ON IRRIGATION AND DRAINAGE IN THE STATES UNDER SOCIO - ECONOMIC TRANSFORMATION

(WG-IDSST)

26 May 2022, 14:30-17:30 hours

### Integrated Water Resources Management in Central Asia - Challenges, Experiences and Achievements



**Sh.Sh. Mukhamedjanov**

# First IWRM initiative in Central Asia

- For the first time, Integrated Water Resources Management in Central Asia was initiated in 2001 by the Interstate Commission for Water Coordination within the framework of the IWRM-Fergana project with the support of the Swiss International Development Agency (SDC) by two institutions - International Water management Institute (IWMI) and Scientific Information Centre by the Interstate Commission for Water Coordination (SIC ICWC).

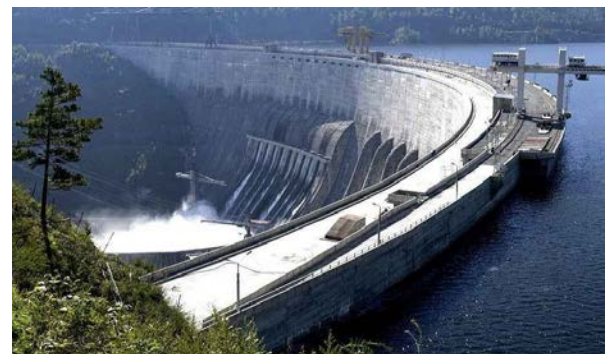


# What is IWRM?

**Integrated management means that all water users are considered together.**

Decisions on allocation and management of water resources take into account the impact of each type of water use on others.

This takes into account the overall socio-economic goals, including the achievement of sustainable development.





# Key goals of the project

a) Check the effectiveness of integrated water resources management (IWRM) at pilot facilities with the participation of water users and introduce it into the water management organizations of the Ferghana Valley.



Figure 1. Location of the Project pilot Sites

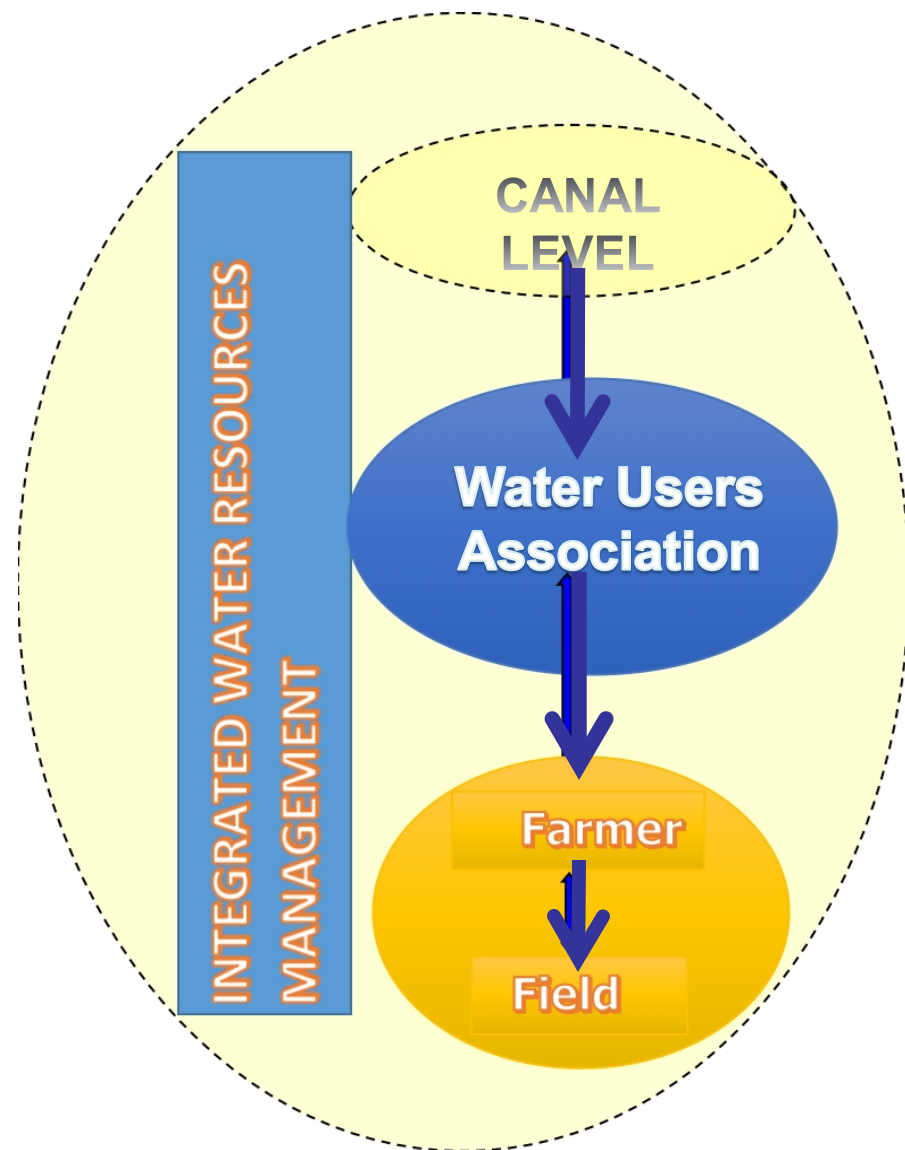
Pilot canals:	* Pilot WUAS	Pilot Farms:	
- Aravan Akbura	I Japalak	1 Toloikon-2	4 Tolibjon
- South Ferghana Canal	II Akbarabad	2 Nursultan Ata	5 Turdali
- Gulya Kandoz	III Bobo Khamdamov	3 Sanduk	6 Nozima
			7 Nojal-Ona-Hoji
			8 Gadaiboev
			9 Saed
			10 D-21

6) Demonstrate alternatives for improving water and land productivity at all hierarchical levels of water management



## The project activities were carried out in four regions of the Fergana Valley: Andijan and Fergana (In Uzbekistan), Osh (In the Kyrgyz Republic) and Sughd (In Tajikistan).

