

## MAIN RESULTS

### On “Pilot Canals” Activity for 2002-2007

#### Institutional aspect

##### *Hydrographization*

###### Starting situation

1. SFMC was under management of the following organizations:
  - Big Fergana Canal Management Organization
  - Andijan Provincial Administration for Water Resources;
  - Fergana Provincial Administration for Water Resources.
2. AAC was under management of the following organizations:
  - Aravan District Administration for Water Resources;
  - Karasu District Administration for Water Resources.
3. KhBC was under management of the following organizations:
  - B.Gafurov District Administration for Water Resources;
  - Dj.Rasulov District Administration for Water Resources.

###### What was achieved

1. As a result of project implementation three Canal Management Organizations were created within hydrographic boundaries:
  - South-Fergana Main Canal Management Organization
  - Aravan Akbura Canal Management Organization
  - Khodja-Bakirgan Canal Management Organization
2. KhBC and AAC were fully transferred to the hydrographical principle.
3. During Phase III considerable steps were made to complete transference to hydrographical principle at SFMC:
  - 40 km of Shakhrikhansay and Margilan and Fayziobod reaches were transferred under control of SFMC MO;
  - 5 pilot WUAs conclude agreements on water supply directly with SFMC MO

###### What was not achieved

Because the SFMC system is larger and more sophisticated than KhBC and AAC, the hydrographization work at this system still is not completed. Nowadays the concept on SFMC hydrographization completion is being developed taking into account local conditions.

#### *Public Participation*

###### Starting situation

Before the project the public participation principle was only at the makhalya level and it began to be introduced at the level of former collective farms (kolkhozs) and state farms (sovkhozs) by creating Water Users Associations (WUA). This process was initiated at main canals level only during the project.

###### What was achieved

At all 3 pilot canals:

1. Union of Canal Water Users (UCWU) were created and registered legally:
  - SFMC UCWU;
  - AAC UCWU;
  - KhBC UCWU.
2. Structures (tools) as UCWU Board have been formed and are functioning. UCWU Board meetings (monthly) are held regularly.
3. “Concept on joint governance...” for pilot canals was developed and introduced:
  - “Agreements on joint governance...” for pilot canals were developed, agreed and signed:
    - i. Agreement between BAWR and AAC UCWU was signed in Kyrgyzstan;
    - ii. Agreement between the Ministry of Land Reclamation and Water Resources of the Republic of Tajikistan and KhBC UCWU was signed in Tajikistan;
    - iii. Agreement between FVMCA and SFMC UCWU was signed in Uzbekistan.
  - On the basis of “Agreement on joint governance...” bodies for joint governance have been formed and are functioning: Board of Canal Water Committees (SFMC CWC; AAC CWC; KhBC CWC) composed of representatives from:
    - i. Water management organizations (WMO) and
    - ii. Water users (UCWU).
4. Water-users are involved in water governance process: UCWU water users take part in decision-making on joint water governance at canal level through their representatives in CWC Board.
5. During the growing season, each ten-days CWC Board holds meetings where water distribution along pilot canal for previous ten-days is assessed on the basis of the water distribution indicators and where decisions are made for the next ten-days;
6. Because SFMC is very large (as compared with AAC and KhBC), SFMC UCWU and SFMC WC branches have been created on 10 hydrounits of SFMC to increase effectiveness and efficiency SFMC UCWU and SFMC WC activity;
7. UCWU Councils and CWC Councils are being formed. Representatives from related (non-agricultural) sectors (ecology, drinking water supply, energy) as well as local authorities, women and aksakals are being involved in water governance process through such Councils;
8. ”Guideline on organizational improvement of water management” was developed.
9. New funding sources are being searched to ensure UCWU sustainability:
  - Proposal for a tax credit has been submitted (AAC UCWU),
  - Negotiations about financial assistance of \$ 25,000 to water supply purposes are in progress with one of the donor organizations (SFMC UCWU);
  - SFMC UCWU has benefited a grant of the Embassy of the United States of America in the amount of \$ 4,500 to conduct workshops at hydrounit level.

