Interstate Commission for Water Coordination of Central Asia	BULLETIN № 4 (50)	November, 2008

CONTENT

MINUTES OF THE 51ST MEETING OF THE INTERSTATE COMMISSION FOR WATER COORDINATION (ICWC) OF THE REPUBLIC OF KAZAKHSTAN, THE KYRGYZ REPUBLIC, THE REPUBLIC OF TAJIKISTAN, TURKMENISTAN AND THE REPUBLIC OF UZBEKISTAN

September 17-18, 2008 **City of Almaty**

Participants:

ICWC members:

Koshmatov Baratali Turanovich	Director General of Water Resources Department at the Ministry of Agriculture and Water Resources and Processing Industry, Kyrgyz Republic
Saidi Yokubzod	Minister of Land Reclamation and Water Resources, Tajikistan
Ataliyev Kakadurdi Khankuliyevich	Deputy Minister of Water Resources, Turkmenistan
Khamrayev Shavkat Rakhimovich	Deputy Minister, Head of Central Water Administration at the Ministry of Agriculture and Water Resources, Republic of Uzbekistan

ICWC executive agencies:

Dukhovny Viktor Abramovich	Director, SIC ICWC, Professor, Honorable ICWC member
Umarov Pulatkhon Djakhanovich	Head of ICWC Training Center
Kdirniyazov Burkitbay Tajiniyazovich	Acting Head of BWO «Amudarya»
Khamidov Makhmud Khamidovich	Head of BWO «Syrdarya»
Makarov Oleg Stepanovich	Head of ICWC Metrological Center

Invited:

Abdukayumov Rustam	Project Management Specialist, Asian Development Bank
Kenshimov Amirkhan Kadirbekovich	Deputy Chairman of Water Resources Committee at the Ministry of Agriculture, Republic of Kazakhstan

Bekniyazov Murat	Principal Expert of Committee on Water Resources at the Ministry of Agriculture, Republic of Kazakhstan
Lisenko Oleg Grigoryevich	Principal Specialist of BWO «Amudarya»
Karlikhanov Adilkhan Karlikhanovich	Head of BWI Aral-Sydarya
Djayloobayev Adilbay Shakirbayevich	Head of Water Resources Department at the Ministry of Agriculture and Water Resources and Processing Industry, Kyrgyz Republic
Mamataliyev Nurgazy Patiydinovich	Director, Kyrgyz branch of SIC ICWC
Pulatov Yarash Ergashevich	Director General of GU «TajikNIIGim»
Kamoliddinov Anvar	Director, Tajik branch of SIC ICWC
Kuchkarov Sharifjon Zikrillayevich	Head of department, Ministry of Agriculture and Water Resources, Republic of Uzbekistan
Sheraliyev Nurmukhammad Ismanovich	Director assistant, Central Water Administration at the Ministry of Agriculture and Water Resources, Republic of Uzbekistan
Beglov Ferdinand Fatikhovich	Head of department, SIC ICWC
Chairman:	Ryabtsev Anatoly Dmitriyevich- ICWC member, Chairman of Committee for Water Resources at the Ministry of Agriculture, Republic of Kazakhstan

AGENDA:

1. Growing season and additional measures for its completion (resp. BWO “Amudarya” and BWO “Syrdarya”).

2. Work progress in implementation of SCADA systems in interstate water sources.

3. Development of national information systems and their interlinking with operations of national hydromet services.

4. Revision and approval of draft «Provisions on ICWC», «Provision about rotation of ICWC’s executive bodies and their directors” and “Agreement on institutional strengthening for management, protection, and development of water resources from interstate sources in the Aral Sea basin”.

5. Agenda and venue of the next 52nd ICWC meeting.

Having approved the agenda, listened to the speeches of the meeting participants and exchanged opinions, the members of the Interstate Commission for Water Coordination in Central Asia (ICWC) decided:

First item:

1. Taking into account information by BWO «Amudarya» and BWO «Syrdarya» concerning operating mode of the cascade of reservoirs for the past growing season.

2. Adoption of water withdrawal limits along Amudarya and Syrdarya and approval of forecast operation of the cascade of reservoirs for non-growing season 2008-2009.

3. Adoption of water withdrawal limits along Amudarya and Syrdarya and approval of forecast operation of Naryn-Syrdarya cascade of reservoirs for non-growing season 2008-2009.

Second item:

1. Consider operations on SCADA system implementation in the following interstate water sources expedient:

- *at interstate basin level* – automation system, dispatching and monitoring of water resource management of BWO «Syrdary» structures, located in section lines of Syrdarya from Uchkurgan waterworks facility to Farkhad waterworks facility (Tajikistan and Uzbekistan) and two structures in the interstate Big Fergana canal;

- *at interstate small rivers level* – water resources management monitoring systems in the Khodjabakirgan river (Kyrgyzstan and Tajikistan).

2. Submit to Swiss Development and Cooperation agency a project proposal regarding development and implementation of SCADA System in interstate water sources for financing main costs of the system implementation, including project development, supply and mounting of hardware and software.

3. On approval of the project, water agencies of Central Asian countries will arrange preparatory work at their own expenses in mentioned structures and will assist in organizing and implementation of the automation project.

4. Project will guarantee all water agencies equal access to information.

On the third item:

1. Approve work on the component "Development of the national information systems" of the project CAREWIB and acknowledge expedient further continuation of work on the project components.

Make special mention of the work of NFP in Tajikistan on preparation of the Strategy of the national information system development.

2. Ask the ICWC members to control project implementation according to the approved work plan. Draw special attention to development and approval of the strategies of the national information systems development, and to removal of barriers to involving organizations outside the water sector of countries in the first place - the national hydrometeorological services- for the establishing of the national information systems, and to financial support, including attracting the donors.

3. The ICWC members express gratitude to the Swiss Agency for Development and Cooperation (SDC) for the active support.

Fourth item:

1. Adopt «Statute of Interstate Commission for Water Coordination of Central Asia».

2. Adopt «Rotation of Interstate Commission for Water Coordination (ICWC) of Central Asia executive bodies and their directors».

3. Confirm and submit Draft Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan and the Republic of Uzbekistan "About institutional strengthening of management, protection and rational use of water resources from interstate sources in the Aral Sea basin" to the governments of the countries for consideration.

Fifth item:

1. Hold next 52nd ICWC meeting in Turkmenistan in December, 2008.
2. Confirm venue and agenda of the next 52nd ICWC meeting.

Agenda

1. Summary for the growing season 2008 (resp. BWO «Amudarya» and BWO «Syrdarya»).
2. Realization of water withdrawal limits and regimes of the operation of cascades of reservoirs in the river basins of Amudarya and Syrdarya for non-growing season 2008-2009.
3. Development of the regional training network for high and middle level staff in water, energy, and environmental organizations of Central Asian countries under ICWC Training center and its branches (resp. SIC ICWC and TC ICWC).
4. Consideration of Draft Agreement «About use of water and energy resources of Syrdarya river basin».
5. Venue and agenda of the next 53rd ICWC meeting.
6. Other

Request the ICWC Secretariat to prepare analysis of implementation of ICWC decisions by executive bodies and present it at the next ICWC meeting.

For the Republic of Kazakhstan	A. Ryabtsev
For the Republic of Kyrgyzstan	B.Koshmatov
For the Republic of Tajikistan	S. Yokubzod
For the Turkmenistan	K. Ataliyev
For the Republic of Uzbekistan	Sh. Khamrayev

MEASURES TAKEN FOR GROWING SEASON 2008 AND ADDITIONAL MEASURES FOR ITS COMPLETION[1]

1. The Amudarya river basin

The use of fixed water withdrawal limits as of 01.09.08 in the growing season by the states looked in the following way:

-Fixed water withdrawal limit was used in total for the basin by 72,2 %; under the limit of 32 billion 043 million m^3, the actual one was 23 billion 123 million m^3.

-The Republic of Kyrgyzstan used fixed water withdrawal limit by 2,7 %,

9 million m^3 were used actually under the limit 337,5 million m^3.

-The Republic of Tajikistan used fixed water withdrawal limit by 93,8 %,

4 billion 937 million m^3 were used actually under the limit 5 billion 264 million m^3;

-Turkmenistan used water withdrawal limit by 75,3 %, under the limit 12 billion 247million m^3, actual figure indicated 9 billion 223 million m^3;

-The Republic of Uzbekistan used water withdrawal limit by 61,9 %, 8 billion 187 million m^3 were used actually under the limit of 13 billion 230 million m^3.

Water supply of three users in the lower riches of the river for the reporting period is as following:

1. Dashoguz district – 49,8 %
2. The Republic of Karakalpakstan - 40,0 %
3. Khorezm district - 53,2 %

Water supply plan in Priaralie was fulfilled by 47 % for five months of non-growing season; 740 million m^3 were supplied under the plan 1 billion 575 million m^3.

For assessing given water-related situation, main figures are provided in the Table below. Figures show stream flows of main gauging stations in the middle stream of Amudarya River, water availability in the given site of Atimurat above Garagumdarya and inflow to Tuyamuyun during five months of reporting period compared with the growing season 2001.

[1] Information for the first issue of the agenda of ICWC meeting 51, September 2008, Almaty

Names	April			May			June			July			August			September			Total million m^3
	I-ph	II-ph	III-ph	I-ph	II-ph	III-ph	I-ph	II-ph	III-ph	I-ph	II-ph	III-ph	I-ph	II-ph	III-ph	I	II	III	
										2008									
Water availability	692	944	912,5	998,4	1240	1886	2184	3343	2534	2362	2478	1947	2477	2329	1532	1364	1130	871	27439
										2001									
Water availability	891	773	676	798	1538	2244	3240	3616	2835	3375	3147	2837	2486	2606	2154	1665	1298	901	32662
percentage (%)	77,7	122,1	135,0	125,1	80,6	84,0	67,4	92,4	89,4	70,0	78,7	68,6	99,6	89,4	71,1	81,9	87,0	96,6	84,0
										2008									
g/s KERKI	314	389	359	399	544	1274	1230	1990	1440	1127	1252	1064	850	950	750	650	550	450	13730
Norm	876	1060	1280	1860	2310	2730	2440	3090	3030	3490	3600	3270	2830	2400	2160	1820	1400	1160	35961
percentage (%)	35,8	36,7	28,0	21,5	23,5	46,7	50,4	64,4	47,5	32,3	34,8	32,5	30,0	39,6	34,7	35,7	39,3	38,8	38,2
										2001									
g/s KERKI	447	397	397	364	898	1560	2040	2220	1560	1780	1770	1590	1430	1610	1460	1160	964	655	19667
Norm	876	1060	1280	1860	2310	2730	2440	3090	3030	3490	3600	3270	2830	2400	2160	1820	1400	1160	35961
percentage (%)	51,0	37,5	31,0	19,6	38,9	57,1	83,6	71,8	51,5	51,0	49,2	48,6	50,5	67,1	67,6	63,7	68,9	56,5	54,7
										2001									
Inflow g/s Kelif	784	694	684	646	1178	2036	2617	2805	2160	2406	2406	2202	2003	2158	1920	1566	1227	998	26875
										2008									
Inflow g/s Kelif	692	857	886	917,4	1052	1791	1747	2548	2127	1851	1968	1708	1597	1851	1304	1210	1030	840	22858
percentage (%)	88,3	123,5	129,5	142,0	89,3	88,0	66,8	90,8	98,5	76,9	81,8	77,6	79,7	85,8	67,9	77,3	83,9	84,2	85,1
										2008									
Inflow to g/s Daraganat	227	216	251	181	201	757	926	1628	1691	828	757	774	563	811	658	498	428	299	10292
										2001									
Inflow to g/s Daraganat	281	235	238	219	217	915	1030	1450	1410	664	1120	958	771	497	621	583	425	381	10596
percentage (%)	80,6	91,7	105,4	82,8	92,7	82,7	89,9	112,3	119,9	124,6	67,6	80,8	73,0	163,2	105,9	85,4	100,7	78,5	97,1
										2008									
Inflow to TMGS	193	195	228	171	161	475	746	1032	1437	748	674	728	576	699	706	438	385	269	8685
										2001									
Inflow to TMGS	278	216	180	152	136	600	780	1021	960	506	785	789	593	403	483	429	337	294	7888
percentage (%)	69,3	90,3	126,9	112,7	118,4	79,1	95,6	101,1	149,7	147,7	85,9	92,2	97,2	173,5	146,1	102,1	114,3	91,6	110,1

Note: g/s – gauging station

Actual water availability for 01.09.08 growing season in the Amudarya river basin in given site of Atamurat upstream of Garagumdarya was 57,7 % of the norm, while in 2001it was 69,0 %.

Actual flow to g/s Kelif was 20 billion 197million m^3, whereas in 2001 actual flow during this period was 23 billion 600 million m^3.

Low water availability during current growing season, deficit of water in Tuyamuyun reservoir, and low inflow to TMGS had negative effect on water situation in the lower reaches of Amudarya.

