Interstate **C**ommission for **W**ater **C**oordination in Central Asia	BULLETIN №2 (41)	September 2005

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MINUTES OF 42th MEETING OF THE INTERSTATE COMMISSION FOR WATER COORDINATION (ICWC) REPRESENTED BY THE REPUBLIC OF KAZAKHSTAN, THE KYRGYZ REPUBLIC, THE REPUBLIC OF TAJIKISTAN, TURKMENISTAN AND THE REPUBLIC OF UZBEKISTAN

28-29 April 2005 Almaty city

Participants:

ICWC members:

Ryabtsev Anatoliy Dmitriyevich	Chairman of the Committee for Water Resources, Ministry of Agriculture, the Republic of Kazakhstan
Bekbolotov Zhenishbek Bekbolotovich	Deputy Minister, Director General of Water Resources Department, Ministry of Agriculture, Water Resources and Processing Industry, the Kyrgyz Republic
Nazirov Abdukokhir Abdurasulovich	Minister of Land Reclamation and Water Resources, the Republic of Tajikistan
Altiyev Tekebay Altiyevich	Deputy Minister of Water Resources, Turkmenistan, Honorary member of ICWC
Khamrayev Shavkat Rakhimovich	Deputy Minister, Chief of Central Water Administration, Ministry of Agriculture and Water Resources (MAWR), the Republic of Uzbekistan

From ICWC Executive Bodies:

Dukhovny Viktor Abramovich	Director of SIC ICWC, Professor, Honorary Member of ICWC
Khudayberganov Yuldash Khudayberganovich	Head of BWO "Amudarya"
Khamidov Makhmud Khamidovich	Head of BWO "Syrdarya"
Negmatov Gayrat Abdusattarovich	Chief of ICWC Secretariat
Makarov Oleg Stepanovich	Director of CMC ICWC, Director of PKTI "Vodoavtomatika i metrologiya"
Umarov Pulatkhon Djakhanovich	Director of ICWC Training Center

Invitees:

Kenshimov Amirkhan Kadyrbekovich	Deputy Chairman of the Committee for Water Resources, Ministry of Agriculture, the Republic of Kazakhstan
Beishekeyev Kydybek Kanimetovich	First Deputy Director General of Water Resources Department, Ministry of Agriculture, Water Resources and Processing Industry, the Kyrgyz Republic
Shaymordonov Subkhonkul Shomakhmadovich	Director of SIC ICWC Tajik Office
Djayloobayev Abdybay Shakirbayevich	Director of SIC ICWC Kyrgyz Office

Rysbekov Yusup Khaydarovich	Assistant Director of SIC ICWC
Laktionov Aleksandr Georgiyevich	Division head, BWO “Syrdarya”
Lysenko Oleg Grigoryevich	Division head, BWO “Amudarya”
Annayev Beki Annayevich	Head of Secretariat, ICSD
Balliyev Kurbangeldy Begenchevich	Division head, SIC ICSD
Pulatov Kamitjon Pulatovich	Head of RGP «Yugvodkhoz»
Kanapianov Meiram Ilyasovich	Head of Regional cooperation division, MFA, the Republic of Kazakhstan
Iskakov Saksyzbai Tamentayevich	Director, CMC ICWC Kazakh branch (NPC «Suavtomatika»)
Umarov Khamdam	Head of Republican water inspection Uzsuvnazorat, Ministry of Agriculture and Water Resources, the Republic of Uzbekistan
Zhurayev Zokirjon	Department head, Ministry of Agriculture and Water Resources, the Republic of Uzbekistan
Pulatov Yarash Ergashevich	Director General, SPA TajikNIIGiM
Nurushev Almabek Nurushevich	Director, EC IFAS Kazakh branch
Chairman:	Ryabtsev Anatoliy Dmitriyevich - Chairman of the Committee for Water Resources, Ministry of Agriculture, the Republic of Kazakhstan

AGENDA

1. Outcomes of the non-growing season 2004-2005 and adoption of water withdrawal limits from the Amudarya and Syrdarya for the next growing season 2005, approval of forecast operation modes of reservoir cascade (responsible - BWO “Amudarya” and BWO “Syrdarya”).
2. Sharing financing of SIC ICWC and BWO “Syrdarya” activities.
3. Development of hydrometric instruments to the benefit of ICWC (responsible SIC ICWC and CMC ICWC)
4. Preparation to 4 World Water Forum
5. CAREWIB project progress
6. Agenda and venue of the next 43rd ICWC meeting.

Having approved the agenda, heard the speeches made by the participants of the meeting, and exchanged views, the members of the Interstate Commission for Water Coordination (ICWC) in Central Asia decided:

On the first item:

1. Take into consideration information of BWO “Amudarya” and BWO “Syrdarya” on implementing water withdrawal limits and ensuring the adopted operation mode of the reservoir cascade for the non-growing season 2004-2005.
2. Adopt the water withdrawal limits from the Amudarya and the Syrdarya for the growing season 2005 and approve the forecast operation schedule-mode of the reservoir cascade on the Amudarya river. Adopt the presented schedule-mode for the Syrdarya river. This schedule should be considered at the work group meeting of water and energy experts from riparian countries. BWO “Syrdarya” should submit to ICWC members the forecast on the basis of decisions made by the above work group in May 3-5, 2005 in Bishkek city.

3. Request ICWC members to promote signing of the interstate agreement on multipurpose use of water and energy resources in Naryn-Syrdarya reservoir cascade for the next growing season 2005.

On the second item:

1. Agree with proposals on sharing costs between the state-founders of SIC ICWC, taking into account the water withdrawal share of a state and the share of attracted grants. Item on financing of ICWC Training Center should be raised at the next ICWC meeting.

2. ICWC members should submit to national Ministries of Finance their proposals on shared financing of SIC ICWC in 2006 and in the future.

3. In order to provide financing before decision of the Government, SIC ICWC should discuss, on a routine basis, financing sources and document them in protocols with respective ICWC members for provision of financing in an amount of $US120,4 thousand in 2005.

4. Submit for consideration of IFAS Board of Management Provisions on ICWC, according to which to move amendments to the Statute of SIC ICWC.

5. Take into consideration information of BWO "Syrdarya" about status of its activity financing.

6. Given the lack of funds allocated for operation and maintenance of the interstate structures, ICWC members – riparian states in Syrdarya basin should consider with respective governments a possibility to finance BWO "Syrdarya" on a shared basis as set in Agreement of 1992.

7. ICWC members should consider a possibility to allocate funds for capital repair and reconstruction of structures being under temporal management of BWO "Syrdarya".

On the third item:

Recognizing that actual need for hydrometric instruments which, particularly in light of introduction of water charges, increases and calls for organization of production of these instruments in the region:

1. Taking into account available production capacities and experience in development of measurement instrumentation in Kyrgyzstan and Uzbekistan, it is advisable to develop them as the base to the benefit of basin countries.

2. CMC ICWC together with national metrological institutions should prepare comparative analysis for measurement instrumentation, costs of existing meters and industrial standards for price policy formation.

3. CMC ICWC together with national metrological institutions should prepare interstate program for provision with measurement instrumentation and water meters, with attraction of required capital investments for development of bases and acquisition of equipment by water users and submit it for consideration at the next ICWC meeting.

4. In order to reform the national metrological services and apply international standards, training of water measurement specialists should be organized on the base of CMC ICWC through Training centers.

On the fourth item:

1. SIC ICWC suggested plan of measures for preparation to the 4 World Water Forum should be approved and submitted to IFAS Executive Committee for joint work.

2. Agree with composition of regional work groups for development of proposals and reports under Forum's themes.

3. Charge SIC ICWC with collection of opinions for further processing and presentation in virtual forum.

On the fifth item:

1. Approve CAREWIB project activities and consider it expedient to continue activities with account of comments given.

2. Underline importance of the project in terms of raising trust and openness among water-management institutions and water users in the basin and of continuous updating information about all aspects of ICWC activities, as well as propagandizing ICWC.

3. Mark high degree of involvement from the side of BWO "Amudarya", BWO "Syrdarya", national Tajikistan coordinator and Uzgidromet in establishing the information system.

4. Request ICWC members and EC IFAS to remove obstacles in involvement of national Gidromets from other riparian countries and of the Regional hydrological center in CAREWIB activities.

5. Introduce "Agreement about information exchange in area of water sector between the countries in the Aral Sea basin" for approval by IFAS Board of Management.

On the sixth item:

1. The next 43rd ICWC meeting should be held in Tajikistan in September 2005.

2. Approve the following agenda for the next 43rd meeting:

AGENDA:

1. Status report on implementation of water limits and operation modes of reservoir cascades in the Amudarya and the Syrdarya basins in the growing season 2005 and adoption of water limits for the non-growing season 2005 (responsible - BWO "Amudarya" and BWO "Syrdarya").

2. Preparation to 4 World Water Forum

3. Report on implementation of the Decision of the Heads of State, 6 October 2002 regarding priorities № 1 and № 6.

4. Agenda and venue of the next 44th ICWC meeting.

For the Republic of Kazakhstan	A.D. Ryabtsev
For the Kyrgyz Republic	Zh.B. Bekbolotov
For the Republic of Tajikistan	A.A.Nazirov
For Turkmenistan	T.A. Altiyev
For the Republic of Uzbekistan	Sh.R. Khamrayev

PROTOCOLAR DECISION OF THE 42nd ICWC MEETING

28-29 April 2005 Almaty city

Upon results of the round-table discussion on "Improvement of water management and regulation mechanism in the Amudarya and Syrdarya basins", it was decided the following:

1. Approve the ADB's initiative for support and further development of water-related cooperation in the Aral Sea basin through joint activities of national and regional institutions under the regional protocol ADB RETA 6163: «Improvement of shared water use in Central Asia».
2. Support main activity directions as discussed and agreed by ICWC members during round-table in Almary in 28 April 2005.
3. Charge SIC ICWC together with BWO "Amudarya" and BWO "Syrdarya" with preparation of detailed work plan, by June 2005, regarding to project components, such as (I) arrangement of regional discussion on water policies in the Aral Sea basin, and (II) organization of training for representatives of the regional and national water institutions from all Central Asian countries. Completed plans should be submitted to ICWC members and ADB for approval.
4. ICWC members should prepare proposals on establishment of permanent work groups dealing with regional water policy and with improvement of interstate water management on inter-sectoral basis.
5. Make inventory of all activities implemented by the states and aimed at supporting joint water management in the Amudarya and the Syrdarya.

For the Republic of Kazakhstan	A.D. Ryabtsev
For the Kyrgyz Republic	Zh.B. Bekbolotov
For the Republic of Tajikistan	Ya.E. Pulatov (authorized by the Minister A.A.Nazirov)
For Turkmenistan	T.A. Altiyev
For the Republic of Uzbekistan	Sh.R. Khamrayev

STATUS REPORT ON IMPLEMENTATION OF WATER LIMITS IN THE NON-GROWING SEASON 2004-2005, AND ADOPTION OF WATER WITHDRAWAL LIMITS FOR THE AMUDARYA AND SYRDARYA IN COMING GROWING SEASON 2005 AND APPROVAL OF FORECAST OPERATION MODE OF RESERVOIR CASCADE[1]

1. Amudarya river basin

Actual water availability in cross-section Atamurat upstream of Garagumdarya was 105.2 % of the norm in the non-growing season. The actual value amounted to 15 billion 317 Mm^3, with the norm set at 14 billion 555 Mm^3, while last year the water availability for the same period was 14 billion 870 Mm^3 or 101.7 % of the norm.

The water withdrawal limits set for the reporting non-growing season per country were used as follows:

- 88.0 % of the set limit was used in the whole basin: 13 billion 835 Mm^3, while the limit was 15 billion 713 Mm^3.
- The Republic of Tajikistan used the water withdrawal limit to 64.2 %, and the actual use amounted to 1 billion 838 Mm^3, with the limit set at 2 billion 863 Mm^3;
- Turkmenistan used the water withdrawal limit to 97.0 %, and the actual use amounted to 6 billion 308 Mm^3, with the limit set at 6 billion 500 Mm^3;
- The Republic of Uzbekistan used the water withdrawal limit to 89.9%, and the actual use amounted to 5 billion 374 Mm^3, with the limit set at 5 billion 980 Mm^3.

The use of the water withdrawal limits per river reach was as follows:

1. Upstream – 66.6%, including Tajikistan - 64.2%, Uzbekistan - 85.1%.
2. Midstream – 88.6%, including Uzbekistan – 80.2%, Turkmenistan – 93.9%.
3. Downstream – 103.7%, including Uzbekistan - 101.3%, Turkmenistan – 108.5 %.

Water availability for the three major downstream users over the reporting period was:

1. Dashoguz province – 108.5 %
2. Karakalpakstan – 103.0 %
3. Khorezm province – 99.2 %

The planned water supply to the Aral Sea and its coastal area in the non-growing season was performed to 159.8%, and actually 3 billion 356 Mm^3 of water was supplied, with 2 billion 100 Mm^3 planned, against the last year figure of 2 billion 106 Mm^3.

As of early April 2005, water volume in Nurek reservoir amounted to 6 billion 201 Mm^3, while planned volume was 5 billion 964 Mm^3, against actual of 6 billion 63 Mm^3 in the last year the same date.

Due to high inflow during given period, water volume in Tuyamuyun reservoir was maintained at 4 billion 802 Mm^3 (last year – 4 billion 204 Mm^3) as of 01.04.2005.

In general, the reporting non-growing season was quite successful despite the fact that downstream zone endured quite stressed ice conditions in January and February that were overcome by 02.03.05.

[1] Information on the first item in the agenda of 42nd ICWC meeting.

In the growing season 2005, water availability in cross-section Atamurat upstream of Garagumdarya is expected to be near the norm of 47.6 km^3, including household use from the Vaksh river.

However, taking into account that, according to preliminary forecast from the Hydrological Agency of Tajikistan, the expected flow probability in most Tajik rivers would be above the norm, including Vaksh and Pyandj, in the growing season, water availability in the Amudarya basin as a whole is likely to be above the norm.

Taking into account the results of the non-growing season, BWO "Amudarya" agreed with each of the water user countries in the basin on water withdrawal limits for the growing season 2005 and tentative operation modes of reservoir cascade in the basin, which were submitted to ICWC members for consideration.

The stated water withdrawal limits per country are shown below:
- 450 million m^3 for the Kyrgyz Republic;
- 6 billion 818 million m^3 for the Republic of Tajikistan;
- 15 billion 500 million m^3 for Turkmenistan;
- 16 billion 020 million m^3 for the Republic of Uzbekistan.

It is planned to set water withdrawal limit at 38 billion 788 Mm^3 in the Amudarya basin as a whole, including 31 billion 520 Mm^3 downstream of Atamurat cross-section upstream of Garagumdarya in the growing season 2005.

BWO "Amudarya" has developed operation mode of Tuyamuyun waterworks facility for the growing season that foresees satisfactory release by the beginning of non-growing season 2005-06.

Moreover, BWO "Amudarya" together with ODC "Energiya" has defined more exactly operation mode of Nurek reservoir for the growing season 2005.

Taking into account flow probability forecasts in Atamurad cross-section upstream of Garagumdarya, water withdrawals and water volumes in reservoirs, water supply to the Aral Sea and Priaralie is suggested at a level of 6 billion 100 Mm^3, including collector-drainage flow.