#### What was not achieved

1. Financial sustainability of UCWU is very low. UCWU members have begun to transfer funds on UCWU bank account only since 2007.
2. Organization of activities of UCWU and CWC Councils is not completed. Participation of the non-agricultural water users is on irregular basis.

#### ***Legal Framework Improvement***

The followings have been developed:

- Recommendations on resolving conflicts and contradictions;
- Recommendations on improvement of acting legislation taking into consideration transference to water use management at large-scale canals on the basis of hydrographical

and public participation principles. Recommendations were discussed at workshops with participation of NCSG representatives from three republics and submitted to interested organizations for discussing and refining.

## **Technical and technological aspect**

### *Water accounting*

1. There were installed new gauging facilities including gauging rods, flow meters for head gauging stations and gauging propellers to meter flow velocity.

Allocation of gauging equipment

№	Name	SFMC	AAC	KhBC
1	Gauging rods:			
	– 0,5 m	150	46	14
	– 1,0 m	40	8	50
	– 1,5 m	-	2	4
	– 2,0 m	-	6	4
	Total:	190	62	72
2	Gauging propellers IST-01*	4	2	2
3	Flow meters UEM	1	1	1

2. Flow monitoring tables for flow meters installed at head gauging stations of the pilot canals were adjusted;
3. Technical condition of gauging stations was surveyed. As a result of field surveys data for SFMC gauging stations were specified.
4. Flow characteristics for all balancing, controlling gauging stations of pilot canals and their outlets (selectively) were subjects to processing by statistical methods in order to reveal their correlations and errors.
5. Observations at AAC and KhBC controlling gauging stations are made more often
6. Reliability of flow characteristics for PC controlling gauging stations is verified by sampling measurement of water flows;
7. Trainings are organized for canal hydrometers to train in calibration methods at gauging stations, preparation of flow characteristics  $Q = f(H)$  and keeping technical documentation for gauging stations;
8. «Guideline on water accounting for hydrometers of main canals» was prepared

### *MIS*

#### What was achieved

1. «IWRM-Fergana» Management Information System was improved and introduced. «MIS-Fergana» structure is fully maintained by complex of mathematic models and data flow.
2. «MIS-Fergana» was created on the basis of Data Manager ACCESS and GAMS. At the present time «MIS-Fergana» version 3.0 was set and tested at pilot canals.
3. «MIS-Fergana» allow:
  - Accounting actual water withdrawal for outlets and canals;
  - Registering applications for decade water supply;
  - Modeling different options of water distribution between water users under various applications and various water supply volumes;

- Finding optimal options of water distribution;
  - Analyzing water distribution effectiveness.
4. System of water distribution indicators includes (beside traditional indicators practiced by operating people in water distribution: water availability, efficiency, unit water supply, ...) the following ones:
    - Flow sustainability at controlling gauging stations during a day;
    - Sustainability of average daily water supply during decade;
    - Water supply equitability;
    - Collectability of fees for water services;
    - Others.
  5. The followings were prepared and disseminated
    - Guideline on using MIS tools for users to prepare, adjust water distribution plans and calculate water distribution indicators at pilot canals level;
    - Guideline on water distribution monitoring and evaluation;
    - Guideline on pilot canal operation.
  6. The followings were organized
    - Systematic input of monitoring results in database (DB);
    - Calculation of decade (total) indicators for water distribution;
    - Submission of water distribution indicators to UCWU and CWC for operational (and final) evaluation of water management quality at pilot canals to make decisions for the next decade (season).

What was not achieved

1. Water distribution programs were tested under extreme situations (drought, flood).

**Pumping stations (PS)**

1. Pumping station operation was analyzed in SFMC area;
2. Proposals for improving pumping station operation and water accounting reliability were prepared.
3. Pumping station operation was regulated on the basis of:
  - Optimal schedules for PS operation;
  - Specification of command areas;
  - Stabilization of energy supply;
  - SFC UCWU control.
4. Unit water supply from PS was sharply reduced.