In all aspects the emerging water situation in the region reminds the situation of 2001. However, as analysis indicates, despite the worst water conditions – the use of water resources, operational management of water resources, due to the active support of the Turkmen Ministry of Water Resources and the Uzbek Ministry of Agriculture and Water Resources, the situation has improved as compared with that in 2001. As a result, downstream water users received 1 billion 108 million m^3 more water than in 2001.

During the current growing season, the main tasks of our organization were: improved accountability and control over use and allocation of water resources; ensuring even water use in all river reaches.

Even though the organization has managed accounting, control over water use, and water allocation, it could not fulfill condition for equitable water use in all reaches of the river.

The Table below shows uneven distribution of water withdrawals along the river.

Tajikistan	Middle stream		Downstream		
	Turkmenistan	Uzbekistan	Dashoguz	Karakalpakistan	Khorezm
93,8	88,1	94,8	49,8	40,0	53,2

Additional measures for effective completion of current growing season

It should be noted that main burden of water shortage fell on lower reaches of the Amudarya River.

Following the «Agreement on shared water use by Turkmenistan and the Republic of Uzbekistan in the lower reaches of the Amudarya River», six meetings of the Commission for Water Allocation were held with participation of **PA** «Dashoguzsuvkhujalik», BAIS (Karakalpakstan and Khorezm), BWO «Amudarya» and **OU TMGS** during the reporting period. In these meetings operation modes of TMGS were developed and water resources were allocated proportionally based on their availability. This kind of approach to work resulted in certain positive outcomes.

On September 4, 2008 the committee has developed optimal mode of TMGS operation by September 20, 2008 which allows performing successfully irrigation of winter wheat.

Water users of up- and middle stream of the Amudarya River have all chances to complete current growing season successfully.

However, the downstream water users of the Amudarya River are under heavier situation.

According to our calculations, water users of upstream and middle stream may somewhat reduce their water withdrawals and thus support inflow to TMGS.

2. The Syrdarya River basin

Modes of operation of Naryn-Syrdarya reservoir cascade and water withdrawal limits for the growing season 2008 were considered during the 49th ICWC meeting on March 19 in Tashkent. Based on forecast critical situation with water supply, it was decided to reduce water withdrawal limits of the countries in April by 10% and afterwards correcting them to the remaining growing period after getting Hydrometeorological forecasts. According to Uzbek Central Hydromet data in April 8, water availability in the Syrdarya river basin for the growing season is expected to be 74 % of the norm, or 21,9 billion m^3. Water deficit was expected to vary around 3,7 to 5,7 billion m^3 (depending on compensatory releases from Toktogul reservoir). However, decision regarding extra reduction of water withdrawal limits to 25 % during the 50th ICWC meeting in Bishkek, on May 29 was not supported unanimously.

Under these conditions, the proposed operating mode of the Naryn-Syrdarya reservoir cascade was corrected for current growing season depending on emerging water situation. Water withdrawals to main canals are fulfilled in volumes that are affordable based on actual water resources availability.

The Table 2.1 shows the parameters of available water resources for the growing period of April 1-September 1.

Actual inflow to upper reservoirs accounted for 71 % of the norm, or 11 billion 959 million m^3, which is less by 0,5 billion m^3 than expected one. Inflow to Toktogul reservoir was 6,7 billion m^3 (78 % of the norm for the given period), whereas inflow to Andijan reservoir exceeded the expected volume of 220 million m^3 and accounted for 1,49 billion m^3 (52 %of norm) and inflow to Charvak reservoir was much more than 3,42 billion m^3, or 71 % of norm.

Side inflow was characterized by unevenness in parts and amounted only 59 % of the norm or 5,76 billion m^3.

The total inflow of the basin accounted for 17,7 billion m^3, which is 66,6 % of the norm, whereas expected volume was 74 % of the norm.

Actual releases from reservoirs (Table.2.2) reached 103,2 % of planned volume.

For September 1, reservoir volumes were (Table 2.3): Toktogul – 9,5 billion m^3, Andijan – 311 million m^3, Charvak – 972 million m^3, Kayrakkum – 999 million m^3, Shardara – 813 million m^3.

Unfavorable water situation in the whole basin for growing season 2008 resulted in reducing actual water withdrawals. Water supply volumes to countries-water users for 01.10.07 was as follows: Kazakhstan - 629,34 million m^3 (81,9 % of limit for past growing season), Kyrgyzstan - 112,28 million m^3 (64,7 % of limit),

Tajikistan - 1153,22 million m^3 (67,4 % of limit) and Uzbekistan - 5746,28 million m^3 (70 % of limit) (tables.2.4 and 2.5). On average, for September 1, water users were supplied with 70 % of water volume as provided by 100% water withdrawal limits of the countries for the relevant period.

The relatively greater water withdrawal volume of the Republic of Kazakhstan is explained by the fact that after Kazakhstan purchased electricity from Kyrgyzstan, from June 12, it has provided additional water releases from the cascade of Naryn reservoirs totaling 600 million m^3. Owing to this fact not only water supply to Dostik canal in Kazakhstan part has increased, but also prevented from further development of critical situation concerning water supply as a whole. It was managed to avoid early drawdown of Kayrakkum reservoir, maintain its operating level by September 1 and improve water supply to the lands of Tajikistan and Uzbekistan.

Inflow into the Aral Sea and Priaralie was 1 billion 286 million m^3, whereas inflow to Shardara reservoir accounted for 934 million m^3 (Table 2.6).

Actual operation mode of Naryn-Syrdarya cascade of reservoirs for the growing season 1.04.2008-1.09. 2008 is given in the Table 2.7.

Table 2.1

Balance elements	Norm, million m^3	Volume, million m^3 (from 01.04 to 01.09.08)		Percent (%) of the norm	
		expected	actual	expected	actual
Inflows to upper reservoirs:					
to Toktogul	8638,27	7209,56	6738,08	83	78
to Andijan	2859,15	1264,55	1486,68	44	52
to Charvak	4830,28	3688,76	3424,81	76	71
river Ugam	521,51	381,88	308,95	73	59
Total:	*16849,21*	*12544,75*	*11958,52*	*74,5*	*71*
Side inflows:					
Toктogul – Uchkurgan	1092,87	876,44	742,34	80	68
Uchkurgan, Uchtepe-Kayrakkum	2867,7	2214,86	2365,98	77	82,5
Andijan – Uchtepe	2218,58	1518,74	1390,61	68	63
Kayrakkum –Shardara	2731,97	1899,68	739,84	70	27
Gazalkent-g/s. Chinaz-Chirchik	833,24	597,8	518,93	72	62
Total:	*9744,36*	*7107,52*	*5757,7*	*73*	*59*
TOTAL:	**26593,57**	**19652,27**	**17716,22**	**73,9**	**66,6**

Table 2.2

Reservoir	Releases (from 01.04 to 01.09.08), million m^3		Percentage (%)
	scheduled	actual	
Toktogul	3078,43	3801,86	123,5
Andijan	1526,69	1872,94	122,7
Charvak	3032,21	2647,64	87,3
Kayrakkum	4069,65	4502,22	110,6
Shardarya	5177,95	4599,94	88,8
TOTAL:	*16884,93*	*17424,6*	*103,2*

Table 2.3

Reservoir	Reservoir volumes, million m^3			
	for 01.04.08	scheduled for 01.09.08	actual for 01.09.08	actual for 01.09.07
Toktogul	6563,0	10667,61	9506,0	13658,0
Andijan	689,8	419,37	311,0	436,0
Charvak	477,0	1119,21	972,0	1643,0
Kayrakkum	3478,0	971	999,0	1055,0
Shardara	5189,0	520	813,0	1495,0
TOTAL:	16396,8	13697,19	12601,0	18287,0

Table 2.4

Area, country-water user	Water withdrawal limit, million m^3	Actual water withdrawal, million m^3	Percentage (%)
Toktogul – Uchkurgan gauging station, including:			
Kyrgyzstan	115,06	78,03	67,8
Tajikistan	208,05	88,3	42,4
Uzbekistan	3181,01	2674,28	84,0
Uchkurgan –Kayrakkum g/s, including:			
Kyrgyzstan	58,47	34,25	58,6
Tajikistan	400,37	391,51	97,8
Uzbekistan	490,93	350,72	71,4
Kayrakkum g/s –Shardara reservoir, including:			
Kazakhstan	768,38	629,34	81,9
Tajikistan	1103,07	673,41	61,0
Uzbekistan	4471,11	2721,28	60,9

Table 2.5

Republic –water user	ICWC limit for 01.09.08, million m^3	Actual water withdrawal for 01.09.08, million m^3	Percentage (%)
Kyrgyz Republic	173,53	112,28	64,70
Republic of Uzbekistan	8143,04	5746,28	70,56
Republic of Tajikistan	1711,49	1153,22	67,38
Republic of Kazakhstan(Dostik canal)	768,38	629,34	81,90

Таблица 2.6

Indicators	Scheduled, million m^3	Actual, million m^3
Water supply to Aral Sea	1801,55	1286,15
Inflow to Shardara reservoir	1012,6	934,25

Table 2.7

РЕЖИМ РАБОТЫ
Нарын-Сырдарьинского каскада водохранилищ
на период с 1 апреля 2008 г. по 30 сентября 2008 г.

Токтогульское водохранилище		*Апрель факт*	*Май факт*	*Июнь факт*	*Июль факт*	*Август факт*	*Сентябрь*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	265,10	639,74	701,03	488,48	452,52	275,00	
	млн.м3	687,14	1713,48	1817,08	1308,36	1212,02	712,80	7450,88
Объем: Начало периода	*млн.м3*	***6563,00***	***6484,00***	***7622,00***	***8852,00***	***9265,00***	***9506,00***	
Конец периода	*млн.м3*	***6484,00***	***7622,00***	***8852,00***	***9265,00***	***9506,00***	***9863,96***	
Попуск из водохранилища	*м3/сек*	295,00	214,90	231,83	333,71	361,00	130,00	
	млн.м3	764,64	575,60	600,91	893,81	966,90	336,96	4138,82
Кайраккумское водохранилище		*Апрель факт*	*Май факт*	*Июнь факт*	*Июль факт*	*Август факт*	*Сентябрь*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	378,20	329,68	210,73	188,74	205,23	185,48	
	млн.м3	980,29	883,01	546,22	505,52	549,68	480,76	3945,48
Объем: Начало периода	*млн.м3*	***3478,00***	***3528,00***	***3271,00***	***2606,00***	***1768,00***	***999,00***	
Конец периода	*млн.м3*	***3528,00***	***3271,00***	***2606,00***	***1768,00***	***999,00***	***942,33***	
Попуск из водохранилища	*м3/сек*	265,70	248,74	350,63	427,68	408,07	180,00	
	млн.м3	688,69	666,23	908,84	1145,50	1092,96	466,56	4968,79
Чардаринское водохранилище		*Апрель факт*	*Май факт*	*Июнь факт*	*Июль факт*	*Август факт*	*Сентябрь*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	122,08	55,31	61,92	57,81	57,63	153,97	
	млн.м3	316,43	148,14	160,50	154,83	154,35	399,10	1333,35
Объем: Начало периода	*млн.м3*	***5189,00***	***4734,00***	***3704,00***	***2724,00***	***1370,00***	***813,00***	
Конец периода	*млн.м3*	***4734,00***	***3704,00***	***2724,00***	***1370,00***	***813,00***	***939,07***	
Попуск из водохранилища	*м3/сек*	250,00	450,00	406,67	432,26	199,68	70,00	
	млн.м3	648,00	1205,28	1054,08	1157,76	534,82	181,44	4781,38
Попуск в Кзылкум. канал	*м3/сек*	70,67	21,94	48,17	128,06	35,16	18,33	
	млн.м3	183,17	58,75	124,85	343,01	94,18	47,52	851,47
Сброс в Арнасайскую	*м3/сек*	0,00	0,00	0,00	0,00	0,00	0,00	
впадину	*млн.м3*	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Подача в Аральское море	*м3/сек*	289,90	154,13	32,85	9,12	4,64	66,64	
	млн.м3	751,42	412,83	85,16	24,43	12,42	172,74	1459,00
Чарвакское водохранилище		*Апрель факт*	*Май факт*	*Июнь факт*	*Июль факт*	*Август факт*	*Сентябрь*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	171,13	380,42	374,47	211,90	158,35	105,00	
	млн.м3	443,58	1018,91	970,62	567,56	424,14	272,16	3696,97
Объем: Начало периода	*млн.м3*	***477,00***	***712,00***	***1194,20***	***1496,00***	***1257,00***	***972,00***	
Конец периода	*млн.м3*	***712,00***	***1194,20***	***1496,00***	***1257,00***	***972,00***	***929,75***	
Попуск из водохранилища	*м3/сек*	81,23	173,39	232,67	269,16	242,19	120,00	
	млн.м3	210,56	464,40	603,07	720,92	648,69	311,04	2958,68
Андижанское водохранилище		*Апрель факт*	*Май факт*	*Июнь факт*	*Июль факт*	*Август факт*	*Сентябрь*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	83,20	228,71	155,03	43,39	52,42	30,00	
	млн.м3	215,65	612,57	401,85	116,21	140,40	77,76	1564,45
Объем: Начало периода	*млн.м3*	***689,80***	***642,30***	***868,45***	***874,03***	***420,86***	***311,00***	
Конец периода	*млн.м3*	***642,30***	***868,45***	***874,03***	***420,86***	***311,00***	***282,44***	
Попуск из водохранилища	*м3/сек*	105,47	148,07	145,30	212,07	96,47	40,00	
	млн.м3	273,37	396,59	376,61	568,00	258,39	103,68	1976,64

Preliminary water withdrawal limits and forecasting schedule of NSRC for the non-growing period 2008-2009

Hydromet evaluation and water users demand for water for the non-growing season 2008-2009 for the basin of Syrdarya river should be obtained by BWO «Syrdarya» at the end of September, therefore estimation of mode of the Naryn-Syrdarya reservoir cascade is done, taking into account water withdrawal limits (Table 2.8) and based on the average annual inflow to upper reservoirs and side inflows during low water period of 1976-1986. Preliminary schedule-forecase of operation of the reservoir cascade for the non-growing season 2008-2009 is shown in the Table 2.9.