- **Canal level** - Restructuring and search for new organizational solutions were carried out along the three main canals in the three states of the Ferghana Valley.
- **WUA level** - Organization and development of existing WUAs in the form of pilot facilities, 9 WUAs were selected, three in each country;
- **Farm level** - monitoring and evaluation of the actual use of irrigation water, development of recommendations to improve water productivity. (10 demonstration plots have been selected within the pilot canals.



# Assessment of existing problems in water management

**a) Administrative principle of water management**



**b) Outdated irrigation systems;**



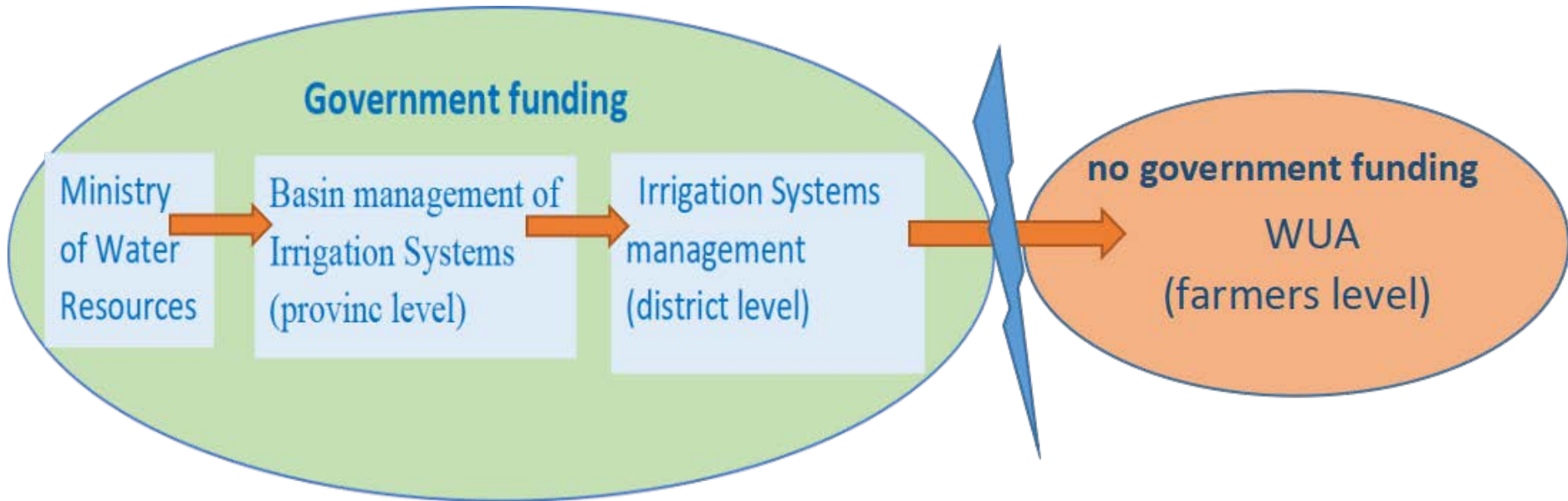
**c) Low water use efficiency, water scarcity**



**d) Environmental authorities do not play a significant role in water management**



**e) Underdeveloped structure of water resources management at the level of water users**



**After the reconstruction of the water and agricultural sectors, the end user was cut off from this single water supply chain. Funding plays a big role here.**



