Capacity building and human resources development for broader implementation of IWRM

in Central Asia

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WHAT ARE THE FUNDAMENTALS OF IWRM that we are implementing?

Water resources management is implemented within the hydrological units;

Management takes into consideration use of all kinds of water resources (surface water, ground water, and return water);

Close co-ordination of all kinds of water users and organizations;

Public participation not only in the water management process, but also in financing, planning, and developing water infrastructure;

Setting the priorities of eco-systems' water requirements;

Water saving and control of unproductive water losses;

Information exchange, openness and transparency of the water resources management system;

Economic and financial sustainability of water management organizations.

RESULTS OF IWRM FERGHANA

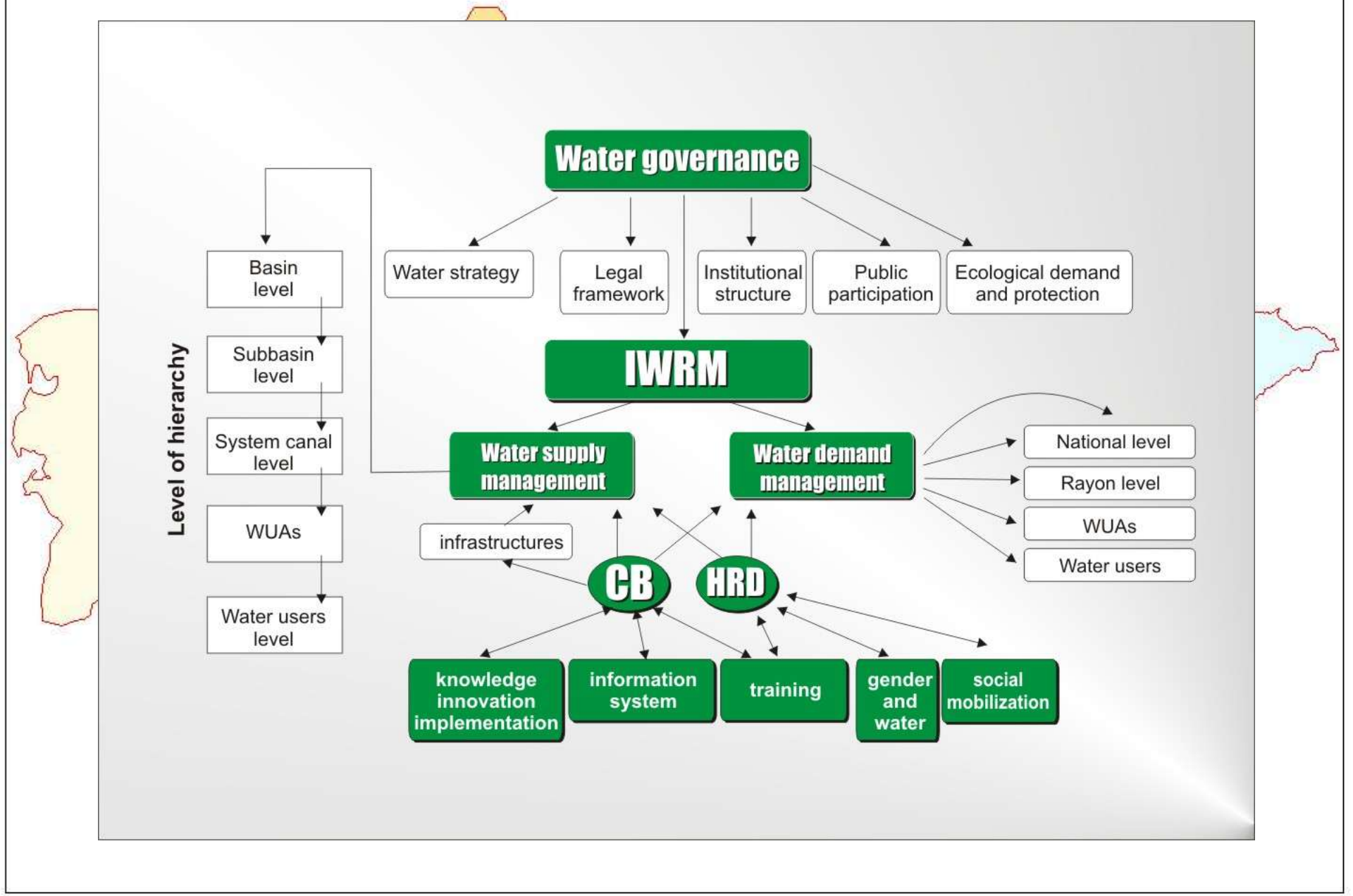
- 250 mln.m^3 WATER SAVING PER YEAR
- PRODUCTIVITY OF LANDS IN CREASED ON 116-127%
- 7000 PERSONS TRAINING
- LEVEL OF UNDERSTANDING MORE THAN 15 THOUSAND PERSONS