According to BWO «Syrdarya» estimations for the beginning of the growing season April 1, 2009, the carry-over storage in Toktogul reservoir will be around 6 billion m^3, which is less than average annual values by 5,3 billion m^3 . There is a possibility of critical water supply condition to water users in the growing season 2009. Therefore, it is necessary to solve all issues concerning supply of fuel-energy resources.

Table 2.8

Water withdrawal limits from the Syrdarya river and supply to the Aral Sea and Priaralie for the non-growing season 2008-2009

River basin, country	Water withdrawal limits for non-growing period 2008-2009 million m^3
Total water withdrawals from the Syrdarya river including:	3086,7
Republic of Kazakhstan	400,0
Republic of Kyrgyzstan	36,7
Republic of Tajikistan	179,6
Republic of Uzbekistan	2470,9
Inflow to the Aral Sea and Priaralie	1914,3

Table 2.9.

ГРАФИК-ПРОГНОЗ
работы Нарын-Сырдарьинского каскада водохранилищ
на период с 1 октября 2008 г. по 31 марта 2009 г.

Токтогульское водохранилище		*Октябрь*	*Ноябрь*	*Декабрь*	*Январь*	*Февраль*	*Март*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	***200,00***	***180,00***	***160,00***	***140,00***	***130,00***	***150,00***	
	млн.м3	535,68	466,56	428,54	374,98	314,50	401,76	2522,02
Объем: Начало периода	*млн.м3*	***9863,96***	***10016,91***	***9562,01***	***8650,88***	***7418,44***	***6402,08***	
Конец периода	*млн.м3*	***10016,91***	***9562,01***	***8650,88***	***7418,44***	***6402,08***	***6000,00***	
Попуск из водохранилища	*м3/сек*	***142,19***	***355,00***	***500,00***	***600,00***	***550,00***	***300,00***	
	млн.м3	380,85	920,16	1339,20	1607,04	1330,56	803,52	6381,33
Кайраккумское водохранилище		*Октябрь*	*Ноябрь*	*Декабрь*	*Январь*	*Февраль*	*Март*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	***341,03***	***671,49***	***820,07***	***828,89***	***820,45***	***521,43***	
	млн.м3	913,42	1740,49	2196,47	2220,10	1984,84	1396,59	10451,91
Объем: Начало периода	*млн.м3*	***942,33***	***1195,98***	***1670,04***	***2160,37***	***2576,09***	***3036,08***	
Конец периода	*млн.м3*	***1195,98***	***1670,04***	***2160,37***	***2576,09***	***3036,08***	***3418,00***	
Попуск из водохранилища	*м3/сек*	***250,00***	***500,00***	***650,00***	***700,00***	***650,00***	***395,00***	
	млн.м3	669,60	1296,00	1740,96	1874,88	1572,48	1057,97	8211,89
Чардаринское водохранилище		*Октябрь*	*Ноябрь*	*Декабрь*	*Январь*	*Февраль*	*Март*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	***350,92***	***691,71***	***860,65***	***831,24***	***938,99***	***608,86***	
	млн.м3	939,91	1792,92	2305,16	2226,38	2271,60	1630,78	11166,75
Объем: Начало периода	*млн.м3*	***939,07***	***1163,85***	***2140,29***	***3213,38***	***3947,90***	***4870,39***	
Конец периода	*млн.м3*	***1163,85***	***2140,29***	***3213,38***	***3947,90***	***4870,39***	***5400,00***	
Попуск из водохранилища	*м3/сек*	***250,00***	***300,00***	***450,00***	***550,00***	***550,00***	***400,00***	
	млн.м3	669,60	777,60	1205,28	1473,12	1330,56	1071,36	6527,52
Попуск в Кзылкум. канал	*м3/сек*	***5,00***	***5,00***	***5,00***	***5,00***	***5,00***	***6,77***	
	млн.м3	13,39	12,96	13,39	13,39	12,10	18,14	83,38
Сброс в Арнасайскую	*м3/сек*	***0,00***	***0,00***	***0,00***	***0,00***	***0,00***	***0,00***	
впадину	*млн.м3*	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Подача в Аральское море	*м3/сек*	69,06	102,67	109,71	144,00	144,00	162,52	
	млн.м3	184,98	266,11	293,85	385,69	348,36	435,28	1914,28
Чарвакское водохранилище		*Октябрь*	*Ноябрь*	*Декабрь*	*Январь*	*Февраль*	*Март*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	***98,00***	***86,00***	***73,00***	***64,00***	***62,00***	***75,00***	
	млн.м3	262,48	222,91	195,52	171,42	149,99	200,88	1203,21
Объем: Начало периода	*млн.м3*	***929,75***	***840,64***	***801,66***	***782,32***	***737,86***	***693,34***	
Конец периода	*млн.м3*	***840,64***	***801,66***	***782,32***	***737,86***	***693,34***	***679,68***	
Попуск из водохранилища	*м3/сек*	***130,00***	***100,00***	***80,00***	***80,00***	***80,00***	***80,00***	
	млн.м3	348,19	259,20	214,27	214,27	193,54	214,27	1443,74
Андижанское водохранилище		*Октябрь*	*Ноябрь*	*Декабрь*	*Январь*	*Февраль*	*Март*	*Всего млн.м3*
Приток к водохранилищу	*м3/сек*	***65,00***	***66,00***	***56,00***	***49,00***	***49,00***	***65,00***	
	млн.м3	174,10	171,07	149,99	131,24	118,54	174,10	919,04
Объем: Начало периода	*млн.м3*	***282,44***	***375,62***	***476,16***	***593,45***	***697,83***	***792,10***	
Конец периода	*млн.м3*	***375,62***	***476,16***	***593,45***	***697,83***	***792,10***	***818,81***	
Попуск из водохранилища	*м3/сек*	***30,00***	***27,00***	***12,00***	***10,00***	***10,00***	***55,00***	
	млн.м3	80,35	69,98	32,14	26,78	24,19	147,31	380,76

PROGRESS IN THE IMPLEMENTATION OF SCADA SYSTEMS ON THE TRANSBOUNDARY WATER STRUCTURES[2]

Major results of the Phase 1

Within the framework of the project "Fergana Valley Canal Automation", Phase 1 supported by the Swiss Agency for Development and Cooperation and implemented in 2004-2009, water management automation and monitoring systems were developed and implemented in the following structures in Fergana Valley:

- Basin level - automation and control system in large hydroschemes of Naryn-Karadarya water management organization, BWO "Syrdarya";
- Pilot canal level - automation and monitoring systems for water allocation along Aravan-Akbura canal (AAC), Kyrgyz Republic, South Ferghana canal (SFC), Republic of Uzbekistan, and Hodzhabakirgan canal (HBK), Republic of Tajikistan.

Automation and monitoring of water allocation along the canals is implemented through the SCADA system in head and key structures, balancing gauging stations by controlling all management objects, establishing telecommunication networks and providing computer-based data collection, processing and storage, as well as monitoring balancing sites by observers to be equipped with communication facilities and vehicles.

As a result of project implementation, the water allocation automation and monitoring systems allow the following:

-improvement of accuracy in measuring water level, discharge and salinity, as well as in opening gates of hydrostructures through application of modern water measurement and accounting facilities (discharge measurement error decreased from 5-10% to 2-3%);

-improvement of information provision through continuous collection, storage, and processing of measured values of water level and discharge in computers;

- increase of operational efficiency and accuracy of water management through more rapid receipt and processing of data on technological process and decision making;

-reduction of unproductive water use;

-timely identification and elimination of equipment troubles in control system and in hydrostructures.

It is necessary to note that the automation and control systems implemented in BWO's structures and pilot canals have improved operation, making job of operating staff easier, and improved water allocation in the three large canals such as Feeder canal, NFC, Big Andizhan canal, Khakulabad canal, Akhunbabayev canal, AAC, SFC, and HBK. This allowed the establishment of a real system of control by BWO, its territorial division, and Canal Management over their

[2]Information for the third issue of the agenda of ICWC meeting 51, September 2008, Almaty

balancing sites and the improvement of reliability, openness, and accessibility of information on water resources for all stakeholders and water users.

Taking into account the above positive results of the water allocation automation and monitoring system in the project's structures and future development of the system in Central Asian water-management objects, we consider it expedient and effective to extend implementation of the Fergana Valley Canal Automation Project (Phase 2) to other important structures.

Proposals on Fergana Valley Canal Automation Project (Phase 2)

SCADA system will be implemented in the following transboundary structures:

-*Basin level* - automation, control, and monitoring system for BWO "Syrdarya" structures located at Syrdarya River sites, from Uchkurgan hydroscheme to Farkhad hydroscheme (Tajikistan and Uzbekistan) and at the interstate Big Fergana canal;

-*Small transboundary river level* - system of monitoring over water management along the Shakhimardan river (Kyrgyzstan and Uzbekistan) and the Khojabakirgan river (Kyrgyzstan and Tajikistan).

Selection of BWO "Syrdarya" structures located at Syrdarya River sites, from Uchkurgan hydroscheme to Farkhad hydroscheme (Tajikistan and Uzbekistan), can be explained by the following: BWO's structures located before Uchkurgan hydroscheme have been automated during the project's Phase 1, and incorporation of structure to Farkhad hydroscheme into the system would be the follow-up. On the other hand, here there are many pumping stations and hydrostructures located within the boundaries of different states (Uzbekistan and Tajikistan), and it is very difficult to control their operation modes due to lack of measuring facilities and unstable operation of communication with these structures. Information received from those structures on the phone is often inadequate or has significant errors.

Many gauging stations need to be repaired and rehabilitated, and their calibration characteristics should be defined more precisely. Therefore, calibration and metrological provision of hydrostructures and gauging stations were incorporated into the project as well.

The site includes 7 hydrostructures, more than 40 stationary pump stations, many temporal pump stations and 17 gauging stations.

All objects being under responsibility of three territorial divisions will be covered by automation and monitoring system as a result of this project phase. Given section of the Syrdarya river is major in river water management, therefore in the second phase it is necessary to develop the database and software packages for water resources management in this section, taking into account available automation and monitoring system.

The objective of monitoring over water resources and their distribution in small transboundary rivers is creating a system of automation for key structures, water monitoring, and operational control of data collection and processing in small transboundary rivers that will allow:

- enhancing efficiency of water management in small rivers and sais in Fergana Valley (Shakhimardan and Khojabakirgan);
- creating conditions for sustainable water intake, reducing or preventing damage from mudflows;
- ensuring stability and equitability of water distribution and avoiding unproductive losses.

One can say that, at present, water management along the Shakhimardan river (Kyrgyzstan and Uzbekistan) and the Khojabakirgan river (Kyrgyzstan and Tajikistan) almost is not monitored as there is no a network of observation and gauging station along the rivers, and the inter-republican exchange of information on water resources in river reaches and the communication system do not meet present requirements.

Therefore, implementation of the automation, control, and monitoring system for BWO "Syrdarya" structures located at Syrdarya River sites, from Uchkurgan hydroscheme to Farkhad hydroscheme (Tajikistan and Uzbekistan), and the system of monitoring over water management along the Shakhimardan river (Kyrgyzstan and Uzbekistan) and the Khojabakirgan river (Kyrgyzstan and Tajikistan) is very important in transboundary water management in Central Asia.

The main planned works:

- Preparatory period and feasibility study of project relevance;
- Development of Terms of Reference;
- Development of technical design;
- Implementation of design, i.e. completing units, assembling and adjustment of equipment;
- Monitoring over project implementation.

