Capacity building and human resources development for broader implementation of IWRM

in Central Asia

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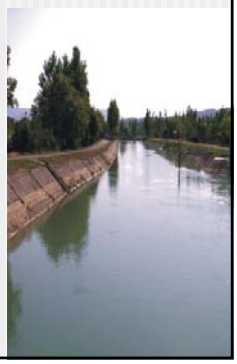
Adelaide, 2012

Principal challenges in the region

- Climate change impact: reduced flow, glaciers melt, prevalence and severity of extreme events;
- Demographic pressure – population growth 1.2 – 1.8% per year;
- Weakness of economic base;
- Poor water management;
- Hydroegoism;
- Ongoing restructurization of economic and especially agrarian farming;
- Instability of market and prices.



Evaluation of water resources available for use in the Aral Sea Basin, km³

	Normal year	The 2008 driest year	Scenario B2		Scenario A2	
			An average year	A dry year	An average year	
						0,0
the Amu Darya River	79,3	59,4	73,7	55,2	71,3	53,5
the Syr Darya River	37,2	27,3	37,2	27,3	35,3	26,5
2. Groundwater:	16,9	13,5	16,4	13,1	15,7	12,5
the Amu Darya River	5,9	4,7	5,5	4,4	5,3	4,3
the Syr Darya River	10,9	8,7	10,9	8,7	10,3	8,2
3. Return water:	32,4/21,6	12,9	20,8	12,5	20,1	12,0
the Amu Darya River	19,06/9,7	5,8	9,0	5,4	8,7	5,2
the Syr Darya River	13,4/11,8	7,1	11,8	7,1	11,2	6,7
4. Water losses in open channe						
Amu Darya River	8,9	8,9	8,9	8,9	8,9	8,9
the Syr Darya River	5,0	5,0	5,0	5,0	5,0	5,0
5. Environmental requirements:	8,0	5,2	8,0	5,7	8,0	5,7
the Amu Darya River	4,8	3,1				
			3,2	2,5	3,2	2,5
Total water resources that can be used	133,05	94,1	126,4	88,7	120,6	85,0
the Amu Darya River	81,3	57,9	74,6	53,0	71,7	50,9
the Syr Darya River	51,7	36,1	51,7	35,6	48,7	34,0

Combination of climatic and water management scenarios

Water management scenario	Climatic scenarios					
	Usual natural runoff		Scenario B2		Scenario A2	
	An average year	A dry year	An average year	A dry year	An average year	A dry year
Total	133	94	126,4	88,7	120,5	85
the Amu Darya River	81,3	57	74,6	53	71,7	50,9
the Syr Darya River	51,7	36,1	51,7	35,6	48,7	34
Hydropower (the irrigation regime W1):			126,4	95,8	120,5	89,9
the Amu Darya River			74,6	39,6	71,7	53,8
the Syr Darya River			51,7	56,2	48,7	36,6
Hydropower (the hydropower regime W2):			119,2	81,2	113,9	76,3
the Amu Darya River			69,7	45,8	67,4	43,6

Comparison of water balance in part of demands for water in different socio-economic scenarios of the ASBMM model

Indicator	ASBMM scenarios		
	optimistic	BAU	national
Irrigated agriculture			
Irrigated areas, thousand ha	8500	8500	9400
Gross irrigation norm, m³/ha	9400	11500	11000
Irrigation water demands	79900	97750	103400
Household-domestic needs			
Population, million	59.0	69.0	77.0
Unit water supply, m³/capita: l/capita/day	0.09/250	0.11/320	0.128/350
Total needs	5310	7500	9856
Industry	3300	3050	3500
Other sectors	1500	3500	3500
Total	90000	111800	120260
including Afghanistan	95000	116800	125260
Average long-term resource	126404	119274	120556
Supply to Aral	39400	2474	-4704

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;

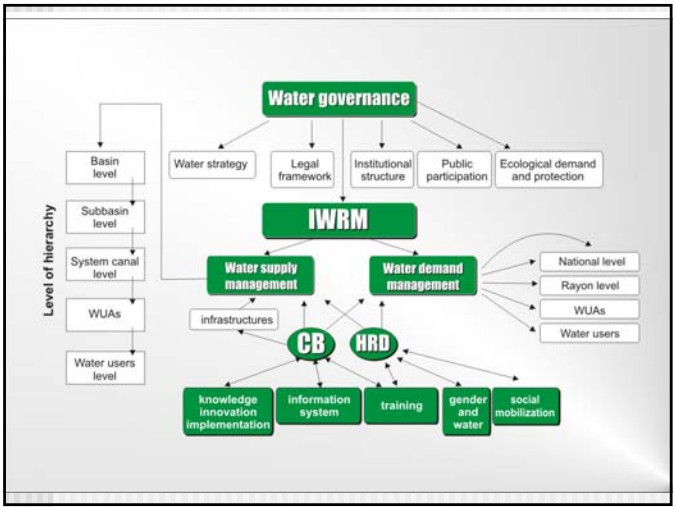
Public participation not only in the water management process, but also in financing, planning, and developing water infrastructure;

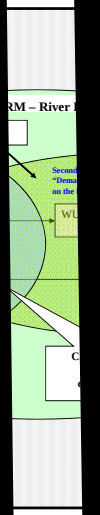
Setting the priorities of **eco-systems'** water requirements;

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.