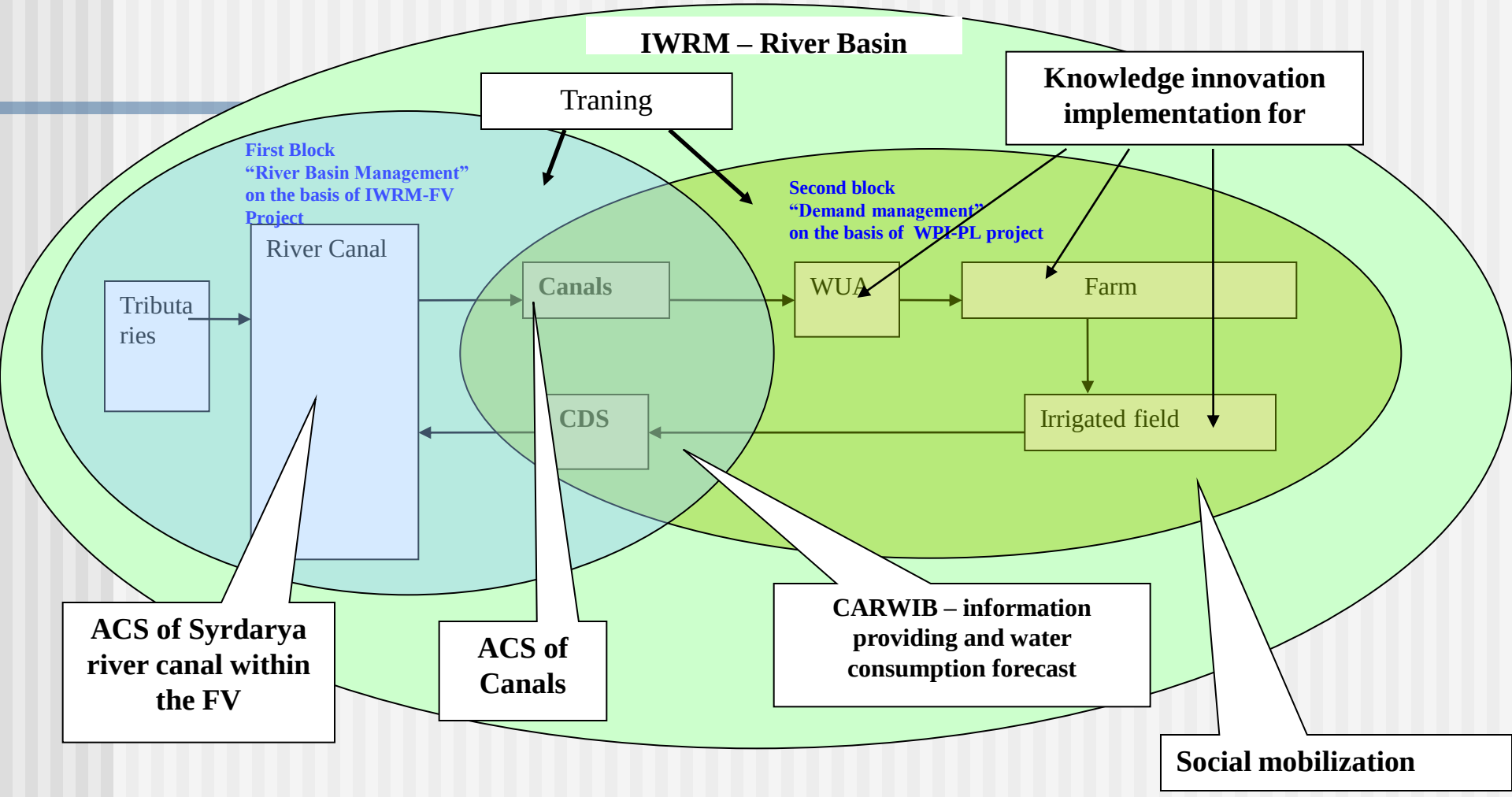


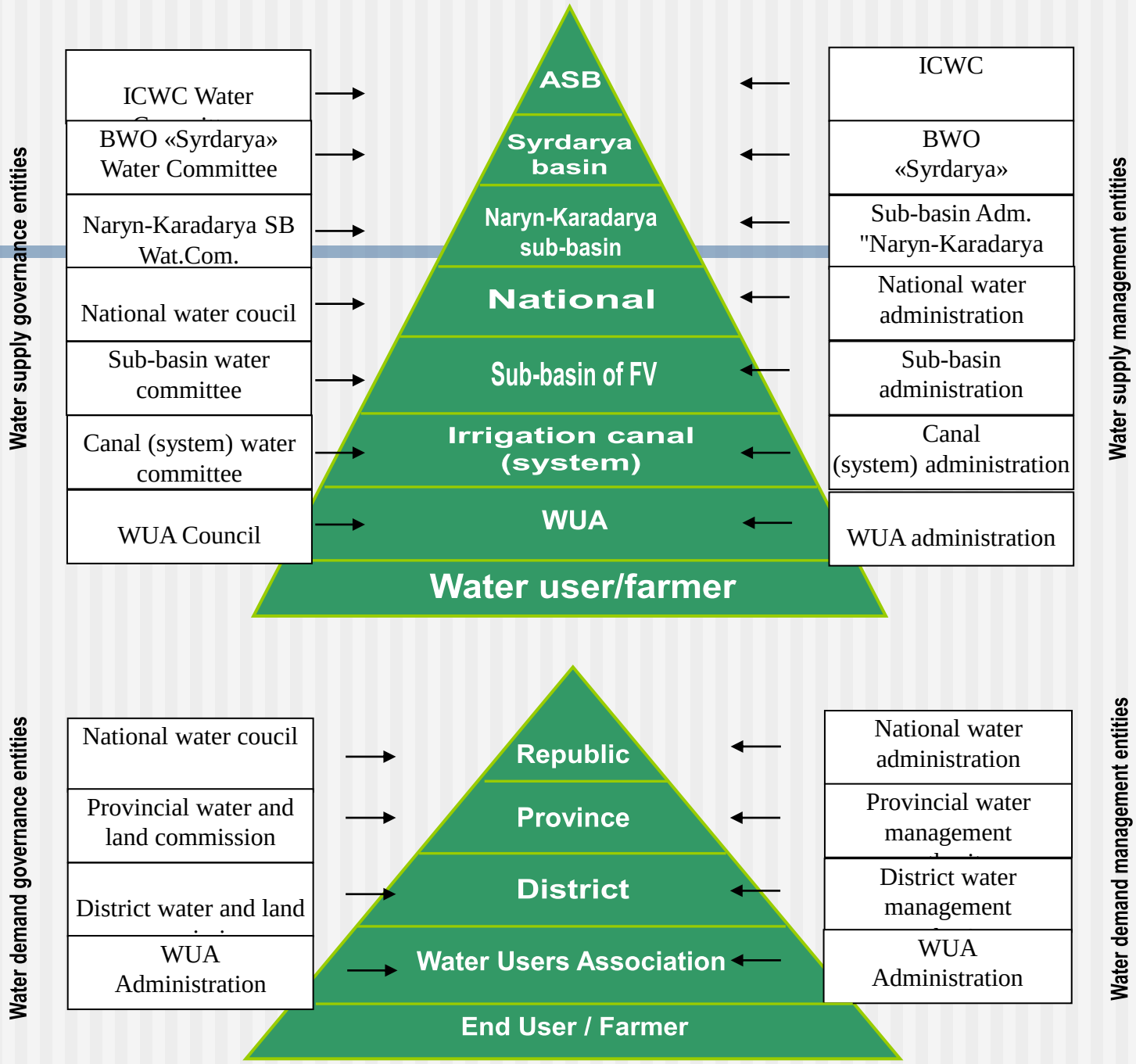

Our view

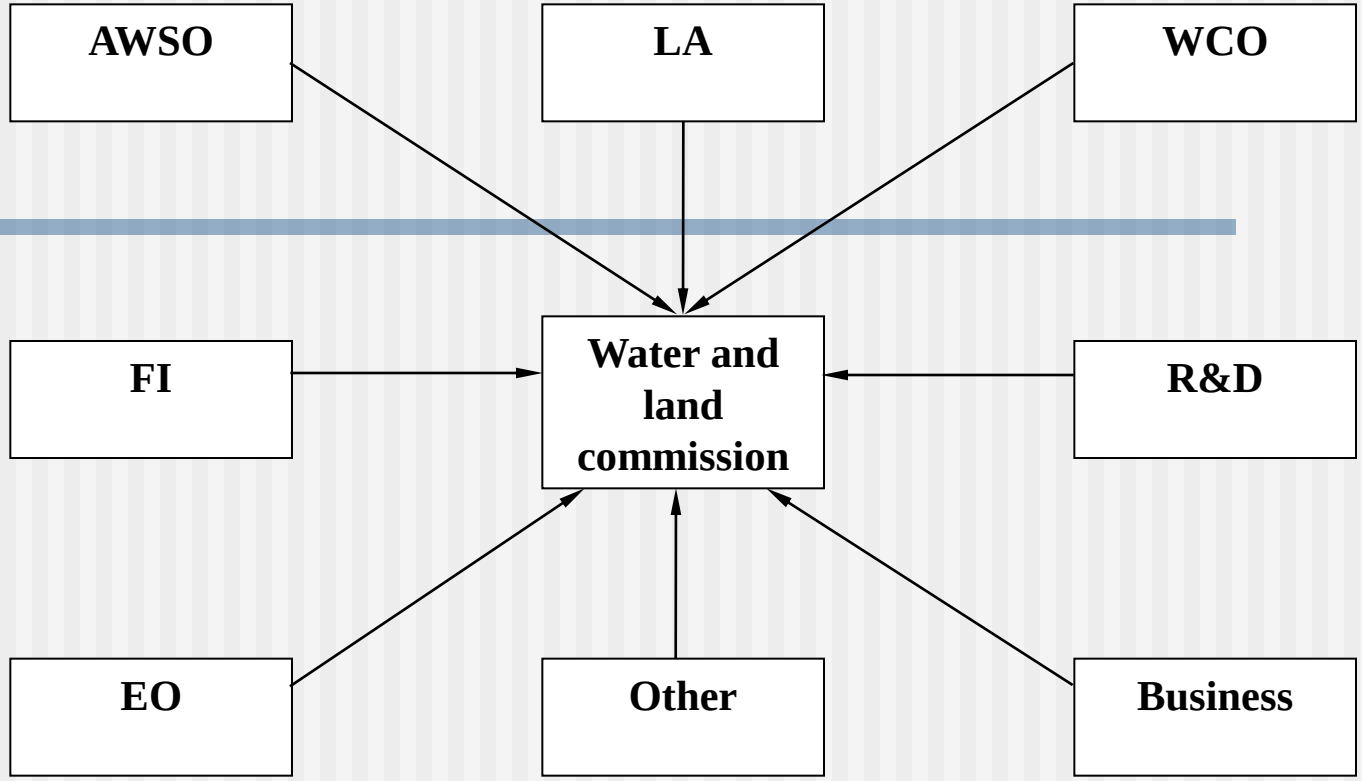
IWRM

- **Multilevel system of Water Management, supported by proper system of GOVERNANCE;**
- **Complex of institutional, legal and technical measures;**
- **Combination of government line of actions with strong public initiatives;**
- **Integration of land and water.**


Water governance
Water strategy
Legal framework
Institutional structure
Public participation
Ecological demand and protection
IWRM
Level of hierarchy
Basin level
Subbasin level
System canal level
WUAs
Water users level
Water supply management
Water demand management
National level
Rayon level
WUAs
Water users
infrastructures
CB
HRD
knowledge innovation implementation
information system
training
gender and water
social mobilization


IWRM – River Basin
Traning
Knowledge innovation implementation for
First Block
“River Basin Management”
on the basis of IWRM-FV Project
Second block
“Demand management”
on the basis of WPI-PL project
River Canal
Tributa ries
Canals
WUA
Farm
CDS
Irrigated field
ACS of Syrdarya river canal within the FV
ACS of Canals
CARWIB – information providing and water consumption forecast
Social mobilization