Finally, BWO "Amudarya" proposed:

1. to approve the recommended: operation modes for reservoir cascade, water limits, and water supplies to the Aral Sea and river delta for the growing season 2005.

II. Syrdarya river basin

ICWC approved the proposed operation mode of Naryn-Syrdarya reservoir cascade for the non-growing season 2004-2005 at its 41st meeting in Tashkent in March 17–18, 2005.

At the 42nd meeting, which is to be held in Almaty in April 27-29, 2005, it is suggested to review implementation of water limits in the non-growing season 2004-2005 and adopt limits for coming growing season 2005 года, as well as approve forecast operation mode of Naryn-Syrdarya reservoir cascade.

Analysis of some characteristics related to operation of Naryn-Syrdarya cascade for the last non-growing season is shown below.

Table 2.1

Parameter (from 1.10.2004 to 1.03.2005)	Forecast (Mm^3)	Actual (Mm^3)	%
Inflow to upstream reservoirs:			
Toktogul	3410,9	3494,36	102,4
Andizhan	779,76	828,92	106,3
Charvak	1288,31	1602,35	124,4
Ugam river	181,5	243,97	134,4
TOTAL:	5660,47	6169,6	109,0
Lateral inflows:			
Toktogul - Uchkurgan	364,68	469,13	128,6
Uchkurgan, Uchtepe - Kairakkum	2431,46	3864,7	158,9
Andizhan - Uchtepe	2716,1	3303,2	121,6
Kairakkum - Chardara	3239,99	3195,3	98,62
Gazalkent – Chirchik mouth	907,29	1224,92	135,0
TOTAL:	9659,52	12057,25	124,8
GRAND TOTAL:	15319,99	18226,85	119,0

Changes in operation mode of Toktogul waterworks facility had effect on operation of the cascade in general, first of all, on its in-stream reservoirs (see Table 2.2, which shows dynamics of water volumes in the reservoirs of Naryn-Syrdarya cascade.

Table 2.2

Reservoir	Volume in reservoir, Mm^3			
	by 1.10.04	by 31.03.2005		by 31.03.04
		plan	actual	
Toktogul	19188,0	13789,93	13637,00	14578,0
Andizhan	1253,24	1470,71	1392,28	1624,0
Charvak	1204,6	770,93	573,00	440,0
Kairakkum	2029,0	1995,85	3463,00	3438,0
Chardara	699,0	5400,0	4828,00	4980,0
TOTAL:	24373,84	23427,42	23893,28	25060,0

Larger deviation from ICWC approved operation mode of Naryn-Syrdarya cascade is observed in Kairakkum reservoir, which, for the past period, released 15255,3 Mm^3 instead of planned 12933,22 Mm^3. (Table 2.3). If one considers lateral inflow of 124,8 % along the Syrdarya river (Table 2.1), higher releases from Kairakkum reservoir that exceed plan up to 118,0 % become evident.

Being concerned with occurring situation, members of the Inter-governmental group (Committee for Water Resources at the Ministry of Agriculture, Kazakhstan, Ministry of Agriculture and Water Resources, Uzbekistan, and BWO “Syrdarya”) agreed to release up to 1,8 billion m^3 of water to Arnasai reservoir, and, at the same time, off-takes from Syrdarya river should be increased at the section from Kal’ gauging station to Chardara reservoir.

Table 2.3

Reservoir	Releases (Mm^3) by 31.03.2005	
	plan	actual
Toktogul	8796,38	9037,61
Andizhan	560,39	701,75
Charvak	1712,45	2210,45
Kairakkum	12933,22	15255,3
Chardara	11022,91	11810,88

Water withdrawals for non-growing season 2004-2005 are shown in Table 2.4. Water allocation foresaw preliminary water limits approved at 40th ICWC meeting and requests from the republics, moreover, 150,0 Mm^3 were transit water.

Table 2.4

Actual water withdrawals as of 31.03.2005

Republic – water user	ICWC limit (Mm^3)	Actual withdrawal (Mm^3)	%
Kyrgyz Republic	29,33	24,33	82,95
Republic of Uzbekistan	2593,0	2593,0	100,0
Republic of Tajikistan	179,17	131,79	73,6
Republic of Kazakhstan	400,1	400,1	100,0

In order to mitigate tense situation occurred in Syrdarya downstream and around Chardara reservoir in autumn-winter 2004-2005 and to reduce inflow to Chardara reservoir, the Inter-governmental work group decided to increase withdrawals at the section from Uchkurgan to Chardara reservoir. To this end, 1,2042 billion m^3 of water were directed to small lakes and sinks, including 1,122 billion m^3 in Uzbekistan and 82,2 million m^3 in Kazakhstan.

Inflows to the Aral Sea by the end of March and to Chardara reservoir are shown in Table 2.5

Table 2.5

Parameter	Scheduled (Mm^3)	Actual (Mm^3)
Inflow to the Aral Sea	5704,91	6624,85
Inflow to Chardara reservoir	16522,11	17883,34

Actual water supply to Arnasai depression was 2193,96 Mm^3.

Based on the results of past non-growing season 2004 – 2005, one can mark the following:

1. This non-growing season is characterized by increased water availability and, as a result, tense situation around Chardara reservoir, Arnasai depression and in Syrdarya downstream.

2. In February 8, 2005 in Tashkent, members of the Inter-governmental work group signed Protocol on accident-free water pass in Syrdarya downstream in autumn-winter 2004-2005 and on a need to release about 1,8 billion m^3 to Arnasai depression. At the same time, the parties requested water-management agencies in Tajikistan to follow the recommended operation mode of Kairakkum reservoir.

Consideration of water withdrawal limits and recommended schedule-forecast for operation of reservoir cascade in Syrdarya basin during the growing season 2005.

BWO «Syrdarya» was proposed to prepare forecast operation mode of Naryn-Syrdarya cascade for the growing season 2005.

Thus, BWO «Syrdarya» specified withdrawal limits and calculated forecast operation mode of the cascade.

Preliminary operation mode and withdrawal limits for the growing season 2005 were approved at 41st ICWC meeting in Tashkent.

In February 14, 2005, the Governments of Uzbekistan and of Tajikistan signed Agreement about cooperation in rational use of water and energy resources for a period since February 2005 till April 2006. The Parties agreed that by 31 May 2005 Tajikistan should accumulate water in an amount of 3418 Mm^3 in Kairakkum reservoir and set water releases at the following mean daily discharges: 500 m^3/s – June; 600-650 m^3/s – July; 600-650 m^3/s – August, and drawdown reservoir in August to 870-900 Mm^3.

In March 11, 2005, Uzgidromet gave tentative forecast of mean discharge in Central Asian rivers for growing season 2005.

In April 12, 2005, final forecast of mean discharges was delivered.

According to ICWC-41 decision and after getting Uzgidromet's forecast (12.04.2005), BWO «Syrdarya» has developed schedule of Naryn-Syrdarya reservoir cascade operation for the growing season 2005 and submitted it (letter № 06-45 of 13.04.2005) for approval to energy institutions in the Syrdarya river basin.

DEVELOPMENT OF HYDROMETRIC INSTRUMENT PRODUCTION TO THE BENEFIT OF ICWC[2]

Introduction

About 45000 – 50000 gauging stations are utilized for water measurements in irrigation systems in Central Asian region (CAR). Besides, development of Water User Associations and small farms increases number of gauging stations and the latter are not quantifiable on unbiased basis. These stations are also used by public utilities, industrial plants, Hydrometeorological services and other water-related structures.

Altogether not less than 80 % of these gauging stations are like "fixed channel", where discharge is measured by "velocity-area" method. In this case, the main meters of stream parameters used for calculation of discharge characteristics are:

- propeller-type flowmeter;
- level gauge;
- level-quantity meter.

[2] Information on the third item in the agenda of 42nd ICWC meeting.

At the first stage of water measurement system rehabilitation in CAR countries, about 3200 propeller-type flowmeters, 50000 level gauges and 1000 level-quantity meters will be required for head and inter-farm measurement structures.

These measurement facilities could be acquired by three ways:

- acquire in far abroad countries;
- acquire in NIS countries;
- manufacture in CAR countries.

Acquirement of measurement facilities in NIS countries would be 2-3 times cheaper, while in far abroad - 8-10 times more expensive as compared to local manufacturing. Besides, repair and calibration of foreign meters (for instance, propeller-type flowmeters and level-quantity meters) will require additional funds for accessories and comparison equipment, certification, transportation costs and customs duties, training, etc.

There is good background for rehabilitation and development of local base since our measurement facilities are compared well with foreign ones and even often are more reliable and better. Moreover, development of local manufacturing base will ensure certain technological security and create additional job places.

1.Equipment

At present, under water sector reformation major efforts and respectively investments are focused on rehabilitation of existing water infrastructure (irrigation canals, headworks, reservoirs, check dams, etc.), as well as on institutional reforms and establishment of appropriate administration-economic framework.

Undoubtedly, these aspects are important and essential. However, efficient water use issues, including water monitoring, are of the same importance. But those stand aside from financing foreseen for general water sector reformation. At the same time, appropriate water monitoring, particularly in surface water systems is major in meeting challenges of efficient water use and conservation.

Indeed, it is evident that bulk of water losses occurs due to lack of reliable monitoring. These are losses in irrigation network (field runoffs, unaccounted water use, as well as transportation, poor technologies, etc.).

Taking into account such situation in NIS countries, including in CAR, these countries adopt or elaborate similar laws on water, on ensuring uniform measurement, on control technologies, etc. that are aimed at introduction of water charges (commercial water accounting) and assignment of water agencies responsible for water accounting.

Such agencies are metrological services in CAR.

The main objective of a metrological service at water agency (ministry, department, committee, WUA, etc.) is to ensure appropriate commercial water accounting in accordance with legislative and regulatory framework. National Agency for Standards and Metrology accredits metrological services so that they can have a right to undertake metrological activities.

To this end, Accreditation systems and respective accreditors have been or should be introduced.

Major efforts of the metrological services should be focused on flow measurement engineering and maintenance of gauging stations for ensuring efficient water accounting and allocation.

Efficient water accounting and allocation engineering in Central Asian water sector implies manufacturing, calibration and repair of hydrometric instruments and comparison equipment (industrial standards) and is comprised of:

- water accounting and allocation engineering at national level (inter- and on-farm water accounting, including all water users, such as WUA, farmers, etc.);
- water accounting and allocation engineering at interstate level (interstate water accounting – countries, regions).

In both cases, national metrological services should deliver their engineering on the basis of the following:
- flow meters (working and standard);
- industrial standards (calibrating instruments) for flow meters;
- accessory instruments and equipment;
- maintenance facilities, spare parts, component parts.

Basic standard set of flow meters for national metrological services is shown in Table 1, while calibrating instruments are given in Table 2.

Organization of engineering basis for water monitoring and allocation in surface water systems at national level can be seen using an example of metrological service (PKTI "Vodavtomatika&Metrologiya") at the Department for Water Resources of the Kyrgyz Republic.

Currently, PKTI "Vodavtomatika&Metrologiya" provides institutions at the Department for Water Resources with necessary quantity of certified meters. Calibration of these meters is made through calibrating instruments, including those developed and manufactured by PKTI "Vodavtomatika&Metrologiya" by its skilled staff or state verification officers. At the same time, similar instruments manufactured by PKTI are supplied to Kazakhstan and Uzbekistan on contract basis.

Table 1

Working measuring instrument, type	Metrological performance	
	Measurement range	Accuracy, measuring sensitivity
Level gage	0 – 2,0 m	5 mm
Flow velocity meter (current meter)	0 – 3 m/s	2 %
Level meter with discharge and flow gage	0 –2,5 m	level -5 mm, flow – 5 %
Universal secondary transducer for all types of current meters	0 – 3 m/s	2 %
Acoustic level for piestic wells	0 – 75,0 m	0,2 %

Table 2

Industrial standard, type	Metrological performance	
	Measurement range	Accuracy, accuracy class
Calibration rig for flow velocity meters (calibration of current meters)	0,06–3,00 m/s	± 1,5 %
Calibration rig for RUG type level gages	0–2,0 m	± 0,5 mm
Calibration rig for linear and angular displacement sensors	0–32,0 m	linear -1,0 m; radial - 0,1º
Test desk for water level sensors	0-2,50 m	± 2,0 mm
Calibration rig for acoustic levels	0–75,0 m	0,05 %

However, single supplies of measuring instruments to Kazakhstan and Uzbekistan do not settle a question regarding provision of national metrological services with necessary equipment.

In this context, wider approach is needed and described below.

Control-Metrological Center (CMC) of ICWC has designs and models both of flow meters and of calibration instruments. These devices can be supplied to CAR countries. There are designs in other CAR countries as well. However, financial, transport, customs and other factors hamper the effective equipping in CAR.

Equipping of national metrological services and water-management organizations with hydrometric devices and calibrating instruments may be partially provided through production plant of operating private enterprise Shuz Ltd. in Bishkek city. Moreover, basic part of mechanical structures may be produced in CAR countries together with national metrological services.

General tentative demand of CAR countries for hydrometric devices and calibrating instruments is shown in Table 3.

Table 3

Name	CAR countries				
	Kyrgyzstan	Kazakhstan	Uzbekistan	Tajikistan	Turkmenistan
I. Demand for hydrometric devices					
Current meters (number, all types)	350	1050	1300	200	300
Level gage, scale interval 5 mm (number, per type and size)	3000	15000	21000	4000	7000
Capacitive level meters, with discharge and flow meters (number, per type and size)	100	150	150	50	50
Inspection sensors with discharge and flow meters (number, per type and size)	100	150	150	50	50
Universal secondary transducers for all types of current meters (number)	50	100	100	50	50
Acoustic level for piestic wells	50	100	100	50	50
II. Demand for calibrating instruments					
Calibration rigs for current meters (number)	1	1	1	1	1
Test desk for level gages, with scale interval of 5 mm (number)	7	15	12	5	5
Calibration rig for capacitive level meters (number)	1	1	1	1	1
Calibration rig for linear and angular displacement sensors (number)	3	3	3	3	3
Test desk for universal secondary transducers (number)	2	2	2	2	2
Calibration rig for acoustic levels	1	1	1	1	1

Basic need of CAR countries in hydrometric devices and calibrating instruments is given in Table 4.