# The structure of water resources management before reorganization

**Government funding**

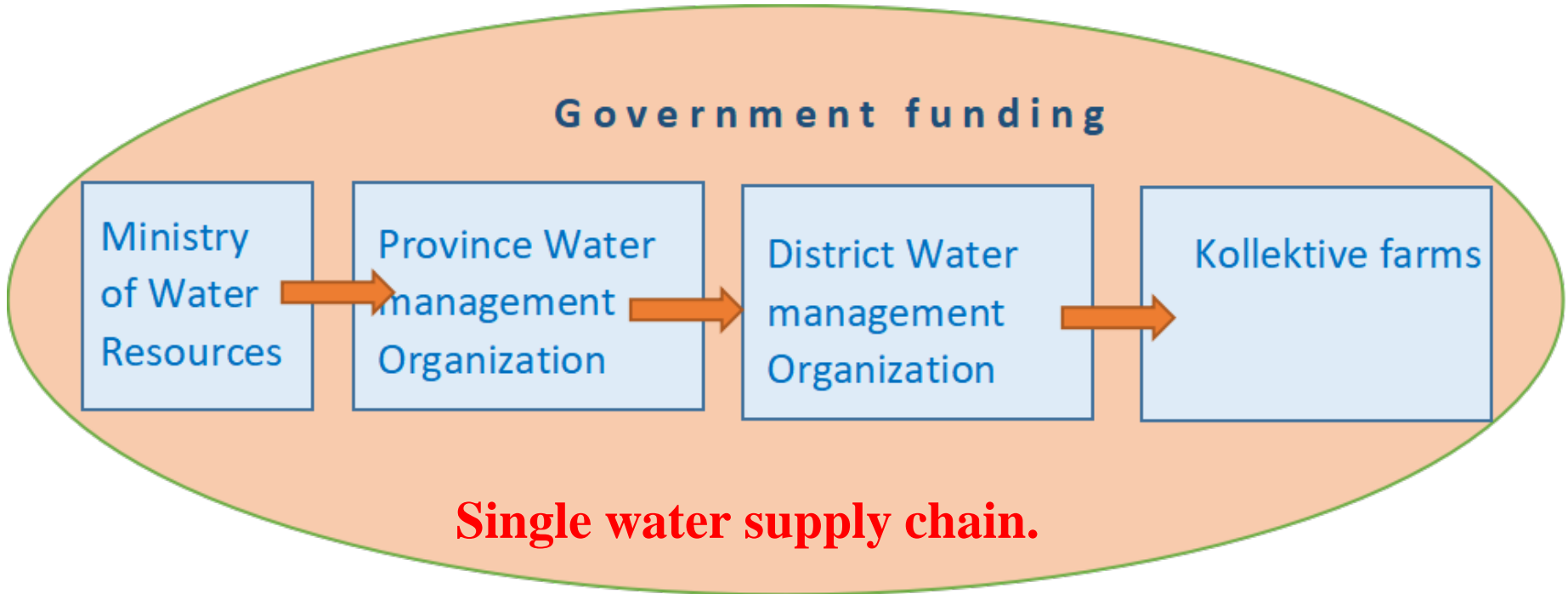
Ministry  
of Water  
Resources

Province Water  
management  
Organization

District Water  
management  
Organization

Kollektive farms

**Single water supply chain.**





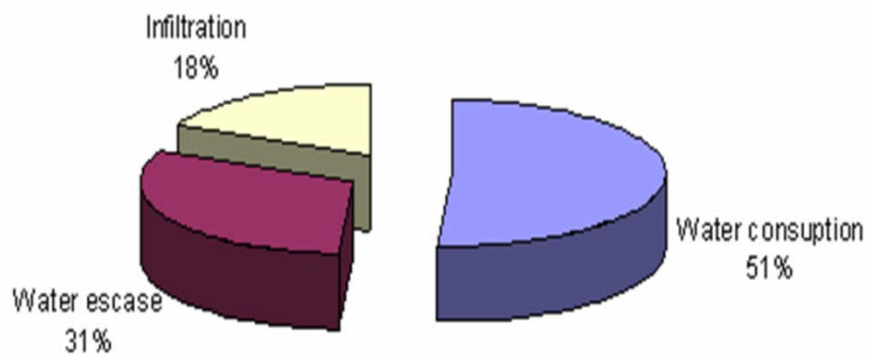
## f) Low water efficiency on the all level water use

*The efficiency of water resources use is determined by the level of losses relative to the required volumes.*

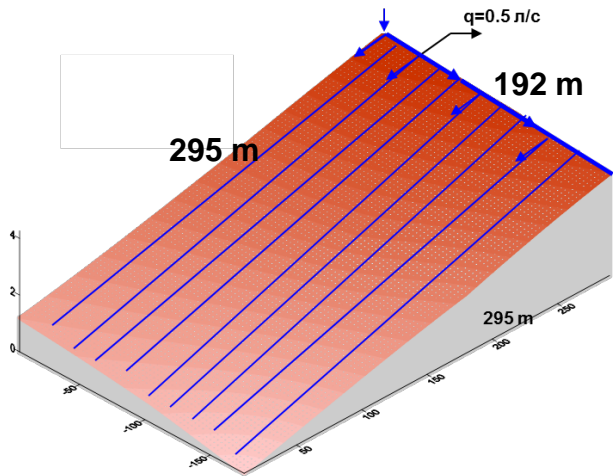


Фото 1,1. Ремонт участка канала Ингулецкой оросительной системы

- Imperfect irrigation canal systems lead to large losses and account for more than 35% of water intake

