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**Minute No 29
of ICWC meeting of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan
and Uzbekistan**

April 12-13, 2001

Kokshetau

Attendees:

ICWC Members

A.M. Ramazanov	Chairman, Committee for Water Resources of the Ministry of Natural Resources and Environment of the Republic of Kazakhstan
B.T. Koshmatov	Deputy Minister, Director General, Water Department of the Ministry of Agriculture of the Kyrgyz Republic
A.A. Nozirov	Minister of Reclamation and Water Resources, the Republic of Tajikistan
U.B. Saparov	Authorized representative, Turkmenistan
A.A. Jalalov	First Deputy Minister of Agriculture and Water management of the Republic of Uzbekistan

ICWC Honorable Members

R.A. Giniyatullin
N.K. Kipshakbayev

From ICWC organizations

Yu.Kh. Khudaibergenov	Head, BWO "AmuDarya"
O.G. Lysenko	Department Head, BWO "AmuDarya"
M.Kh. Khamidov	Head, BWO "SyrDarya"
A.I. Leshansky	Department Head, BWO "SyrDarya"
V.A. Dukhovny	Director SIC ICWC
P.J. Umarov	Deputy Director SIC ICWC

Invitees

Kh.A. Askarov	Department Head, Committee of Water Resources, the Republic of Kazakhstan
Kh.P. Pulatov	Director "Yugvodkhoz"
A.K. Kutzhanov	Director "Kyzylordavodkhoz"
K.K. Beishekeyev	First Deputy Director General, Water Department of MAWR, the Kyrgyz Republic
A.Sh. Jailoobayev	Board Director, Water Department of MAWR, the Kyrgyz Republic
R.K. Ikramov	Director SPA SANIIRI
L.N. Borovikova	Deputy Director SANIIGMI
T.K. Kudekov	Director General "Kazgidromet"

Meeting was chaired by A.M. Ramazanov - Chairman of the Committee of Water Resources of the Ministry of Natural Resources of the Republic of Kazakhstan

AGENDA

1. Water reservoir cascade operation regime and water intake limits amplification in the AmuDarya and SyrDarya basin for growing period of 2001 (responsible: BWO “AmuDarya” and BWO “SyrDarya”);
2. About project “Provision on order of financing ICWC executive bodies (BWO, SIC, Secretariat)” (responsible: SIC ICWC);
3. ICWC activity and development program consideration (responsible: SIC ICWC);
4. “About strengthening water and meteorological organizations interrelation in AmuDarya and SyrDarya river flow amplification and forecast reliability increase”;
5. (Additional question). About ICWC members proposals on BWO status changes (Proposed by A.Ramazanov and A.Jalalov);
6. (Additional question). ICWC protocol decision on the World Commission on Large Dams, ICID and International Association of Power Engineering conclusion on the “Report of World Commission on Dams”;
7. (Additional question). About scientific-practical conference “Water Resources of Central Asia” devoted to ICWC 10 years anniversary in 2002 in Almaty;
8. (Additional question). About restoration of collaboration with Mekong river Secretariat under ESCAP support;
9. About next ICWC meeting agenda.

Have heard participants' reports and exchanging opinions ICWC members have decided:

On the first question:

1. Accept information about BWO “SyrDarya” and “AmuDarya” measures on water intake limits realization and actual regime of water reservoir cascade along the AmuDarya and SyrDarya rivers during non-growing season of 2000-2001.
2. Approve water intake limits for the AmuDarya and SyrDarya rivers according to Annex 1 and 2 as well as AmuDarya water reservoir cascade operation regime according to Annex 3.
3. Recommend for consideration I and II options of Naryn-SyrDarya reservoir cascade operation regime when preparing intergovernmental agreement on the SyrDarya basin water-power resources rational use on 2001 (Annex 4 and 5).
4. ICWC members to promote conclusion of the interstate agreement on Naryn-SyrDarya cascade water-power resources integral utilization for current growing season.
5. Charge BWO “AmuDarya”, SIC ICWC together with hydro-meteorological services, MWR of Turkmenistan and MAWR of Uzbekistan to organize activity to define channel water losses along AmuDarya.
6. Note that there is severe draught in the AmuDarya and SyrDarya basin and during current growing season situation will not grow better. ICWC members to take additional measures on water resources rational use.

On the second question:

1. The project “Provision on order of financing of the ICWC executive bodies” to take for a base, finalize and submit to ICWC members for final coordination with the governments before next ICWC meeting.

On the third question:

1. Adopt prepared by SIC ICWC program of ICWC development and strengthening as well as proposals on thematic working groups establishing.

2. ICWC members to define countries representatives to the thematic working groups.

3. Charge SIC ICWC to organize these groups activity according to program and approve at the next ICWC meeting.

On the fourth question:

1. Ask hydro-meteorological services of all countries to determine minimum volume of work to restore systematic observations on Abramov and Fedchenko glaciers and to consider expedient twice a year to define snow stock in watershed. To determine share contribution for each country and agree with relevant governments.

2. Support the Republic of Kazakhstan proposal on weather and gauging stations restoration in the Aral Sea basin by Kazakhstan at its own.

3. Accept information that gauging stations on Pyanj (Lower Pyanj), Vahsh (Komsomolabad, Tigrovaya balka), Kafirnigan rivers will be restored by the Republic of Tajikistan by its own.

4. Ask Glavgidromets of Turkmenistan and the Republic of Uzbekistan to organize jointly with BWO “AmuDarya” three times calibration of the Darganata and Kerky gauging stations.

5. Charge SIC ICWC together with Glavgidromets, BWO “AmuDarya” and “SyrDarya” to five proposals on USAID project correction in part of financing activity mentioned in item 1.

6. Accept proposal of the Republic of Tajikistan on the world community and donors attention attraction to snow-ice resources monitoring within the Tajikistan territory.

On the fifth question:

1. Change item 3.2 of the BWO “AmuDarya” status and item 4.2 of the BWO “SyrDarya” status as follow:

“Association is headed by head appointed and approved by ICWC decision for 5 years term”. Order of the head appointment is determined by “Provision on the ICWC executive bodies’ leading staff selection and appointment”.

2. Charge Secretariat and SIC ICWC to prepare the project “Provision on the ICWC executive bodies’ leading staff selection and appointment” based on ICWC members proposals summarizing.

3. In connection with change of BWO “AmuDarya” hydrounit administrations’ name to put amendments in item 3.1 of the association status:

- Name:
- Kurgantube administration to replace by Verhnedaryinskoye one;
 - Charjev administration to replace by Srednedarinskoye one;
 - Nukus administration to replace by Nizhnedarinskoye one

On the sixth question:

Protocol decision is accepted (Annex 6).

On the seventh question:

1. Carry out scientific-practical conference “Water resources of Central Asia” devoted to ICWC 10-years anniversary in February 2002 in Almaty.

2. Charge V. Dukhovny and N. Kipshakbayev, under coordination with A. Ramazanov, to prepare measures for the conference conducting.

On the eighth question:

1. Consider expedient to restore collaboration with Mekong river Secretariat.
2. Ask UN ESCATO to support and promote this collaboration.