Table 4

Name	CAR countries						
	Kyrgyzstan	Kazakhstan	Uzbekistan	Tajikistan	Turkmenistan	BVO Amudarya	BVO Syrdarya
I. Need for hydrometric devices							
Current meters (number, all types)	235	290	-	175	-	-	22
Level gage, scale interval 5 mm (number, per type and size)	2561	2615	-	5111	-	-	203
Capacitive level meters, with discharge and flow meters (number, per type and size)	50	500	-	147	-	-	7
Inspection sensors with discharge and flow meters (number, per type and size)	10	500	-	65	-	-	-
Universal secondary transducers for all types of current meters (number)	20	20	-	10	-	-	-
II. Need for calibrating instruments							
Calibration rigs for current meters (number)	1	1	-	16	-	-	-
Test desk for level gages, with scale interval of 5 mm (number)	7	1	-	16	-	-	-
Calibration rig for capacitive level meters (number)	2	1	-	8	-	-	-
Calibration rig for linear and angular displacement sensors (number)	1	1	-	5	-	-	-
Test desk for universal secondary transducers (number)	2	1	-	6	-	-	-
III.Need for certification of gauging stations							
Interstate (number)	1	1	-	-	-	-	-
Inter-farm (number)	17	935	-	417	-	-	417
On-farm (number)	147	2000	-	730	-	-	730

Name	CAR countries						
	Kyrgyzstan	Kazakhstan	Uzbekistan	Tajikistan	Turkmenistan	BVO Amudarya	BVO Syrdarya
IV.Need for training in water accounting							
Upper level staff – provincial, basin, canal, reservoir water administrations (persons)	25	-	-	72	-	-	-
Medium level staff – district, on-farm organizations, WUA (persons)	50	-	-	114	-	-	-
Primary level staff – flow measuring staff (persons)	200	-	-	174	-	-	-
V.Need for automation facilities							
Regulators, stabilizers, automation facilities (number)	50	74	-	216	-	-	-
VI.Need for legislative basis and regulations							
International, interstate standards, agreements, norms (quantity)	20	25		86	-	-	6
General regulatory documents (quantity)	10	16	-	98	-	-	1
Methods, instructions, rules, guidelines (quantity)	7	10	-	98	-	-	4

Costs of water measuring devices are shown in Table 5.

Table 5

Name	Unit cost US$
Current meter	475,0
Level gage, scale interval 5 mm	15,0
Capacitive level meters, with discharge and flow meters (average per type and size)	320,0
Inspection sensors with discharge and flow meters (average per type and size)	500
Universal secondary transducers for all types of current meters	250
Acoustic level for piestic wells	320
Calibration rig for current meters	63500
Test desk for level gages, with scale interval of 5 mm	1000
Calibration rig for capacitive level meters	3500
Calibration rig for linear and angular displacement sensors	3000
Calibration rig for acoustic levels	3000

As the first stage of hydrometric device and calibrating instrument production development, the following pilot project is proposed as shown in Table 6.

Table 6

Name	CAR countries						
	Kyrgyzstan	Kazakhstan	Uzbekistan	Tajikistan	Turkmenistan	Total	Cost, $US
I. Hydrometric devices							
Current meter (number)	50	50	50	50	50	250	118750,0
Level gage (rm)	1000	1000	1000	1000	1000	5000	75000,0
Capacitive level meter (number)	25	25	25	25	25	125	40000,0
Inspection sensor (number)	10	10	10	10	10	50	25000,0
Universal secondary transducer	10	10	10	10	10	50	12500,0
Acoustic level	5	5	5	5	5	25	8000,0
II. Calibrating instruments							
Calibration rig for current meters	1	1	1	1	1	5	317500,0
Test desk for level gages, with scale interval of 5 mm	1	1	1	1	1	5	5000,0
Calibration rig for capacitive level meters	1	1	1	1	1	5	17500,0
Calibration rig for linear and angular displacement sensors	1	1	1	1	1	5	15000,0
Calibration rig for acoustic levels	1	1	1	1	1	5	15000,0
III. Training							
Training of national metrological institutions' staff (persons)	5	5	5	5	5	25	25000,0
TOTAL:							674250,0

Local manufacturing of flow measurement devices and calibrating instruments would promote equipping for water accounting.

Cooperation of CMC ICWC with national metrological services in development and agreement on stock-list and manufacturing of water measuring equipment will allow more efficient tackling of water supply tasks at national and interstate levels.

2. Normative documents

As to norms of use and operation of flow meters and calibrating instruments, there is a task to revise and harmonize normative and procedural documentation with new national and international legal frameworks and regulations.

This task concerns both the flow meters and calibrating instruments and gauging structures that are certified, tested and calibrated.

At present, CAR use regulations developed by Design Institute "Vodavtomatika and metrologiya" at the Ministry of Water Resources of USSR in seventies and eighties. Some CAR countries use their own sectoral or departmental instructions and regulations.

CMC ICWC has repeatedly submitted for discussion at ICWC meetings the plans for revision of old and development of new water monitoring regulations. However, due to lack of funds, this work was not undertaken.

If financing is available, CMC ICWC together with national metrological services in CAR is ready to submit its regulatory framework proposals in order to establish procedures (international standards, rules and regulations) for water activities, that comply with the interstate regulatory documents and meet the requirements of the uniformity of measurements.

New regulatory framework will allow us to address more efficiently the issues related to national and interstate water allocation.

Table 7

Draft	Cost, $ US
Rivers and irrigation canals. Standard accuracies of water level, discharge and quantity measurements. General technical requirements.	3000,0
Methods for measuring water discharge and quantity in hydraulic systems. General requirements	3000,0
Automation devices of water distribution and monitoring in hydraulic systems. General technical requirements	3000,0
Metrological assurance of water parameter measurements. General technical requirements	3000,0
Certification of gauging structures. General technical requirements	3000,0
Environmental standards of water use and protection. General technical requirements	3000,0
Irrigation canals with fixed channel. Procedure for measuring water discharge by "velocity-area" method	2500,0
Procedure for measuring water discharge through special constrictions	2500,0
Ferroconcrete parabolic canals. Procedure for measuring water discharge by "velocity-area" method	2500,0
State System for Ensuring Uniform Measurement. Fluid discharge in open streams. Weir and flume measurement procedure	2500,0
Hydraulic systems. Procedure for measuring water quantity in monitoring points not equipped with integrating devices	2500,0
Procedure for measuring water discharge and quantity by sharp-crested weir with regulated threshold height for specific conditions	2500,0
Standard procedure for certification of water meters	2500,0

Draft	Cost, $ US
Gauging rod. Calibration procedure.	2500,0
Manual. Calibration rig for flow velocity meters UPIS-1. Gauging rod calibration procedure	2500,0
Instructional guidelines. State System for Ensuring Uniform Measurement. Calibration rig for flow velocity meters UPIS-1. Calibration procedure.	2500,0
Instructional guidelines. State System for Ensuring Uniform Measurement. Calibration rig for flow velocity meters UPIS	2500,0
TOTAL:	45500,0

3. Accreditation and training

In light of putting into effect the international laws, rules and regulations in CAR countries, it is necessary to harmonize regulatory framework with them, as well as to reform accordingly existing or emerging institutions and services, ensure training and accredit those institutions and services.

This fully addresses Central Asian water sector as well.

As mentioned above, in order to ensure accurate water monitoring, we need to reform or re-establish metrological services. Currently, the metrological services in CAR do not meet present requirements (Table 8).

Table 8

Service	Availability of national metrological services in CAR countries						
	Kyrgyz Rep.	Kazakhstan	Uzbekistan	Tajikistan	Turkmenistan	BVO «Amu-darya»	BVO «Syr-darya»
National Metrological Service (MS) of water sector	yes	yes	yes	-	-	no	no
MS of BAWR, DAWR	yes	no	no	-	-	no	no
MS Repair station	yes	no	no	-	-	no	no
Metrological training center	no	no	no	-	-	no	no
Training and retraining	yes	-	-	-	-	-	-
Accreditation of MS	yes	no	no	-	-	no	no

The table shows that only metrological service of the Kyrgyz Republic – Design Institute "Vodavtomatika and metrologiya" is fully established and accredited, with staff certified as state verification officer.

Being transformed into CMC ICWC, this service contributed to establishment of national metrological services in Uzbekistan and Kazakhstan. However, due to lack of funds, there was no a follow-up.

The establishment and accreditation of national metrological services in Tajikistan and Turkmenistan, as well as of metrological services at BVOs Amudarya and Syrdarya are urgently needed and emerge from reformation processes under way in Central Asian water sector and in society in general.

INFORMATION ON CAREWIB PROJECT ACTIVITY

The principal aim of «Central Asian Regional Environment and Water Information Base (CAREWIB)» Project is dataware improvement of water and environment sectors in Central Asia countries in order to raise sustainability of development and cooperation in the field of rational use of national natural resources.

Project activity is being carried out on the territory of five Central Asia countries located in the Aral Sea basin. National Coordinator plus two Basin Coordinators (in Syrdarya and Amudarya rivers basins) have been assigned in order to implement the project in every republic.

The first priority objective of the project is creation a Regional Water and Environmental Web Portal with regularly updated information on the water situation and environmental problems in Central Asia.

The portal is based on the information of SIC ICWC and other organizations in the region which are under ICWC supervision – BWO «Amudarya», BWO «Syrdarya», Coordination Metrological Center, ICWC, TC ICWC. It is supposed to establish relations with other information sources on water, power and other natural resources of Central Asia, NGOs of the region as well as with policy processes (SPECA, REAP, ENVSEC, etc.) and web-portals (CARNet, CAGateway and others).

The second direction of the project activity is creating an information system on water and land resources in the Aral Sea basin.

Also release and distribution of a range of publications are implemented regularly during the project in order to inform decision-makers, NGOs and the public.

The fourth and last direction of the project activity is capacity building for provincial water management organizations in Central Asia.

During the first year of CAREWIB Project activity it has been achieved:

Information Water and Environment Portal of Central Asia (www.cawater-info.net) has been created and consisting of 10 web-sites. Information support of the portal is implemented by SIC ICWC.

The portal sections are:

Central Asia News: Digest of information materials

Calendar of events

Catalog of water and environment sites

Databases (Uzhydromet on-line information; data on water discharges in Amudarya and Syrdarya rivers basins; base of addresses; base of projects being implemented in CA; database on the Aral Sea and others)

Knowledge base (electronic library, bibliographic database from more than 2000 records)

Virtual forum for discussing region problems

Sites of ICWC and its executing agencies – SIC, TC and others.

Sites of projects, being implemented in the region and reflecting ICWC organizations' activities in directions of current importance for the region: IWRM, gender, climate fluctuation and others.

Computer equipment has been supplied to provincial water management organizations of the region.

It is organized regular release and dissemination of the bulletin CAWater-Info News (in Russian and English languages) along with ICWC Press release. It covers all updates on portal

sites. Paperback edition of the bulletin is disseminated among water management organizations, ministries and departments of Central Asia as well as among the embassies of foreign countries accredited in Uzbekistan.

The first version of the information system on water and land resources in the Aral Sea basin (Water, Power, Ecology, Climate, Land and Economy blocks) has been created.

Uzhydromet on-line information is published on web-site every day:
Water discharges
Water levels
Operation modes of reservoirs
Decade water discharges
Water balances of reservoirs
Channel water balances

Thus, information resource in Internet has been created and is functioning successfully within CAREWIB Project and it doesn't have an analogue in Central Asia.

Created Information System (IS) on water and land resources of the Aral Sea basin is intended, first of all, for supporting decision making in water branch of Central Asia.

The Project staff in cooperation with BWO and water management organizations of the basin works on creating a practical tool for integrated assessment of water situation (available water resources and their allocation among river reaches, provinces and water-management systems; operation modes of reservoirs and hydro power stations; losses, shortage, imbalance; environmental flows; water quality indices and so on) – an information system including elements of analysis and support to decision-making as vehicle for disseminating relevant data purified and approved between countries free of disputes. It enables regional and national organizations to transit to a single "information language" that would facilitate raising the reliability of used data and consequently the efficiency of water resources management.

In perspective it is supposed that DB in combination with set of created and already operating models will allow every participant – water management, planned and other agencies of the countries, BWO – to forecast their development options for perspective and flush regime and water distribution in current dimension in order to assess impact of their actions on other countries and separate zones of planning.

At the same time a possibility is given to assess efficiency of water use regularly among all participants of joint management and to specify non-productive flow diversion.

At the present time IS contains data grouped in blocks: water, power, ecology, climate, land and economy. Information System dissemination is planned as distribution kit on compact-disks but its some components will be available through internet.

Comparison of on-line forecasting and actual data will allow specialists to raise quality of water resources management in the region.

The main achievement of created information system is that it will be a system for general use among all countries that creates confidence, commonality and responsibility of partners between themselves.

Problems of Project development:

So far only Uzhydromet provides information for CAREWIB Project. For any of several reasons we did not succeed in achieving agreement with Hydromets of the rest Central Asia countries as well as with RCH. Absence of forecasting information can impact negatively on quality of water resources management in the region.

We request ICWC members to facilitate in resolving this issue.

Statistics of visiting portal web-site

On domain www.cawater-info.net

Short statistics for January 2005 (updated more frequently)						
Month	Hits	Files	Cached	Pageviews	Sessions	KB sent
January 2005	12308	9226	1678	313	838	838834
December 2004	8682	5724	2396	439	843	216196
November 2004	8653	4280	915	188	249	49990
October 2004	1102	865	185	35	93	14933
September 2004	6284	5495	391	281	269	96217
August 2004	1348	1110	136	89	141	36380
July 2004	4710	3541	759	296	269	42976
June 2004	0	0	0	0	0	0
May 2004	0	0	0	0	0	0
April 2004	0	0	0	0	0	0
March 2004	0	0	0	0	0	0
February 2004	0	0	0	0	0	0
Total	43087	30241	6460	1641	2702	1295524
Average	3590	2520	538	136	225	107961

On domain www.icwc-aral.uz

Short statistics for January 2005 (updated more frequently)						
Month	Hits	Files	Cached	Pageviews	Sessions	KB sent
January 2005	33872	23669	4332	3826	4283	2706689
December 2004	59106	41161	8417	4742	7320	2884057
November 2004	62927	46407	6595	6272	6052	2249300
October 2004	55918	41135	6213	3740	4986	3012060
September 2004	51784	40350	4365	4818	4356	3007571
August 2004	44838	35243	3925	3895	3939	2762707
July 2004	41937	31156	4806	4324	3428	1479777
June 2004	0	0	0	0	0	0
May 2004	0	0	0	0	0	0
April 2004	0	0	0	0	0	0
March 2004	0	0	0	0	0	0
February 2004	0	0	0	0	0	0
Total	350382	259121	38653	31617	34364	18102160
Average	29198	21593	3221	2634	2863	1508514

4TH WORLD WATER FORUM
(Mexico city, 16-22th March, 2006)

Preparatory process

Background

The 4th World Water Forum will be held in Mexico City from 16-22 March 2006. Its overarching theme is "Local action for global challenges": it aims at identifying the constraints and deficiencies that hamper local action, at identifying action and projects that pave the way to innovative solutions to these difficulties and from this analysis to prepare proposals that will be discussed in multi-stakeholder platforms and submitted to Politicians and decision makers.

The Forum is not simply a conference: it is a process that starts more than one year before the meeting with two parallel tracks: a thematic one and a Regional one. Major themes and crosscutting issues of the Forum have been agreed upon in a large consultative process. In addition, each region is expected to initiate a process aiming at bringing proposals, topics for discussion to Mexico and building on the ongoing process in the region. The Forum preparation should not be a superimposed exercise but a process through which local and regional processes are enhanced and facilitated.

Thematic framework of the Forum

To facilitate and guide the selection of the topics to be addressed in the Forum, a framework of themes and cross-cutting issues has been prepared. It comprises 5 major themes corresponding to global challenges and 5 cross cutting issues related to local action as described in the table and figure below.

