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Mohan Junna Reddy
Shukhrat Mukhamedjanov

Opportunities for water and land productivity improvement in Central Asia

SIC ICWC

IWMI
**International
Water Management
Institute**

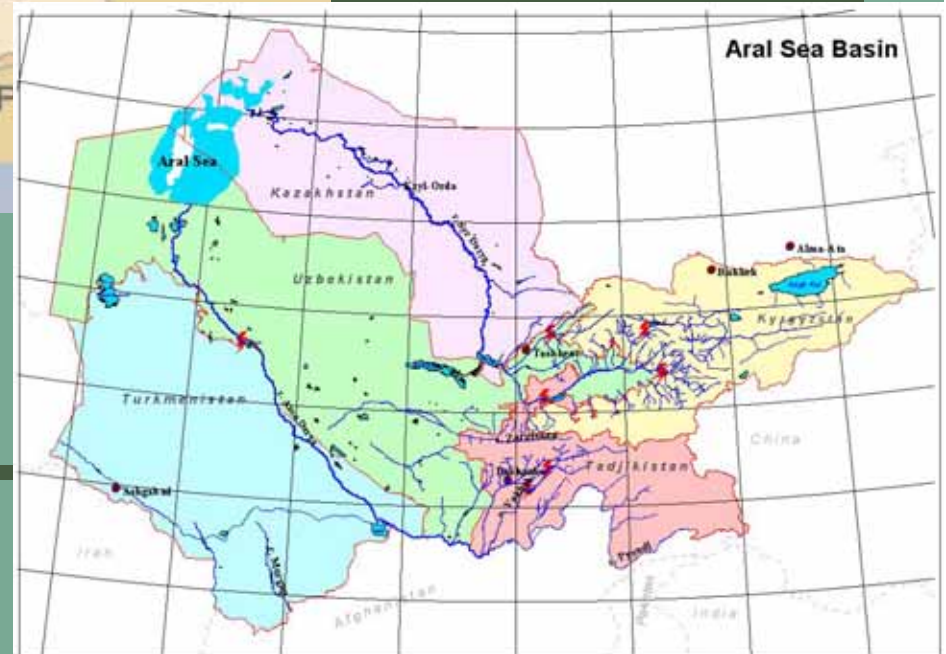
Food security is considered to be top-priority task of the UN Agenda and global donors and has driven issues of terrorism and interethnic conflicts back

In Central Asia:

Food security indicators:

- Population growth by 2050 – more than 70 mln people
- Increased demand for food - 1.5-2 times
- Own agricultural food such as wheat, meat, rice and vegetables are considered as the main food

Central Asia



Land resources within Aral Sea basin [FAO, 1997г.]

Country	Area	Area fit for cultivation	Cultivated area	Actually irrigated area
	mln. ha	mln. ha	mln. ha	mln. ha
Kazakhstan*	34.44	23.87	1.66	0.786
Kyrgyzstan*	12.49	1.57	0.595	0.422
Tajikistan	14.31	1.57	0.874	0.719
Turkmenistan	48.81	7.01	1.805	1.735
Uzbekistan	44.884	25.45	5.208	4.233
Aral Sea basin	154.934	59.5	10.14	7.896

Main indicators of water and land resources use in Central Asia

Indicator	Unit	1960	1970	1980	1990	2000	2010
Irrigated lands area	thousand ha	4,510	5,150	6,920	7,600	7,990	7,574
Total water withdrawal	km ³	60.61	94.56	120.69	116	105	106
including for irrigation	km ³	56.15	86.84	10,679	106	95	93
Unit water withdrawal per irrigated hectare	m ³ /ha	12,450	16,860	15,430	14,000	11,850	13,947

Strategy and risks of providing food security

Agricultural production is considered to be the strategic sector for provision of food security and poverty liquidation. Irrigation is considered to be the basis for agricultural production in Central Asia.

Strategy:

- Necessity of increased agricultural production and its orientation to food.
- Improvement of the existing land resources productivity is of particular importance at limited conditions for agricultural lands expansion.
- Increasing in efficiency of 1 m³ of water becomes more urgent issue in solution of future food security in the region.

Risks:

- Water resources are limited.
- Increasing competition of consumer requirements for water.
- Risk associated with non-use of irrigated lands due to inefficient water resources management.