Feasibility study of project relevance will be conducted during the preparatory stage. Through the results of field studies of monitoring objects, main measures will be determined together with representatives of institutions operation hydrostructures and pump stations. Main work efforts, equipment list and specification will be estimated preliminary, as well as costs and effects from the above measures.

While developing Terms of Reference, all tasks for the systems of water management monitoring will be formulated, equipment and software requirements will be determined and project work schedule will be drawn up. Finally, basic work efforts and equipment list and specification will be determined more precisely, costs and project's economic impact will be assessed.

The project proposal determines approximate costs for the Phase 2 of Fegrana Valley Canal Automation project.

DEVELOPMENT OF NATIONAL INFORMATION SYSTEMS AND THEIR LINKAGE WITH NHMS[3]

The Project «Central Asian Regional Water Information Base (CAREWIB)» was established to support development of ASBMM-1 (project 2 – Database and water and environment management system) adopted by the decision of the Heads of States in January 11,1994 and adopted by IFAS Board in August 28, 2003 ASBMM-2 (point 6 – Strengthening material-technical and legal basis of interstate organizations, development of regional information system for water resources management in the Aral Sea basin).

The Project CAREWIB is implemented in the framework of Swiss regional medium-term program for Central Asia for the period 2002-2006 and 2007-2011 - «Natural resources and infrastructure management».

Initially progress of the project was considered during the 37th (December 22-24, 2003 city of Karshi), 42th (April 28-29, 2005,city of Almaty), 43th (November 2, 2005, city of Almaty), 46th (March 8-10, 2007, city of Ashkhabad), 48th (October 11 October, 2007, city of Khodjent) and 49th (March 19, 2008, city of Tashkent) the meetings of ICWC.

The Project is financed by SDC and implemented by SIC ICWC in Tashkent under the support of UNECE and UNEP/GRID-Arendal office in Geneva in close collaboration with five national water organizations.

Phase-2 of the CAREWIB project (August 1, 2007 – June 30, 2010) is aimed at further improvement of informational support for water and environment sectors in Central Asia, launched in Phase 1 of the project.

Main objectives of the Phase 2 are development of single technical base for national information systems (NIS) for all CA republics similar to regional IS through joint efforts of ICWC members and project team. For this purpose the project budget supports financially national contact points in each country, which will be responsible for the development and filling of information systems.

Regional project team:

Development of the portal:

- Volume of information in the portal has been expanded (14 000 pages, more than 1200 documents in PDF format), subject scope has been broadened and access to the portal by users was made easier
- Portal is viewed by 10-15 thousand people monthly (additionally 2-3 thousand people –ICWC domain)
- Periodically electronic version and hard copies of publications are issued and distributed

[3]Information for the third issue of the agenda of ICWC meeting 51, September 2008, Almaty

Development of regional IS:

- all missing data in blocks «Earth», «Water», «Economy» were entered for all countries of the Aral Sea basin
- new blocks were introduced - «Land reclamation», «Domestic water supply», «Hydropower»
- Analytical block was developed that allows compiling monthly analytical reports for ICWC members and reviews for publications on the portal for public at large. Analytical reviews allow integrated assessment of water situation in the basins of Amudarya and Syrdarya rivers and their sites
- GIS block is developed further
- the updated version of IS was shared with all ICWC members in July,2008.

Development of national IS:

- equipment for all NCPs is purchased, delivered and adjusted
- templates of national data base are prepared and delivered to all NCPs, taking into account specifics of each countries
- with the participation of national water and environmental organizations and NGOs, a number of training seminars were hold for NCP staff
- Monitoring of NIS filling is done regularly and also NCP staff is provided with consultations

NCP of Kazakhstan:

- Stable relationships with BWM, NGO and water organizations, environmental and statistical agencies were established with the aim of exchanging and obtaining information concerning the Syrdarya river basin for national IS
- Documents regulating water resources management, particularly normative legal documents, methodological textbooks and current information and other materials, available not only in the Republic of Kazakhstan but also in other countries of Central Asia are in the process of translating into national language

Development of NIS is launched in two pilot BWM – Nura-Sasisus and Ishimsk, where issues concerning IS development on basin level are addressed. In case of success the experience will be extended to other basins.

NCP of Kyrgyzstan:

- responsible officers for primary data collection and delivery to NCP for NIS were determined in WRD and in each BWMA by the order of the WRD
- NIS structure was determined
- materials regarding development of the information center for the water administration in WRD were prepared
- entering information into NIS is ongoing
- translating materials into state language is ongoing

NCP of Tajikistan:

- NIS development strategy for the Republic of Tajikistan concerning the use and preservation of water resources has been developed and can be used as a template for other NCP
- primary cartographic information on irrigation systems of a number of districts of the republic have been collected
- close relationships with NGMS are established in a weekly transmission of climate and hydrological data at the Ministry of Land Reclamation and Water Resources and the Ministry of Energy and Industry of RT regarding coordination of activities and information exchange concerning reservoir administration
- translating number of materials into state language is ongoing.

NCP of Turkmenistan:

- NIS development strategy was developed for Turkmenistan (should be improved)
- detailed structure of NIS has been developed
- Credibility analysis and collection of information from the departments of the Ministry of Water Resources is continuing for entering into NIS
- close relationships were established with water and environmental organizations of the country, that allow periodically enrich NIS with socio-economic and cartographic information
- Translation of materials into state language is ongoing.

NCP of Uzbekistan:

- NIS structure has been developed and approved by interested agencies
- a close relationship has been established with the departments of Central Water Administration at the Ministry of Agriculture and Water Resources, Republic of Uzbekistan, BAIS and other water organizations with the aim of obtaining information for NIS
- retrospective information is being collected and entered into NIS
- Primary cartographic information has been collected in a number of districts of the republic
- Translation of a number of materials into state language is ongoing.

Adoption of facilities (indirect indicator of activity):

- NCP Kazakhstan - 32,2%
- NCP Kyrgyzstan - 36,7%
- NCP Tajikistan - 12,3%
- NCP Turkmenistan - 30,2%
- NCP Uzbekistan - 32%

Common problems of all NCPs are establishing proper relationships with government organizations in developing NIS. Developed NIS has intersectoral nature since water resources are used by different sectors of the economy.

Intersectoral exchange of information should be carried out on the mutual basis. It would be reasonable to involve ministries (governmental organizations) of environment, emergency, energy and IFAS bodies in the countries, research and educational institutions, and particularly national hydrometeorological services.

Cooperation with NGMS will be necessary in integrating an analytical-forecasting component into NIS.

The national data bases should include transboundary component, single for all NDBs. This component must be a connecting unit, incorporating surface water resources in the basin. Each country should know and control water volumes, flowing from one country to another. The same applies to the flows of energy at basin level, and beyond.

Conclusions:

1. Necessary to accomplish preparation of the Development Strategies, examine them at scientific-technical meetings and submit to leadership of water resources ministries and approve them as a plan for action.
2. Important to determine circle of users and information suppliers, allocate necessary financing.
3. Necessary to organize cooperation with other organizations beyond the borders of water sector of the countries, first of all with NGMS.
4. Necessary to attract donors for deep and broad development of NIS.

XIII WORLD WATER CONGRESS

The World Water Congress is organized every three years by the International Water Resources Association (IWRA) by its Governing Board's resolution in different countries. At the previous IWRA Congress in Delhi it was decided to organize XIII Congress in Montpellier, France, 1-5 September, 2008.

The Congress was held at the Congress Center in the Rhone Languedoc province and it gathered more than 700 participants from 54 countries.

Mr. Sophilut, Chairman of the Languedoc Roussillon Region, has presented a greeting speech of Mr. Bernard Kouchner, who is the Minister of the International Affairs of France. Ms. Cecilia Tortajada, President of IWRA, emphasized the main challenges for global water wellbeing in her opening address: globalization, climate change, population growth, economic growth, urbanization, increase of ecological disaster and policy management. Moreover, she noted the increase in electricity prices, change of diet in the line of increasing meat consumption, development of bio-energy production. In the report it was noted that even the world's leading countries can not cope with degradation of water resources. An example is the Gulf of Mexico, where USA discharges waste via delta of Colorado River and where dead zone with the oxygen deficit is extended 3 times during 20 years from 1900 up to 6000 square miles.

The problems concerning sustainable management of complex water systems, funding of water development, overcoming the water deficit and effects of climate change, IWRM, development scenarios of various regions in the world, and transboundary water resources were considered at the congress sessions.

The special session was devoted to the problem of future water development and environmental security in Central Asia. The delegation of Uzbekistan headed by Mr. Alikhanov, the chairman of the State Committee for Nature Conservation, including Dr. Sh.R. Khamraev, Deputy Minister of Agriculture and Water Resources, Mr. Kh. Khamidov, Director of the Personnel and Educational Organizations Department at the same ministry, and also representatives of SANIIRI and of UzHydromet actively participated at the special session.

Professor V.A. Dukhovny on behalf of the IWRA Board was co-chairman at this session. At the end of the session, recommendations were adopted.

The delegation of Uzbekistan strenuously propagandized the position of the republic and personally of the President I.A. Karimov stated by him during the 48th and 50th sessions of the UN General Assembly, and also in the Almaty, Nukus and Tashkent declarations on a need for comprehensive cooperation and partnership in using the transboundary waters and overcoming environmental crisis in the region.

Sh.R. Khamraev in his report stressed the role of Uzbekistan, which signed two international Conventions on water resources (of 1992 and of 1997) and demonstrated the consequences that arose because of breach of the international water law using as an example the situation in the Syrdarya River Basin in 2008, when natural water deficit was aggravated by the activity of the Kyrgyz hydropower men, who didn't follow the agreed river regime in winter and summer.

In addition, reports on behalf of the Central Asian countries were presented at other meetings. Particularly, report of E. Roschenko, V.I. Sokolov and Prof. V.A. Dukhovny “GIS for Sustainable Water Development in Central Asia” was presented by Prof. V.A. Dukhovny, where a large work on rehabilitation of Amudarya and Syrdarya deltas and also desertification control of the Aral Sea bed attracted great interest of the participants.

Dr. V.I. Sokolov has reported about experiences of Kyrgyzstan, Tajikistan, and Uzbekistan in implementation of IWRM in the Fergana Valley, triggering the broad discussion of the first results of such activity.

The report “The current problems of water-energy resources in Tajikistan and Central Asia” was presented by Prof. I. Normatov.

Some information about water economy development in Afghanistan was given in the report of K. Wegerich.

The session "Transboundary groundwater" , where representatives of Uzbekistan took part, must serve as serious warning indicating to a need to draw attention to this kind of international waters because some countries already have faced

problems of quality deterioration, excessive water withdrawal and decreasing water supply.

The General Assembly appointed Brazil as the host of the next Congress.

WATER PROBLEMS ARISING AS A RESULT OF A JOINT USE OF INTEGRATED WATER RESOURCES OF CENTRAL ASIAN REGION

Speech of Sh.R. Khamrayev, Deputy Minister of Agriculture and Water Resources of the Republic of Uzbekistan at the 13th World Water Congress
September 2, 2008, city of Montpellier (France)

The Aral Sea basin with the territory of about 2,3 million km^2 covers the whole territory of Central Asian countries and the Southern part of Kazakhstan. It is one of the largest and oldest irrigated agriculture regions in the world.

Development of the economies of Central Asian countries is entirely based on the use of water resources.

Water resources of the Aral Sea basin consist of renewable surface and ground water of natural origin, as well as return water, emerging as a result of human activities on the territory.

Water resources of the Aral Sea are linked to the flow of two main rivers Amudarya and Syrdarya, and also to the inland rivers: Kashkadarya, Zarafshan, Murgab, Tedjen and Atrek and are formed irrespective of administrative borders of Central Asian countries.

Main flow of Amudarya is formed on the territory of Tajikistan, then the river flows across Uzbekistan, bordering with Afghanistan, then - across the territory of Turkmenistan and again returns to Uzbekistan and discharges into the Aral Sea.

Main flow of the Syrdarya River originates on the territory of Kyrgyzstan, flows through the territories of Uzbekistan, Tajikistan, and Kazakhstan and falls into the Northern Aral.

Watercourses with their structures began subdivided into transboundary and national under conditions of emerging young sovereign governments. As a result, water relations in the region completely changed their direction.

At present time, 12 rivers, 8 reservoirs, 16 large collectors, 4 large water intake structures, 8 large pump stations and more than 60 small rivers and irrigation canals are located on the borders of two-three countries of Central Asia and considered transboundary.

Mean long-term flows in the Amudarya and Syrdarya river basins amount to 123,08 km^3, when water availability is 50 % - 114,4 km^3 (including 78,3 km^3/year – from Amudarya and 36,1 km^3/year – from Syrdarya), and under availability of 90 % - 90,6 km^3, - 63,4 - 27,2 km^3/year, respectively (Tables 1 and 2).