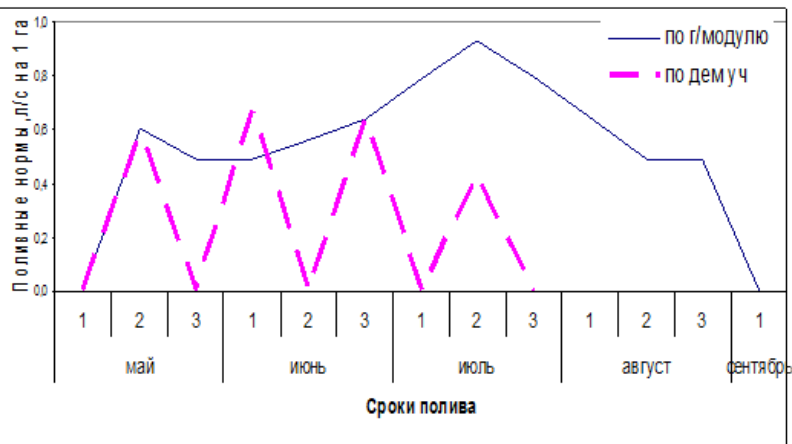


- On an irrigated field, losses exceed 40% of the water supply



**Inefficient technological scheme of furrow irrigation**

**Lack of water accounting system at the level of water users**



**Discrepancy between the schedule of water supply with regime of water consumption by plants**

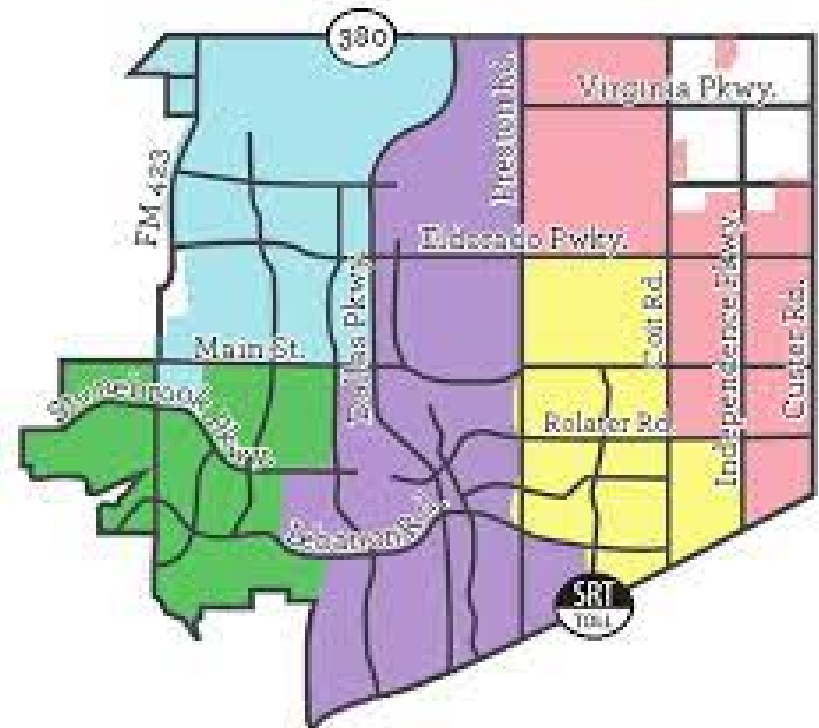
# Development of management tools

An IWRM methodology based on the participation of key water users and professional social mobilization was developed and tested at pilot sites.

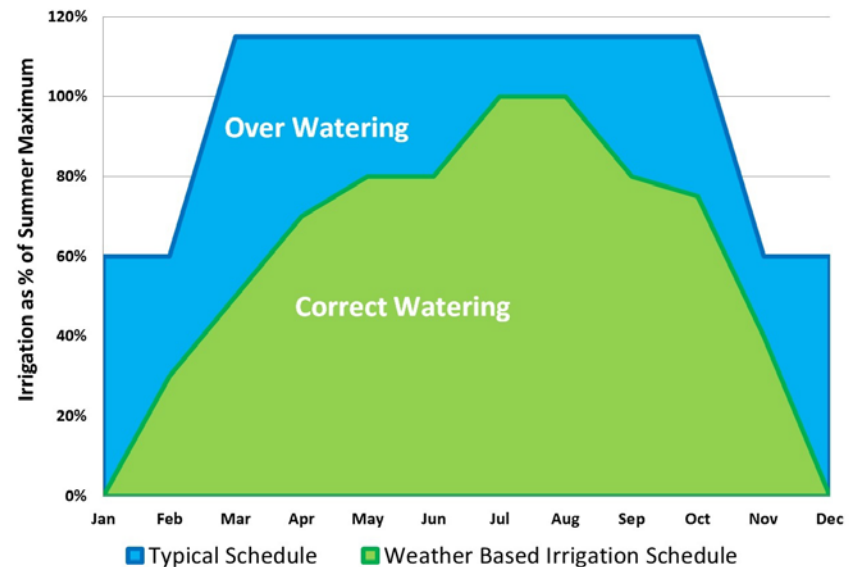
1) Canal Administrations have been established to manage water resources along hydrographic boundaries.



2) An effective methodology for planning and water allocation at the WUA level has been developed and tested on pilot sites.