On the ninth question:

Next ICWC meeting to carry out in the Kyrgyz Republic in July-August 2001 with agenda:

Agenda:

1. About growing period 2001 and water reservoirs operation and water intake limits in the AmuDarya and SyrDarya basin amplification (responsible: BWO “AmuDarya” and “SyrDarya”);

2. About ICWC Training Center activity and thematic working groups plan approval (responsible: SIC ICWC);

3. About intergovernmental agreements finalizing and coordination progress (responsible: SIC ICWC, BWO “AmuDarya” and “SyrDarya”);

4. Consideration of the project “Provision on the ICWC executive bodies’ leading staff selection and appointment” (responsible: SIC ICWC);

5. Consideration of the project “Provision on the ICWC executive bodies financing order” (responsible: SIC ICWC);

6. On measures of ICWC Jubilee Conference conducting (responsible: A.Ramazanov, SIC ICWC);

7. About place, date and agenda of the next ICWC meeting.

ICWC Members:

For the Republic of Kazakhstan

A.M. Ramazanov

For the Kyrgyz Republic

B.N. Koshmatov

For the Republic of Tajikistan

A.A. Nozirov

For Turkmenistan

U.B. Usmanov

For the Republic of Uzbekistan

A.A. Jalalov

Annex 1
 to the ICWC Minute No 29,
 Kokshetau, April 12-13, 2001

Water intake limits from AmuDarya river and water supply to the Aral Sea
 and delta for growing period of 2001 (km³)

River basin, State	Water intake limits (since 01.04.2001 till 01.10.2001)
Totally from AmuDarya river, including:	33.146
Republic of Tajikistan	5.904
Kyrgyz Republic	0.450
From AmuDarya by Kerki gauging station	26.792
Turkmenistan	13.175
Republic of Uzbekistan	13.617
Besides: -	
- Water supply to Aral Sea coastal zone including irrigation releases and collector-drainage water	
Total to the Aral Sea and coastal zone	2.550

Annex 2
 to the ICWC Minute No 29,
 Kokshetau, April 12-13, 2001

Water intake limits from SyrDarya river and water supply to the Aral Sea
 and delta for growing period of 2001 (km³)

River basin, State	Water intake limits (since 01.04.2001 till 01.10.2001)
Totally from SyrDarya river, including:	16.60
Republic of Kazakhstan	6.91
Kyrgyz Republic	0.20
Republic of Tajikistan	1.61
Republic of Uzbekistan	7.88
Besides:	
Water supply to Aral Sea	0.91

Note: Water intake limits suppose water supply for irrigation, industrial-municipal and other needs. Under changing of basin water availability water intake limits will be appropriately corrected.

Annex 3
 to the ICWC Minute No 29,
 Kokshetau, April 12-13, 2001

Nurek and Tuyamuyun reservoir operation regime since April till September 2001

Nurek reservoir	Unit	Forecast						Total
		April	May	June	July	August	September	
Inflow	m ³ /s	470	880	1006	1395	1303	604	14975
Water losses	m ³ /s	9	23	-23	0	0	2	30
Volume: at the beginning of the period	mln m ³	5953	6046	6307	6966	8773	10483	5953
at the end of the period	mln m ³	6046	6307	6966	8773	10483	10500	10500
Accumulation (+),emptying (-)	mln m ³	93	261	659	1807	1710	17	4547
Altitude: end of period	m	858.20	862.62	870.6	892.35	909.90	910	
Release from reservoir	m ³ /s	425	760	775	720	665	595	10398

Tuyamuyun reservoir	Unit	Forecast						Total
		April	May	June	July	August	September	
Inflow	m ³ /s	487	1200	1343	1392	723	625	15242
Water losses	m ³ /s	36	220	316	314	137	83	2923
Volume: at the beginning of the period	mln m ³	2119	2240	2892	2804	2757	2029	2119
at the end of the period	mln m ³	2240	2892	2804	2757	2029	2111	2111
Accumulation (+),emptying (-)	mln m ³	121	652	-88	-47	-728	82	-8
Altitude: end of period	m	123.25	125.32	125.25	125.19	120.8	122.1	
Release from reservoir	m ³ /s	404	737	1061	1096	858	510	12327
including to the river	m ³ /s	227	440	693	716	563	300	7767

Annex 4
 to the ICWC Minute No 29,
 Kokshetau, April 12-13, 2001

SCHEDULE-FORECAST
 for Naryn-SyrDarya reservoir cascade
 operation regime since April 1 till September 30, 2001. Option I.

	Unit	April	May	June	July	August	September	Total mln.m ³
Toktogul reservoir								
Inflow to reservoir	m ³ /s	300	610	949	794	545	305	9248
	mln m ³	778	1634	2460	2127	1460	791	
Volume: beginning of period	mln m ³	8724	8851	9758	11030	11611	11635	
end of period	mln m ³	8851	9758	11030	11611	11635	11915	
Release from reservoir	m ³ /s	250	270	457	573	530	190	6002
	mln m ³	648	723	1185	1535	1420	492	
Kayrakkum reservoir								
Inflow to reservoir	m ³ /s	378	390	381	350	376	249	5602
	mln m ³	980	1045	988	937	1007	645	
Volume: beginning of period	mln m ³	3364	3397	3417	2950	1949	1083	
end of period	mln m ³	3397	3417	2950	1949	1083	901	
Release from reservoir	m ³ /s	370	351	500	650	650	300	7455
	mln m ³	959	940	1296	1741	1741	778	
Chardara reservoir								
Inflow to reservoir	m ³ /s	251	178	141	145	126	224	2799
	mln m ³	651	477	365	388	337	581	
Volume: beginning of period	mln m ³	5227	5009	3780	2494	1187	600	
end of period	mln m ³	5009	3780	2494	1187	600	621	
Release from reservoir	m ³ /s	400	542	560	484	249	200	6422
	mln m ³	1037	1452	1452	1296	667	518	
Release to Kyzylkum canal	m ³ /s	13	99	106	121	81	18	1161
	mln m ³	34	265	275	324	217	47	
Water supply to Aral Sea	m ³ /s	158	33	20	20	20	98	911
	mln m ³	410	88	52	54	54	254	
Charvak reservoir								
Inflow to reservoir	m ³ /s	180	328	436	304	171	98	4001
	mln m ³	467	879	1130	814	458	254	
Volume: beginning of period	mln m ³	710	787	1075	1424	1350	1067	
end of period	mln m ³	787	1075	1424	1350	1067	944	
Release from reservoir	m ³ /s	150	220	300	330	275	125	3700
	mln m ³	389	589	778	884	737	324	
Andijan reservoir								
Inflow to reservoir	m ³ /s	100	158	170	118	58	38	1693
	mln m ³	259	423	441	316	155	98	
Volume: beginning of period	mln m ³	1226	1277	1297	1271	1048	692	
end of period	mln m ³	1277	1297	1271	1048	692	632	
Release from reservoir	m ³ /s	80	150	180	200	190	60	2276
	mln m ³	207	402	467	536	509	156	

Annex 5
to the ICWC Minute No 29,
Kokshetau, April 12-13, 2001

SCHEDULE-FORECAST
for Naryn-SyrDarya reservoir cascade
operation regime since April 1 till September 30, 2001. Option II.