Table 1

Mean long-term water resources of Central Asian rivers, *(in км^3/year)*

River- station	Surface runoff		Underground tributary	Total
	recorded	unrecorded		
Amudarya river basin				
Vaksh-Tutkaul	20,29	0,05	0,07	20,41
Pyandzh-N. Pyandzh	34,02	-	-	34,02
Kafirnigan-sum of rivers	5,63	0,12	0,05	5,80
Surhandarya-sum of rivers	3,77	0,06	0,22	4,05
Sherabad-Sherabad	0,23	-	-	0,23
Kunduz- Askarhana	4,11	0,01	-	4,12
Total of Amudarya river	**68,05**	**0,24**	**0,34**	**68,63**
Kashkadarya-sum of rivers	1,07	0,03	0,07	1,17
Zarafshan-Dupuli+Magiandarya-Sudzhi	5,29	0,30	-	5,59
Northern Afghanistan and Turkmenistan rivers	6,10	-	-	6,10
Total in the basin of Amudarya river	**80,51**	**0,57**	**0,41**	**81,49**
Syrdarya river basin				
Naryn-Tокtogul+site inflows	14,02	0,40	0,30	14,72
Fergana Valley rivers	11,89	0,67	0,69	13,25
Chirchik, Angren, Keles	8,82	0,30	0,33	9,45
Middle flow rivers	0,36	0,50	0,35	1,21
Total until Chardara	**35,09**	**1,87**	**1,67**	**38,63**
Kazakhstan rivers	2,45	-	0,51	2,96
Total in the river basin of Syrdarya	**37,54**	**1,87**	**2,18**	**41,59**
TOTAL in the region:	**118,05**	**2,44**	**2,59**	**123,08**

Annual flow originated on the territory of Uzbekistan is estimated to be 11,53 км^3/year, of them 5,14 км^3 – in the basin of Amudarya (about 6 % of the runoff of the Amudarya river basin) and 6,39 км^3 – in the basin of Syrdarya river (around 13 % of the Syrdarya river basin runoff).

Table 2

Generation and use of river water resources in Central Asian countries in normal year

Countries	Amudarya river basin		Syrdarya river basin		Total of Aral Sea basin	
	Generated	Used	Generated	Used	Generated	Used
Uzbekistan	**5,14**	**38,91**	**6,39**	**17,28**	**11,53**	**56,19**
Kyrgyzstan	4,04	0,38	26,79	4,03	30,83	4,41
Tajikistan	44,18	9,88	0,38	2,46	44,56	12,34
Kazakhstan	-	-	2,50	12,29	2,50	12,29
Turkmenistan	2,79	21,73	-	-	2,79	21,73
Afghanistan	22,19	7,44	-	-	22,19	7,44
Total	**78,34**	**78,34**	**36,06**	**36,06**	**114,40**	**114,40**

There are huge groundwater reserves in the region, but they are used in inadequate volume (Table 3).

Table 3

Groundwater reserves in Central Asian region (in km^3)

Countries	Expected reserves	Explored and approved reserves for 2000	Abstraction of groundwater, % of explored	Notes
Kazakhstan	1,8	1,3	23	Outflows of vertical and horizontal drainage are not included in the abstraction volume
Kyrgyzstan	1,6	0,6	39	
Tajikistan	18,7	6,0	38	
Turkmenistan	3,6	1,2	32	
Uzbekistan	18,5	7,8	81	
TOTAL	**44,2**	**16,9**	**57**	

Available water resources which include natural flow controlled by reservoirs, as well as possible for use return and ground water are of interest for use. Their estimated volumes and use limits by the basins of governments were outlined in developed basin schemes for Syrdarya and Amudarya (1983-1984) for different development conditions of water sector in riparian republics. Water distribution proportions and estimated limits for water use, set by these «schemes» are yet acknowledged by all Central Asian countries, as proved by Interstate Commission for Water Coordination (ICWC), January 19, 1996 in the city of Chordzhou.

According to the «schemes», limits for Uzbekistan from both basins of the Amudarya and Syrdarya rivers constitute 63,02 км^3/year, including river waters -

53,59 км^3/year; use of groundwater and collector-drainage water - 9,43 км^3/year (Table 4).

Table 4

Adopted water resources volumes for Uzbekistan, км^3

River	Channel	Inflows	Total	Groundwater	Collector-drainage water	Total
Syrdarya	10,49	9,2	19,69	1,59	4,21	25,49
Amudarya	26,92	6,98	33,9	1,00	2,63	37,53
Total	**37,41**	**16,18**	**53,59**	**2,59**	**6,84**	**63,02**

During the years of high water, Uzbekistan uses up to 63 км^3 of water, of them 59 км^3 for irrigation. In low water years these figures are reduced to 54,2 км^3 and 49,0 км^3 respectively, which is much lower than adjusted to emerging situation of possible water use.

Particularly, transformation of Toktogul reservoir into energy mode of operation, aiming at increasing water releases during winter period (from 120 to 340 m^3/sec) has affected the reduction of available water resources. This will reduce guaranteed water supply volume in the basin of Syrdarya by 4,5-5,0 км^3/year, of which 2,3 км^3/year is the share Uzbekistan.

From the statement above it is clear that because of having less own water resources, water management in Uzbekistan depends on water policies of neighboring countries – Kyrgyzstan and Tajikistan, located in the upstream.

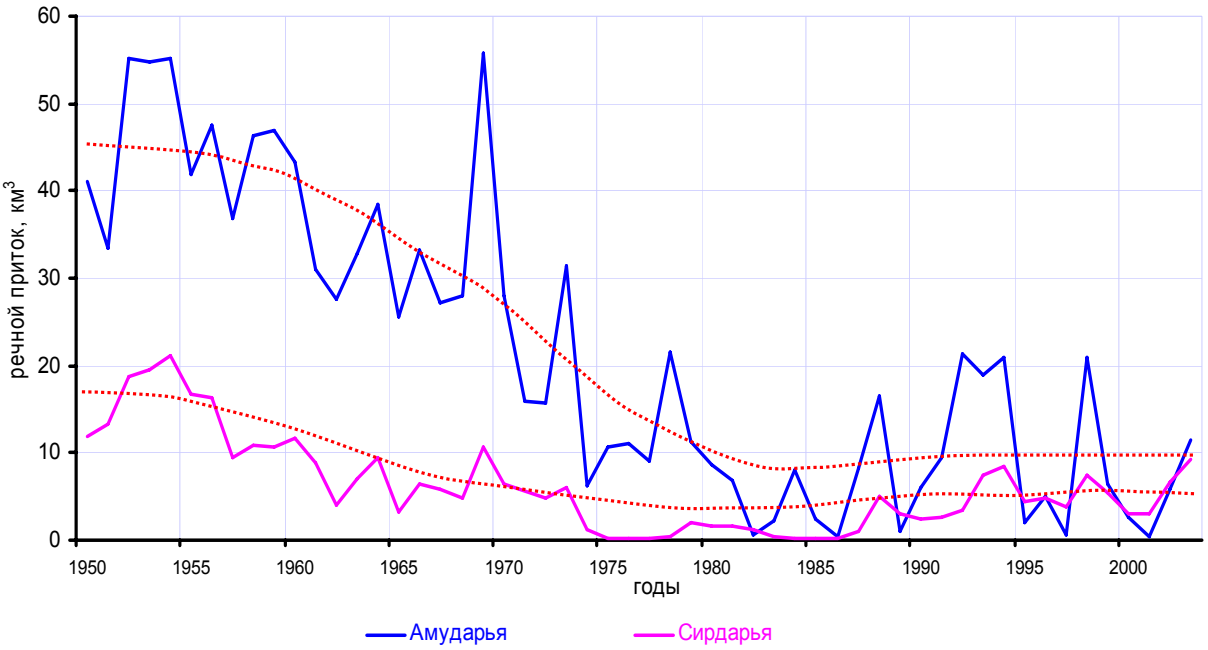


Figure1. Changes in inflows into the Aral Sea

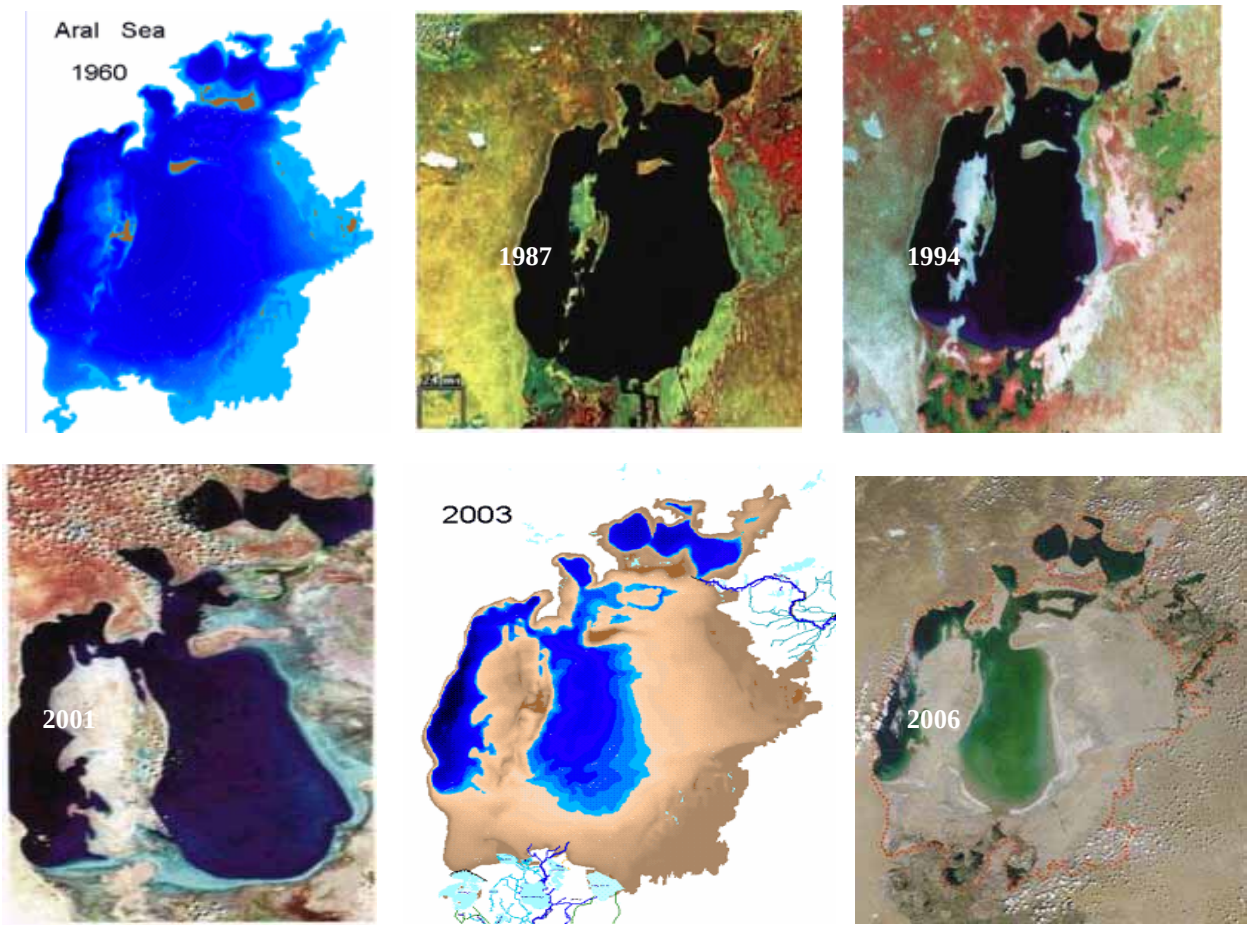


Рис. 2. Change of the Aral Sea's water area

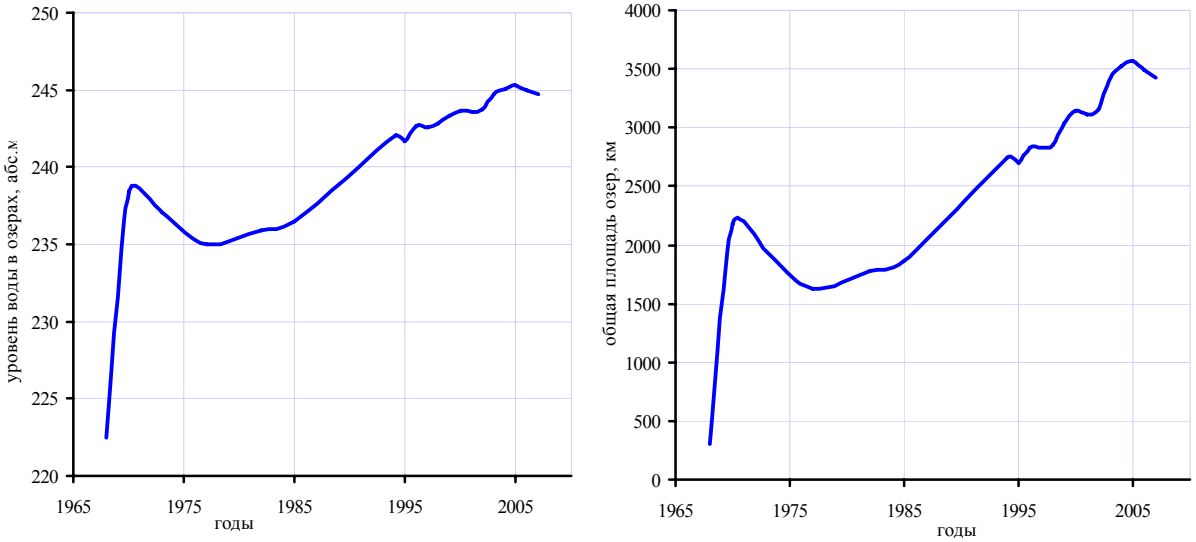
Main water problems emerging in Uzbekistan are also the result of ineffective and inconsistent joint management and use of historically common water resources.