Typical vs. Weather Based Irrigation Schedule



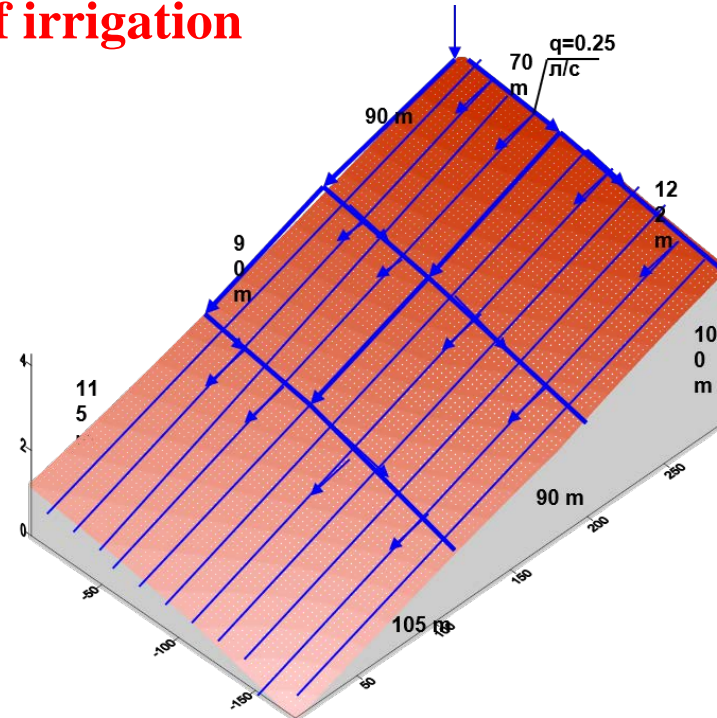
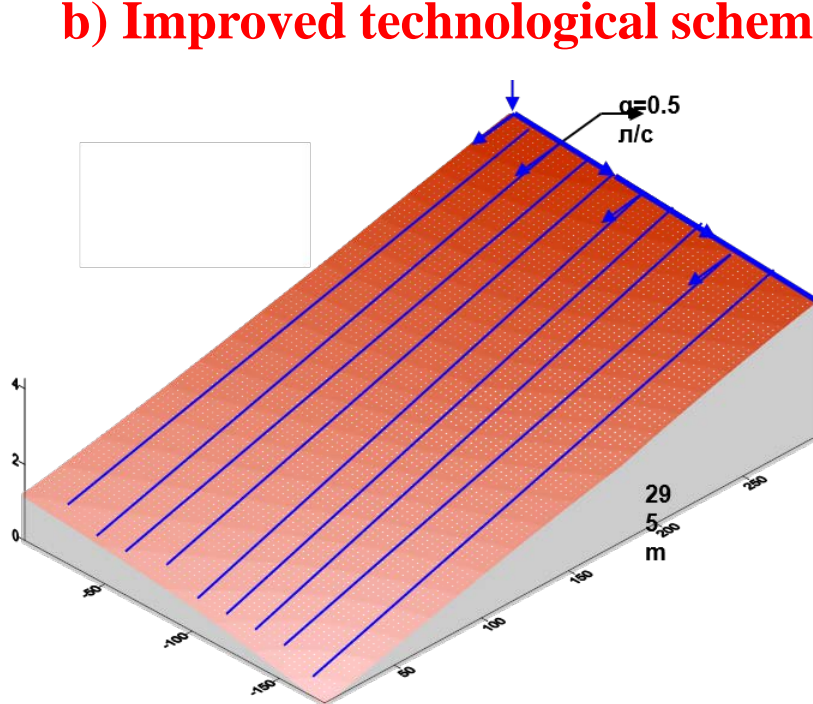


# 3) Efficient irrigation technologies have been developed.

## a) Organized water accounting system at the level of water users



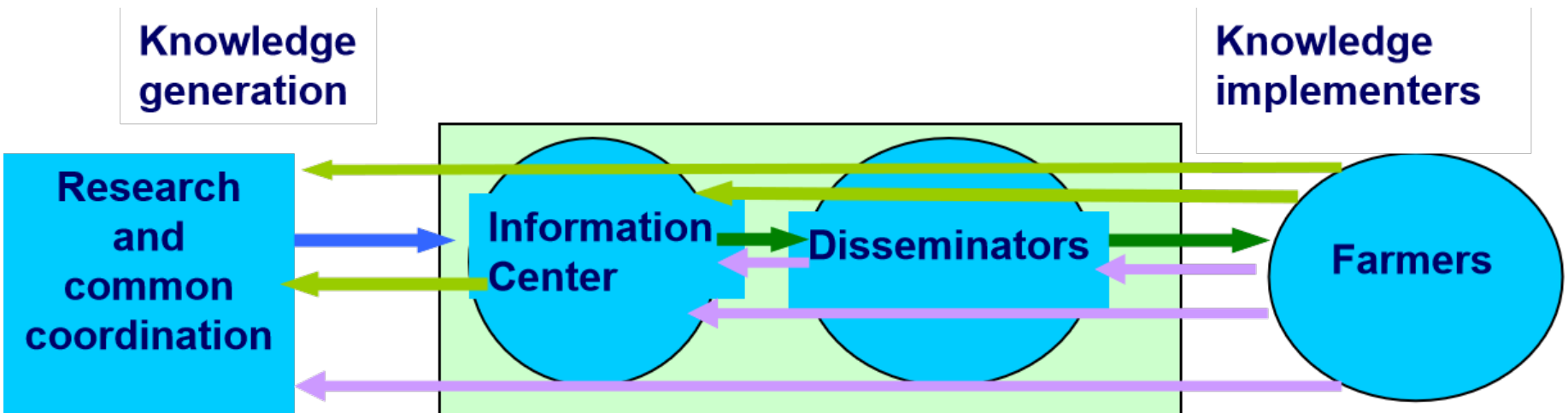
## b) Improved technological scheme of irrigation