Irrigation water management problems

- water sharing between water users has random character.
- water user has no knowledge on how much irrigation water he needs and how much water is receiving.
- water supply is not reliable in terms of quantity and duration.
- water users do not receive irrigation water in a timely manner and in required amount.
- conflicts among farmers.
- low yield, low land productivity and low farm income.

Improved irrigation management

WUA

Needs of irrigation farming water users

WUA support program

Provide technical, financial and legal support

Optimal water resources management

Tariff system

What WUA needs?

Good conditions for irrigation infrastructure

Mechanism for optimal water distribution

Appropriate prices for services and water to be economically viable

Qualified staff

What farmer needs?

Guarantee for receiving of required water volume in due time

Resource-saving technologies for crops

Best crops production practices

Professional knowledge and skills

Marketing

Credit and economic incentives

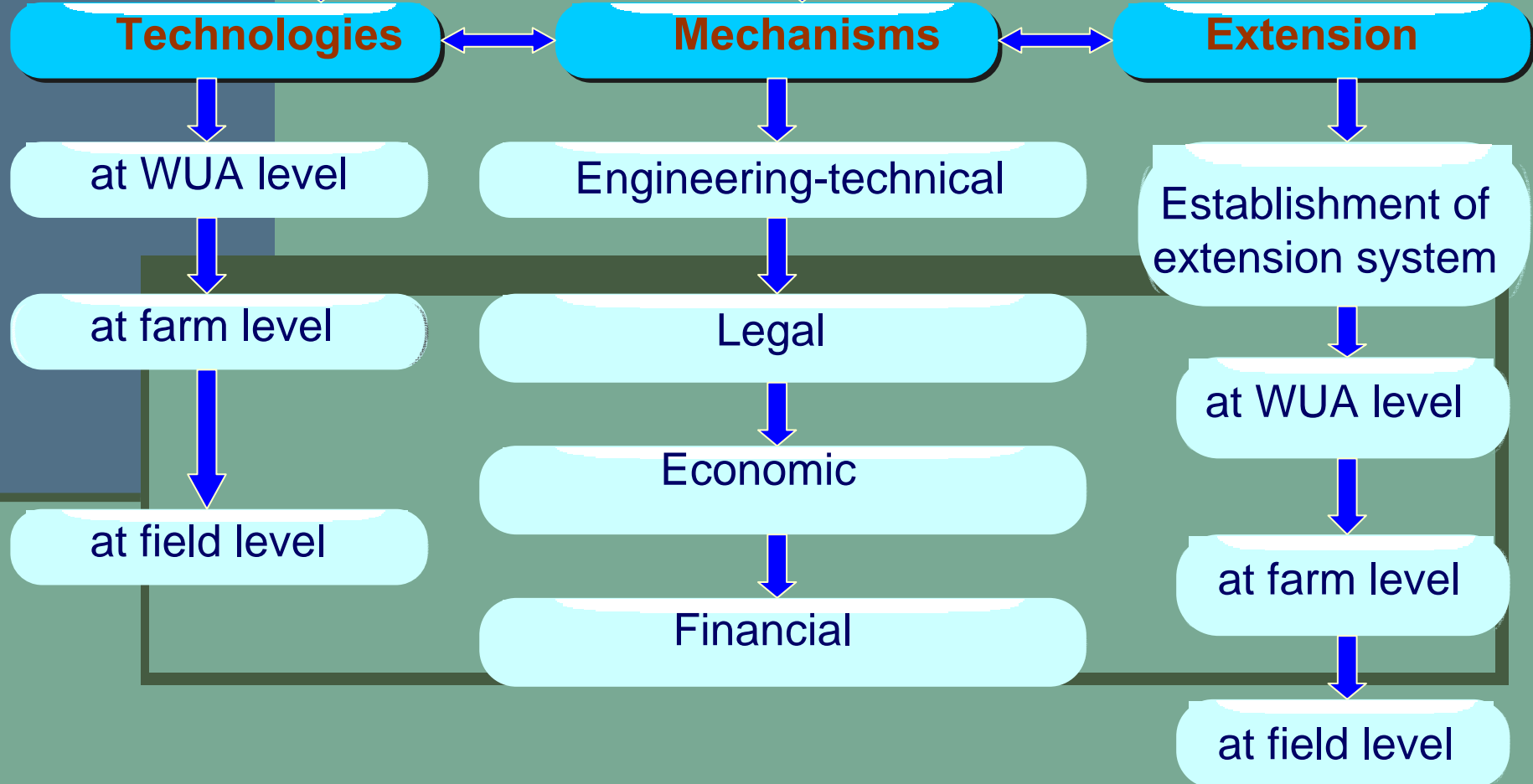
Farmer support program

Financial

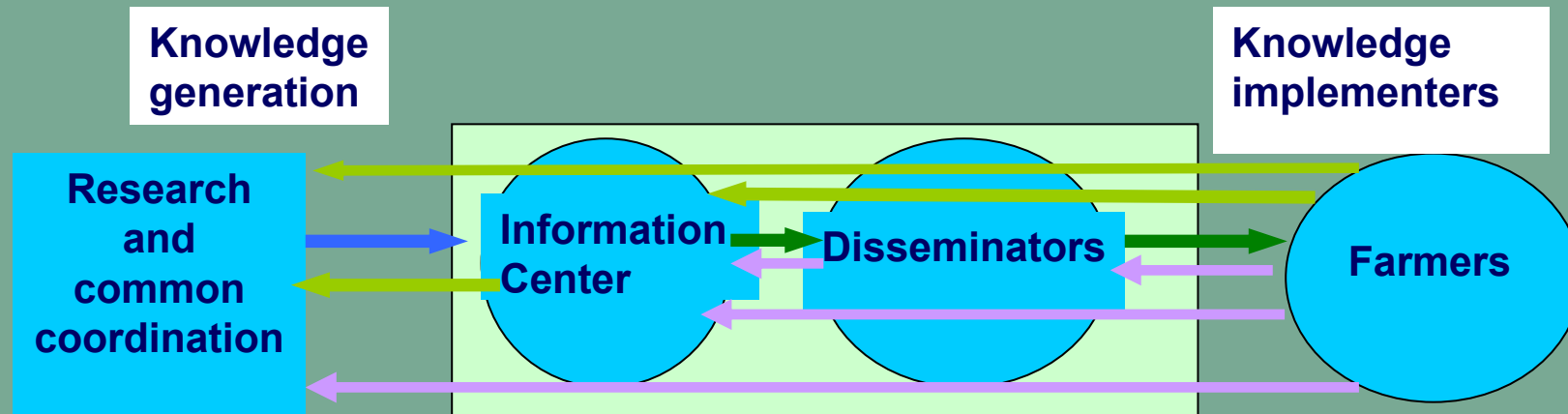
Legal, administrative

Professional training

Main components of improving land and water productivity

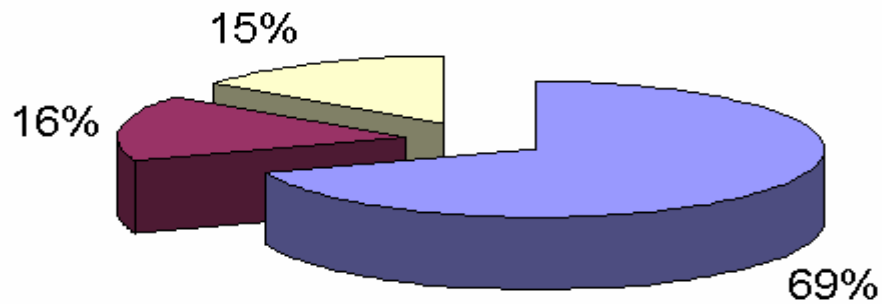
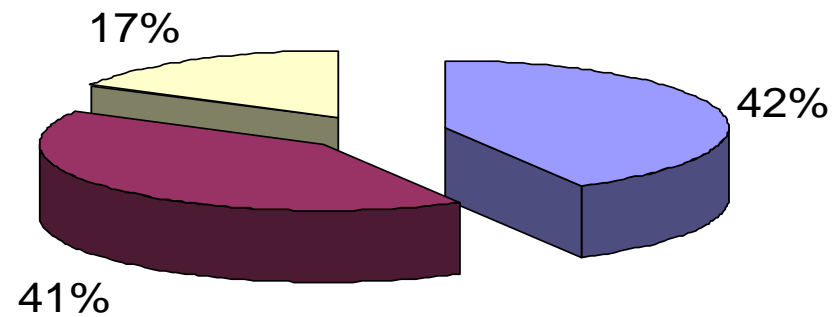