A sharp decrease of inflows to the Aral Sea was caused by taking water for irrigation during the last 50 years which lead to the drying of the Aral Sea and degradation of the Southern Piaralie ecosystem and emergence of a new desert on the map of the region-Aralkum (Figures 1 and 2).

As a result of drying the Aral Sea, ecological situation in the Southern Priaralie has changed, which led to disappearance of large tugai territories in the Amudarya river delta, drying out of seaside lakes, degradation of fishery and the worst of all - affected economic activities of most population in Southern Priaralie.

At times of the former Soviet Union, in order to supply timely and enough water for irrigation purposes, on the territories of neighboring republics, with joint efforts of the countries, a few reservoirs with long-term and seasonal regulation of the Amudarya and Syrdarya runoffs were built.

After gaining independence, Kyrgyzstan and Tajikistan practically changed operation modes of large reservoirs from designed irrigation-energy to energy mode. As a result, large territories of irrigation lands of Uzbekistan, Turkmenistan, and Kazakhstan suffer from water shortage during the growing season, whereas natural ecosystems of these countries suffer from the excess of water in the winter period.



а) изменение уровня воды *б) изменение площади зеркала воды озер*

Figure 3. Changes in the water level of Arnasay lakes

Thus, change of Toktogul reservoir from irrigation to energry mode by Kyrgyzstan has led to change of intra-year allocation of the Syrdarya flow and caused sharp expansion of Arnasay Lake (Figure 3).

For instance, according to the agreed scheme among countries for using water reserves of Toktogul hydropower station for winter period of 2007-2008, it was permitted to release up to 8.5 km ^{3} water from the reservoir before the growing season starts. However, the Kyrgyz side used 2 km ^{3} water over the limit, which led to artificial floods in winter in Kazakhstan with loss of $20 million and loss of regulating

capacities of Toktogul reservoir. Now Kyrgyzstan is demanding downstream countries to pay for necessary discharge for growing season by purchasing simultaneously produced electricity at a cost of 7cents per kW-hr, which is 10 times higher than the cost price and 4 times higher than selling cost in the Central Asian market.

Such one-side violation of principles regarding joint use of water resources of transboundary rivers, assigned by interstate agreements between the Central Asian countries, has rather unfavorable and long-term consequences for water and energy sector, as well as for socio-economic development and political stability of the region's countries.

Besides using existing reservoirs, Kyrgyzstan and Tajikistan are considering the construction of a number of large waterworks that are intended for priority use for hydropower generation.

If unauthorized energy operation modes of reservoirs (Toktogul and Nurek) built a long time ago have caused before serious effects on downstream countries, then construction and operation of a great number of reservoirs will produce lack of water and drought in the mid- and downstream of transboundary rivers, which in turn would result in loss of livelihoods of millions of people, let alone problems of the drying Aral and the suffering population in Priaralie.

In order to avoid similar situation in the future, it is necessary to develop efficient international system for joint use of transboundary river water in Central Asia. The international legal base on the use of transboundary rivers and waterways should serve as a framework for such development.

Presently, there are series of international documents concerning transboundary river management, the signatories of which are two-three and more countries. In the international practices, water distribution and use management in transboundary waterways is implemented on the basis of international documents – «Helsinki Rules for using waters of international rivers» (1966), «Dublin declaration» of international conference on water resources and environment (1992), « About the Law of the Non-Navigational Uses of International Watercourses » (1997), and in accordance with treaties and agreements.

Analysis and assessment of existing legal documents and agreements indicates that international norms, treaties, agreements were developed for conditionally called «standard» conditions, when borders of sovereign countries were historically marked, taking into account transboundary watercourses in their natural regime.

Examination of issues regarding management of Central Asian transboundary watercourses show that it is necessary to consider period of Soviet Union existence, when the territory of Central Asian countries was common for all republics and waterways were not transboundary. Therefore, hydro structures and cascades of reservoirs with hydropower stations that changed river regimes were common for the riparian countries.

As the present, situation related to the Aral Sea basin problem shows, in determining conditions for the use of waterways and allocation of water resources the following should be considered:

- provision of necessary amount of minimum flow for supporting current condition of the Aral Sea;

- delivery of necessary minimal volume of water resources for maintaining sanitary-epidemiologic situation along river beds, recreation conditions, and social conditions for people in Priaralie and crisis zones;

- provision of shared demands for available water resources for human activities and country development countries along the river basin;

- determining status of hydraulic facilities as shared ones in terms of their importance for regulation of formed runoff regime;

- determine contribution shares of the riparian countries to the activities related to maintenance and operation of common hydraulic facilities.

The reasonable calculations of the runoff distribution should be the basis for the development of legal provision for multilateral agreements on the use of water resources in transboundary waterways. Concluded multilateral agreements will define specific conditions for the use of waterways. Ratification of the relevant international Convention should be the basis for legal relations of the countries.

For creating conditions for legal relations between the Central Asian countries on the use of transboundary waterways, the following measures should be taken:

- harmonize regional and national legal regulations;

- develop standards and practices for the use and protection of water resources and water structures of interstate importance, while considering environmental demands;

- develop policies for resolving water disputes;

- develop uniform responsibility conditions for damage causing and compensation as a result of inconsistent water-related activities;

- determine conditions for approval and implementation of water-related projects;

- develop a procedure and conditions for exchange of operational information about emergencies, floods, other anthropogenic and natural disasters at water facilities;

- develop mechanisms for determining share of countries in water-protection activities, based on «pollutant must pay» principle;

- develop economic and institutional mechanisms for providing services on flow control, water supply, flood control and bank protection.

For the time being, among the Central Asian countries, Kazakhstan ratified the Convention on «the protection and use of transboundary watercourses and international lakes»(1992) in 2000 and Uzbekistan by the resolution of the President in 2007 acknowledged the action of the same Convention, which practically means to accept all conditions of the given Convention. Other countries of the region are yet shaping their attitude to the problems of transboundary water resources use and existing international documents as reflected in their national legislations.

Cooperation on the basis of universally recognized standards and regulations provides sovereign equality, territorial integrity, mutual benefit and equity for each of the parties. Each country has a right to implementation of projects related to the use of resources in transboundary rivers, including hydrotechnical construction, under the condition that such construction is subjected to techno-economical and ecological expertise on the basis of transparency and complete awareness of interested parties, taking into account their interests.

Moreover, environmental safety of the region, which is already very fragile, should not be broken as well.

The position of the Republic of Uzbekistan on issues concerning the use of water resources in transboundary rivers of Central Asia was clearly stated by the President of the Republic of Uzbekistan, I.A. Karimov in his speech at the meeting of the Heads of the Member-Countries of the Shanghai Cooperation Organization (SCO), which was held in the city of Bishkek in August 16, 2007:

- issues concerning the use of water resources of transboundary rivers of Central Asia should be decided by recognizing interests of more than 50 million population, residing in all the countries in the region;
- any activities undertaken in the transboundary rivers must not affect the existing environmental and water balance in the region;
- existing international legal base in the sphere of water use and environment should become a framework for the development of efficient system for joint use of transboundary river resources in Central Asia;
- rights of any parties to implementation of projects related to the use of resources in transboundary rivers, including hydrotechnical construction are not rejected, under the condition that such construction is subjected to techno-economical and ecological expertise on the basis of transparency and complete awareness of interested parties, taking into account their interests.
- project implementation should be based on structural approach and compromise, where interests of other interested governments are not infringed, and two conditions of paramount importance are guaranteed:

first –it should not be admitted that watercourse level decreases for downstream countries;

second – environmental safety of the region must not be broken.

This position should not be treated as a claim of Uzbekistan to special rights for priority use of water resources in transboundary rivers. The Uzbekistan's position not only corresponds to the norms of international law and the subject laws but also is based on the former.

The international law in the sphere of transboundary river water use provides for an obligation of the countries that while using a waterway on their territories, they must take «all appropriate measures to avoid significant damage to other users of this waterway», and in case of damage – take proper measures for «elimination or mitigation of such damage and, if needed, compensation».

WB and ADB follow the similar principal position. It is expected in Uzbekistan that these quite authoritative international financial institutions will be an example for other organizations and countries as well, who show interest in hydropower projects in Central Asia. This enables strengthening socio-economic safety and stability in the region in the end.

NEW PROFESSIONS IN THE SPHERE OF MANAGEMENT AND TECHNIQUES OF WATER RESOURCES

On initiative of the Ministry of Foreign Affairs of Germany in Central Asia («Water Initiative for Central Asia») on 7-8 October, 2008 a conference was held at Kazakh-German University (КГУ) on «New professions in the sphere of management and techniques of water resources». The conference was organized with the support of Auswartiges Amt and Deutscher Akademischer Austausch Dienst (DAAD) – German agency for academic exchange.

The KGU – the only German university in Central Asia is an international, private university which provides higher education for the youth of Kazakhstan and Central Asia (CA). Furthermore, people having higher education may get a bachelor's degree in «Finance», «Marketing», the university is planning to offer postgraduate courses in the future.

At present time, students are taught in the following faculties:

- Economics;
- Engineering;
- Engineering-economics;
- Social sciences.

In perspective the KGU is planning extending courses in particular directions, including water techniques, water management, ecology, and energy.

This conference was aimed at developing cooperation between the KGU, Germany and CA countries, exchanging knowledge and experience in the protection and joint use of water resources, as well as searching partners in the field of education and research.

The specialists from different organizations of Kazakhstan, Kyrgyzstan, Germany, and Uzbekistan participated in the conference.

The conference was held in 5 directions:

- Problems of sustainable water resources management in Central Asia
- Water resources management and state control
- Water supply, sanitation and technologies
- Hydrotechnical construction and water sector
- Water resources management and sustainability - practical experience

The professor, Dr. K. Grevlich, former ambassador, member of Supervisory Council of CAIAGC presented an opening report on «Water and energy in Central Asia – source of disputes or a peacemaking project». He mentioned that water in Central Asia is used inefficiently, thus potential for conflict is increasing, yet regional cooperation of CA countries on the protection and use of water resources is at the initial stage. The disputable area «Water-ecology-energy» may become a matter of «high politics» in CA region and result in realizing the importance of minimization of water disputes and optimization of joint activities on water use. The priority aim of «Water initiative for CA», approved in April, 2008 at the international conference in Berlin, among others should be the developing regional network for education and research on water resources management in CA countries.

Concerning the first direction («Problems of sustainable water resources management in CA»), a number of reports were presented where problems of interstate cooperation in the transboundary basins and their solution were considered. In particular, presentation by A. Nikolayenko (CAREC) «Integrated water resources management in Central Asian countries: Transboundary context» notes that, despite of earlier achieved significant progresses and successes in the transboundary cooperation between CA countries, there is stagnation and even worsening in some positions. It is related to:

- problem of IWRM principles implementation in national systems of water resources management (in Kyrgyzstan, Tajikistan, Uzbekistan project on IWRM plan will start in 2008, Turkmenistan is not running development plan);
- scale of water resources management reform (in Uzbekistan institutional reform is at basic level, major management principle – administrative-territorial, water charges are not introduced, WUA legislation is at the development stage).

Changing management system at national level and uniting (consolidation) management systems among countries is one of the key factors in solving transboundary problems.

A report on «Water problems in Central Asia: A view from Kyrgyzstan» by B. Moldabekov, Director of CAIAG examines main types of water resources in Kyrgyzstan, problems concerning their rational use in different sectors and their possible solutions. It seems that under new economic situation the most efficient way to deal with water resources is to make their use in accord with naturally developed restrictions.

Professor H.Echtler, co-director of CAIAG (Center by Helmholtz, Potsdam) presented a project «Water in Central Asia», which aims at laying down a foundation for water resources management in Central Asia on the basis of most advanced methods and knowledge, the development of huge integrated data bank. For successful development of created regional research network «Water in CA» the optimal use and combination of existing potential, resources and knowledge is necessary.