**Capacity Building**

Workshops and trainings

Number of workshop-training participants for 2002-2007

№	Year	Total number, persons	Women
1	2002	57	
2	2003	90	
3	2004	252	
4	2005	53	4
5	2006	264	31
6	2007	715 <sup>1</sup>	40
	Total:	1431	75

The followings were improved during workshops and trainings

- Knowledge of water users and other stakeholders in the field of IWRM;

<sup>1</sup> It does not include workshops at SFMC hydrounits held by USA Embassy Grant

- Awareness of water users regarding water distribution at pilot canals. Awareness raising facilitates to observe equitability principle when managing water.

### Promotion

Project achievements were propagated and IWRM ideas were up-scaled regularly through

- Mass media (articles in local and central newspapers, local TV broadcast)
- Documentary «Water. Integrated Resources Management») and others.
- Project web-site.

## Project Impact Assessment

### What was achieved

As a result of project implementation the followings were achieved at pilot canals:

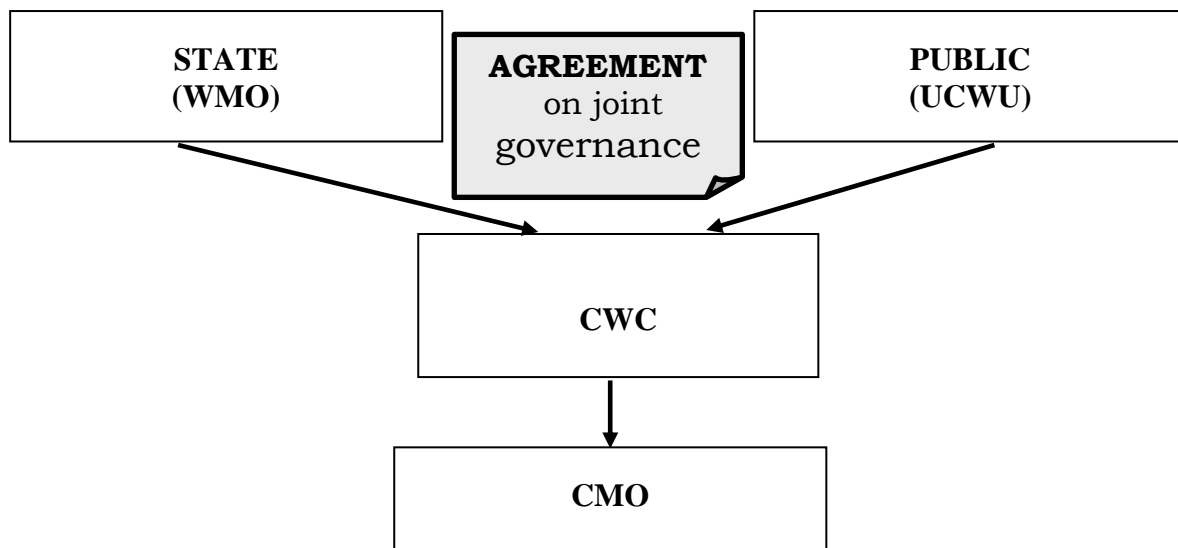
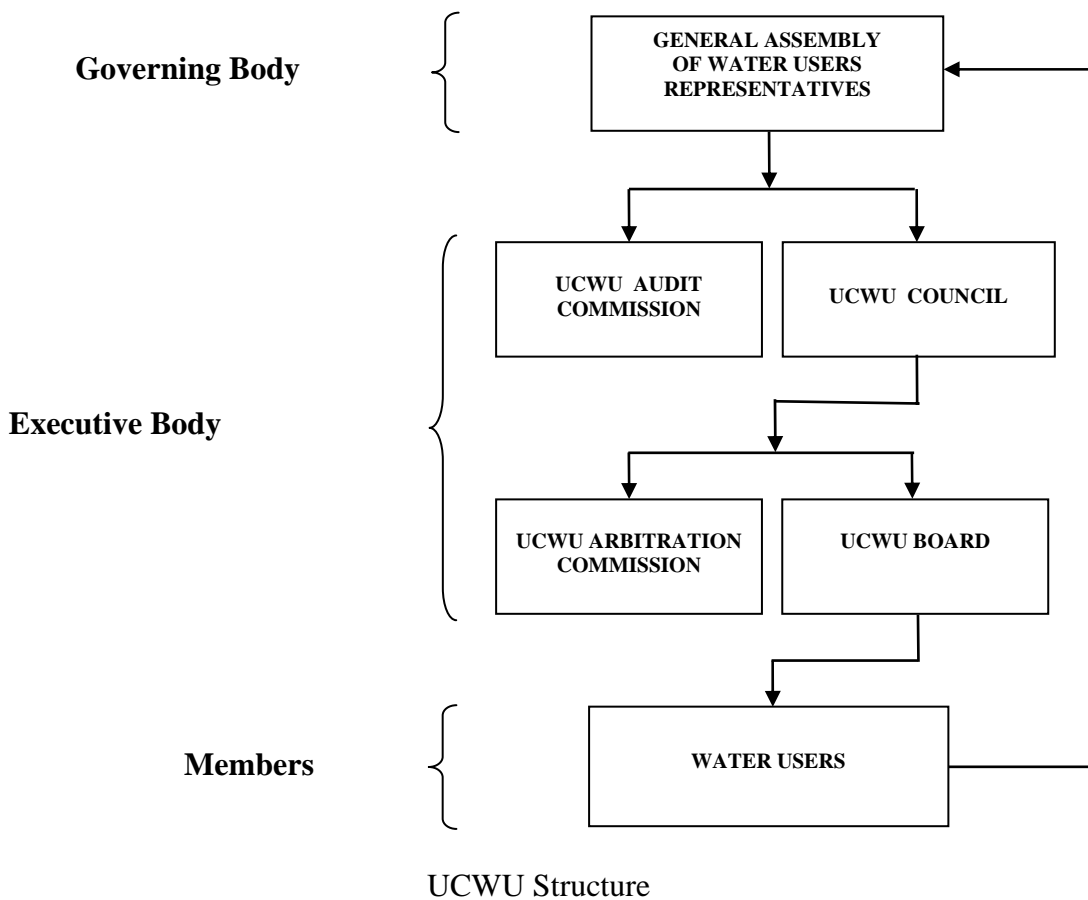
1. Water distribution related conflicts were sharply reduced or practically stopped between CMO and water users;