Themes	Perspectives
1. Water for development	1. New models for financing local water initiatives
2. Implementing integrated water resources management	2. Institutional development, right and political processes
3.Water and sanitation for all	3. Capacity-building and social learning
4. Water management for food and the environment	4. Application of science, technology and knowledge
5.Risk management	5. Targeting, monitoring and implementation assessment

For each theme and cross-cutting perspective, a "beacon" (an organisation or a group of organisations) has been appointed. This beacon is responsible for providing thematic guidance on the various themes or cross-cutting issues. Beacons are potential resources that can be used by the regional organisations. Two important meetings to facilitate exchanges between beacons and regional representatives will be organised in 2005, one in February, one in November.

How is the thematic framework implemented?

Beacons have been given the first task to prepare baseline documents which have been discussed in a first meeting held in Mexico in February 2005. These documents tentatively specify the scopes of activities involved in the various themes and delineate the issues at the local level.

These baseline documents will be made available to everybody involved in the preparatory process, who will be given the opportunity to react to them.

The baseline documents will progressively evolve into main documents for the Forum. They will contain analysis and proposals relevant to the major theme of the Forum.

Beacons will also contribute to the selection of local actions relevant to their respective themes and crosscutting issues.

Regional preparatory processes of the Forum

The regional processes should determine the most relevant challenges faced by the region, analyse the constraints and deficiencies faced by the actors and institutions, review innovative processes that successfully address the issues and contribute to the conclusions and recommendations that will be presented and discussed with decision makers during the Forum.

Countries of the world have been grouped in the five regions following regions: (i) Africa1, (ii) Asia and Pacific, (iii) Americas, (iv) Europe and (v) Middle East.

The following approach is proposed:

After having selected major challenges, the Regional actors involved in the process will focus on how to strengthen action. They will examine at the same time constraints faced by stakeholders and implemented actions.

Constraints and deficiencies faced at the local level can be related to financial resources, human resources, lack of appropriate technologies, institutions and power issues such as decentralisation and also to right aspects.

These processes will as much as possible make use of existing meetings and activities. Their main output will be the selection of relevant actions and a regional synthesis report.

A specific panel will be established to deal with financing issues of local action and stakeholders.

How is the regional process organised?

The following activities are expected to be organised in the regions:

1. Constitute a regional committee that will oversee the Regional process; this Committee should be as much as possible multi-sector and multi-stakeholder and have representatives of the various parts of the region. Local actors in particular are critical for the success of the process. In some regions, sub-regions might be defined and the following can be split in different sub-regional processes;

2. Identify the themes of the thematic framework of major importance for the region;

3. Select the important meetings of the region where issues related to the identified themes and to the Forum preparation could be discussed. One important meeting at least should be devoted to discussions and preparation of proposals from the region with political leaders and decision makers from Local and National Governments.

4. Organise local workshops or specific sessions in the identified meetings to address the thematic issues and to identify what is done and what needs to be done at the local level.

5. Contribute to the selection of the local actions that will be presented in Mexico.

6. Prepare a regional position paper to be presented (i) first to the regional stakeholders and in particular to decision makers, who should at some point of the process possibly endorse its conclusions, (ii) during the Forum in Mexico where a special session will be devoted to each of the 5 regions.

7. Coordinate the preparation of regional outputs and facilitate the regional participation in the various sessions that will be presented during the Forum. To this end, contribute to the selection of topic sessions and to the identification of conveners of the Region.

8. Contribute to identifying resources and help fundraising for regional activities and regional actors.

How and by whom will local actions be selected?

One of the important activities of the preparatory process of the Forum will be to collect significant examples of local actions that (1) have been proven to solve problems and strengthen local action and (2) have a potential to be duplicated and scaled up.

The term "local" can have different meanings according to the issues or problems to be addressed. In the preparatory process, use will be made of the subsidiarity principle: problems should be solved at the lowest appropriate level. This lowest appropriate level depends not only on the issue, but also on the prevailing social & political context and on the human resources and capacities available.

Beacons and regional committees supported by the Secretariat of the Forum will be in charge of selecting these local actions. Descriptions and analysis of these actions will be prepared with the support of the Secretariat of the Forum. Specific attention will be given to the specificities of the contexts in which they have been implemented and to their potential to be scaled up and duplicated in other contexts. The relationships between local and national levels will also be given proper attention. A resulting portfolio of local actions looking for financial resources could be brought to the Forum for presentation to donors.

How can the Secretariat of the Forum help you?

The Secretariat of the Forum is available to help and facilitate the process in your region. In particular, the following activities can be provided:

1. Participation in the meeting organisation and follow-up: the web site of the 4th Forum provides a tool that provides information on guiding and monitoring the meetings being organised in the region. Information on the outcomes of the various meetings organised in preparation for the Forum is made available and Virtual Forum discussions on these outcomes can be organised. In addition, if requested, some networking activities can be initiated by the Secretariat.

2. Attending the meetings and acting as a facilitator: representatives of the Secretariat will participate in at least the important regional meetings. They can be utilised to present the Forum, the regional processes and approaches and to facilitate the debates.

3. Participating in communication activities: communication activities can be organised in relation with the important meetings of the Region. In particular regional press releases to raise awareness on the issues being discussed can be prepared and disseminated. In some regions of the world, the Secretariat and the World Water Council are also implementing a programme for Journalists aimed at training those in the various regions on water issues. Training sessions will be organised back to back with the most important regional meetings. Journalists attending these sessions would also report back on the meetings and on their outcomes.

4. Contributing to fundraising to implement the process: the Secretariat of the Forum has already had contacts with several donors and can work with you to attempt to facilitate contacts with donors interested in the water issues of your region.

Annex 1. Preliminary list of beacon's organisations

Framework themes		Crosscutting perspectives	
Organizations	**Leaders**	**Organizations**	**Leaders**
1. Water for Growth and Development		A New Models for Financing Local Water Initiatives	
World Bank www.worldbank.org/ World Water Council www.worldwatercouncil.org/	David Grey dgrey@worldbank.org Claudia Sadoff csadoff@worldbank.org	National water Commission of Mexico (CNA) World Water Council www.worldwatercouncil.org	Angel Gurria Daniel Zimmer d.zimmer@worldwatercouncil.org
2. Implementing Integrated Water Resource Management		B. Institutional Development and Political Processes	
Global Water Partnership	Margaret Catley-Carlson m.catley-carlson@cgiar.org Torkil Jonch-Clausen tjc@dhi.dk Alan Hall alan.hall@gwpforum.org J.C. Valencia	Partnership Oxford Centre for Water Research-Development http://www.ucl.ac.uk/dpu/ Latin American Faculty for Social Sciences www.flacso.edu.mx	Adriana Allen dpu@ucl.ac.uk Esteban Castro jecastro@herald.ox.ac.uk Maria Luisa Torregrosa mltorre@flacso.edu.mx
3. Water Supply and Sanitation for all		C. Capacity-building and Social Learning	
UNDP www.undp.org/ National Water Commission of Mexico www.cna.gob.mx	Joakim Harlin joakim.harlin@undp.org Roberto Lenton rlenton@iri.columbia.edu Shoji Nishomoto shoji.nishimoto@undp.org Polioptro Martinez polioptro.martinez@cna.gob.mx	UNESCO-IHE http://www.unesco-ihe.nl CapNet www.cap-net.org IRC www.irc.nl World Water Council www.worldwatercouncil.org STREAMS www.streams.net Cooperative Climate on Water and Climate www.wac.ihe.nl	Richard Meganck r.meganck@unesco-ihe.org
4. Water Management for Food and the Environment		D. Application of Science, Technology and Knowledge	
Dialogue for Food and Environment www.iwmi.org/dialogue National Water Commission of Mexico www.cna.gob.mx	Frank Rijsberman h.wolter@cgiar.org Christopher Scott c.scott@cgiar.org Luis Rendón luis.rendon@cna.gob.mx	International Water Association www.iwahq.org.uk Mexican Institute for Water Technology www.imta.mx	Paul Reiter paul.reiter@iwahq.org.uk Darren Saywell Darren.Saywell@iwahq.org.uk Alvaro Aldama aaldama@tlaloc.imta.mx
5. Risk Management		E. Targeting Monitoring and Implementation Assessment	
World Meteorolgical Organization http://www.wmo.ch/index-en.html Cooperative Program on Water and Climate http://www.waterandclimate.org/ Japan Water Forum http://www.waterforum.jp National Water Commission of Mexico www.cna.gob.mx	Avinash Tyagi tyagi_a@gateway.wmo.ch Henk van Schaik hvs@ihe.nl Hideaki Oda oda@waterforum.jp Michel Rosengaus mrosengaus@mailsmn.cna.gob.mx	World Water Assessment Program www.unesco.org/water/wwap World Water Council www.worldwatercouncil.org/	Gordon Young g.young@unesco.org Daniel Zimmer d.zimmer@worldwatercouncil.org

THE PROGRAM OF PREPARATION TO THE FOURTH WORLD WATER FORUM

SIC ICWC has started implementing the program of preparation to the 4th World Water Forum, which is to be held in Mexico in March 2006 – "Kioto's spirit – on the way to Mexico".

We encourage everyone to discuss openly the regional problems regarding development of cooperation in area of integrated water resources use in the Aral Sea basin. The common vision of the problems and the ways for their solution should lay the basis for a regional water cooperation strategy, which is to be presented at the 4th World Water Forum on behalf of the region.

It is proposed to discuss the objectives and tasks of the regional cooperation, the ways of improving its institutional framework and economic, financial, legal tools, the required measures and facilities to arrange cooperation, as well as timetable for implementing those measures on the way to the 4th World Water Forum. We assume that an open exchange of opinion through Internet and e-mail within the framework of "virtual water forum" will allow the elaboration of program to be submitted by IFAS and ICWC to international donors for financing and development.

The Forum's thematic framework is focused on 5 major themes, four of which correspond to priorities in our region, in order of importance:

A1 IWRM;
A 2 Water for food and the environment;
A 3 Water for development;
A 4 Risk management

Besides, there are five cross-cutting perspectives, of which the following are important for us:

B 1 – institutional development, right and political processes;
B 2 – capacity-building and social learning;
B 3 – monitoring and assessment;
B 4 – models for financing local water initiatives

	B 1	B 2	B 3	B 4
A-1	+	•	-	•
A-2	-	+	-	-
A-3	-	-	+	
A-4	-	•	+	-

Based on each priority and cross-cutting perspectives, reports and proposals should be developed:

A-1 – by GWP; particularly A-1 (B-1), A-1 (B-2) – Asian Bank;
A-2 – by ADB and SDC; including A-2 (B-2) – CIDA;
A-3 – by GEF, UNDP;
A-4 – by NATO, USAID, etc.

It is suggested to establish a regional group per priority which is to communicate virtually through Forum.

Leaders of the work virtual groups:

IWRM – Prof. V.A.Dukhovny
Water for food and the environment – Ph.D.Hamrayev Sh.R.
Water for development – T.A.Altiyev
Risk management – Ph.D. Ryabtsev A.D.

Cross-cutting themes:
B-1 – institutional development, right and political processes – Prof. Kipshakbayev N.K.
B-2 – capacity-building and social learning – Bekbolotov Zh.B.
B-3 – monitoring and assessment – Nazirov A.A.
B-4 – models for financing local water initiatives.

Developed questionnaires will be inputted into ICWC web-site, where the CAREWIB project will analyze and present the discussion dialogues.

ICWC priorities for water management improvement in the Aral Sea basin

I. Basin (transboundary) level

1.1 Hydrometeorological information – exchange between countries.
1.2 Agreements on institutional strengthening of ICWC.
1.3 Agreement of 1998 on the Syrdarya river and its revision in light of a Decision of the Heads of State regarding the establishment of Water-Power Consortium.
1.4 Elaboration of regional strategy harmonized with five national strategies.
1.5 Implementation of SCADA system at headstructures, especially on Amudarya river.
1.6 River water quality management and return water management.
1.7 Water allocation in small rivers.
1.8 Giving the status of interstate organization to regional bodies and their joint financing.
1.9 Groundwater distribution.

II. National level

IWRM, with development of wide public participation at all water hierarchical levels. Involvement of the public in control, planning, water distribution and fund mobilization.
Revision of all water use norms.
Justification of norms regarding inputs, mechanisms, labor for their equal and equitable distribution.
Revision of water use limits in order to reduce water inputs.
Establish a functional National Water Council comprising representatives of all sectors interested in water.
Introduce progressive water charges.
Raise interest of water management institutions in higher water productivity.
Develop a transparent and good national Information System.
Allocate capital investments in reclamation of deteriorating saline and water-logged land.

III. Basin (system) management

3.1. Transfer from hydrographic management to IWRM.
3.2. Inventory of irrigated land (GIS and remote sensing).

3.3. Computer-aided water use plans, their monitoring, assessment of reclamation state of lands, preparation of drainage and collector repair plans on the basis of objective criteria.

3.4. Development of BWMA's information system. System of staff training.

3.5. Water accounting.

3.6. Establishment of System (Canal) Water Committees.

3.7. Creation of operational financial funds at expense of collected payment for water and its pollution.

3.8. Creation of intra-system "water market".

3.9. Analysis of intra-system organizational losses and ways to reduce them.

IV. WUA and farms

4.1. Legalize rights of WUA and farmers for water as linked with land.

4.2. Equip, at expense of government budget, WUA with water meters.

4.3. Training of WUA' and farmer's staff.

4.4. Establish Extension Service for farmers at BVO (or WUA), equip them and gradually transfer it to self-repayment.

4.5. Assist WUA in social mobilization and involve its members in efficient water distribution.

DEVELOPMENT OF MASS MEDIA NETWORK ON WATER

Proposal on the Training Program for journalists and database management for 2005-2007.

Introduction

At the present time World Water Council, an international non-government organization, established in Marseilles, France, and Secretariat of World Water Forum IV, situated in Mexico, in collaboration with leading organizations of professional journalists and water sector are developing the Training Program for journalists.

The main goals of the Training Program for journalists are improvement and dissemination of reliable information on water and sanitation among the wide public, especially in developing countries through:

- capacity building, advanced training and professionalism raising of journalists;
- increasing awareness on water problems, especially in developing countries;
- providing opportunities for joint activity and stimulating professional cooperation.

The program, comprised of three components, was developed for achieving these goals:

- training for journalists at the regional level;
- press-conference on sustainable development and water problems;
- establishing and developing network, including database management.

At the present time database/web-site resources of Mass Media Network on water have been transferred from World Bank Institute to World Water Council. Proposed database management and workshops will allow removing rupture between World Water Forums, held every three years. Journalists will be trained by ones of equal position with emphasis on independent status of the press. The given proposal on the program will make the required contribution to database reform into effective means, which will be economically independent at the expense of future sponsorship. This proposal on the program ensures the future of Mass Media Network on water, which has satisfied already the needs of 1000 journalists.

The preparation process for World Water Forum IV will include a number of regional workshops, which will be organized by many professional water management organizations in the whole world and will direct local actions at resolving the global problem. These workshops are a good basis for organizing workshops for journalists. Moreover, it allows training journalists to take part in professional environment, to increase concern and awareness on water problems and sustainable development in developing countries as well as it allows participants to report on local actions. It is planned that 400 (new) journalists can be presented at the regional workshops and another 300 journalists will become members of Mass Media Network on water. This will be achieved through providing them with press-releases and information on water problems and sustainable development. As a result, total number of journalists-participants will be up to 1600-1800 persons, 1000 journalists of which have been already involved in the activity of Mass Media Network on water.