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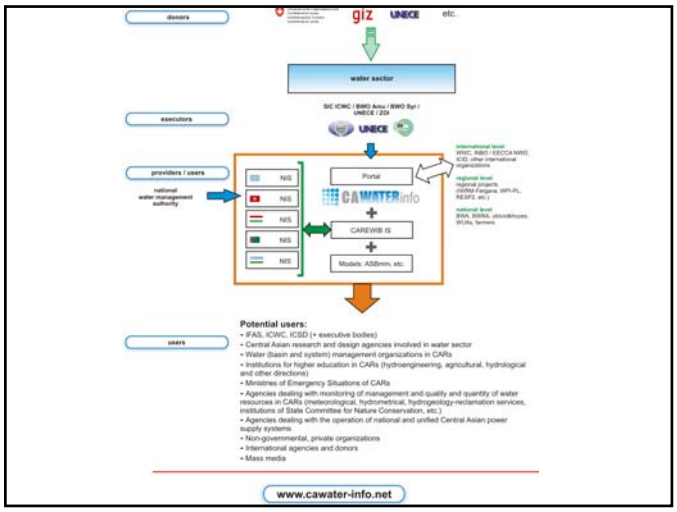
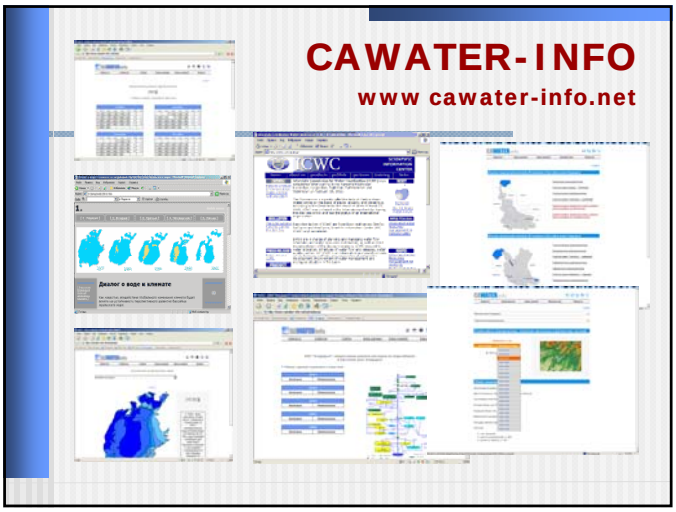




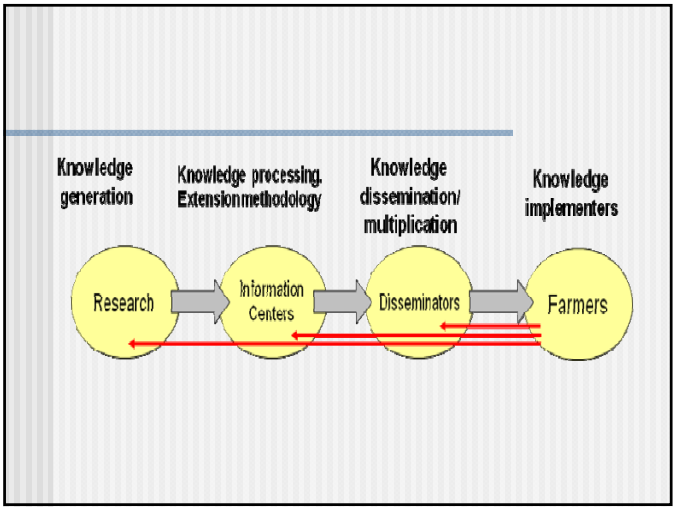
Information data flow, dissemination and exchange of information and knowledge

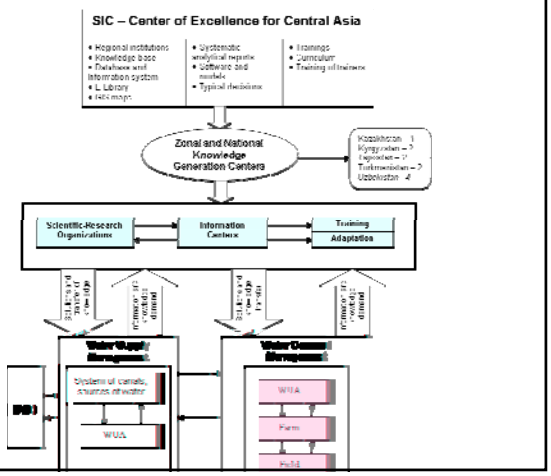
PROJECTS AND SCIENCE	PARTNERSHIP	INFORMATION
IWRM Ferghana Valley; IWRM Lowlands; Strategic Planning; IWRM Aral sea coast; Drainage in Central Asia; Water and Education; RIVERTWIN.	McGill University; UNESCO-IHE; Bonn University; Stuttgart University; Montpellye University; IWMI.	INBO ICID-CIID, WWC, IWRA, GWP, SDC, WB, ADB.
Projects proposals and scientific initiatives	Partnership contacts with international community	Dissemination and exchange of information (CAREWIB Project etc.)

Urgench CIDA — HQ TC ICWC Tashkent CIDA — Bishkek ADB

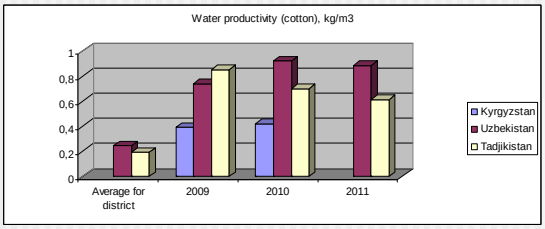
Dushanbe, Khodjent CIDA — Almaty UNDP/USAID — Osh SDC

Extension Service for Farmers and WUA





Comparative evaluation of average water productivity in the province and WPI-PL project pilot sites, m3/ha (cotton)



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!