Water supply governance entities
ICWC Water
BWO «Syrdarya» Water Committee
Naryn-Karadarya SB Wat.Com.
National water coucil
Sub-basin water committee
Canal (system) water committee
WUA Council
ASB
Syrdarya basin
Naryn-Karadarya sub-basin
National
Sub-basin of FV
Irrigation canal (system)
WUA
Water user/farmer
ICWC
BWO «Syrdarya»
Sub-basin Adm. "Naryn-Karadarya
National water administration
Sub-basin administration
Canal (system) administration
WUA administration
Water supply management entities
Water demand governance entities
National water coucil
Provincial water and land commission
District water and land
WUA Administration
Republic
Province
District
Water Users Association
End User / Farmer
National water administration
Provincial water management
District water management
WUA Administration
Water demand management entities



AWSO	Agricultural and water sector organizations
LA	Local authority
WCO	Water consumer organizations
FI	Financing institutions
R&D	Research and development organizations
EO	Environmental organizations

Our goal – to transform IWRM in single way for survival of Central Asia region in condition of growing water scarcity

Task № 1

Testing all tools of water delivery and water allocations on broad scale:

- **MIS Canal systems;**
- **Daily planning WUAs;**
- **Hydromodule zoning;**
- **Water measuring;**
- **Water**

Task № 2

Preparation and preliminary negotiation of improvement institutional structure of

Task № 3

Financing and testing complex of financial-economic strategy of IWRM on the example of Kuva rayon, Akbarabad WUA

Task № 4

All regulations, guidance, rules, instructions prepared, agreed and ready to up scaling

donors

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

giz

UNECE

etc.

water sector

executors

SIC ICWC / BWO Amu / BWO Syr /
UNECE / ZOI

UNECE

providers / users

national
water management
authority

NIS

NIS

NIS

NIS

NIS

Portal

CAWATERinfo

CAREWIB IS

Models: ASBmm, etc.

international level
WWC, INBO / EECCA NWO, ICID, other international organizations

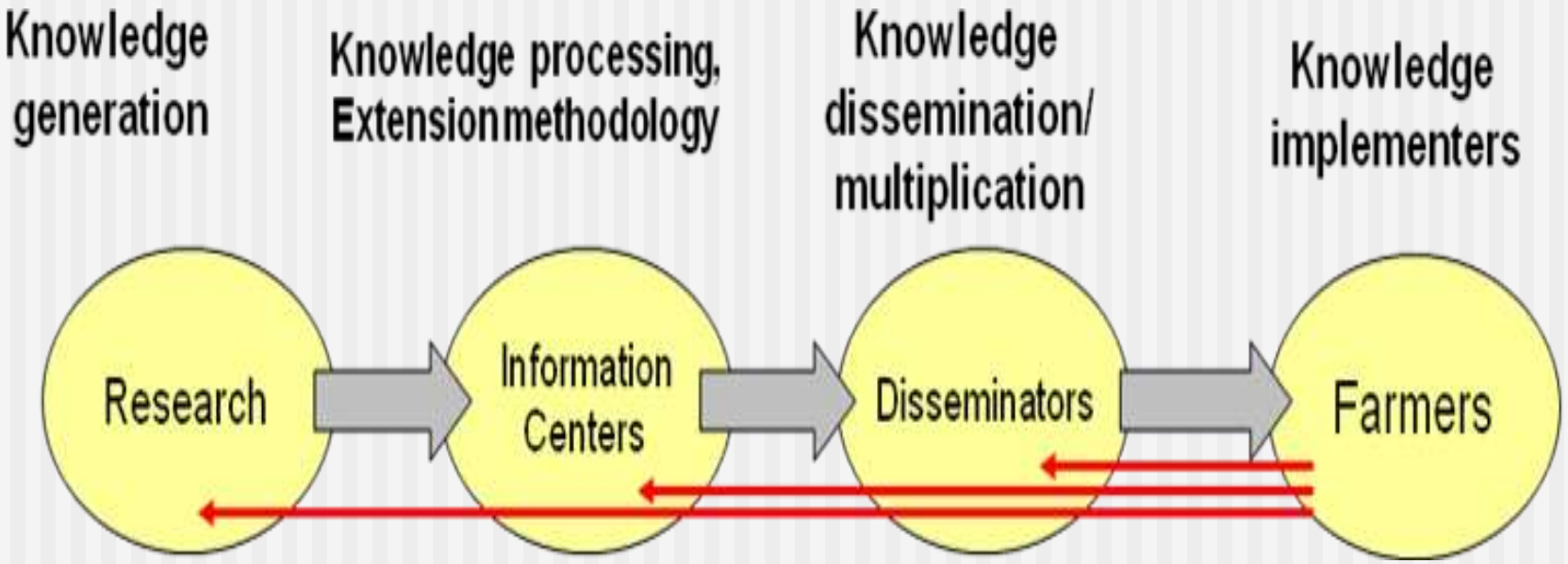
regional level
regional projects (IWRM-Fergana, WPI-PL, RESP2, etc.)