2. Collectability of fees for KhBC MO and AAC MO water services was increased;
3. Situation related to water supply to tail water users was mitigated. Now local downstream authorities «have no headache» and water users do not spend nights along canals (when it is their turn to take water) and do not fix tens of padlocks on regulating gates in order to avoid «unauthorized water withdrawal» (theft);
4. Water management quality was improved:
  - Decision making process was simplified and became more efficient;
  - Water supply equitability and sustainability was improved;
  - Unit water supply was reduced;
  - Organizational losses were reduced along canals.

### Water distribution indicators in PC

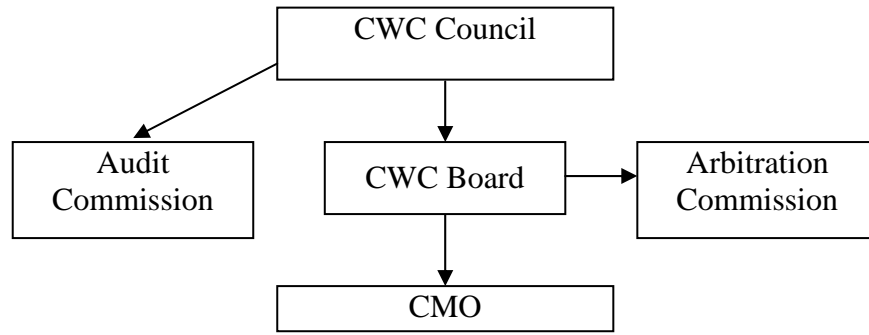
Pilot canals	Years	Actual water supply	Equitability	Sustainability	Efficiency	Unit water supply
		million m <sup>3</sup>	%	%	%	thousand m <sup>3</sup> /ha
SFMC	2003	1053	60	85	81	12,6
	2004	925	89	87	88	11,0
	2005	871	94	85	87	10,3
	2006	816	94	84	89	9,2
	2007	643	92	84	86	7,2
AABC	2003	83	45	70	54	13,1
	2004	66	63	91	53	9,8
	2005	57	69	84	54	8,5
	2006	54	74	81	59	8,0
	2007	64	82	90	59	8,3
KhBC	2003	116	36	41	80	14,4
	2004	113	82	58	78	15,8
	2005	115	73	64	78	16,5
	2006	90	80	54	80	12,1
	2007	88	77	62	81	11,8