	Unit	April	May	June	July	August	September	Total mln.m ³
Toktogul reservoir								
Inflow to reservoir	m ³ /s	300	610	949	794	545	305	9248
	mln m ³	778	1634	2460	2127	1460	791	
Volume: beginning of period	mln m ³	8724	8851	9758	11317	12271	12638	
end of period	mln m ³	8851	9758	11317	12271	12638	12918	
Release from reservoir	m ³ /s	250	270	346	434	402	190	5000
	mln m ³	648	723	897	1162	1077	492	
Kayrakkum reservoir								
Inflow to reservoir	m ³ /s	374	403	285	256	270	222	4772
	mln m ³	969	1079	739	686	723	575	
Volume: beginning of period	mln m ³	3364	3389	3418	2762	1651	900	
end of period	mln m ³	3389	3418	2762	1651	900	900	
Release from reservoir	m ³ /s	370	363	480	600	504	204	6661
	mln m ³	959	972	1244	1607	1350	529	
Chardara reservoir								
Inflow to reservoir	m ³ /s	236	189	141	120	106	136	2441
	mln m ³	612	506	365	321	284	353	
Volume: beginning of period	mln m ³	5227	4973	3826	2649	1275	600	
end of period	mln m ³	4973	3826	2649	1275	600	600	
Release from reservoir	m ³ /s	400	528	525	491	267	121	6156
	mln m ³	1037	1414	1361	1315	715	314	
Release to Kyzylkum canal	m ³ /s	12	93	99	114	76	17	1090
	mln m ³	31	249	257	305	204	44	
Water supply to Aral Sea	m ³ /s	168	43	20	20	20	30	787
	mln m ³	435	115	52	54	54	78	
Charvak reservoir								
Inflow to reservoir	m ³ /s	180	328	436	304	171	98	4001
	mln m ³	467	879	1130	814	458	254	
Volume: beginning of period	mln m ³	710	787	1075	1424	1350	1067	
end of period	mln m ³	787	1075	1424	1350	1067	944	
Release from reservoir	m ³ /s	150	220	300	330	275	125	3700
	mln m ³	389	589	778	884	737	324	
Andijan reservoir								
Inflow to reservoir	m ³ /s	100	158	170	118	58	38	1693
	mln m ³	259	423	441	316	155	98	
Volume: beginning of period	mln m ³	1226	1277	1297	1271	1048	692	
end of period	mln m ³	1277	1297	1271	1048	692	632	
Release from reservoir	m ³ /s	80	150	180	200	190	60	2276
	mln m ³	207	402	467	536	509	156	

Annex 6
to the ICWC Minute No 29,
Kokshetau, April 12-13, 2001

**ICWC PROTOCOL-DECISION ON THE REPORT
OF THE WORLD COMMISSION ON DAMS**

1. To agree with conclusion of the International Commission on Large Dams< ICID and International Association of hydropower engineering on the report of the World Commission on Dams dated February 21, 2001.

2. Adopt the note prepared on this question and submit it together with ICWC decision to ICID, the World Bank and other founders of the Commission on Dams.

ICWC Members:

For the Republic of Kazakhstan

A.M. Ramazanov

For the Kyrgyz Republic

B.N. Koshmatov

For the Republic of Tajikistan

A.A. Nozirov

For Turkmenistan

U.B. Usmanov

For the Republic of Uzbekistan

A.A. Jalalov

**AMUDARYA RIVER BASIN WATER SECTOR OPERATION
IN NON-GROWING PERIOD 2000-2001. WATER RESERVOIRS CASCADE
OPERATION REGIME AND WATER INTAKE LIMITS AMPLIFICATION FOR
GROWING PERIOD 2001¹**

Established water intake limits use for reporting non-growing period 2000-2001 is as follow:

Country	Limit for non-growing period, mln. m ³	Actual	%%
Republic of Tajikistan	2885	1801.5	62.4
Republic of Uzbekistan	5980	4823.7	80.7
Turkmenistan	6500	4954.8	76.2
TOTAL:	15565	11580.0	75.4
Sanitary release in total:	800	530	66.3
- from them:			
1. Khorezm	150	82.7	55.1
2. Karakalpakstan	500	324.9	65.0
3. Dashkovuz	150	122.4	81.6
besides			
Surkhandarya oblast	200	516.8	258.4

It should be noted that basin states didn't submit for BWO "AmuDarya" adjusted water intake limits with account for their reduction by 20.0%, therefore results on water intake limits use were summarized according to water intake limits established before.

(Detailed information is presented in Tables 1 and 2)

Over river reaches established water intake limits use is as follow:

1. Upper reaches - 62.4%;
2. Middle reaches - 85.1%, including Uzbekistan - 99.6%, Turkmenistan - 76.2%;
3. Lower reaches - 65.5%, including Uzbekistan - 60.3%, Turkmenistan - 76.2%.

Between middle and lower reaches disproportion of water consumption levels was formed.

Water supply schedule for Aral Sea and its coastal zone for non-growing period was fulfilled on 23.5% under planned 2000 mln m³ 470 mln m³ was supplied (See Table 3), for appropriate last year period 4191 mln m³ was supplied.

Actual river flow in Kerki gauge upstream Garagumdarya for non-growing period 2000-2001 was 14 540 mln m³ against 20 427 mln m³ in previous year that constituted 71.2%.

Water availability in Kerki gauge upstream Garagumdarya including domestic discharges of Vakhsh River was 10 912 mln m³ under norm 14 455 mln m³ or 75.5 of norm.

By the beginning of growing period 2001 water volume in Nurek water reservoir was 5953 mln m³ under planned 5821 mln m³ (in previous year season it was 5773 mln m³).

¹ Information on the first issue of ICWC meeting agenda.

Because of very low actual inflow during growing period water volumes in Tuyamuyun water reservoir on 01.04.2000 were 2119 mln m³ (in previous year that time in this reservoir 3611 mln m³ were accumulated).

Over main AmuDarya river basin in-system reservoirs total water volume was 3338 mln m³, last year by the beginning of growing period 3395 mln m³ were accumulated.

Water availability in Kerki gauge upstream Garagumdarya for growing period 2001 with account for domestic discharges of Vakhsh River according to Uzgydromet forecast is expected to be 31.6-36.4 km³ (66.4-76.5%), on average 34.0 km³ (71.4% - last year level) under norm 47.6 km³.

Expected water inflow in Kerki gauge upstream Garagumdarya (including planned accumulation of Nurek reservoir and planned water intake by Surkhandarya oblast) will be within 26.0-30.8 km³ or on average 28.4 km³ (last year level). In connection with that predicted water-economic situation regarding expected inflow is formed as low water situation.

Is necessary to note that existing initial conditions for carrying out growing period 2001 (actual water supplies in reservoirs, snow supplies in mountains, predicted water availability, weather conditions) are lower last year level on set of parameters.

Under such water availability in the basin and forming climatic and existing water-economic condition water resources wouldn't meet totally states' demand for water intakes from AmuDarya River trunk in growing period 2001.

According to our calculations under similar water availability middle stream water users would be supplied with water on 75.0-80.0% of established water intake limits for growing period, thus downstream water users water provision, as practice proves, will be within 60.0% of average multiyear established water intake limits level of growing period.