## c) Organized monitoring and advisory service system for farmers

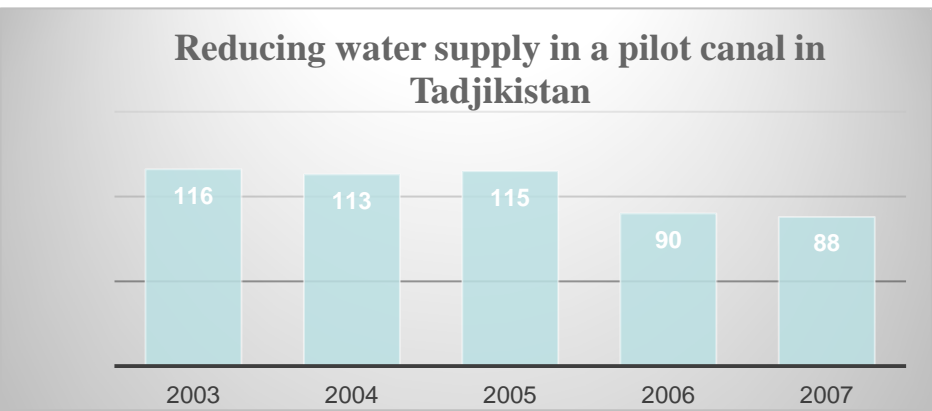
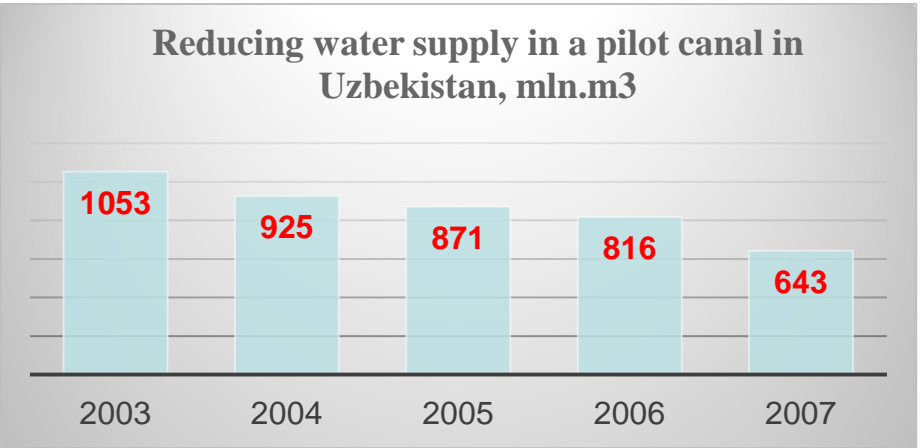


## d) An innovative system of interaction between various organizations has been activated to quickly solve problems



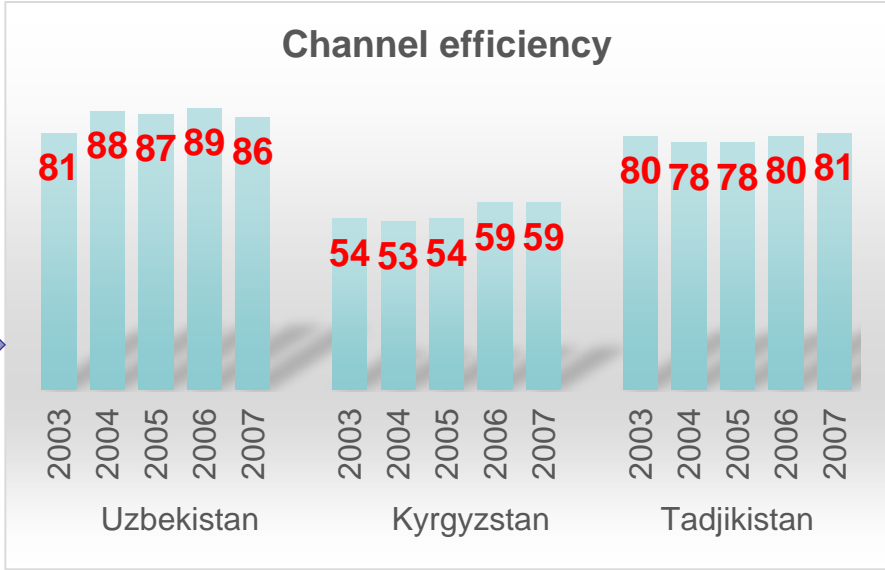
# Achieved results from the introduction of IWRM

**1) Achieved reduction in water withdrawal**  
**by 39% in Uzbekistan,**  
**by 35% in Kyrgyzstan,**  
**by 25% in Tajikistan**

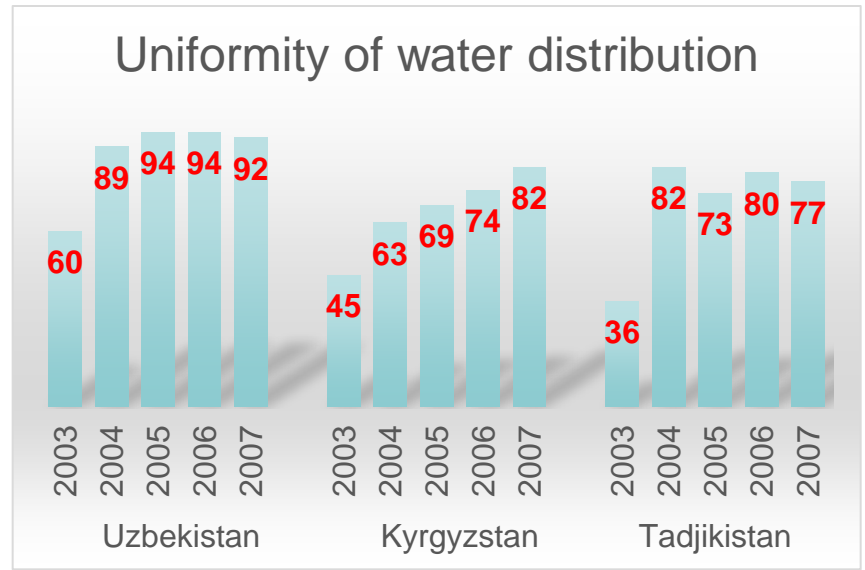


# Achieved results from the introduction of IWRM

2) The efficiency of the channels increased in Uzbekistan from 81 to 86, in Kyrgyzstan from 54 to 59 in Tajikistan 80 to 81