In the second subject area («Water resources management and state regulation») the issues of structures and current water management in Central Asia, and necessity of modern water resources management were brought up. One of the essential steps for improving stability in the sphere of management and techniques of water use at both local and regional level might be preparation of specialists in this sphere on the basis of joint educational programs.

Water management is a task that should regulate and coordinate interests and activities of different sectors and administrative-political levels (one of the principles of IWRM is to connect closely all types of water use and all organizations participating in water resources management, horizontally among sectors, and vertically among all levels of water hierarchy) – from the report of **Z. Jennifer** «Water management in Central Asia – institutional norms and requirements».

In the third part of the conference («Water supply, sanitation and technologies») experience from implementing membrane technologies was presented (electrodialysis and reverse osmosis) for water treatment in the rural area

of the Republic of Kazakhstan, potential possibility of implementing the bio-ponds system for treating waste water and for their re-use was demonstrated.

During the fourth part of the conference («Hydrotechnical construction and water sector») issues concerning water sector in the lower reaches of the Syrdarya river were brought (L. Dmitriyev,Director of the Kazgidprovodkhoz Institute):

– drying up of the Aral Sea and river delta as a result of lack of water in the lower reaches of the Syrdarya river;

– changing of the Toktogul HEPS from summer irrigation mode to winter energy mode;

– reduction of releases from Shardara reservoir due to construction of two earth dams (cross dikes) in Arnasay depression;

- control of floods in the lower reaches of the Syrdarya river, complicated as a result of changing modes of reservoirs from irrigation to energy one (O. Kistaubayev deputy chief of the Aral-Syrdarya basin inspection).

One of the possible ways for solving the problems is to increase responsibilies of the riparian countries in fulfilling accepted treaty obligations.

The first-priority measure on the way to efficient use of water resources is the monitoring, which enables accounting their quantity and quality, as well as identifying related risks. The quality of management and use of water resources is directly related to the quality of monitoring.

In the fifth part of the conference («Water Resources Management and Sustainability – practical experience») many programs were presented in the field of water resources management, where emphasis was given to practical results.

In particular, ZEF, the interdisciplinary research institute at the University of Bonn, in cooperation with UNESCO, ICARDA and the Government of the Republic of Uzbekistan is conducting a research project, where the subject of research is the ecologically stable and economically efficient use of natural resources for irrigated agriculture in the Aral Sea basin (Dr. Ch. Martius – ICARDA).

Water and Ecology Research Institute at the University of Siegen (R Vinnegge) presented their long-term experience (Eastern Africa) with international partners in the field of integrated management, water quality, drainage, planning methods. The research institute, which operates under the aegis of German Alumni water Network, holds summer schools, seminars and develops specialized networks. The Conference at KGU is the contribution to the development of cooperation with the University of Siegen in the field of water.

In his presentation on «Technology and Resources Management – transfer of experience from tropics to CA» A. Beler (Cologne, High school) shared his experience from Arab-German MA course on «Integrated Water Resources Management for Arab and German specialists».

Dr. K.Konrad (German Aerospace Center - DLR, Wurzburg) showed the monitoring system for observation and evaluation of the use and productivity of water in irrigated regions on the basis of RS studies as developed under an Uzbek-German project.

Dr. Hans-Ulrich Im (Gtz) briefly stated the goals and objectives of Central Asian-German program on transboundary water resources management. The project will be launched in 2009 and comprises 5 blocks:

- Small transboundary river basin management
- Intersectoral coordination of water use for irrigation and energy supply, taking into account environment and climate change
- Institutional support of regional cooperation structures on water. The development of institutional cooperation for the selected sites of Syrdarya and Amudarya
- International Convention on transboundary waterways
- Exchange of experience and «advanced knowledge» in efficient use and quality of water, as well as IWRM

From the side of SIC a report was presented Dr. A.Galustyan on behalf of V. Dukhovny on «Integrated Water Resources management in Central Asia – tools, experience and problems». The report described seven-year results of work on the improvement of water resources management by IWRM implementation in Fergana valley, shared by Kyrgyzstan, Tajikistan, and Uzbekistan. Practical results at the level of pilot canals, WUA, and farms prove the possibility of ensuring stable, fair and equitable supply of water resources for the needs of users through IWRM. Many participants of the conference aroused great interest in the work as IWRM was presented not as a set of theoretical exercises but on concrete, operational field facilities.

The cooperation experience of «IWRM–Fergana» project with colleges and higher education institutes of the Republic of Kyrgyzstan, Tajikistan, and Uzbekistan on introduction of IWRM principles into curriculum has also attracted attention of organizers of the conference (KGU).

Afterwards, during the informal talk professor, dr. K. Grevlich inquired about institutional aspects of IWRM, linkage of water users' interests from different sectors, linkage of water resources management at different hierarchical levels, public participation in water management, and approved the accepted approaches. Professor, Dr. K. Grevlich expressed great interest in activities of ICWC and SIC and stated his willingness to personally meet professor V.Dukhovny, to get to know about work of SIC and TC.

One of the conference organizers, journalist E. Schlager also expressed his willingness to become familiar with the activities of SIC more closely, in order to be able to further disseminate results of activities through mass media (such as radio) for the people of Germany.

The director of CAIAG, B.Moldabekov, professor H.Echtler within the framework of «Water in Central Asia» project, and L.Shtraaten (GEO-Informetric GmbH, Hildesheim) in the framework of joint project on Work Programme 2009 FP7, Theme 6 (European Commission C(2008) 4598 of 28 August 2008) expressed their willingness to cooperate with SIC.

Finally, professor Dr. M.Kramer, Rector of KGU, thanked all participants for active participation during the conference. This forum has made a special

contribution to the development of cooperation between KNU and participated partners from different countries in the sphere of water.

REGIONAL SCIENTIFIC-PRACTICAL SEMINAR «ENVIRONMENTAL SECURITY IS A MAJOR FACTOR IN THE USE OF WATER RESOURCES»

The regional scientific-practical seminar " Environmental security is a major factor in the use of water resources" was organized and held in Tashkent on 23-25 October 2008 by OSCE and SIC ICWC.

The seminar focused on the discussions of international cooperation in issues concerning guaranteeing environmental security as a major factor in the use of water resources of Central Asia.

Representatives of respective ministries and agencies of five Central Asian countries, Assistant OSCE Project Coordinator in economic and environmental activities (headquarters in Vienna), A. Stukalo, OSCE Project Coordinator in Uzbekistan, Ambassador I.Vensel, Senior adviser in Canadian International Development Agency, Dr. A. Shady, Professor from the University of Dundee (Great Britain) S.Vinogradov, manager of the World Bank Regional Mission in Uzbekistan, L.Brefor, Director of the GEF IFAS U.K.Buranov, SIC ICWC staff, BWO "Amudarya" and "Syrdarya"-in all more than 40 people participated in the seminar.

The seminar was opened by Professor V.A. Dukhovny, the Director of SIC ICWC.

The participants of the seminar were greeted by the chairman of the State Committee for Nature Protection of Uzbekistan B.B. Alihanov, Deputy Minister of Agriculture and Water Resources of the Republic of Uzbekistan Sh.R. Khamrayev, OSCE Project Coordinator in Uzbekistan Ambassador I.Vensel, and Assistant OSCE Project Coordinator in economic and environmental activities A. Stukalo.

While delivering speeches, representatives of Uzbekistan noted the crucial importance of strengthening mutual understanding and cooperation in issues concerning exploitation of water-energy potential of the Transboundary Rivers of the region. Taking into account particular importance of water resources for Central Asia, Uzbekistan has always supported reasonable approach to the use of water resources.

Issues concerning water resources use of Transboundary Rivers of Central Asia should be decided taking into account interests of more than 50 million people, living in the region, on the basis of equitable and reasonable exploitation and use of energy-water resources policy, standards of international law, realizing nonseparability of problems of shared hydropower potential and control over water and energy resources.

Any of the activities implemented on the Transboundary Rivers, should not negatively impact on the existing environmental and water balance in the region.

It should be ensured that construction of structures will not cause irreversible environmental consequences and break existing balance of the watercourse used by all riparian countries.

In case the situation of transboundary water resources changes, the Central Asian countries may be confronted with difficulties in supplying the people and agriculture with drinking and irrigation water, systematic droughts, as well as environmental disaster of unexpected scale with all implying consequences.

Uzbekistan in turn will continue taking consistent measures for supporting water and environmental balance in the region, aiming at maintaining peace and stability, improving safety and sustainable development of Central Asia, and regarding issues concerning environmental safety, the Aral Sea problems and saving genofond of plants and animals of the Priarlie, since this region is the most vulnerable from the point of view of ecology. It is necessary to prioritize reasonable and equitable water distribution among the Aral Sea river basin countries.

Besides, the process for improving ecological situation in the Priaralie is under way, but the issue of solving ecological problem and supplying water to the region is still remaining very crucial. On the basis of this fact, it can be noted that environmental stability in the region turns out to be an important and necessary condition for its sustainable development.

The representative from the Institute of Water Problems, Hydropower, and Environment at the Academy of Sciences of the Republic of Tajikistan G.N. Petrov in his speech brought forward the idea of treating water as a «good», which obviously contradicts to international regulations on water resources use. The international experts Dr. A. Shady (Canada), professor S. Vinogradov (Great Britain) were against this concept and recommended solving disputes over water allocation and water resources management only by negotiations.

The seminar participants from Kazakhstan and Uzbekistan also noted that at present there are a number of international normative legal tools for the trasboundary water resources management. Currently only Uzbekistan and Kazakhstan are signatories to the Convention on «the Protection and Use of Transboundary Watercourses and International Lakes» (Helsinki, 1992), Uzbekistan joined this Convention in 2007.

Moreover, in 2007 the Republic of Uzbekistan joined the “Convention on the Non-Navigational Uses of International Waterways” (New-York, 1997). These international legal tools should be the basic documents in water resources management of the Amudarya River and in turn Uzbekistan adheres to this position.

The representative of the World Bank’s Regional Mission Mr. L.Brefourt noted that there should not be «national egoism» in the issues related to water resources management, but regional approach to lowering costs and increasing benefits from water ideology is required.

International experts mentioned two points: (1) increasing interest of upstream countries to develop hydropower for short and long terms and (2) climate change, and aggravation of the process by desertification. Countries must decide on the scenario of activities required for the Aral Sea and Priaralie regions. It was mentioned that the most difficult task is the development of proposals for further activities for improving socio-economic and ecological situation in the region. The experts noted that Central

Asia has a huge experience in implementing projects related to the problems of the Aral Sea, there is a good potential in the ministries and agencies, including high proficient SIC ICWC experts in water and environmental protection. At present time there are two differentiated development goals – agricultural and energy activity, and international organizations expressed their willingness to assist in making mutually acceptable decisions.

It should be noted that the organizers held current scientific-practical seminar at high level, and in our opinion each participant gained additional information and became familiar with a new outlook on integrated water resources management and sustainable development goals of the region.

At the end of the seminar a relevant final document was adopted.

Sh. Kuchkarov

FINAL DOCUMENT
ADOPTED BY THE PARTICIPANTS OF THE REGIONAL SCIENTIFIC-PRACTICAL WORKSHOP «ENVIRONMENTAL SECURITY – THE MAJOR FACTOR IN WATER RESOURCES USE»

organized by SIC ICWC together with the OSCE Project Co-ordinator and the Office of the Co-ordinator of OSCE for Economic and Environmental Activities, Vienna (23-25 October, Tashkent)

Having recognized a paramount importance of the topic of environmental security as the major factor in water resources use, the participants have stressed that the Central Asia is an indivisible ecosystem united by shared rivers of the Aral Sea basin. The historical and geographic community of Central Asian countries and a need for further development of regional cooperation to the benefit of this ecosystem and for environmental security in the region were also underlined.

Confronted with the processes posing greater threats on a global scale, such as climate change and intensified freshwater shortage, food price rises and population growth, the water challenge becomes more acute in terms of opportunities for sustainable regional development. Given such conditions, efficient development of water-energy potential to the benefit of each country may and must be achieved on the basis of interstate cooperation. This would enhance food and energy security in the region's countries, allow addressing efficiently challenges of socio-economic development, and ensure investment saving. Existing problems should be solved by conducting a policy of equitable and wise development and use of water and energy resources and through the universally accepted standards of international law.

The participants in their reports and speeches dedicated to issues of integrated water-land and water-energy resources use underlined that it was necessary to continue and enhance cooperation in the following directions in order to achieve environmental security in all countries of the Central Asia:

- institutional strengthening of transboundary waterway management;
- creating mutually agreed mechanism, which establishes principles and procedure of water allocation, with coordination of reservoir operation regimes, in order to meet upstream and downstream demands in water and energy;
- exchange of information and technology advancements on various aspects of water use and protection;
- considering nature conservation needs;
- harmonizing water laws of Central Asian countries, environmental norms and standards.