Mass media products such as articles, columns, reports in newspapers and magazines, radio- and television programs, which are the result of regional workshops and current contributions of journalists to the activity of Mass Media Network on water, will be presented to the jury comprised of professional journalists. The jury will choose the best works. Thus, up to 200 journalists from Asia, Africa and Latin America will be invited to take part in the program of professional training and joint activity of journalists, which will be held in parallel with World Water Forum IV in March 2006 in Mexico, based on mass media products, presented be them.

Planned budget covers for a period of 30 months, comprised of three phases. Estimated budget, determined for investigated training program for journalists, network management and database development, is 1 290 000 USD.

Prehistory

In 1999 the Ministry of Foreign Affairs of the Netherlands (DGIS) has started to implement the program focused on training journalists in connection with World Water Forum II. About 100 journalists from developing countries were invited to take part in the training program, which was conducted in March 2000 in Hague. In August 2001, using the results of this program, the Netherlands and Japan Government have opened Mass Media Network on water together with the World Bank Institute. The regional educational conferences on capacity building and advanced training of journalists as well as briefings and measures on network organization during World Summit, in 2002 in Johannesburg and World Water Froum III, in 2003 in Kioto, were held in the whole world within this two-year program.

During two-year period 400 journalists from Africa, Latin America and Asia took part in eight workshops and field trips, and 200 journalists received sponsor support for visiting «WaterDome» at World Summit in Johannesburg and World Water Forum III in Kioto. According to the results of researches, carried out by the World Bank Institute, about 2000 published articles had the direct relation with these training and technical measures and written under their impression. Today journalists' database, established after World Water Forum II in Hague, has more than 900 contacts with 104 countries. These jornalists can use these communications and find everyday information on water problems and sustainable development for their newspapers, radio- and teleprograms. In all probability, in total 6000 journalists are involved into informing on water problems in the whole world. Mass Media Network on water is directed at rendering services for 30% of this total number of journalists, which are mainly in developing countries.

World Water Council was the principal co-founder of the previous program on mass media in the field of water together with World Bank, Europian Commission, the African Development Bank, the Inter-American Development Bank and the Asian Development Bank as well as a great number of NGOs and international organizations. Although Mass Media Network on water has stopped its functioning after Forum in Kioto, many journalists in the whole world are still using network database and there is the need in professional training of journalists in the foeld of water problems and sustainable development. Moreover, the complexity of water supply and sanitation problems requires an access to reliable information. World Water Council thinks that its objective and responsibility is to reestablish this significant and successful program. It will integrate Mass Media Network on water into its long-term strategy regarding Mass Media on water through developing the probable Training Program for journalists and providing modern database management, considering World Water Forum IV as the first main milestone for further development of Mass Media Network on water.

Objectives

The objectives of the Training Program for journalists and database management are:

- capacity building, advanced training and professionalism raising of journalists in the whole world in order to allow them to transmit (more) correct, total, qualitative information, which is not outside of ethical norms;
- providing better understanding on sustainable development and improving the awareness on water and the problems related to water especially in developing countries;
- providing opportunities for joint work and encouraging professional cooperation for developing information and experience exchange.

Target group

Journalists of local, regional and national level from various branches and expert evaluation field such as general news, environment, economic and/or public sectors, those, who work in editorial offices of newspapers or magazines, on radio or television, in Internet service or alternative Mass Media in Africa, Latin America and Asia. Journalists-participants will be identified with the help of existing professional associations of journalists, journalism schools, NGO, international organizations and according to recommendations of embassies.

Strategy and plan of actions

A number of organizations-partners will be involved into program implementation process. It will be interactive and establish the connection between existing network of journalists, professional organizations such as federations and forums of journalists in different parts of the world at international, national and regional levels. The program will be managed by independent professional journalists and experts in a certain field, who will be hired by the Mexican Water Advisory Council, which is a leading non-governmental organization and has a close relation with World Water Council and Secretariat of World Water Forum IV. The workshops will be organized as the program «a colleague helps colleague» and includes theoretical part as well as practical one. Journalists will be trained by ones of equal position, and they will obtain technical information directed at policy, which can be used for narratives.

The workshops will be developed based on experience and results of Mass Media Network on water, recommendations of International Federation of Journalists in the field of environment protection and other training programs aimed at Mass Media Representatives. The Program content will be developed mainly on the basis of demand by journalists themselves with participation of certain experts.

Those persons, who have good skills to make speech and hand over the information, will be appointed as lecturers for workshops. They should have the ability to set branch objectives in perspective as well as to interest in their reason. Lecturers will be elected from among leading journalists and (water) experts, representatives of (local) authorities and higher educational institutions. Workshops will be interactive and should help journalists to make up narratives and organize cooperation, provide participants the possibility to improve their knowledge level and widen their joint activity.

The Program components are the following ones:

Capacity building, advanced training and professionalism raising

Mass Media Network on water is opened for all journalists, who make reportages on water problems at professional level. However, the training program for journalists will prefer journalists from developing countries, where training need is higher. Workshops will be organized for providing journalists with better understanding of their profession, resources availability, modern technology and information on social harmony and ecological dimensions of their region. The program will include theoretical and practical components. It will allow journalists to transmit (more) correct, total, qualitative information, which is not outside of ethical norms. Lecturers will not be appointed from among «experts»; workshops will be organized and held under the chairmanship of leading journalists.

Providing better understanding of sustainable development and improving awareness on water and water problems in developing countries.

It is of great importance that the training program for journalists includes practical component, where newly gained methods and information can be applied in practice. Workshops will provide training in the field of global problems assisting journalists to get conception on the problems related to water using general themes and crossing aspects of World Water Forum IV. In this context workshops will be organized in coordination with important (water) conference or measures in Africa, Asia and Latin America. These measures can be (partially) organized when preparing for World Water Forum IV and will investigate themes and issues related to improvement of journalists' conception and awareness on local water problems through giving opportunities to meet with representatives of local communities such as local authorities and water managers. Conference SEAWUN in Hanoi, International Forum II on Yellow River in Zhengzhou or ADB Water Week; Inter-American Dialogue V in Latin America in Jamaica and/or Central American Water Forum in El Salvador; Conference on Lakes in Africa in Nairobi and/or AfDB Water Week can be held as such measures.

Providing opportunities for joint work and stimulating professional cooperation for strengthening information and experience exchange

Participation in workshops will allow meeting with other journalists and learning from each other. This is «single sale place» of Mass Media Network on water. We know from last experience that the reportage of a journalist can show absence of knowledge or independence and not always journalists can get the best from conference. Joining the network, training by own experience and approach «a colleague helps colleague» will allow improving professional journalism. The dialogue between Mass Media representatives from the North and the South, the West and the East at global level will give undoubtedly the excellent opportunity to take part and communicate. It will allow journalists to train by own methods on interpretation of facts and figures, actions and policy and exchange with different principles of reliable information transmission.

Need in modern means

Last experience of Mass Media Network on water showed that often journalists in developing countries received very much information on various themes and such specialization was rare. Although there is much information on sustainable development and water problems, mainly it is required that catastrophe or (international) conference attracts journalists' attention to water. Absence of base materials or PR tactics facilitates deterioration of article content and / or full or partial its distortion. Ideas and subjects become muddled, that bring to baseless disputes and wrong perception of reality. Water problems exist in the whole world, but they differ by character in each region or basin. In particular, public information quality in developing countries is lower than standard one. There are decisions but they require understanding and attention at policy level. In such case mass media plays the principal role. So it is important that journalists give reliable, correct and objective information taking into account the significant role of mass media and understanding their ability to insist on reformation through impacting on policy-makers.

Economic independence of the network

Mass Media Network on water is electronic network and database, which has been established for last years within the Program on creation of Mass Media Network on water of the World Bank Institute. It comprises of more than 900 journalists mainly from developing countries. It allows establishing relations with other journalists from other countries for information dissemination and exchange. The aim for nearest years is widening the network, which has been formed to the present day. Proposed program will increase total number of journalists-network members up to 1800 persons for 2,5 years.

By means of this Mass Media Network on water will unite 30 % of all ecologically oriented journalists from the whole world transmitting information on water and sanitation problems. This makes network a valuable and unique mean. It will become an important tool in disseminating the information on problems related to water and sanitation and a venue for professional journalists. Such tool can become economically independent one by assistance of World Water Council. To save investing in developing such unique network and making new contributions is the interest of Council and its members.

Journalists-participants will receive, disseminate and exchange information with colleagues from the whole world for transmitting communications and information in different languages to lower level based on «top-down» principle as well as information on local actions to global level following «bottom-up» principle.

The network of journalists will be actively encouraged and maintained with the assistance of leading professional on mass media, who will provide editorial support to journalists-participants and help to disseminate its concept. Moreover, he will approve the proposal and demand for information through stimulating for writing and presenting articles on various themes.

When journalists broadcast news on the problems, they usually emphasize information timeliness, so they must be able to receive required information quickly. As for water problems, then the information can be incoherent or complicated for analysis. In addition, journalists are often confused with that how Global Water Sector has been organized and that the information related to water is not accumulated within one organization. Database will be established, which will contain the information, which is practical and ready for use and related to local actions connected with water, names and contact data of international water experts, which will be developed according to «who is who in water sector» principle. Its objective is to provide useful means for journalists. It will allow identifying water information, which is requested by journalists most often and will give concrete ideas for narratives. The contribution to database will be made by World Water Council members from state and private sectors, NGO, scientific circles and international (scientific-research) organizations. Database will be accessible to the public partially. Journalists, involved into the program, will have the access through a password. Database will be placed on World Water Council Web-site.

Analysis

Effectiveness and additional benefit for every measure held within the program will be analyzed according to a list of criteria established earlier. The survey will be used among analysis tools to evaluate the results according to criteria set. Statistic database analysis tool will be applied for evaluating use periodicity. The results of such analysis will allow amending the program if necessary when implementing the program.

Implementation period

The project will be implemented by three stages for more than 30 months. The inception stage will start at the beginning 2005 and endure 7 months, followed by implementation stage, which will be only 20 months and include World Water Forum IV, which will be held in March 2006 and the final stage will last 12 months and end in March 2007.

Workshops' venue will be determined during the inception stage, agreements on cooperation will be concluded and participants will be selected.

About 8-12 workshops will be held at the second program stage. At the same time two workshops will be conducted in the same field as international conference or measure, where many experts will take part and measures deserving the press attention will be held; it will be favorable for many reporters and experts as well as for the program results.

The final stage will start during the second stage and be focused mainly on evaluation of participants' contribution to the program's organizers activity that allows selecting the etalon group. This group will be invited for observation over special Mass Media workshop, which will be conducted in parallel with World Water Forum IV in 2006. Mass Media Network on water will be developing as independent organization after Forum.

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SOME RESULTS AND CONCLUSIONS FROM CANADIAN IWRM EXPERIENCE (with reference to «RiverTwin»)

Modern development establishes an absolute uncertainty concerned with the necessity of all-round information as well as with lack of our knowledge on natural and economical processes under the conditions of global drastic economical changes, fully unpredictable price movement for agricultural production, energy resources and dangerous fluctuation in exchange and nuances, market relations even under the conditions of developed capitalism. Water management with its multilateral connections puts its complexity and unpredictability of hydrological and environment–related processes into general problem set on society development and existence.

It is clear that under such conditions a branch approach to water management strengthens difficulties for mutual interest linkage and thus the need of integrated approach to water management is appropriate answer to dynamics of the modern world and our certain lack of knowledge on polygonality of relations and casual linkages of water with economics, environment, etc. – not from the point of view of water itself as a substance, but water use and consequences of its management or unmanageability in our many-sided world. In particular this is one of the problems of IWRM transition into bugbear, panacea of water sector saving from uncertainty and complexity of cause-and-effect phenomena identifying water resources management, use, quality maintenance and development and water interaction with economics, nature and socium.

Canadian specialists[3], based on Dublin provisions and program 21 (UNO, 1992) identified IWRM as holistic, all-round, system-oriented approach relying on involvement of stakeholders and partnership, view on water as on economical category focused on certain aims.

Holistic and system-oriented approach should include integration on the one hand (socio-economic, ecological and political) and disintegration from the other hand from the position of investigating three spheres of water functioning and water relations.

Separate elements of these spheres are included into «governance» complex, whereas the other ones - into management complex. «Governance» role, revealing mainly in political sphere and partially in socio-economic sphere, is to establish IWRM climate, where managers and stakeholders can successfully coordinate and integrate. So it is impossible to confuse these two interacting complexes, since their roles are different.

Governance through legal, organizational, financial and public rationale creates capacities, order, system of financial and public regulation, economic sustainability – constraints and set of rules, which managers have and at which they should orient.

On the basis of this IWRM develops system of managerial, technical, partner, economic and financial tools, which provide many-sided integration in this management.

Thus, the governance includes:

- legislative framework for formation of water sector, water relations and water constrains;
- water right, water ownership, market law;
- recognition of IWRM with its main features as a direction for public development;
- working out certain organizational structures and provisions linking government role and stakeholders' role;

[3] Vida Ramin, The states of IWRM in Canada, Cambridge, 2004, CWRA.

- working out price policy for water, degree of support by the government and local water authorities;
- sharing responsibilities between the government, territorial and local authorities on water management;
- government relation to natural base of water;
- government relation to bringing up water responsibility in the society;
- style of «stakeholders» involvement into planning and management, opportunity for decentralization and transferring to them a part of management rights.

IWRM:

- recognizes basins, sub-basins, scheme, system as planning and management unit determining hydrologic circle as a basis for balance unity of all water, quantity and quality;
- integrates catchment water and lands as a single background and single resource base linked with dynamics of water flows (surface, ground, natural and anthropogenic) in the catchment, meaning not only hydrographic boundaries of the catchment but flow distribution area especially in irrigation regions;
- orients at achieving potential water productivity in all water use branches;
- links water distribution according to water withdraw and catchment area with drainage operation and water removal;
- links economics and society development needs with water demands but at the same time with environment demands; provides the basis of sustainable development with account of demands' instability and simultaneously water availability fluctuation;
- integrates water demand with demands' management based on the line for achievement of potential water and land productivity;
- integrates views, powers, resources and knowledge of various stakeholders in order to achieve consensus according to time and area as a means for overcoming uncertainty, complexity and conflicts;
- integrates professional knowledge of scientists in the direction of aim-oriented management in spite of the whole natural specialized dissociation of scientific and professional aspirations;
- integrates and develops various information from all hierarchy levels and different needs and stakeholders for increasing understanding of integration processes' necessity and strengthening;
- integrates federal, provincial and local interests and their participation in IWRM;
- linking water hierarchy levels.

Some IWRM aspects, which emphasize the experience of Canada and other countries:

1. Public participation as process consultants is quite insufficient, since mainly it is oriented only at environmental aspects and is more critical than partner one (examples «Three Georges» in China, Narmady in India).
2. Partnership makes all participants not tell critical comments but find general decisions – it is its privilege and constructivism. At the same time consensus building process is a measure for introducing the method on «conflict resolution». Moreover, the partnership reduces the cost of integration processes.
3. State structures in branch narrowness aim to keep their water power and authorities, often not particularly involving other partners into the holy of holies of their bureaucratic eparchy, concentrating as much power at it as they can, if they do not under go other coordinating and legislative regulation.