### What was not achieved

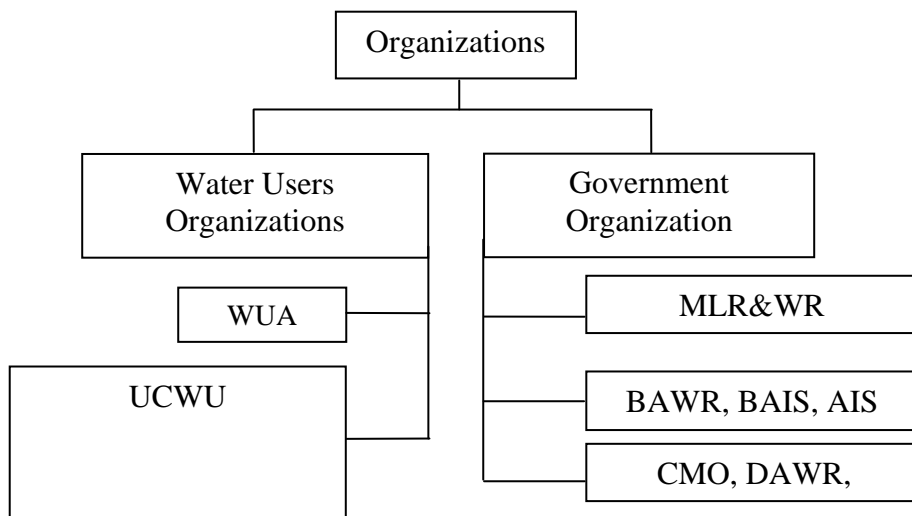
Economic assessment of project impact was not made (water productivity in PC area).