Growing period 2001 over river basin in a whole will be tense and ambiguous. AmuDarya River downstream water users will be especially in trouble.

ICWC state-members must response timely on any changes of water-economic conditions in region and undertake preventive measures on maximum effective use of available water resources in basin under their scarcity in 2000-2001.

Organization has received from each basin state-water user preliminary requests for water intake limits of growing period 2001, on which base with account for predicted water availability and actual state of water situation options of water intake limits distribution among states were developed.

Specific demanded water intake limits over states are given below:

- over the Republic of Kyrgyzstan water intake limits in volume 450 mln m³ is planned to establish;
- over the Republic of Tajikistan water intake limits in volume 6946 mln m³ is proposed to establish;
- over Turkmenistan water intake limits in volume 15 500 mln m³ at last year level is planned to establish;
- over the Republic of Uzbekistan water intake limits for growing period 2001 in volume 16 020 mln m³ is planned to establish - planned limit residue of 22 000 mln m³;
- in total over AmuDarya River basin water intake limits for growing period 2001 is demanded in volume 38 916 mln m³ including downstream Kerki gauge upstream Garagumdarya - 31 520 mln m³.

Water intake limits for growing period over basin in a whole should be preliminarily reduce by 20.0-25.0% of demanded level, and then during vegetation to correct appropriately.

BWO "AmuDarya" developed option of Tuyamuyun hydrounit operation regime for growing period under 78.0% of water availability with expected average predicted flow 31.5 km³ at Kerki gauge upstream Garagumdarya. Herewith it would be possible that in April,

specific decades of May-June in river lower reaches water resources shortage will occur that will reflect negatively on timeliness of agricultural crop irrigation.

Also BWO "AmuDarya" jointly with "Energya" center amplified Nurek reservoir operation regime for growing period 2001.

Given water availability forecast for growing period at Kerki gauge upstream Gara-gumdarya water intakes, formed water supplies in reservoirs, we propose to establish water supply schedule to the Aral Sea and its coastal zone for growing period taking into account collector-drainage flow in amount -2400 mln m³, from them river flow is 1600 mln m³.

In conclusion BWO "AmuDarya" proposes:

1. From 5 given options on establishing water intake limits water supply volume to the Aral Sea and coastal zone for growing period including 10-25% of their reductions of requested initial water intake quotes for current growing period - to chose 4th option with 20% reduction.

2. To approve submitted for ICWC members' consideration: water reservoirs cascade operation regimes on Amudarya River for growing period 2001.

3. Under water resources shortage in basin in certain critical time intervals water users transit to available water resources proportional allocation.

4. It is necessary to introduce strict control of water resources use at all levels of water consumption.

5. In purpose to achieve uniform water availability on all river reaches to permit BWO "Amudarya", if necessary, to carry out 10% correction of water intakes.

Table 1

Established water intake limits use for
non-growing period on 2000-2001 within basin

Country	Limit for period	Actual for period	Excessive diversion	Saving	%%
Republic of Tajikistan	2885	1801.5		1083.5	62.4
Republic of Uzbekistan	5980	4823.7		1156.3	80.7
From them: KMC	1700	1626		74	95.6
ABMC	1395	1457	-62		104.4
Total middle reaches:	3095	3083		12	99.6
Khorezm	1235	878.4		356.6	71.1
Karakalpakstan	1650	862.3		787.7	52.3
Total lower reaches:	2885	1740.7		1144.3	60.3
Turkmenistan	6500	4954.8		1545.2	76.2
From them:					
Garagumdarya	3810	2811.4		998.6	73.8
Lebap veloyat	1290	1076		214	83.4
Total middle reaches:	5100	3887.4		1212.6	76.2
Dashgouz veloyat.	1400	1067.4		332.6	76.2
Total over basin including:	15365	11580		3785	75.4
Upper reaches	2885	1801.5		1083.5	62.4
Middle reaches	8195	6970.4		1224.6	85.1
Lower reaches	4285	2808.1		1476.9	65.5
Besides Surkhandarya veloyat	200	516.8	-316.8		258.4
Sanitary-environmental releases, from them:	800	530		270	66.3
Uzbekistan, including:	650	407.6		242.4	62.7
Khorezm	150	82.7		67.3	55.1
Karakalpakstan	500	324.9		175.1	65.0
Turkmenistan, including:	150	122.4		27.6	81.6
Dashkhovuz	150	122.4		27.6	81.6
Water supply to the Aral Sea and delta, including:	2000	470		1530	23.5
from the river	1500	32		1468	2.1

Table 2

Actual Nurek and Tuyamuyun reservoirs operation regime on period since October 2000 till March 2001

Nurek reservoir	Unit	Actual						Total
		October	November	December	January	February	March	
Inflow	m ³ /s	314	241	223	175	94	194	3280
Water losses	m ³ /s	6	6	0	2	0	0	34
Volume: by the beginning of period	mln m ³	10098	9824	9299	8462	7462	6397	10098
by the end of period	mln m ³	9824	9299	8462	7462	6397	5953	5953
Accumul.(+), release (-)	mln m ³	-274	-525	-837	-1000	-1065	-444	-4145
Altitude: end of period	m	903.48	898.18	888.83	876.32	863.03	856.83	
Release from reservoir	m ³ /s	410	438	536	547	534	360	7391

Tuyamuyun reservoir	Unit	Actual						Total
		October	November	December	January	February	March	
Inflow	m ³ /s	407	385	467	519	507	342	6869
Water losses	m ³ /s	89	67	36	83	79	92	1179
Volume: by the beginning of period	mln m ³	1820	1833	2245	3042	3847	3971	1820
by the end of period	mln m ³	1833	2245	3042	3847	3971	2119	2119
Accumul.(+), release (-)	mln m ³	13	412	797	805	124	-1852	-299
Altitude: end of period	m	117.95	123.36	125.59	127.47	126.87	116.15	
Release from reservoir	m ³ /s	313	158	133	135	377	941	5398
Release into river	m ³ /s	162	123	113	110	279	643	3746

Table 3

Water supply to the Aral Sea and AmuDarya river delta
during October-November of non-growing period 2000-2001

Name	October	November	December	January	February	March	Water supply from 01.10 to 01.04.00		% of fulfillment
							plan	actual	
Samanbay gauge	12	10	8	7	8	7	1500	52	3,47
Total release form canal system Kyzytken and Suenli	50	59	50	48	56	59		322	
Collector-drainage flow	14	13	15	15	15	24	500	96	19,2
Total:	76	82	73	70	79	90	2000	470	23,5
Increased	76	158	231	301	380	470			

Note: Data of water supply to the Aral Sea coastal zone are agreed with Glavgydromet of the Republic of Uzbekistan.

OPERATION OF WATER RESOURCES SYSTEM IN THE SYRDARYA RIVER BASIN IN THE NON-VEGETATION PERIOD 2000-2001. DEFINITION OF RESERVOIR CASCADES OPERATION MODE AND WATER INTAKE LIMITS FOR THE VEGETATION PERIOD 2001²

The SyrDarya River intake limits and the Naryn-SyrDarya reservoir cascade operation mode for the non-vegetation period 2000-2001 had been confirmed at ICWC meeting in December 2000 in Ashghabat; herein the cascade operation mode was recommended as a proposal for preparation of bilateral and multilateral interstate agreements on the SyrDarya River basin water-power resources rational use. Original water resources (expected and actual) in the period under review are presented in Table 1.