4. From these positions the coordinating activity of Government itself, control and analytical powers of special commissions of Parliament are a tool clear enough for counteracting these barriers and especially effective under developed system of information exchange, communication, openness and confidence.

5. It is time to break narrow departmental specialization of science and education, which fragments studying subjects and does not give a wide systemic vision of the whole problem. Integration of social and natural sciences is a way to oppose and establish the basis for wider IWRM understanding by all society levels. Thus, formation of information systems and broad knowledge base, their openness and accessibility should facilitate to penetrate integration needs into society inside. It is important to direct this integration at complex approach effectiveness from the position of demonstration of socio-economic and ecological consequences to the sphere of their impact.

The first integration steps were developed in Canada in pursuance of the act on water and respective resources protection and conservation organizations (The Conservation Authorities Act, 1946). Although 36 such bodies were established in the country mainly to control flood and erosion under start-up financing by Ministry for Water Resources, but gradually their social structures were developed and for the last years they broadened their activities and provided their self-financing due to some principles selected when organizing them:

- they were organized without assistance within catchment boundaries by stakeholders' initiative;
- at the very beginning the condition for their formation was the consent to organization and financial support by local municipalities;
- the activity of such agencies based on certain approval of responsibility and cost sharing between provincial and local bodies depending on relation degree of nature protection and economical effectiveness;
- orientation to activity utility such as afforestation, gully prevention, land planning and terracing, waste water use.

The relation between nature protection and effective social and economic consequences formed the interest of supported stakeholders.

The most successful IWRM example in Canada is Fraser river basin management in British Columbia, since 80% gross domestic product of province and 10% of national income are formed here in inhabitation area of 2,6 million peoples. Many-sided activity functioning in the basin such as mining operations, forestry, agriculture, hydropower, tourism and the rest ones establishes conflict interests among basin water and land resources users. If it is taken into account that for the last 20 years population doubling is expected in the basin, then it is clear why in 1991 the State Government has started the program «Action Plan in Fraser river» in the direction of pollution control, fish capacity recovery, biodiversity reestablishment. According to the given Plan «Management Board for Fraser river basin management» was organized, which developed the plan for sustainability achievement in the basin through interests of social, economic and ecological dimensions. Based on it in 1997 Management Board was liquidated and Fraser River Council was established – non-commercial nonprofit public organization with the following powers:

- to facilitate and propose «Plan of sustainability»;
- based on it, to form and implement «Action Plan of stakeholders» with various directions of their interests;
- to organize coordination and integration of regional and local interests;
- to perform the functions on solution of inter-administrative and multilateral conflicts;

- to develop creation and public awareness on the ways of basin functioning sustainability.

The Council is governing and decision-making body on the basis of wide partnership between multiple interests. 36 Directors represent various interests of stakeholders: three ones - from federal and provincial governments, eight – from local municipalities, eight – from aboriginals, fourteen – from NGOs and private sector. Operative expenditures are shared proportionally between federal, provincial and local governments, which pay in 350 thousand dollars per a year. Besides, the Council has independent incomes from various activity, projects, grants, etc.

Work principles:

- to include the whole wide composition of stakeholders through multilateral approach and consensus achievement in all decisions related to multilateral interests, projects and aspirations;
- to focus on management interests at low level, that provide to include 50% members from these levels into Council composition;
- to orient to dimensions of the whole catchment into investigation of natural, economic and social interests of actual and future ones;
- to coordinate the activities between more than 70 various federal, provincial and local bodies.

Similar organization can be developed as a model for IWRM in Chirchik sub-basin, if we identify all stakeholders and their interest spheres in involvement into IWRM, based on which their potential effects can be determined (or loss in present incomes) and contributions to the program can be possible. The significant element should be the identified roles, opportunities and fields of such zonal (basin) organizations of complex character, responsibility sharing among state, provincial and local bodies according to participation. It is very important from position of objectivity determination between management levels and avoidance of such factors, when floods in shallow channels require decision of republican organizations, when it is within provincial or even local bodies' power and in the sphere of their decision.

Interesting IWRM aspect was developed in Albert state as Irrigation-Water Audit. This approach was selected as the first step in improving water effectiveness in existing landscapes. Average water effectiveness in Calgary district in 2003 was 50 % with fluctuations from 20 up to 77 %![4]

[4] Margaret Beeston, Nancy Stalker, "Team water vise – irrigation audit pilot", CWRA 58 Conference proceeding, 2005.

INTEGRATED WATER RESOURCES MANAGEMENT FOR WETLAND REHABILITATION IN THE ARAL SEA BASIN (THE NORTHERN PART)

The workshop-meeting on NATO Project № 980986 «Integrated water resources management FOR wetland rehabilitation in the Aral Sea basin (the northern part)» was held on 2-3 March in Kyzylorda, where local executive bodies of Kyzylorda province, scientists from Almata, Tashkent, representatives of non-governmental organizations and mass media took part. The project was started in November 2004. The participants of the workshop-meeting discussed the aims and objectives of the project and made the decisions**.**

The workshop agenda covered the following issues:

1. The main problems in the Northern Priaralie and arrangements for state improvement in the delta and the Northern Aral Sea (Atshabarov N.B. – Deputy Chairman, the Committee on Water Resources, Ministry for Water Resources, the Republic of Kazakhstan).
2. The Project objectives and NATO contribution to improvement of the situation in the Northern Priaralie (Joop de Schutter – the Project Co-Director, member-country of NATO).
3. Integrated water resources management for wetland rehabilitation in the Aral Sea basin (Kipshakbaev N.K. – the Professor, the Project Co-Director, Kazakhstan).
4. Recommended arrangements on environment sustainability improvement and natural conditions' recovery for keeping up socio-economic development of the Syrdarya river delta (Dukhovny V.A. – the Doctor of technical science, scientific consultant of the Project).
5. The main aims and objectives of soil-landscape researches in the Syrdarya river basin (Budnikova T.I. – the candidate of geographic science, Docent, the group on soil-landscape researches).
6. The main aims and objectives of field researches on environment state evaluation of leading landscape-formative components (vegetation cover, fauna and natural ecosystems) in the Syrdarya river delta (Kurochkina L.Ya. – the Doctor of biological science, the group on biodiversity research).
7. The main aims and objectives of field hydrological researches and infrastructure state in the Syrdarya river delta (Malkovskiy I.M. – the Doctor of hydrological science, the candidate of technical science, the group on hydrological researches).
8. The main aims and objectives of socio-economic researches in the Syrdarya lower reaches (Tokmagambetova R.Yu. – the group on socio-economic researches).
9. Work Program on modeling and GIS (Tuchin A.I. – the candidate of technical science, the group on modeling).
10. Designing of construction infrastructure in the Syrdarya river delta based on researches results (Dmitriev L.N. – the group on designing).
11. Socio-economic and ecological problems in Aral district and the ways for resolving them (Musabaev N.T. – Akim, Aral district, Kyzylorda province).
12. Establishment of Steering Committee.

The workshop was opened by the Project Co-Director from Kazakhstan, the Professor N.Kipshakbaev.

Akim, Kyzylorda province, Adyrbekov I.A. greeted the workshop participants.

The Provincial Akim told in his speech that in order to save ecosystems of this region firstly it was required to provide water requirement of natural complex. It is required to provide such water volume, which allows maintaining environment sustainability, and only after that to distribute water between economics branches. At the end of his greeting speech he added that

valuable scientific-founded proposals and recommendations were being waited from project executors for their solution.

Deputy Chairman, Committee on Water Resources, Ministry for Water Resources, the Republic of Kazakhstan, N.Atshabarov made the report «The main problems in the Northern Priaralie and arrangements for state improvement in the delta and the Northern Aral Sea», where he told that due to heavy water resources use, irrigated land area development and expansion during 1960-1990, water inflow, sea level (up to 16-18 m) and its area were reduced.

He said in his speech: «You know the ecological state in the Syrdarya river and the Aral Sea. The population of the Aral Sea region and the Syrdarya river delta has been suffered seriously. Socio-economic and living conditions have become worse. The conditions for reduction and impoverishment of flora and fauna have been created in the region. Vegetation cover is heterogeneous and subjected to anthropogenic degradation. The ecological situation change has impacted to a variable degree on various animal groups. Serious ecological degradation of the Aral Sea and adjacent territories has attracted a wide attention of five Central Asian states (Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan) as well as international organizations and donors».

N. Atshabarov marked out in his report that as a result of acute ecological and socio-economic situation in the adjacent region to the Aral Sea the Heads of Central Asian states approved the principal provisions on overcoming the Aral crisis and general program of concrete actions on ecological situation improvement in the Aral Sea basin on 11 January 1994 in Nukus.

One of the concrete actions in the part of «Program of concrete actions on ecological situation improvement in the Aral Sea basin and Priaralie» approved by the Heads of Central Asian states (1994) is to implement two important projects:

- «Regulation of the Syrdarya river-bed and conservation of the northern part of the Aral Sea» Phase 1.
- «Water supply and sanitation of Priaralie populated areas».

The construction of new sites and rehabilitation of a number of existing ones is stipulated within these projects.

The Project Co-Director from Kazakhstan, Director, the Kazakh branch of SIC ICWC, the Professor N.Kipshakbaev spoke regarding «Integrated Water Resources Management for wetland rehabilitation in the Aral Sea basin». He marked out the lack of scientific-founded recommendations for resolving the problems of current importance in the northern Priaralie such as absence of integrated engineering management of lake systems in the Syrdarya river delta, intensive desertification and salinization development process in the Northern Priaralie, biodiversity and main bioresources productivity reduction process.

N. Kipshakbaev told in his speech that for the last 10-12 years very many works such as technical as well as socio-economic ones were performed for improving ecological and socio-economic situation in the Syrdarya lower reach. The drawback of almost all works executed earlier was that they were performed without coordination between each others, i.e. there was no integrated approach to ecological and socio-economic problems. It is required integrated approach to conducted measures for resolving these problems, which allows providing sustainable situation in the region. This approach should base on nature requirement, below of which ecosystem destruction must not been admitted.

N. Kipshakbaev stated also the principal objectives of the given project, which were:

- develop and rationalize the principal provisions on the Syrdarya river delta and the Northern Aral water resources management;
- evaluate technical state of engineering structures constructed and planned (designed) for managing water regimes of ecosystems, catchments, lakes, wetlands of the Syrdarya river delta and the Northern Sea;

- develop demands to catchment system parameters in the Syrdarya delta and the Northern Sea;
- save required optimal ecosystem dimensions independently of hydrological regime change during the years of various water availability.

The scientific consultant of the project from Uzbekistan, the Doctor of technical science, V.Dukhovny, for his part, recommended arrangements on environment sustainability improvement and natural conditions' recovery for keeping up socio-economic development of the Syrdarya river delta. He stated the principal conclusions of «INTAS-Aral» Project such as a need for establishing water distribution rules between water systems, determining minimal water and flow regime demands of the delta and its systems. Also he demonstrated management group scheme and interrelation structure between sub-projects.

The colleague of the Institute of Geography, the Republic of Kazakhstan, Budnikova T. made a speech on behalf of the group on soil-landscape researches, who acquainted the workshop participants with Terms of Reference on soil-landscape researches. She marked out the principal aims and objectives of soil-landscape researches in the Syrdarya river delta.

The principal aims and objectives of field researches on environment state evaluation of leading landscape-formative components (vegetation cover, fauna, natural ecosystems) in the Syrdarya river delta were stated by the colleague of the Institute of Botany, the Republic of Kazakhstan, the Doctor of biological science, L.Kurochkina as the specialist of the group on biodiversity research.

Deputy Director, the Institute of Geography, the Republic of Kazakhstan, the Doctor of geographical science, the candidate of technical science, I. Malkovskiy, spoke on behalf of the group on hydrological researches, who acquainted the workshop participants with Terms of Reference of the group and revealed the principal aims and objectives of field hydrological researches and the Syrdarya river delta infrastructure state. Also he demonstrated the tentative course of field researches.

The specialist of the group on socio-economic researches, the colleague, the Institute of Geography, the Republic of Kazakhstan, R.Tokmagambetova presented the main aims and objectives for socio-economic researches in the Syrdarya lower reaches to the workshop participants.

A number of questions related to research work progress were given to all reporters presented Terms of Reference for research works' performance of the project. Also comments and proposals were made regarding the content of Terms of Reference for separate research groups.

The candidate of technical science A. Tuchin on behalf of CWSIR proposed the work program on modeling and GIS.

The director, the Kazhyprovodkhoz Institute, L. Dmitriev, spoke regarding construction infrastructure designing issue in the Syrdarya river delta based on research results and presented Terms of Reference for infrastructure construction designing.

Akim, Aral district, Kyzylorda province, N. Musabaev dwelled on socio-economic and ecological problems in his district. He told that when we pronounced the word «Aral», first of all the conceptions such as «fish», «fish industry» occurred to us. Many large and small fishing lakes are located in Aral district territory, total area of which is 85-90 % of the whole area of lake system in Kyzylorda province. However, the issue on watering was not resolved. The principal determinating factor in fish industry state of lakes is their water availability, without

which it is impossible not only to improve fishing significance of lakes but to save them as the most important element of Priaralie desert zone landscape.

Co-Director from NATO country, Joop de Schutter informed that the given project should take into account water needs of the region with account of the whole ecology. Joop de Schutter also marked out that the important aspect was the participation of local population. It is required to resolve water distribution principles, to establish combination and distribution rules, to escape water supply breach and structures and dams' failure, to develop population initiative for support. Joop de Schutter noted the principal research directions such as database establishment, system modeling and draft recommendation development.

The Project Co-Director from Kazakhstan, the Professor N. Kipshakbaev said that it was required to create Steering Committee for providing coordinated actions between project participants and local bodies in the project implementation. He proposed Steering Committee staff for this project:

Representatives of non-governmental organizations made a speech during discussion, which for their parts made draft proposals to work scope for this project execution.

The President, public union of water users «Bogen», Karatyubov A. made the proposal on Sarteren lake save and dried Karachalan reservoir restoration. He rationalized his draft proposal that as a result of hydrostructures' construction and rehabilitation when saving Sarteren Lake and restoring Karachalan reservoir, the conditions would be established for saving not only the reservoir but sustainable biodiversity zone as well as the conditions for renewing socio-economic significance of reservoirs. Existing and design cross direction profile of Sarteren dam in Bugun village was demonstrated.

The Director, Aral branch, NPCRKh, T.Kulmagambetov marked out in his speech that the construction of Kokaral dam and Aklak hydrounit played an important role in fish industry development in the Syrdarya river delta and in the Small Aral Sea. All dried lakes having fishing significance will be filled with water that gives an opportunity to increase fish quantity of valuable aboriginal types in the Small Sea and in lakes.

The President, the public union of water users «Kamystybas», Isaev A. made the proposal on maintaining Makpal lake level.

The Colleague, RGP, Priaralie Scientific-Research Institute, the Doctor of agricultural science, Chief, agrofitomelioration and soil fertility department, Khasi Zhamantikov wished to take part in the project. He has work experience on international projects.

The workshop participants approved the project aim during discussion and view exchange. They noted the importance and timeliness of the given project. Provincial Akimat and local executive bodies supported the project aim and ensured project executors that local bodies would provide them with required assistance during the project implementation.