Scheme for joint water governance

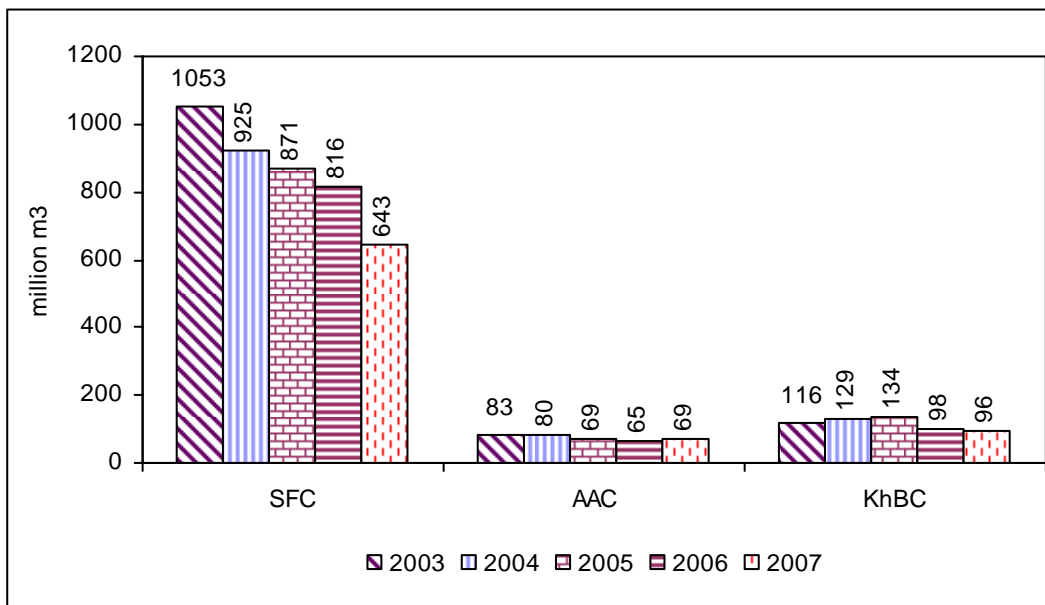


CWC Structure

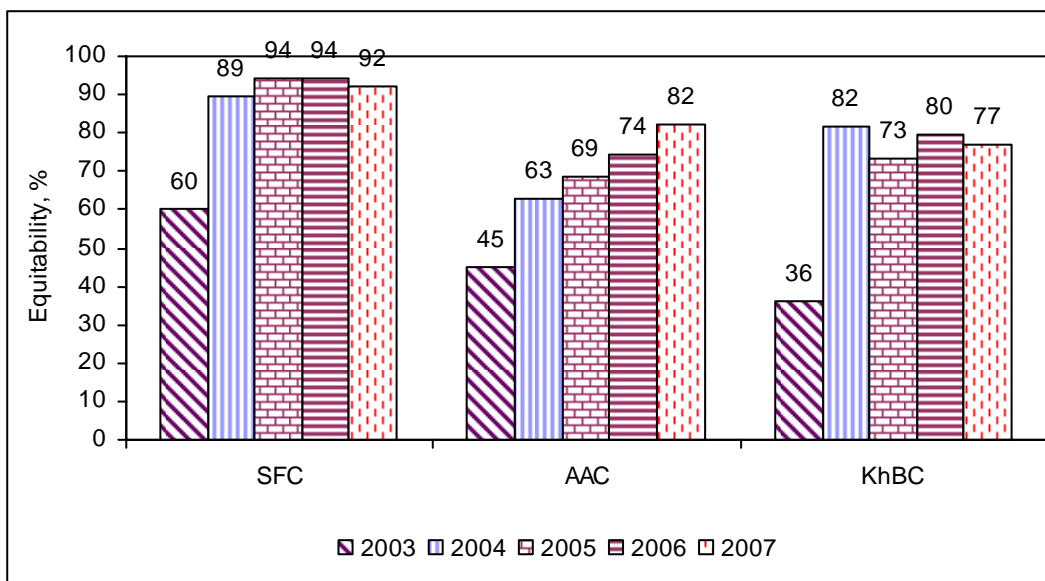


Water Management Organizations after the Project

Diagrams for water distribution indicators