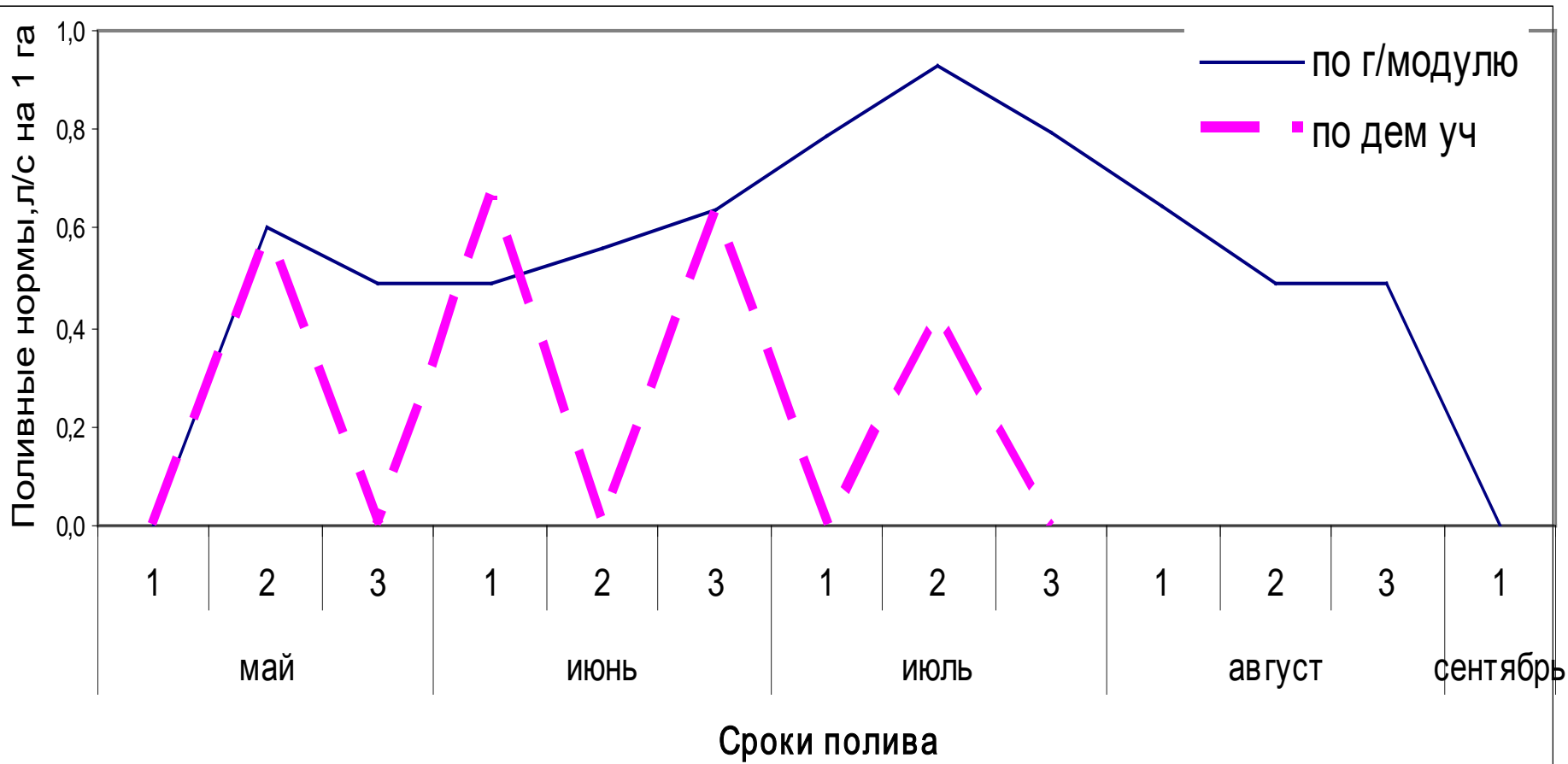


3) Improved water distribution uniformity

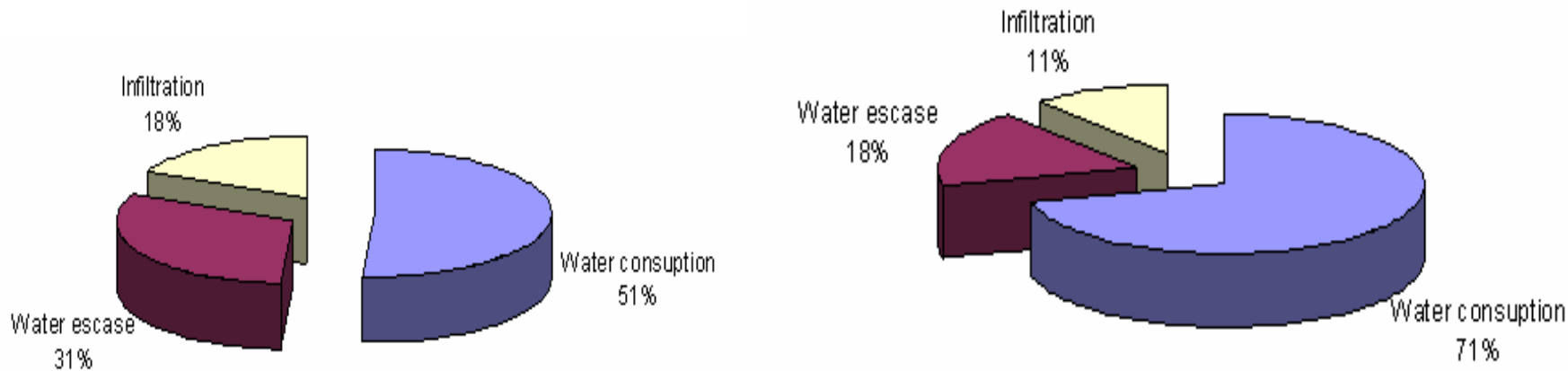




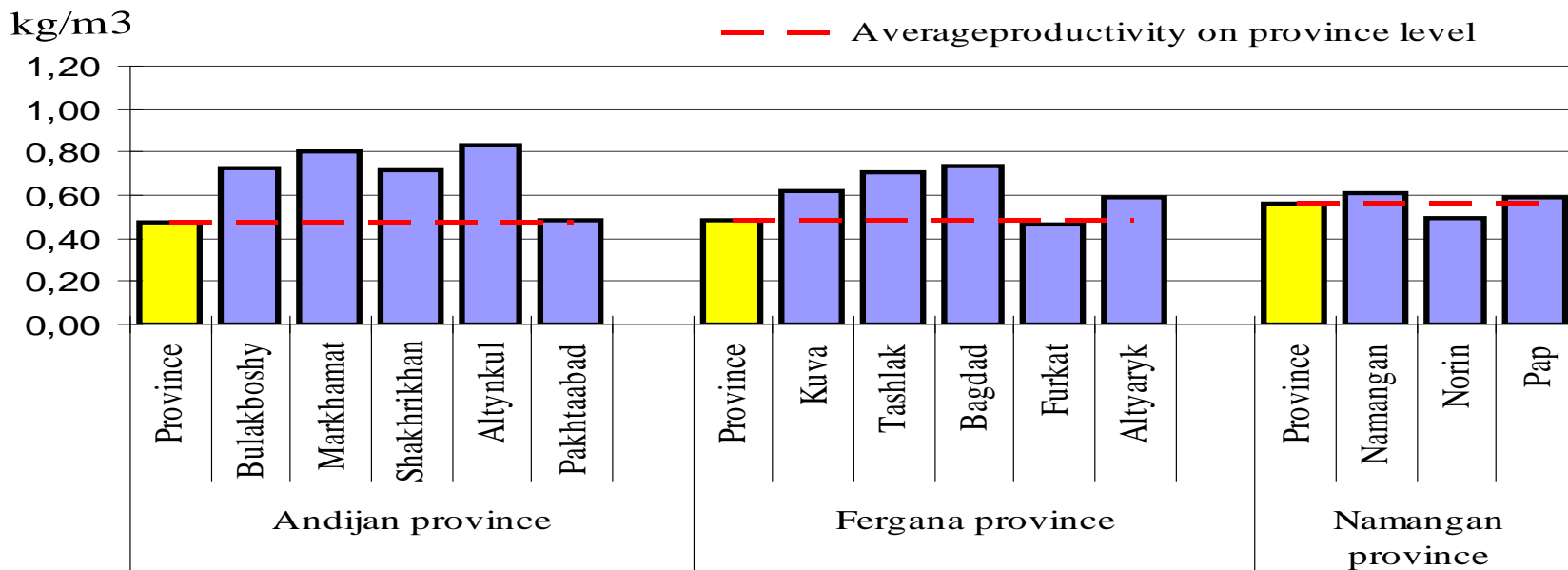
# Improved irrigation planning and scheduling at farm level



## 4) Improved efficiency of irrigation water use



## 5) Improved water and land productivity



## Main problems

## Project technologies and approaches to solve the problems

Untimely delivery of irrigation water to farmers and ineffective water use.



Understanding of crop irrigation regimes

Recommendations for choosing irrigation technology

Understanding of crop irrigation regimes

Lack of well-tuned system of water use and distribution planning, taking into account changed structure of agriculture.



Mechanism of efficient water distribution among small farms through the established groups of water users (e.g. the Sokolok canal in Osh province, Kyrgyz Republic)

Creation of the system for monitoring rational water use, farmer's knowledge raising, and water delivery schedule correction in WUAs by using agronomist and hydraulic engineer (services) similarly to the system that was operational in former collective farms

Lack of water measuring system, and thus water charges are taken based on irrigated hectares that creates serious problems for farmers in view of unreasonable water charges.



Organization of water measuring system and on its basis establishment of a mechanism of interaction among farms, WUAs and Canal Authorities

Agronomic measures and land preparation for irrigation period

Breach of established agronomic operations in the field.



Application of mineral fertilizers for crops

Pest and disease control

Weed control

# Methodology for efficient water distribution among farmers with small areas

## Principles

## Actions

**Organizational**

**Mobilization of farmers**

Among farmers were choice responsible for water distribution

Training of the person responsible for water distribution

**Engineering**

**Construction of a water meter and organization of water accounting**

Water distribution between farmers according to the established water flow into the furrow

**Legal**

Water supply based on an agreement between the farmer and the responsible person for water distribution

**Economic**

Payment for each used volume of water received



***Thank you very much for  
your attention***