Participants of the workshop-meeting made the decision:

1. To approve the aim and objectives of this project and Terms of Reference for Project executors to conduct research works with account of making amendments and changes according to proposals and comments.
2. To establish Steering Committee by the decree of Akim of Kyzylorda province according to above mentioned composition
3. Leaders of research groups should pay a special attention to quality of field research works.
4. Project organizers should provide maximum participation of local specialists in implementation of the given project.
5. To discuss performed work results with local executive bodies regularly according to stages of research works.

WORK MEETING ON «IWRM-FERGANA» PROJECT

Work meeting was held on 15.04.2005 in SIC ICWC in Tashkent, where detailed work plans regarding activities under «IWRM-Fergana» Project for 2005-2008 were investigated and prepared according to Project Document on IWRM in Fergana Valley – for Phase III.

Professor Dukhovny V.A. marked out in his opening speech that it should be put into practice during Phase III what had been developed theoretically and tested at pilot sites during Project Phase II, with extension of sphere of influence. The main attention should be focused at issues on practical implementation of equitable water distribution between all water users including drinking water supply systems and industrial organizations in order to achieve maximum water productivity in every branch of national economy.

In practice it means that executors and responsible for every activity, dates of performance, work scope and outputs should be thoroughly indicated at plans in details according to which implemented work would be accepted from executors.

Detailed plans were discussed with provincial executors on activities.

«Pilot canals» activity.

Participants marked out that as a whole set objectives and scope of planned activities according to proposed plan corresponded to general work plan. But comments and supplements were made regarding separate positions.

Provincial Coordinator of Tajikistan Khodzhiev Kh.R. proposed to reinvestigate executing staff on separate positions of the plan.

Head of SFMC Management Organization Rustamov R. proposed to complete the scope of planned activities with the following objective:

- regarding position 1.5 (c) to develop canal scheme in Database which would reflect situation on balance sections of canal in dynamics.

Staff of Union of Water Users should be reinvestigated taking into account existing reality and organization of effective activity in Project Phase III.

«Water Users Associations» activity

Participants marked out that as a whole set objectives and scope of planned works corresponded to the general work plan. But comments and supplements were made regarding separate positions.

Representative of Uzbekistan Khalikov O. proposed to complete the scope of planned activities regarding the following objectives:

- position 2.1 «Specify hydromodule zones of WUA «Akbarabad» irrigated lands according to the results of Project «Water and Land Productivity» activity;
- position 2.1 «Organization of repair and reconstruction works in WUA irrigation and drainage network by water users powers through «khashar» method» should be completed with – «cleaning WUA canals and collectors from weed vegetation, collector outfall construction, remove unauthorized coffer dams in WUA canals and collectors»;
- position 2.2 CDW use for irrigation «neutralization of CDW use consequences» should be completed with - «carrying out operational flushing»;
- to provide for a workshop on legal issues in water industry in work plan.

Work results should be covered in mass media.

Responsible person for execution of set objectives should be determined in work plans.

Representative of Kyrgyzstan Kamilov Zh. proposed to organize trainings during water distribution between water users groups in farms and homestead lands.

«Water and Land Productivity»:

Executors agreed with general work scope presented in the program. They decided the following:

In order to create tool for disseminating methodology to agree with Directory staff. Orient on «Booklets for agronomists» which were available earlier in every collective farm. Take into consideration adjustment of agro-methods in guidelines taking into account zone territory of WUA and forming climatic conditions.

Agree with work scope as a whole; include provincial executors in order to collect and present necessary materials for regional consultant on GIS. Include programmer on GIS as executor.

Agree with work scope and oblige provincial executors to collect source information. Include the second sowing and crop rotation.

Agree with work scope as a whole. Discuss separate details in work order.

Agree as a whole. Include approbation of adjustment into work plan for 2006 in close contact with WUA.

Agree as a whole. Include preparation of certificates as a document for provincial consultants, which were trained and got qualification of consultant on water and land productivity improvement based on IWRM-Fergana Project, into the plan. Issue certificates on the basis of holding training workshops.

Agree with expediency of organizing Extension Service Office under WUA. Doubts are raised regarding effective activity of Extension Service during its organization under CMO. Include: - Selection of 20 farms in every province for carrying out consultative services; - Monitoring over water use and agrotechnical measures in farms. – Prepare proposals on principles of contractual relations with farms and making payment or part of payment for services. – Equipping 20 pilot farms with water measuring facilities.

Draft proposals on joint activity should be prepared before discussing with representatives of RAS and FOMP Projects (in May 2005 – Sh.Sh. Mukhamedzhanov from SIC, Abdullaev from IWMI). The themes of trainings should be discussed with projects' representatives during discussion of proposals on joint activity.

According to discussion results every activity had presented its comments, proposals and supplements, which were investigated during the final assembly and recommended for reflection in plans.

As a whole work meeting approved presented detailed work plans for «IWRM-Fergana» Project Phase III and activity leaders were required to finalize plans according to comments made during the meeting and by project directors.

Activity leaders were recommended to develop Terms of Reference for executors taking into account comments and proposals made regarding detailed work plans during work meeting.

National and provincial coordinators should finalize drafts «Memoranda on mutual understanding on organizational and technical support to «IWRM-Fergana» Project (Phase III) » submitted and investigated during project work meeting, which included scope of repair and reconstruction works executed at the expense of own budget of pilot canals, liabilities regarding organization of national activity on IWRM introduction and final organization of pilot canals management.

REGIONAL WATER RESOURCES AND PEACEKEEPING

The workshop on the theme «Regional water resources and peacekeeping» was held on 23 - 27 April 2005 by the initiative of the University of Peace of UN in Almaty city, Kazakhstan, with participation of representatives of Central Asian countries: the Republic of Kazakhstan, the Republic of Kyrgyzstan, the Republic of Tajikistan, Turkmenistan, the Republic of Uzbekistan as well as the Islam Republic of Afghanistan. There were Deputy Ministers for Water Resources, Power, Foreign Affairs, representatives of ICWC, ICSD (Interstate Commission for Sustainable Development), EC IFAS, BWO Amudarya, BWO Syrdarya, SIC ICWC, SIC ICSD, international organizations, experts, lecturers and scientists among the workshop participants. The issues on improvement of water resources use effectiveness in Central Asia, international experience on transboundary basin water resources management in a number of the regions of the world especially taking into account its applicability for the conditions in Central Asian region as well as the issues related to development of modular curriculum on water resources of Central Asia in order to teach it both in the region and outside of it were discussed within the workshop.

The workshop participants noted the importance of implementation of provisions from the Resolution of UN General Assembly A/C.2/58/L.8 «International tenth anniversary of «Water for life» actions, 2005-2015, and insufficient progress in implementing the provisions from Dushanbe Declaration of 6 October 2002 in the part of realization of the goal on establishing a special UN Commission on coordinating activities of international organizations and countries-donors for facilitating to resolve the Aral Sea problem approved by the Heads of all five Central Asian states.

The decision was made that it would be expedient to study opportunities for establishing «Advisory group» at high level by the University of Peace as a member of UN family for conducting unofficial and informal dialogue according to «Track 2» principle between all stakeholders in order to investigate more fully the conditions required for implementing the goal set by Dushanbe Declaration determining the detailed description of such group, its staff, functions and kind of activity.

It was considered that a special attention should be paid to the following proposals made within the workshop regarding establishing «Advisory Group», which could implement such dialogue:

1. Support by UN when organizing such Advisory Group, implementation of its chairmanship as well as the necessity to involve in one representative of interested international organizations and international financial agencies of UN system into its activity.

2. Any option of «UN Commission» (the name according to Dushanbe Declaration context) should be investigated in the light of existing regional UN structures, mandate of which included Central Asia in particular Economic Commission for Europe, UN ESCAP and UNDP Regional Office.

3. Inclusion of representatives of governments of each state in particular national water resources, power and environment departments, existing regional organizations including IFAS, ICWC, CAREC (Central Asian Regional Ecological Center), ICSD into Advisory Group staff.

4. Inclusion of representatives of Afghanistan into Advisory Group staff taking into account its location along the Amudarya river and the interest stated by the workshop participants to study the opportunities for Afghanistan to take part in regional cooperation processes and organizations on water resources management after respective address by the government of this country.

5. Required technical and expert support to Advisory Group activity by UN, regional and international organizations as well as national governments.

The developed report should be submitted to UN Secretary General, governments of Central Asia countries, the President of the International Fund for the Aral Sea Saving as well as to managers of all interested international organizations and countries-donors.

The participants came to the agreement that strengthening of international assistance by UN and other international organizations to regional cooperation process in the field of water, power and other resources management in Central Asia could be made a considerable contribution to development of regional cooperation and expansion of peacekeeping between the countries of the region. The participants thanked the University of Peace for organization of the given workshop.

IMPROVEMENT OF TRANSBOUNDARY WATER RESOURCES MANAGEMENT MECHANISM IN CENTRAL ASIA

(«Round table» within the regional project of the Asian Development Bank RETA 6163: «Improvement of shared water resources management in Central Asia»)

«Round table» on the theme «Improvement of transboundary water resources management mechanism in Central Asia» was held on 28 April 2005 in Almaty city, Kazakhstan, within the Conference of the Interstate Commission for Water Coordination (ICWC) of Central Asia.

The organizers of «Round table»: ICWC of Central Asia and the Asian Development Bank (ADB).

The participants of «Round table»: ICWC members from Turkmenistan and the Republic of Uzbekistan and trustees of ICWC members from the Republic of Kazakhstan, the Kyrgyz Republic and the Republic of Tajikistan (further – ICWC members), managers and leading specialists of ICWC Executive Bodies – Basin Water Organization (BWO) «Amudarya», BWO «Syrdarya», ICWC Secretariat, Control-Metrological Center (CMC) ICWC, Scientific-Information Center (SIC) ICWC, representatives of the Ministry for Foreign Affairs of the Republic of Kazakhstan, unit managers of national water and power resources departments of Central Asian countries.

Total more than 30 persons took part in «Round table» activity.

«Round table» was opened by A. Kenshimov, Deputy Chairman, the Committee on Water Resources under the Ministry for Agriculture, the Republic of Kazakhstan. He marked out that improvement of transboundary water resources (TWR) management in Central Asia was one of the priorities of the regional water policy and hoped for constructive view exchange regarding this problem.

The following persons made the reports:

1. Tumurdavaa Baiyarsaikhan, senior specialist on agriculture, ADB, acquainted the workshop participants with goals, objectives and work progress for RETA Project (Regional Technical Assistance) as well as with ADB vision and position regarding implementation of the given project.

2. The Professor, V. Dukhovny, the Director, SIC ICWC of Central Asia familiarized «Round table» participants with the principal components of RETA Project (component «A» - support in establishment and activity of joint commission on Chu and Talas rivers; component «B» - assistance in organization of discussions on the regional water policy; and component «C» - capacity strengthening of regional water management organizations), general problems of TWR management in Central Asia, current situation in water branch of the region as well as SIC ICWC vision for further implementation of RETA Project. Prof. V. Dukhovny also proposed to include the Amudarya river basin into the project coverage as well as to revise and approve the texts of three agreements on cooperation issues of principle prepared earlier between the parties. It was rationalized by the necessity of complex approach to resolving the problem on improvement of TWR management in the Aral Sea basin taking into account the specificity of the Amudarya river and the Syrdarya river basins as well as legal framework strengthening for ICWC and its bodies work.

3. K. Beyshekeev, the first Deputy Director General, Department for Water Resources, the Ministry for Agriculture and Water Resources and Processing Industry, the Kyrgyz Republic, made the report, where the main results and directions for further development of RETA Project on component «A» - support in establishment and activity of joint commission on Chu and Talas rivers - were reflected.

4. Yu. Khudaybergenov, Head, BWO «Amudarya» reflected the issues on organization and the main problems on TWR management in the Amudarya river basin in his report. A special attention was paid to the necessity to provide water distribution equitability between main water users

in the basin including the Aral Sea as well as the issues on equipping head water intakes with SCADA facilities.

5. A.. Sorokin, Head, the department on the regional water resources, SIC ICWC, acquainted the participants with the results of scientific researches on calculating water flow losses, analyzing return water impact on the Amudarya water quality as well as demonstrated the opportunity for reducing average water availability of rivers when starting low-water season.

6. M. Khamidov, Head, BWO «Syrdarya» acquainted the participants with water situation arising in the Syrdarya river basin during the years of different water availability. The attention of listeners was focused on TWR management problems related to Toktogoul hydropower station operation in energy mode, which brought to significant damages for Kazakhstan and Uzbekistan during winter-spring period run into tens of millions of USD every year (costs for conducting flood-controlling measures, immigration of population from flood area, etc.). In particular the reporter marked out low level of flow forecasts and the necessity to strengthen the cooperation of hydrometeorological services between each others and with ICWC. It was noted in the report that there were no the alternatives on shared management and close cooperation between all countries in the Syrdarya basin in the field of rationale water resources use of the Syrdarya river.

7. Yu. Rysbekov, the Assistant of SIC ICWC Director, dwelled in his report on the issues on strengthening of international legal framework for regional water relations, preparation of interstate agreements stipulated by the Aral Sea Basin Program-2 in particular regarding improvement of the Agreement 1998 or preparation of draft new agreement on the Syrdarya river, draft agreements on establishing international water-power consortium. It was marked out that in a number of cases those projects did not meet the needs of instances, to investigation of which they were submitted.

ICWC members gave brief information on the key problems of TWR management in Central Asia after presentation of reports. The focus was made on strengthening of regional cooperation and the necessity to achieve the consensus regarding the issues of transboundary water use.

Deputy Chairman, the Committee for Water Resources under the Ministry for Agriculture and Water Resources, the Republic of Kazakhstan, A..K. Kenshimov marked out in his speech that any bilateral protocols on the Syrdarya river did not exclude the need for transboundary agreement, which should determine the order of coordination, responsibilities and rights for the parties regarding observance of operation mode of reservoir release, dimensions and dates of flow augmentation, order of idle water pass of transit Toktogul – Chardara in details. It is required to reinforce the transparency of information and execution.

Deputy Director, the Department for Water Resources, the Ministry for Agriculture and Water Resources and Processing Industry, the Kyrgyz Republic, K. K. Beshikeev supported the necessity to revise the Agreement 1998 on the Syrdarya river taking into account detailed specification of the issues on water quality, information availability, flood control, economical relations according to the participation of the countries in lower and middle reaches in flow formation and costs of the countries for this area.

Ya. Pulatov on behalf of the Minister for Water Resources of the Republic of Tajikistan, A.A. Nazirov, proposed to develop international complex program on water conservation, account of economical aspects on water use and water resources protection, situation evaluation in flow formation areas in particular in the part of deglaciation, ecological processes, waterlogging by reservoirs.

The first Deputy Minister for Water Resources, Turkmenistan, T.A. Alyev informed that it was required to inventory the cost for all works conducted by the countries, where assurance of normal river regime were accompanied with large scope of cleaning and bank protecting works (the proposal was seconded by all participants). He paid attention to the necessity to strengthen works of BWO «Amudarya» as well as BWO «Syrdarya», their status, provision head water intakes and gauging stations with equipment, return water account and quality monitoring.