Table 1

Parameter (from October 1, 2000 to March 31, 2001)	Forecast, mln. m ³	In fact, mln. m ³	Percentage
Upper reservoir inflows:			
Toktogul reservoir	2673	3406	127
Andijan reservoir	629	1316	209
Charvak reservoir (from 3 rivers)	865	1518	176
Ugam river	110	211	192
Sub-total	4277	6451	151
Lateral inflows:			
Toktogul-Uchkurghan	374	460	123
Uchkurghan, Uchtepe-Kayrakkum	2752	4841	176
Andijan-Uchtepe	1966	3013	153
Kayrakum-Chardara	2044	2282	112
Gazalkent-Chirchik creek	755	820	109
Sub-total	7891	11416	145
Total	12168	17867	147

Because of extreme water-lack in the vegetation period 2000 the Charvak and Andijan reservoirs had been used since 1 October; besides, first for the last years owing to putting into operation “Makhram 0” pumping station in the Kayrakum reservoir the payload volume almost was entirely used for all mentioned reasons; in spite of the Toktogul reservoir power operation mode the Arnasay depression inflow was minimum – rather than 356 million cubic metres.

Change of the Naryn - SyrDarya reservoir cascade capacity and its release dynamics in the non-vegetation period are shown in Tables 2 and 3.

² Information on the first issue of ICWC meeting agenda.

Table 2

Reservoirs	Reservoir capacity, mln. m ³			
	1 October 2000	1 April 2001		1 April 2000
		Forecast	In fact	
Toktogul	13705	9676	8724	10999
Andijan	305	1223	1226	1376
Charvak	503	748	710	694
Kayrakum	1002	3418	3364	3227
Chardara	757	5400	5227	5246
Total	16272	20465	19251	21542

Table 3

Reservoirs	Release, mln. m ³		Difference, +/-
	By schedule	In fact	
Toktogul	7262	8362	+ 1100
Andijan	327	364	+ 37
Charvak	1103	1177	+ 74
Kayrakum	10977	11596	+ 619
Chardara	6242	5953	- 289

The drawback of the most of the annual interstate agreements on the SyrDarya River basin water-power resources rational use, since 1995, is that they mainly reviewed the recovery supply mode and reservoir cascades operation in the vegetation period. Attempt to comprise a whole hydrological year was made by interstate agreement between Kyrgyzstan and Uzbekistan, signed on 5 December 2000, in which it was intended that in autumn-winter period Uzbekistan would supply electric energy and other energy resources for the Toktogul water resources rational use; similar electric energy supply by Kyrgyzstan to Uzbekistan and adequate release from the Toktogul reservoir for the vegetation period were also stipulated in the document. Unfortunately, energy supply commitments were not fulfilled and 1.1 km³ of water more than established by the schedule was released from the Toktogul reservoir while by the beginning of vegetation 8.7 km³ of water had remained in the reservoir itself; there was 2.3 km³ less than on the same date last year in all reservoirs of the cascade.

Water intake of the states-members of ICWC in the non-vegetation period are shown in Table 4. During water allocation there were taken into account current situation in the basin, water intake limits and the requests of republics-water consumers from which any complaint had not been received. Other supplemental characteristics of water resources system operation for the past period are given in Table 5.

Table 4

Republics, water resources sections	ICWC limits, mln. m ³	In fact, mln. m ³	%%
Kyrgyz Republic	20	46	230
Republic of Uzbekistan	2350	2800	119
Republic of Tajikistan	200	127	63
Republic of Kazakhstan (KMK)	373	434	117

Besides:

Table 5

Parameters	mln. m ³
Inflow the Chardarya reservoir	10893
Inflow to the Aral Sea	2772*

*) Volume will be adjusted.

The Naryn-Syrdarya cascade operation mode in the non-vegetation period (from October 1, 2000 to March 31, 2001) of hydrological year is presented in Table 6.

Table 6

	Unit	October	November	December	January	February	March	TOTAL
		fact	fact	fact	fact	fact	fact	mln. m ³
Toktogul reservoir								
Inflow to reservoir	m ³ /s	297	252	202	173	169	203	3406
	mln m ³	795	653	541	463	409	544	
Volume: beginning of period	mln m ³	13705	13447	12913	11979	10779	9547	
end of period	mln m ³	13447	12913	11979	10779	9547	8724	
Release from reservoir	m ³ /s	383	469	549	615	681	506	8362
	mln m ³	1026	1216	1470	1647	1647	1355	
Kayrakkum reservoir								
Inflow to reservoir	m ³ /s	653	807	915	854	946	576	12410
	mln m ³	1749	2092	2451	2287	2289	1543	
Volume: beginning of period	mln m ³	1002	1736	2462	3246	3478	3409	
end of period	mln m ³	1736	2462	3246	3478	3409	3364	
Release from reservoir	m ³ /s	416	630	719	880	1127	687	11596
	mln m ³	1114	1633	1926	2357	2726	1840	
Chardarya reservoir								
Inflow to reservoir	m ³ /s	333	662	877	839	957	513	10893
	mln m ³	892	1716	2349	2247	2315	1374	
Volume: beginning of period	mln m ³	757	1080	1573	2801	4091	5002	
end of period	mln m ³	1080	1573	2801	4091	5002	5227	
Release from reservoir	m ³ /s	247	483	377	359	360	447	5953
	mln m ³	662	1252	1010	962	871	1197	
Inflow to reservoir	m ³ /s	5	1	1	4	25	20	143
	mln m ³	13	3	3	11	60	54	
Release to Arnasay depression	m ³ /s	0	0	0	0	147	0	356
	mln m ³	0	0	0	0	356	0	
Inflow to the Aral Sea	m ³ /s	18	138	251	240	191	220	2772

	Unit	October	Novem-ber	Decem-ber	January	Febru-ary	March	TOTAL
		fact	fact	fact	fact	fact	fact	mln. m ³
Charvak reservoir								
Inflow to reservoir	m ³ /s	123	106	88	80	71	109	1518
	mln m ³	329	275	236	214	172	292	
Volume: beginning of pe-riod	mln m ³	503	584	652	693	677	649	
end of period	mln m ³	584	652	693	677	649	710	
Release from reservoir	m ³ /s	91	72	65	71	73	77	
	mln m ³	244	187	174	190	177	206	
Andijan reservoir								
Inflow to reservoir	m ³ /s	101	127	82	66	69	57	1316
	mln m ³	271	329	220	177	167	153	
Volume: beginning of pe-riod	mln m ³	305	493	754	935	1081	1233	
end of period	mln m ³	493	754	935	1081	1233	1226	
Release from reservoir	m ³ /s	30	27	13	10	3	54	364
	mln m ³	80	70	35	27	7	145	

The Naryn-SyrDarya reservoir cascade operation mode and the SyrDarya intake limits for vegetation 2001