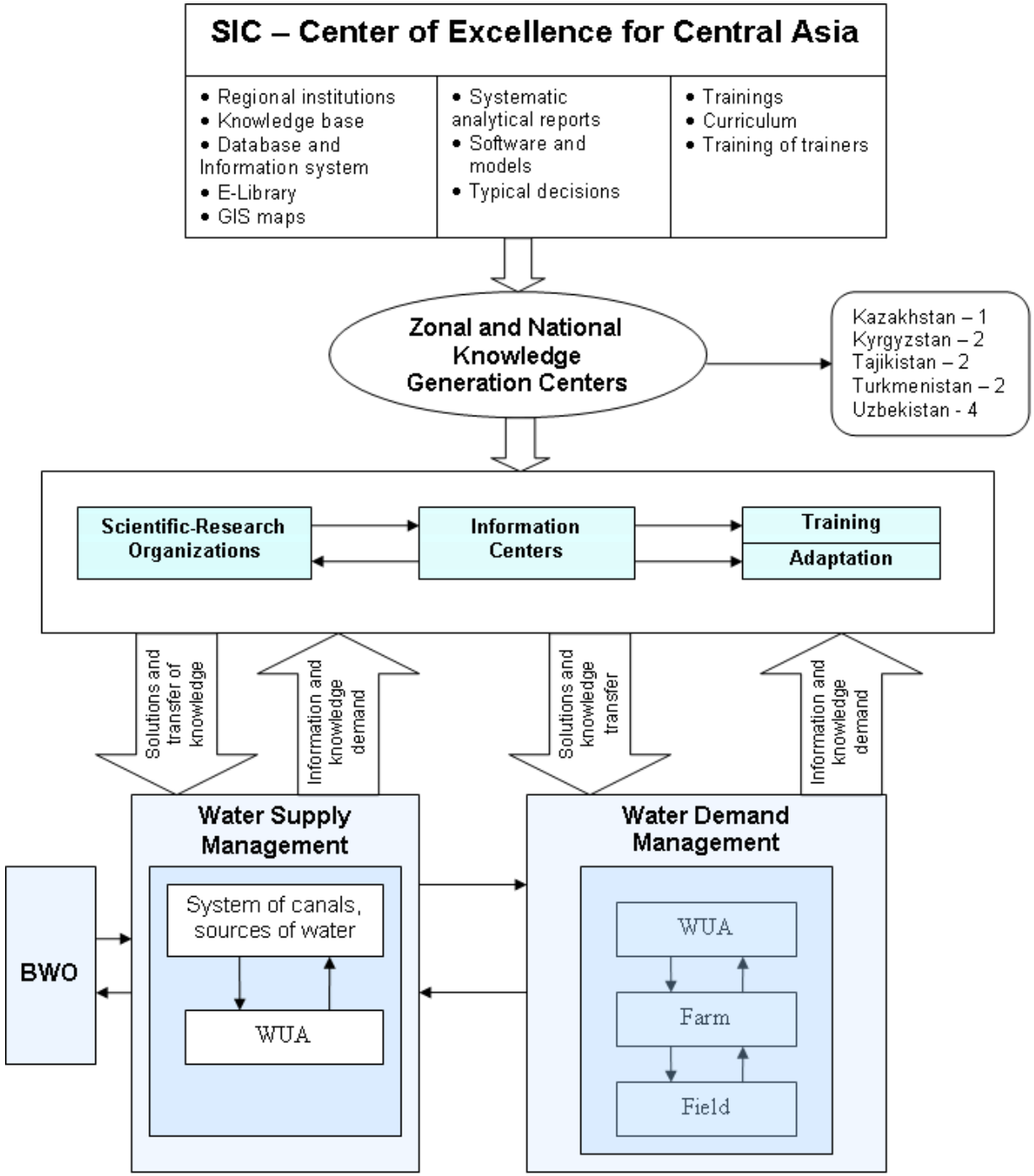
national level
BWA, BWRA, oblvodkhozes, WUAs, farmers

users

Potential users:

- IFAS, ICWC, ICSD (+ executive bodies)
- Central Asian research and design agencies involved in water sector
- Water (basin and system) management organizations in CARs
- Institutions for higher education in CARs (hydroengineering, agricultural, hydrological and other directions)
- Ministries of Emergency Situations of CARs
- Agencies dealing with monitoring of management and quality and quantity of water resources in CARs (meteorological, hydrometrical, hydrogeology-reclamation services, institutions of State Committee for Nature Conservation, etc.)
- Agencies dealing with the operation of national and unified Central Asian power supply systems
- Non-governmental, private organizations
- International agencies and donors
- Mass media


Knowledge generation
Knowledge processing, Extension methodology
Knowledge dissemination/ multiplication
Knowledge implementers
Research
Information Centers
Disseminators
Farmers


SIC – Center of Excellence for Central Asia
• Regional institutions
• Knowledge base
• Database and Information system
• E-Library
• GIS maps
• Systematic analytical reports
• Software and models
• Typical decisions
• Trainings
• Curriculum
• Training of trainers
Zonal and National Knowledge Generation Centers
Kazakhstan – 1
Kyrgyzstan – 2
Tajikistan – 2
Turkmenistan – 2
Uzbekistan - 4
Scientific-Research Organizations
Information Centers
Training
Adaptation
Solutions and transfer of knowledge
Information and knowledge demand
Solutions and knowledge transfer
Information and knowledge demand
Water Supply Management
Water Demand Management
BWO
System of canals, sources of water
WUA
WUA
Farm
Field

Water measuring

Indicators of agricultural production improvement in the IWRM-Fergana Project

Indicator of improvement	Tajikistan	Uzbekistan	Kyrgyzstan	
	Cotton	Cotton	Cotton	Wheat
Reduced water delivery	33%	34%	17%	40%
Increased crop yields	18%	21%	25%	64%
Improved productivity	62%	69%	52%	96%

Impact of climatic factors

Climatic parameters	Impacts	
Air temperature	The growing season extends Sowing dates - earlier sowing Conditions suitable for germination, phenological phases and growth Extremely high temperatures stop physiological processes in plants	+ + ± -
Air humidity	Intensive evaporation Creates conditions for heat-and-moisture exchange essential for every specific crop	- +
Precipitation	Soil moisture and humidity create natural moistening, conditions for growth Storm precipitation can impede germination and carrying out agricultural activities	+ -
Temperature, humidity and precipitation	Generally form plant evapotranspiration Change salinization processes	+ -
CO_2 concentration	Determine rate of photosynthesis, respiration Form biomass and productivity of crops	- +

Formation of azotobacter nodules on green gram roots

Farmer training in adapting to climate change

Principal directions of adaptation

1. More precision long term forecast of water availability.
2. More accurate forecast of climatic and hydrological conditions.
3. Ability to get permanently climatic information.
4. Multiyear regulation reservoirs.
5. Water saving and implementation of IWRM.
6. Training for adaptation.
7. Increase second crop growing.
8. Water resistant crops.
9. Control of losses in rivers.

The main focus of the proposed programme

Capacity building and human resources development for broader implementation of IWRM in Central Asia (training, social mobilization, etc.)

To address principal challenges, it is necessary to:

1. Establish a strong system of innovation implementation and dissemination of experience on IWRM.
2. Promote innovations into water delivery services - to create stability and efficient water supply, including: a) build up strong interrelations between water hierarchy levels by economic, legal and managerial tools b) Water-Food–Energy nexus.
3. Promote innovations into more effective water use, including: a) broad implementation of water saving and reduce average water delivery per hectare on 20-30% by 2030, b) increase water productivity on 50% by 2030, c) cultivation of drought resistant crops.
4. Increase women involvement in water management and governance.
5. Pilot testing of IWRM in specific zones: a) in upper watershed, b) in lowlands of Amudarya and Syrdarya rivers.

Resource needs

- - Support training and information activity SIC ICWC (together with other structures)
- - Establishment for on one zonal knowledge generation center in each from 5 states of Central Asia

Thank you very much!