Deputy Minister for Agriculture and Water Resources, the Republic of Uzbekistan, Sh.Kh. Khamraev paid attention to the mechanism for water limit control and observance as well as implementation of ICWC decisions as a whole.

During the discussion T. Baiyarsaikhan expressed the doubt regarding the expediency to include also the Amudarya river basin into the project coverage at this phase and proposed to focus the efforts on achieving the real results for improvement of the Agreement 1998 on the Syrdarya River. T. Baiyarsaikhan also marked out that the significant factor for effective work would be a formal consent of the Uzbek part to take part in implementation of the given project.

R. Abdukayumov, the specialist on ADB project management, expressed the view regarding the necessity to approve the concrete plan of measures acceptable for all countries in Central Asia, the second and the third components of RETA Project and noted that there was a certain degree of flexibility in financial resources allocation of the project, which allowed to reallocate funds between the project components depending on the results regarding this or that component.

ICWC members supported the proposals for RETA Project implementation, marked out its appropriateness and timeliness and expressed the hope that the project would make a considerable contribution to strengthen the cooperation between the states of the region. ICWC members also thanked ADB for readiness to provide the assistance and financial support in resolving the problems on effective TWR use in Central Asia. ICWC members were proposed to generalize the results of a number of large-scale projects in the field of TWR use implemented under the support of international donors (Global Ecological Fund, World Bank, International Development Agency (USA), the Swiss Agency for international cooperation, the programs TACIS, SPECA).

ICWC members marked out that as a whole the principal problems on TWR management in Central Asia were caused by lack of coincidence between interests of the countries in upper reaches (Kyrgyzstan, Tajikistan) interested in large-scale hydropower station operation in energy mode and further development of hydropower capacity and of the countries in lower reaches (Kazakhstan, Turkmenistan, Uzbekistan) interested in sustainable irrigation infrastructure functioning and flood controlling within their territories. In particular such problems are acute in the Syrdarya river basin.

ICWC members and other participants of «Round table» came to the agreement regarding the following issues:

1. RETA Project, regarding its objectives to work out and improve water policy first of all at the regional level, should cover the issues on the Syrdarya river basin as well as the Amudarya river basin and at the same time evaluate existing drawbacks and set of required measures by joint efforts of ICWC members and regional bodies. The works on «The principal provisions of water strategy», SPECA Project, Global Ecological Fund, conducted earlier, should be taken as base materials for such activity.

2. The priority was to establish Joint Working Group for analyzing the practice of the Agreement 1998 on the Syrdarya river enforcement, revealing the main reasons of non-fulfillment of provisions from the given agreement in corpore. The Working Group should be comprised of the representatives of the Ministry for Foreign Affairs, water resources, power and environment departments from all Central Asian countries as well as representatives of regional bodies on water and power management (ICWC and its executive bodies, the United Dispatcher Center «Energy»). It is planned to hold three meetings of this Working Group during 2005.

3. Conducting trainings for representatives of water resources, power and environment departments from Central Asian countries regarding (a) introduction of integrated water resources management principles; (b) resolving conflicts and disputes in the field of interstate water use; and (c) improvement and harmonization of water legislation of the region states. It is planned to hold three training during 2005. SIC ICWC will submit the plan of organization, dates and venue of these trainings to ICWC members for consideration up to the end of May 2005.

4. Joint development of detailed Work Plans on preparing Joint Commission on Chu and Talas rivers for their activity for 2005 with concrete dates of implementation for Technical

Secretariat and four Working Groups by Committee for Water Resources under the Ministry for Agriculture, the Republic of Kazakhstan and the Department for Water Resources under the Ministry for Agriculture and Water Resources and Processing Industry, the Republic of Kyrgyzstan up to the end of May 2005 and submission of them to ADB for making approval.

INTRODUCTORY MEETING ON «IWRM-FERGANA» PROJECT (PHASE III)

Introductory meeting on «IWRM-Fergana» Project (Phase III) was held on 07.06.2005.

The meeting was opened by prof. Dukhovny V.A. who marked out that Project Phase III was approved with some increased cost against the last phase and in particular it was directed at creating «National management» component.

Sandjar Djalalov from SDC made speech and congratulated participants on Project Phase III beginning and marked out, that the objectives of two previous phases were implemented successfully. Phase III sets two objectives:

1. Examine IWRM effectiveness;
2. Alternatives on improving water use effectiveness.

IWRM Concept, developed by Project and based on hydrographical principle, met support in the Republic of Uzbekistan (the Decree of Cabinet of Ministers №320). Issues on social mobilization when establishing 3 pilot WUAs were resolved and at the same time the highest level, which was not investigated in other projects, was considered. For the first time in Central Asia Region the packet of documents was prepared for making changes in legislative basis in order to create Union of Canal Water Users. Field certificates and ways for establishing Extension Service for farmers were developed based on demonstration fields for improving water and land productivity. Sandjar Djalalov marked out the objectives of Phase III:

- institutional formation at national level, i.e. creation of national groups on implementing IWRM water policy through holding briefings and workshops;
- at WUA level introduction of results in horizontal level as well as in extension and dissemination;
- at national level holding 3 regional meetings – briefings with decision makers.

The main objective of project activity is to contribute to improving living standard of human through increasing effectiveness of water resources use in the Fergana Valley**.** Professor Dukhovny V.A. marked out in his speech that the main project objective and direction were based on results of two previous phases but had principally more important and wide meaning.

The objectives of Phase II were:

- to create understanding and clear vision what IWRM was, what the necessity of its introduction was; its composition and possibilities;
- to prove its effectiveness and applicability under our conditions;
- to involve those who could concretize its understanding.

As a whole project executors achieved those objectives. As a result IWRM in our explanation covered actual aspects of modern management and revealed the necessity:

- to involve public in management system intensively;
- to link all levels of water hierarchy;
- to direct at final management aims: sustainability, uniformity and effectiveness.

Objectives of the present phase are:

- strengthening IWRM and creating all required tools which should assist to prove its effectiveness; especially developing economic management instruments;
- extending IWRM application in command area as well as in all sites which have the same names.

Today IWRM appears in many directions and projects but often as slogan, as practice of old projects on reconstructing and repairing instead of to proceed to the main management system intently. IWRM is basically reestablishment of traditions of fathers and ancestors in water when the local initiative should compensate what have been achieved by great finances and strict management from the above. But it does not mean to spare the government from participation at all. The government is responsible for:

- creating policy climate;
- creating direction at IWRM;
- involving water users;
- financial mechanism of cost sharing between water users and water organizations;
- providing technical assistance in equipping, training, etc.;
- creating conditions for ability to pay for farmers.

Then participants of the meeting investigated the concrete issues.

METHODOLOGY FOR MAKING UP WATER USE PLAN. TRANSFERENCE FROM DECADE WATER DISTRIBUTION TO DAILY ONE BETWEEN WATER USERS
(WUA activity)

Workshops on the theme: «Methodology for making up water use plan. Transference fro decade water distribution to daily one between water users» were held from 29 June to 4 July 2005 in WUAs «Zarafshan» (D-Rasulovsky region, Sogd province, Tajikistan), «Akbarabad» (Kuva region, Fergana province, the Republic of Uzbekistan) and «Zhapalak» (the Kyrgyz Republic) in Training Center in Osh.

WUA activity Leader on «IWRM-Fergana» Project, the candidate of economic science, Pinkhasov M.A. made reports «Gained results in 2002 – 2004 and the objectives for 2005 – 2008 regarding WUA activity on «IWRM-Fergana» Project».

In particular there were given in the report:
- determined objectives and gained results on pilot WUAs «Zarafashan», «Akbarabad» and «Zhapalak»;
- developed legal issues in WUA requiring their introduction in order to achieve sustainability of WUA functioning at three republics of Fergana Valley;
- ways for resolving conflicts and disputes between WUAs and water users, between WUAs and water organization and between water users themselves;
- the content of «Guidelines on integrated water resources management at WUA level» developed by WUA activity;
- technical and technological aspects of WUA activity;
- economical aspects of WUA functioning in interrelation with economical aspects of water users.

The reporter dwelled on the objectives for Project Phase III concerned with:
- disseminating pilot WUAs experience throughout the whole Fergana Valley;
- reclamation services;
- stimulating water conservation in WUA;
- granting lax credits to WUAs;
- organizing associations of homestead farms;
- establishing special organization on supporting WUAs under BISA and Provincial Department for Agriculture and Water Resources;
- holding trainings on various directions of WUA activity;
- improving WUA Statute acting at pilot WUAs;
- introducing double-rate tariff into WUA «Akbarabad» for WUA services;
- specifying belonging of irrigated lands to certain hydromodule zones;
- CDW use for irrigation under the respective conditions;
- responsibilities of WUAs and interfarm structures on CDN management;
- preparing plan of repair and reconstruction works involving water users;
- stimulating WUA workers;
- finalizing «Guideline on water distribution»;
- making up water use plan for WUAs linking with operating regime of the main canals;
- organizing monitoring over using surface, ground and return water in pilot WUAs;
- developing models of daily water distribution planning between water users.

The technician on water distribution in WUAs «Akbarabad» and «Zarafshan» Khamdamov Sh. made the next presentation on the theme: «Water-physical features of soil and selection of elements for irrigation procedures» where he acquainted listeners with physical and water features of soil, total water consumption of crop unit, hydromodule, irrigation norm, interrelation of elements for irrigation procedures (slope, lengths and furrow discharge).

So general concepts on water-physical features of soil, their role in forming crop irrigation schedule and organizing optimal irrigation schedule were given to listeners.

IWMI colleague Zhumabaev K. made the report «Methodology for water distribution according to time». This methodology was approbated along «Sokolok» canal in WUA «Zhapalak».

The main point of the given methodology is to provide water users with water through determining the schedule of irrigation order between farmers and indicating day, time and duration of irrigation for every water user. The proposed methodology is a system of permanent water rotation. Irrigation duration is proportional to farm sizes in command area of separate inlet's lands.

The reporter dwelled on conditions when introducing water rotation according to time and eight steps on introducing the proposed methodology:

- WUG Meeting on forming awareness for decision making;
- collecting required information on farmers' views;
- technical finalization – installing fixed water intake facilities;
- water supply timing to inlets;
- preparing decade water supply schedules for the whole system;
- public announcement on water supply to water users;
- implementing water rotation according to water supply schedule;
- holding WUG Meeting according to season results.

WUA Activity Assistant Alimdzhanov A. made two reports: «Principles of making up water use plan at WUA level» and «Transference from decade water distribution to daily one at WUAs canals».

Alimdzhanov A. marked out in his first report that water distribution method applied in established WUAs to the present day was based on indices of water use plan made up 10 – 15 years ago. Water requirement was distorted in these plans as earlier in particular cotton was grown in farms and the share of grain crops and vegetables was insignificant and onfarm canals' efficiency was limited to secondary canals in water use plans.

The reporter covered the main principles, methodology as well as materials widely required for making up water use plan.

The reporter Alimdzhanov A. marked out in his second report that water distribution by permanent water current with little average decade discharges according to water use plan was ineffective under the conditions of small farms' functioning. The principal reason was practicing methodology of water distribution according to water use plan based on *decade water distribution.*

The reporter dwelled on mechanism of transference from decade water distribution to daily one and making up daily water distribution schedules between WUAs water users in details. This principle takes into account interests of all parties – water users, WUAs and water organization, providing water distribution transparency and publicity.

Alimdzhanov A. held two practical trainings concerned with the reports which were made.

Listeners made up water use plan for secondary canal under the direction of Alimdzhanov A.. Listeners were convinced of decade water distribution drawbacks in practice.

Workshop listeners made up daily water distribution schedules between water users during the second practical training.

Consultant on hydrometry R.R. Masumov presented the report on the theme: «Water account during integrated water resources management». He dwelled on water accounting facilities applied in WUAs and characterized their technical features and water account methodology in his report. In conclusion R.R.Masumov dwelled on gained results when organizing water account in pilot WUAs.

Then the reporters answered the questions of workshop participants.

ICID WATSAVE AWARD(S) 2005

Preamble

ICID launched its Global Water Saving (WatSave) program by setting up the WatSave Work Team (WT-WATS) in the year 1993 with the objective of promoting and recognizing water conservation success amongst member countries. ICID has been compiling and disseminating information on water saving/ conservation practices adopted by member countries worldover through publications, website and organizing regional workshops. As a part of the WatSave activities, ICID instituted WatSave Awards in the year 1997. The award(s) are presented each year to an individual or a team for OUTSTANDING CONTRIBUTION to water conservation/water saving for increasing the beneficial and/or efficient use of water to develop and improve the sustainable use of the critical resource. The WatSave Awards 2005 will be made during the 56th meeting of the International Executive Council to be held in September 2005 at Beijing, China.

The award aims at -

- Promoting and encouraging the best technological applications or projects which have been successful in saving and/or recovering waste waters/low quality waters.
- Promoting other non-technological interventions and/or innovative land and water management/techniques for increasing the availability of water for different uses.
- Promoting research that leads to substantial savings in water applications or uses.
- Promoting development of new policies/approaches for water saving leading to cost effective and beneficial use of water.

Categories of the Award(s)

The Awards are in the following three categories:

WatSave Technology Award (Ref.2 i above)
WatSave Innovative Water Management Award (Refer 2 ii, iii, iv above)
WatSave Young Professional Award (Ref. 2 above).

Selection process

All nominations received from the National Committees will be reviewed by a panel of 5 judges, one each from the four regions of ICID (The Americas, Africa, Asia-Oceania and Europe) and the fifth from any region but there shall not be two judges from the same country. A judge will not evaluate a nomination from his/her own country. For the information of nominees, the panel will use the 'Evaluation Process' as attached. The panel will be appointed by President, ICID in consultation with the Chairman of the Working Group on Water Saving in Irrigated Agriculture (WG-WATS).

Amount of the award(s)

The award consists of an honorarium of US$ 2000 and a citation. In the event of the award being made to a team, the amount shall be made to the nominated leader of the team.

Management of the Award(s)

The citation plaque will bear the name of ICID as the promoter and of the donor as sponsor.

Arrangements will be made by ICID to widely disseminate the achievements/successes of the winning entries.

Rules of the Award(s)

1. Nominations must comply with these rules: Заявки должны быть представлены в соответствии со следующими правилами:

- Nominations for the Awards are open to all professionals/ teams from ICID member countries as well as non-member countries, but the nomination must be made and validated by an active National Committee/ Committee of ICID.
- A completed Nomination Form (enclosed).
- A type-written discussion of about 1500 words in English or French summarising nominee's work related to water saving/conservation.
- A Curriculum Vitae (CV) of the nominee along with a recent passport size photograph.
- A justification by the Proposer as to why the nominee should be considered for the award and the category proposed.

2. The decision of the President ICID as arrived at through the process in paragraph 4 will be final and binding. No discussion or correspondence relating to the award will be entered into.

3. Entries should be sent to the Secretary General, ICID so as to reach Central Office, New Delhi, not later than 31 May 2005.

Please note that any nomination papers, as listed in 8 (i), if received after 31 May 2005 will not be considered and forwarded to the Panel of Judges. All the papers related to nomination received on or before 31 May 2005 will be acknowledged within a week by the Central Office by e-mail/fax. In case of non-receipt of the acknowledgement, the concerned National Committee/ Committee should contact the Central Office immediately.

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