Structure to solve problems



What were we able to achieve

- To reduce irrigation water losses in field

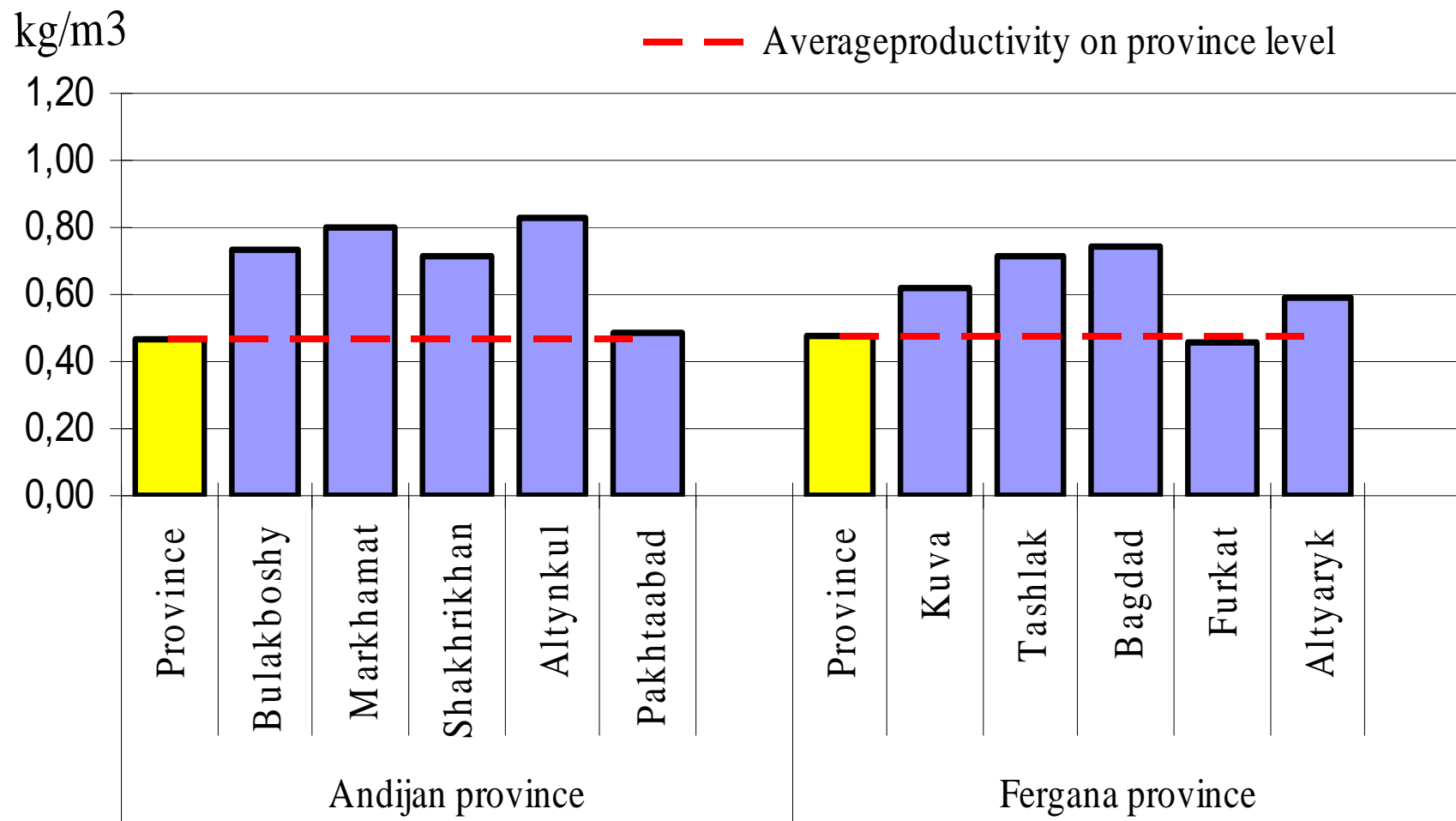


■ Water supply % ■ Outflow loss % ■ Filtration loss %

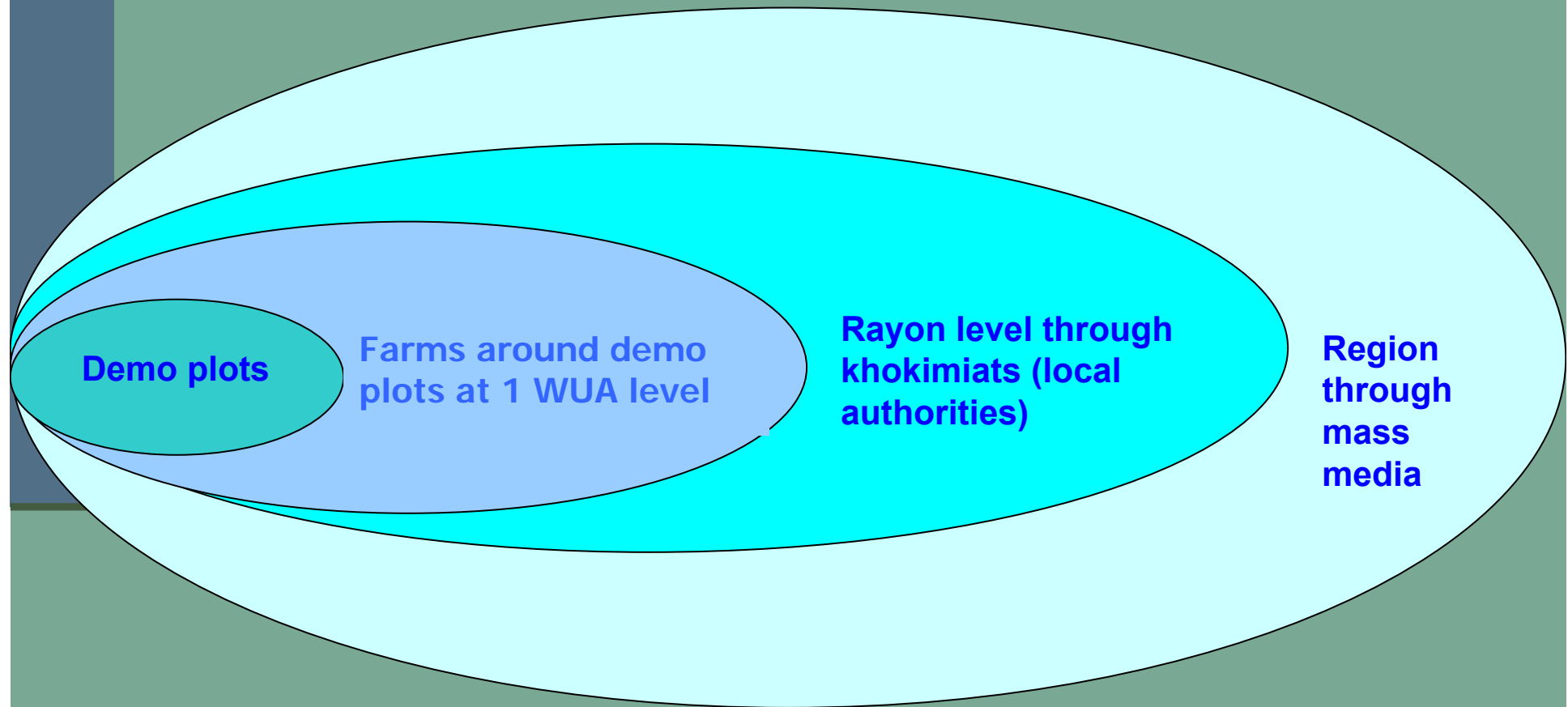
➤ **To improve irrigation water and land productivity**

State	Region	Crop	Unit water supply, m³/ha (gross)	Yield, kg/ha	Productivity, kg/m³
Uzbekistan	Fergana	cotton	5,077	3,550	0.70
	Andijan	wheat	4,705	5,330	1.13
		cotton	4,943	3,620	0.73
Tajikistan	Sogd	cotton	4,015	4,087	1.02
Kyrgyzstan	Osh	wheat	4,771	3,995	0.84
		maize	3,842	2,760	0.72

➤ To improve water and land productivity



➤ **Process of technologies dissemination among farmers was worked out**



What results and conclusion were achieved:

The project managed to:

- identify the principal problems impeding productive resources use and systemize them;
- identify required technologies in accordance with farms' problems and needs;
- develop mechanisms for implementation and adaptation of those technologies in farm fields and based on benefit of farms;
- establish to mutually complementary system for interaction of various organizations which allows to ensure operative information flow from farm field to research institutes solving their problems;
- organize system for training of trainers and specialists in use of tools for continuous consultancy and operative impact on problem solution

What objectives are still unsolved and what direction should be followed in future

- inadequately established links (legal, financial, technical) between levels of water hierarchy,
- lack of reliable and equitable water supply system,
- low qualification of WUA specialists and being understaffed;
- low level of farmers' knowledge.



Thank you!