The last forecast of expected water resources for vegetation is to be given on April 11-13, 2001, therefore the Naryn-SyrDarya reservoir cascade operation mode calculation for the started vegetation is based on the preliminary forecast (No 25-07/25 of March 12, 2001), which mentions that “water availability of irrigated farming will be intense”, and is complemented with forecast for the 2nd quarter and April 2001 (No 25-07/33 and No 25-07/34 of March 28, 2001). Comparison of predicted parameters with the actual vegetation indicators for the last decade, notable for ultimate water shortage, is presented in Table 7. As the table indicates, water availability is to be reduced in current year and comparable by size chiefly with 2001 (Table 7, lateral inflows). But there are circumstances that aggravate the situation even in comparison with the last year (if the forecast will be found right; it had not happen to vegetation 2000 – see Table 7):

- there’s less water than last year in the reservoirs of the cascade – see Table 2;
- the Toktogul reservoir cascade operation mode issue has not been resolved;
- there will be difficulties with the Kayrakum reservoir operation mode if commitments on electric energy supply to energy system of Tajikistan would have not been fulfilled.

Table 7

Parameters	Flow for the vegetation period, mln m ³					
	Quota	1995	1997	2000		2001
		In fact	In fact	Forecast	In fact	Forecast
Upper reservoir inflows						
Toktogul	9263	8006	7909	9960	9059	9248
Andijan	2905	1966	1436	2530	1006	1693
Charvak	5119	4432	4627	4348	3819	4001
the Ugam river	521	480	608	474	377	429
Total	17808	14884	14580	17312	14261	15371
Lateral inflows:						
Toktogul –Uchkurgan	1158	1137	949	1154	1030	1112
Andijan-Uchtepe	2426	1893	2175	2213	2253	2104
Uchkurgan, Uchtepe-Kayrakum	3590	2893	2828	3004	2359	2500
Kayrakum-Chardara	3180	2404	2610	2609	1627	1830
Gazalkent-Chirchik creek	1013	696	637	790	563	614
Total	11367	9023	9199	9770	7832	8160
Sum total	29175	23907	23779	27082	22093	23531
Percentage of difference from quota	100	81,9	81,5	92,8	75,7	80,7

Above has been mentioned how the agreement of December 5, 2000 was implemented and has been noted that the Toktogul reservoir release increase concerned with it in the ended non-vegetation. The issues of determination of the Naryn-SyrDarya reservoir cascade operation mode for the started vegetation were discussed during working conference of experts on preparation of agreement between the SyrDarya River basin countries for the year 2001 (March 16, 2001, Bishkek). The Kyrgyz representatives consider, that as in the non-vegetation period because of known reasons from the Toktogul reservoir bigger amount was released than it was planned to release, then in the started vegetation period to prevent reservoir draw down to come to dead capacity there might be released from the Toktogul reservoir for the downstream irrigated farming needs no more than 1.5 km³ over capacity which will satisfy the electric energy needs of Kyrgyzstan passing through the Naryn hydro-electric plants cascade, that is total release from the Toktogul reservoir will constitute 5 km³. The experts of the other countries in the basin suppose that there should be released no less than 2.5 km³ over own energy consumption of Kyrgyzstan or should be released 6.0 km³ from the reservoir in the vegetation.

The Kayrakum reservoir operation mode has been stipulated in intergovernmental agreement between Tajikistan and Uzbekistan of February 3, 2001, but it can be changed if given in the document the volume of electric energy flow to the Tajik energy system wouldn't be provided. Besides, if activities on "Makhram 0" pumping station launch wouldn't have been implemented in time it will be impossible to use about 800 million m³ of the Kayrakum water resources. "Makhram 0" pumping station launch has saved the situation in the SyrDarya midstream irrigated farming in 2000 in many respects but it would be better to carry it out in spring not in the beginning of summer (last year "Makhram 0" pumping station was put into action on August 3, 2001).

The difficulties, that impede the basin water resources system to function normally include lack of agreements between Kazakhstan, on the one hand, and Kyrgyzstan and Tajikistan, on the other hand, till now; also there is not common agreement between all countries in the basin, the possibility of conclusion of which was considered at the above-mentioned meeting in Bishkek.

Taking into account arising situation and present lack of agreement on the Toktogul reservoir operation mode in the vegetation period, there have been reviewed two possible alternatives of cascade operation mode which reflect mentioned positions of sides at the meeting in Bishkek and differ from each other by the Toktogul reservoir release volume:

- 1st alternative: the Toktogul reservoir release volume is 5.0 km³ as the Kyrgyz side proposes, that is there is 1.5 km³ to be released over the Kyrgyz Republic own energy consumption;
- 2nd alternative: the Toktogul reservoir release volume is 6.0 km³ or 2.5 km³ to be released over the consumption of Kyrgyzstan.

Calculations have indicated available water resources volume, according to which should be corrected the intake of water consumers; the coefficients of correction are given in Table 8, but water allocation among the SyrDarya basin water consumer states – in Table 9.

Table 8

Number of alternatives	I	II
The Toktogul reservoir release volume for vegetation, mln. m ³	5000	6000
Coefficient of water intake cut	0.84	0.90
Water deficit, mln. m ³	2900	1900

There have been prepared the Naryn-SyrDarya reservoir cascade operation mode forecast schedules and adequate water intake limits registers for the mentioned alternatives that will be submitted to an inspection of ICWC members. In case of conclusion of agreement between the states of the SyrDarya basin on joint and rational use of the SyrDarya basin water-power resources in vegetation 2001, using shown materials it will be possible to determine the Naryn-SyrDarya reservoir cascade operation mode and water intake limits that should be also adjusted according to arising actual water situation.

Table 9

Water consuming state	Water supply volume		
	For the year of average long-term water availability	Alternative I K = 0,84	Alternative II K = 0,90
Republic of Kazakhstan, including "Dustlik" canal	7700 700	6480 590	6902 628
Kyrgyz Republic	200	200	200
Republic of Tajikistan	1800	1515	1613
Republic of Uzbekistan	8800	7405	7885
Total	18500	15600	16600

ICWC POSITION PAPER CONCERNING OPINION OF ICID, INTERNATIONAL COMMISSION FOR LARGE DAMS AND INTERNATIONAL HYDROPOWER ASSOCIATION ABOUT "THE REPORT OF THE WORLD COMMISSION ON DAMS"³

The World Bank and the World Environmental Council initiated the establishment of the World Commission on Dams to evaluate contribution of large dams to economic and social development as well as to develop procedures for decision-making on dam construction.

In November 2000 the Commission issued the report "Dams and Development: New Technical Base for Decision-Making". The findings of this report have been worldwide discussed and got great encouragement from environmental groups and, at the same time, objections of a lot of professionals in such areas as planning, economy and water management. Major findings of the Commission were as follows: achievement of goals initially set in hydro-technical projects varies from one project to another, and in most cases economic and technical goals were not achieved. Nevertheless, those projects had quite considerable positive effects. The studies confirmed also durability of large dams, many of which continue to provide benefit after 30-40 years of their operation.

Comparison of planned and actual performance of different dams in technical, financial and economic terms allowed the following conclusions:

Large dams for irrigation did not make expected profit, did not cover costs, and in economic terms were less profitable than it was expected.