As to legal aspects concerning improvement and further development of regional cooperation on the basis of equitable and sound shared water use, the participants stressed that the region's countries need to get assistance in international Conventions dedicated to water relations regulation in order to apply provisions and principles of the Conventions under specific conditions of the Central Asian region.

The participants also emphasized a need to follow the limits of water use in transboundary water sources, ensure the agreed regimes of reservoir operation, with account of efficient use of water-energy potential, the environmental demands, and the strict fulfillment of obligations for compensations. It is necessary to improve mathematical models of water and energy management in the Aral Sea basin. At the same time, the participants recognized a demand to improve hydrometeorological services in the countries, particularly to organize interstate shared gauging stations along transboundary rivers both for reliable accounting of inflow and outflow quantity and quality and for accurate forecasting of flow probability and monitoring of pollution in water sources. Moreover, it was stated that it is important to raise status, extend mandate, as well as increase responsibilities of regional water organizations, along with implementation of basin management principles for transboundary water resources in the region.

The participants consider that, in a number of cases, water use discipline and measures undertaken to mitigate water shortage are not adequate to acuteness of situation. As a result, some zones suffer to a greater extent than it is conditioned by natural water shortage. Attention was paid to environmental deterioration in downstream zones. The participants noted that it is necessary to activate work with the public in various aspects of water-environmental cooperation, on solution of ecological problems and on involvement of non-governmental organizations in raising public awareness about efficient water use for mitigation in low-water years.

Conclusions

1. One of the main conditions for achieving sustainable regional development and ensuring environmental security is a coordinated work of all the Central Asian countries on creating a system of effective and efficient water use. In irrigated agriculture this may contribute to reduction of water supply, at least, by 15-20% to the benefit of economy and to improvement of productivity by 25-35%.

2. Taking into account growing water shortage in the region, it is proposed that each country-water user prepares, based on principle of equitable and wise water use, appropriate cost estimates and environmental assessments to justify rights of each country to their water shares. In addition, it is necessary to compare and agree those estimates and assessment at expert level and next, at the interstate level in order to reach mutually acceptable agreement.

3. The standards of international and national water laws and their enforcement and improvement call for special attention. It is recommended SIC ICWC to organize, with

the support of OSCE, training for higher and middle level staff of water-management and environmental organizations, as well as ministries of justice and foreign affairs in the region's countries in international and national water laws, with integration of basic Conventions dedicated to water relations regulation.

4. Promote deeper studies by each of the countries regarding improvement of national legislation, application of international standards and legal instruments, and use of regional advanced practices and experience in area of legal regulation of relations on transboundary waterways.

5. Develop agreed mechanism of economic relations, which should be based on mutual understanding of overall responsibility of the countries for protection and use of international waterways and their management, and would promote enforcement of international water law's provisions:

- on equitable and reasonable water share of each country;
- on avoiding damage, and, in case of doing damage, on adoption of agreed compensations for it;
- on joint actions aimed at maintaining and ensuring stable water use.

6. It is recommended to SIC ICWC to establish a regional work group to develop mathematical models of water and energy resources management in the Aral Sea basin.

It is advisable to conduct a series of training workshops for users of the mathematical management models in the region's countries. The management models should be developed in the following directions:

a) optimization of seasonal regulation regimes to the benefit of CA countries;
b) economic mechanisms of relations, including compensation measures;
c) long-term planning of water use;
d) evaluation of environmental impact.

7. Taking into account growing impact of return flow on transboundary water quality, especially in low-water years, it is advisable to intensify work on quality monitoring of river run-off, groundwater, and drainage-waste water.

For mitigation of negative drainage-waste water impact on environment, it is advisable to conduct necessary research and take organizational and propaganda measures regarding maximal re-use of there waters in places of their formation for crop irrigation, production, and other needs.

8. Considering that most of unproductive water losses in irrigated agriculture take place due to poor educational level of water users, local specialists and members of peasant associations in the use of irrigation water, it is expedient to direct efforts of water-protection and non-governmental organizations to large-scale measures for consultation on rational water use rules.

9. Given an importance of political will of the Heads of Central Asian states in area of rational and efficient water use and ensuring of water protection, it is advisable to

inform continually the governments on current water and environmental problems in the region.

10. Provision of the Aral Sea basin's population with clean drinking water should be considered a priority. In this context, the efforts to protect drinking water sources from pollution should be increased.

MINUTES OF THE TRAINING SEMINAR ON THE DEVELOPMENT OF NATIONAL INFORMATION SYSTEM IN THE KYRGYZ REPUBLIC UNDER CAREWIB PROJECT

On November 3-5, 2008 CAREWIB personnel organized and held training seminar on the development of national information system in the Kyrgyz Republic in the city of Bishkek.

The Director General of Water Resources Department of the Ministry of Agriculture and Water Resources and Processing Industry, the Kyrgyz Republic, B.T. Koshmatov greeted the seminar participants. In his speech he emphasized that Administration of Water Resources Department of the Ministry of Agriculture and Water Resources and Processing Industry, the Kyrgyz Republic realizes the importance of national information system (NIS) on water-land resources and supports its development process.

The seminar aims at summarizing activities of National Contact Point of CAREWIB project in the Kyrgyz Republic, assessing level of completeness of NIS, examining national data that were delivered to the regional IS.

The revision of the regional IS in the Kyrgyz Republic was carried out by the NCP and the CAREWIB project personnel. It was mentioned that, according to the terms of reference for 2008, operations in the following blocks were fulfilled:

1.1. Block «Economy»

- information on all indicators has been checked for 1980 - 2007, inaccurate information has been corrected. During checking data for reliability official publications of State Statistics Committee of the Republic of Kyrgyzstan were used.

- information on all indicators was entered for 2005-2007, except:

- transportation of passengers on a car of general use, million people. According to official reports, this information is available in passenger-kilometers;
- number of museums and libraries;
- number of medical institutions;
- GDP (structures) for 2006-2007;
- cost of main stock of water organizations (except Jalalabad district).

1.2. Block «Land»

- all indicators were verified for 2003 to 2007, inaccurate information was corrected. In examining data for reliability, the following materials were used:

- «State land reclamation cadastre of KR» for 2003-2007;
- Collection «Gross harvest and productivity of crops» (for official use) for 1982;
- Annual reports of district subdivisions of WRD.

While examining, inaccurate data was determined for Osh district.

- all indicators, were entered for 2005-2007, except Osh district, where in connection with the sickness of executive new one was assigned.

1.3. Block «Water supply»

All indicators for the period of 1980-2007 are entered only for Jalalabad district (for other districts indicators are missing). While examining, errors in indicators were detected. They will be corrected and provided to the SIC ICWC until 11.2008, as well as information for other districts.

Examination of national IS was conducted in the Kyrgyz Republic by the personnel of CAREWIB project and NCP. It was noted that, in 2008 the following tasks were accomplished:

2.1. List of structures of national importance was prepared and approved.

2.2. Passport information on water structures of national importance that are under responsibility of the Water Resources Department was collected (and was also delivered to the regional IS).

2.3. Monthly information on the following water structures of national importance was collected (from 1980 to 2008):

-reservoirs: inflow (million m^3), volume (million m^3), release (million m^3);

- rivers: flow (million m^3);

-canals: water delivery (m^3/sec);

- head intakes: water discharge (m^3/sec);

- gauging stations: water discharge (m^3/sec).

7. Primary cartographic information was collected by district on the following thematic layers: main rivers; main reservoirs and other large lakes; main canals; main water intakes; gauging stations along the rivers and main canals; CDN (main drains); administrative centers.

The seminar participants made the following

DESICIONS:

1. National contact point should give special consideration to the forum on the portal CAWAter-Info (www.forum.cawater-info.net) as a tool for monitoring opinions of water organizations' personnel of the lowest rank. Arrange collection and delivery of opinions of water organizations personnel concerning open topics of discussions to the SIC ICWC for placing on a forum.

2. National Contact Point should pay attention to translation of information related to Central Asian Republics into Kyrgyz language in order to eliminated delays in translation.

3. Block «Economy»: corrected version of data will be provided to SIC ICWC until 25.11.2008.

4. Block «Land»: corrections and missing information will be provided to SIC ICWC until 25.11.2008.

5. Block «Water supply»: corrections (for Jalalabad district) and missing information (concerning other districts) will be provided to SIC ICWC until 25.11.2008.

6. Cartographic information will be provided to SIC ICWC upon request while carrying out GIS operations.

At the end of the seminar, all the participants expressed sincere gratitude to the seminar organizers: SIC ICWC, administration of the Water Resources Department and seminar sponsor SDC.

CAREWIB Project manager — I.F. Beglov

NCP manager of the CAREWIB Project in the Republic of Kyrgyzstan — D.O.Alchibekova

MEETING OF THE PARTIES TO THE CONVENTION ON THE PROTECTION AND USE OF TRANSBOUNDARY WATERCOURSES AND INTERNATIONAL LAKES

During the 4th meeting of Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Convention on Transboundary Water) (Bon, Germany, November, 2006) a document was adopted on « EU Water Initiative in the countries of Eastern Europe, Caucasus, and Central Asia: national policy dialogues». Following this decision and the decision of the parties to the Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses at the first meeting (Geneva, January, 2007), the Secretariat received mandate to implement national policy dialogues and inform on the progress, taking into account implementation by appropriate organizations in the framework of the Convention and the Protocol, thus promoting synergy between the two tools.

The EU Water Initiative (WIEU) and its components for Eastern Europe, Caucasus, and Central Asian countries were initiated at the World Summit on Sustainable Development in Johannesburg in 2002. The main aim of WIEU is to support achievement of water related objectives in the framework of Millennium Development Goals, on water supply and sanitation, as well as on integrated water resources management. The Working Group of the WIEU EECCA, which brought together country representatives at high-level, has assigned EEC UNO as a strategic partner in supporting national policy dialogues (NPD) in integrated water resources management, while Organization for Economic Cooperation and Development (OECD) with its Environmental Task Force was appointed as a strategic partner in water supply and sanitation.

From 22 to 24 October, 2008, a regular meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes was held in Rome. The meeting took place at the premises of Food and Agriculture Organization of the United Nations (FAO). On 23 October during the first half of the day, a special meeting was held and devoted to the issues of forests and water, within the framework of the official agenda of the European Forest Week.

During the meeting the following issues were considered and presentations of representatives were heard according to the following weekly agenda:

1. Progress in ratification and support for ratification process of the Convention.
2. Water and adaptation to climate change, control of transboundary activities on flood protection.
3. Water problems and industrial accidents.
4. Ecosystem services and payment for such services within the framework of integrated water resources management.
5. Project “Potential for cooperation in the sphere of water resources”.

6. European Union's Water Initiative and National Policy Dialogues.

7. Second assessment of the status of transboundary rivers, lakes and groundwater in the EECCA region.

8. Transboundary groundwater management in the EECCA region.

9. Promotion of transboundary water cooperation and integrated water resources management in Central Asia.

10. International Conference on Sustainable Management of Transboundary Watercourses in the EECCA region.

11. Contribution of the Watercourses Convention to activities of UNO agencies and other organizations.

12. Ongoing Work Plan 2009 for integrated water resources management.

13. Work Plan for integrated water resources management for 2010-2012 and beyond.

14. Other matters.

In turn, the Uzbek delegation (Ernazarov H.) and representatives of SIC ICWC (Sorokin D.) made presentations about water resources problem in Uzbekistan and Central Asia and about progress and results of the project on integrated water resources management in Fergana Valley, as an indicator of cooperation in transboundary watercourses management at interstate level (Kyrgyzstan, Tajikistan, Uzbekistan).

As was mentioned by the Chairman of the meeting, in recent years the international forums have been giving more and more attention to water management activities and cooperation in the field of water problems in Central Asia. This interest is being supported by the development of initiatives and projects. The work group was informed about EEC UNO activities in this region and about future plans and synergy with other initiatives. The work group discussed future strategic role of EEC UNO and the Convention on Water in the subregion, taking into account demands of Central Asian countries, specific additional and comparable advantages of EEC UNO and possibilities of establishing cooperation with other organizations.

Moreover, representatives of Uzbekistan (Ernazarov N.) and SIC ICWC (Sorokin D.) expressed their opinion about the necessity of IWRM project implementation in the lower reaches area of the Amudarya River, which now is short of water resources, suffers from inadequate water distribution and its quality.

The agenda for the next meeting on integrated water resources management:

- acknowledgment of the fact that national policy dialogues produce added value for actions within the framework of the next Convention on integrated water resources management;

- policy dialogue gives a good chance to promote the Convention and the Protocol on Water and Health, particularly, Temporary committee for project promotion mechanism;

- proposal for the parties to the Convention to decide on continuation of political dialogue process after the 5th meeting;

-invitation of the parties to the Convention to clarify provision of extra financing, including in-kind contribution of experts with conclusion of cooperation agreements, if possible, or other means of support.

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