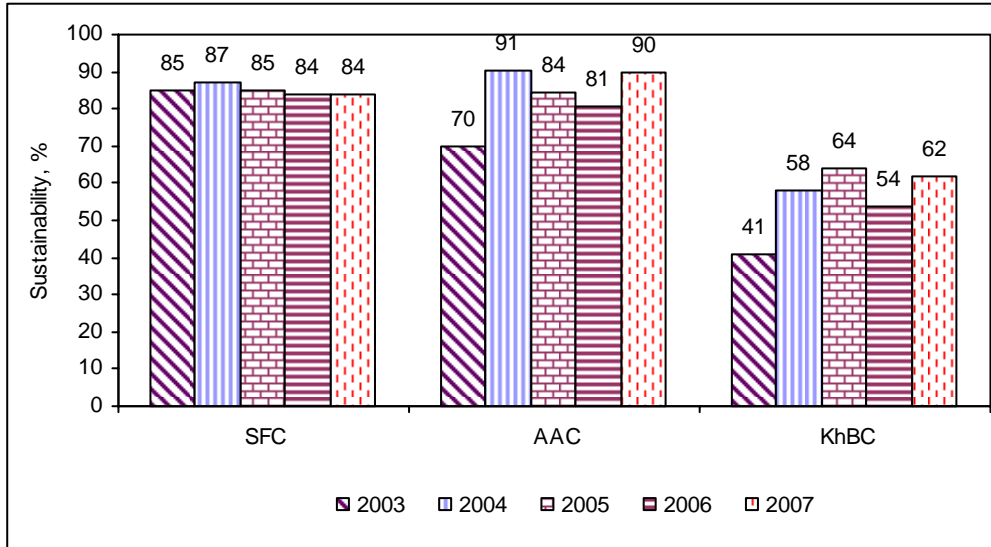


Actual water supply from PC

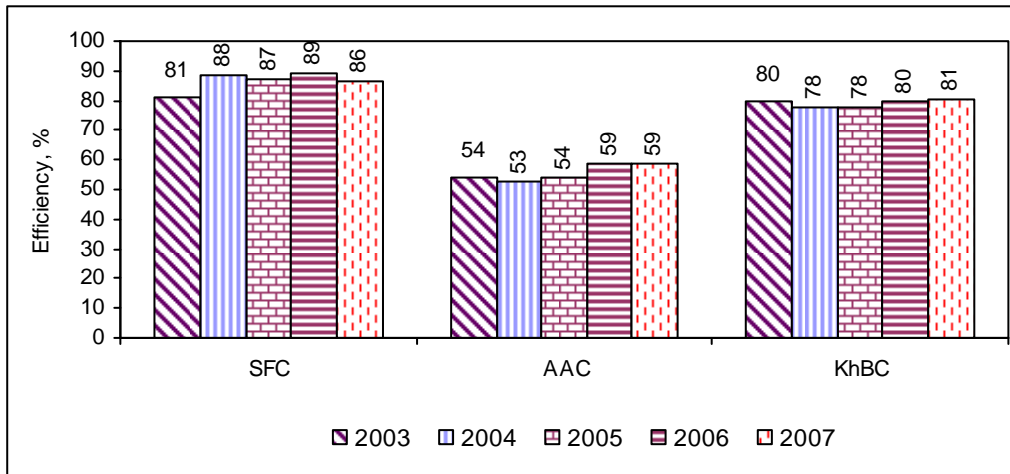


Water supply equitability

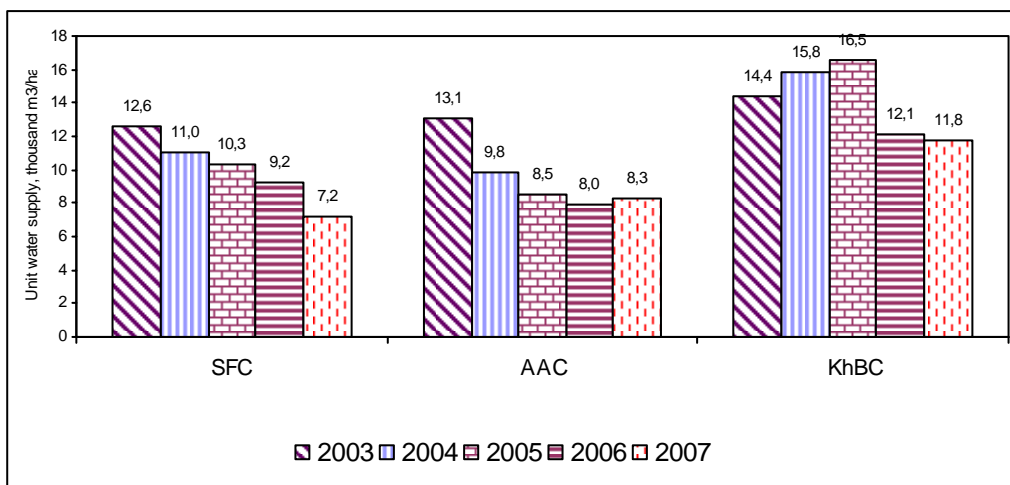




Water supply sustainability



Canal efficiency



Unit water supply