Large dams for power generation usually give results lower and close to expected ones. Financial goals are achieved in these projects, however actual economic indexes greatly vary compared to expected ones: a range of dams is characterized by over- or under- performance of planned indexes.

Large dams constructed for municipal and industrial water supply do not achieve goals both in terms and volumes of water supply, are not efficient in view of cost recovery, and have low economic indexes.

Large dams constructed to protect from floods perform well, however in most cases they increased vulnerability to floods due to dense population of floodable areas. In some cases damage from floods was increased by many reasons, including bad performance of dams.

Large multipurpose dams present lower results than expected ones, and in some cases difference between actual and planned performance is higher than that for single-purpose dams. This indicates that expected results were too optimistic.

Dam safety requires more attention and investments as existing dams age and their cost increases. Besides, climatic changes probably disturb hydrological regime of spillway projects.

Silting and associated reduction of reservoir capacities are the serious problems all over the world. This is particularly evident in catchment areas with intensified geological or human-induced erosion and in downstream and small reservoirs.

One fifth of all irrigated lands, including those supplied from large dams, suffer from water logging and salinization. These processes have long-term and often irreversible impact on soils, agriculture, and common weal.

³ Information on the sixth issue of ICWC meeting agenda

Construction of large dams causes:
destruction of forests and habitats, reduction of biodiversity, and deterioration of catchments in upper reaches due to water logging after construction of reservoirs;
losses of fish species, fishery losses in upper and lower reaches, as well as degradation of floodplains, marshes, riverine and adjacent marine ecosystems;
aggregate impact of the system of reservoirs on water quality, natural hydrological regime and biodiversity.

In general, dams have rather negative than positive effects, and in many cases lead to considerable and irreplaceable losses of species and ecosystems. However, positive effects occur as well, and those are represented in the creation of new aquatic environment and new areas for fishery and recreation.

About 40-80 millions of people all over the world had to move and migrate from their places of habitation due to construction of dams.

Millions of people living in lower reaches of rivers and particularly those dependent on flood-plain resources and fishery suffered greatly, while future productivity of natural resources in these areas became vague.

Many resettlers were not recognized (or registered), and as a result they were not officially resettled or did not receive compensation.

In other cases compensations paid were too low or resettlers registered were not included in official migration programs.

The resettlers rarely could reach their former living standards since migration programs were directed to physical migration, excluding the rehabilitation of economic and social status of the resettlers.

The larger scale of migration the lower probability of reaching former living standards for suffered population.

Even in nineties the impact of lower reaches on population was not appropriately assessed and taken into account while developing and designing large dams.

The report concludes that though dams make many benefits, in many cases we must pay much greater price to save these benefits. Thus, the Commission suggests a new framework for decision-making based on the acknowledgement of rights and the assessment of risks. This framework was developed through 7 strategic priorities; those are to:

- reach public recognition;
- assess options;
- solve problems of existing dams;
- maintain rivers and wild nature;
- acknowledge rights and keep benefits;
- provide compatibility;
- provide transboundary water allocation.

Three international organizations, such as International Commission for Large Dams; International Commission on Irrigation and Drainage; and International Hydropower Association prepared quite negative opinion about this report and submitted it together with a letter to Mr. Wolfenson, the president of World Bank. ICID also requested all National Committees to deliver their opinions about this report.

We are subscribing to the opinion of three above-mentioned organizations and want to emphasize the following points:

1. Sustainable water supply and land irrigation are impossible without stream-flow regulation, which by means of reservoirs helps to avoid influence of flow variability. Therefore the importance of dams and reservoirs is doubtless, provided that their design and construction are environmentally safe.

In Central Asia regulated flow in the AmuDarya and the SyrDarya totals 86% and 94%, respectively. However, this is insufficient for sustainable water supply. Most of all, developed countries talk a lot about stopping of the construction of dams (USA, Canada, France, Spain, Italy, etc.), while regulation of flow in those countries amounts 200-300%. Thus, sustainable development requires construction of dams among other measures.

2. Many disadvantages attributed to dams actually result from inadequate management. Dam is a tool for regulation, and any tool and mechanism could be used properly or improperly. No one refuses cars though unskillful drivers have automobile accidents resulting in losses of life. To avoid such events rules for dam regulation and operation need to be clearly developed and coordinated.

3. One of the main conditions for successful operation of water-retaining dams is to clearly identify flow share to be used for social, economic and in-stream needs. In this context each river needs to have "environmentally safe intake limit" as a maximum admissible difference between water consumption and water resources in a river.

Many shortcomings in management could be eliminated if water management rules would have set the following: minimum releases from reservoirs should not exceed minimum observed non-regulated river flow, as well as maximum releases should not exceed maximum non-regulated river flow.

4. If present society tends to electric energy supply by hydropower and heat stations using hydrocarbon, in the future hydropower will become a prime source of energy as far as oil, gas, and coal deplete. Under these conditions it is necessary to develop construction of hydropower stations in mountainous areas with minimum flooding and low migration.

Taking into account above mentioned, it is proposed to support objections to the report of the World Commission on Dams as requested by ICID in the letter of February 20, 2001.

PROTOCOL**between the Government of the Republic of Kazakhstan,
the Government of Kyrgyz Republic, and the Government
of the Republic of Uzbekistan about the use of water and
power resources from Naryn-SyrDarya cascade of reservoirs in 2001**

While taking into account that water reserves in Toktogul reservoir for May 1, 2001 were 8,7 billion m³ that was 2,3 billion m³ lower compared to the same period in 2000, and recognizing the necessity for coordinated regulation regime, agreed releases, rational water and fuel-power resources use, the Government of the Republic of Kazakhstan, the Government of Kyrgyz Republic, and the Government of the Republic of Uzbekistan, hereinafter referred to as Parties, agreed about under mentioned.

Article 1

Kyrgyz party will release water from Toktogul reservoir for irrigation purposes of Kazakhstan and Uzbekistan in summer of 2001 with the following rates: June - 457 m³; July - 573 m³; August - 530 m³.

According to the Agreement between the Government of Uzbekistan and the Government of Tajikistan about cooperation on rational water and power resources use in 2001, releases from Kairakkum reservoir should be as follow:

500 m³/s - June;

650 m³/s - July;

650 m³/s - August;

300 m³/s - September.

For above releases from Kairakkum reservoir intake to canal "Dostyk" for Kazakhstan during growing period will be rated as:

11 m³/s - April;

20 m³/s - May;

65 m³/s - June;

85 m³/s - July;

75 m³/s - August;

17 m³/s - September.

Inflow to Shardara reservoir during growing period is to be 2800 million m³.

Article 2

To ensure established irrigation releases and intake limits for Kazakhstan and Uzbekistan Kyrgyz Republic will fulfill in summer cross-flow of 2,2 billion kWh of energy, including 1,1 billion kWh for Kazakhstan and 1,1 billion kWh for Uzbekistan. In case when these republics do not receive energy in equal shares, water should be reallocated between the parties proportionally to received energy.

Article 3

Payments for energy cross-flows will be made with:

- Kazakhstan by agreement of April 19, 2001 between the Government of Kazakhstan and the Government of Kyrgyz Republic about the use of water and power resources from Naryn-SyrDarya cascade of reservoirs in 2001.

- Uzbekistan by agreement of December 5, 2000 between the Government of Kyrgyz Republic and the Government of Uzbekistan about joint use of fuel-power and water resources in 2000-2001, by addendums and amendments to this Agreement of January 2001 and by Interstate Protocol of May 20, 2001.

Article 4

The Parties agreed to take measures in order to prevent drawdown of Toktogul reservoir to dead storage level in coming autumn-winter period of 2001-2002.

Article 5

Taking into account existing complex situation with water and power regimes in the SyrDarya basin, Kazakhstan, Kyrgyz Republic, and Uzbekistan commit themselves not to take measures that break agreed schedule of water releases and power supply and infringe upon the rights of other Parties to receive mutually agreed water amounts and power supply.

Article 6

BWO "SyrDarya" and ODC "Energiya" are responsible for day-to-day adjustment of release schedules and energy cross-flows, under agreement with concerned Parties and based on water and fuel-power situation.

Article 7

The Parties ensure access, if necessary, for observers of any interested Party to water structures of BWO "SyrDarya" during growing period.

Article 8

During growing period BWO "SyrDarya" gives to the Parties the on-line information on intake volumes every ten-days, while data on some main items are given every day.

Article 9

The use of water and power resources in Naryn-SyrDarya cascade of reservoirs in 2001-2002 should be addressed at the end of the third quarter of 2001 in Bishkek at a work meeting of the representatives of the water and fuel-power departments from Kazakhstan, Kyrgyzstan, and Uzbekistan.

Article 10

Present Protocol can be amended or supplemented as mutually agreed by the Parties. These amendments or supplements will be drawn up as separate protocols to be the integral part of the Protocol.

Article 11

In case when disputes or polemics arise during interpretation and application of the Protocol, the Parties will settle them through consultations and negotiations.

Article 12

Present Protocol becomes effective since the date of signing.

Drawn up in Bishkek, 20 May 2001 (three copies, Russian version).

The Government of the Republic of Kazakhstan
The Government of Kyrgyz Republic
The Government of the Republic of Uzbekistan

PROTOCOL

between the Government of Kyrgyz Republic and the Government of the Republic of Uzbekistan to the Agreement between the Republic of Uzbekistan and Kyrgyz Republic about joint fuel-power and water resources use in 2000 and 2001 from December 5, 2000

While taking into account that water reserves in Toktogul reservoir for May 1, 2001 were 8,7 billion m³ that was 2,3 billion m³ lower compared to the same period in 2000, and recognizing the necessity for coordinated regulation regime, agreed releases, rational water and fuel-power resources use, the Government of Kyrgyz Republic and the Government of Uzbekistan, hereinafter referred to as Parties, agreed about under mentioned:

1. During growing period of 2001 Kyrgyz Republic should generate and transmit to Uzbekistan the electric power in the amount of 1100 million kWh and additional releases of 1250 million m³ of water.

2. To ensure irrigation releases the Republic of Uzbekistan should receive electric power from Kyrgyz Republic in the amount of 1100 million kWh during summer period.

3. In exchange for received electric power Republic of Uzbekistan should supply Kyrgyz Republic with:

- 700 million m³ of natural gas to Heat Power Plants in Bishkek and Osh;
- 10 365 tons of diesel fuel until September 15, 2001 (2000 t - May; 1000 t - June; 1000 t - July; 3365 t - August; and, 3000 t - September);
- 8000 t of motor petrol (A-76) (4000 t - June; 4000 t - July) at price and by the terms of diesel fuel supply;
- 3 power transformers (capacity - 25 000 kilovolt-ampere; voltage - kV) until September 1, 2001;
- 20 000 t of fuel oil to Heat Power Plant in Osh until September 1, 2001;
- renewal of 12600 t of fuel oil as agreed for combustive-lubricating materials.

4. To avoid excessive releases in autumn-winter period of 2001-2002 and to save water resources in Toktogul reservoir the Republic of Uzbekistan should ensure firm supply of natural gas in the amount of 525 million m³ to population and municipal structures in Kyrgyz Republic from May 1, 2001 to March 31, 2002.

5. To prevent drawdown of Toktogul reservoir to dead storage level in coming autumn-winter period of 2001-2002 the Parties should take additional measures.

6. Taking into account existing complex situation with water and power regimes in the SyrDarya basin, Kazakhstan, Kyrgyz Republic, and Uzbekistan commit themselves not to take measures that break agreed schedule of water releases and power supply.

7. Present Protocol becomes effective since the date of signing.

The Government of Kyrgyz Republic
The Government of the Republic of Uzbekistan

**Memorandum on the results of the work visit of European partners
to Central Asia (INCO-Copernicus Project ICA-CT-2000-10039)**

April 2-11, 2001

Tashkent and Fergana Valley

Participated:

SIC ICWC team: Prof. Victor Dukhovny, Vadim Sokolov, Pulat Umarov, Khaldar Yakubov, Eric Cholpankulov, Olga Inchenkova, Alexander Touchin, Alexander Platonov
SANIIRI team: Michael Khorst, Galina Stulina
KyrgSRII team: Amanzjul Atakanov, Raisa Gorbachyeva, and Mira Arinova
Miraval Oshurbekov - senior researcher, TadjNIIGiM
Portuguese team: Prof. Luis Santos Pereira, Jose Goncalves, Maria da Rosario Cameira, Pedro Fortes
French team: Daniel Zimmer, Bernard Vincent, Sami Bouarfa

Chaired by:

Prof. Luis Pereira, Agrarian University, Lisbon, Portugal
Prof. Victor Dukhovny, Director, SIC ICWC, Uzbekistan

The meeting reviewed activities carried out during the first project year. Field visit was arranged to three selected farms in Khodjent (Tajikistan), Fergana (Uzbekistan), and Osh (Kyrgyz Republic). Scope and procedures of field experiments were developed in details and agreed together with local executors.

Central Asian participants appreciated that professionals from the European research institutes were open to share their experience in all project-related aspects. Full mutual understanding was reached during this mission, which is a good base for future collaboration and the achievement of research and practical results.

European partners marked high professional level of local specialists and thanked local staff for good organization of their visit. They also wished to continue cooperation within the project.

Field visits and discussions in groups resulted in the following agreements:

1. Work Package 1 "Knowledge Base"

All parties were satisfied with the prepared materials and methods. Those required some contribution from FAO and Cemagref. At the same time Kyrgyzstan, Tajikistan, and SANIIRI did not meet some engagements related to this package (as included in the protocol of meeting in February 2001, Almaty). Prof. L. Pereira was requested to communicate as soon as possible with Mr. Martin Smith from FAO regarding CORDIS program.

2. Work Package 2 "Information System/GIS"

Several results were obtained during the creation of database, and all the partners agreed that further development would include GIS. Irrigation zone (scheme) with an area of 5 000 ha is to be considered as the unit in this information system. Running of ISAREG model, using GIS is under progress. Work schedule for WP-2 should be revised in the report for first project year in order to complete DB together with GIS for three pilot plots (irrigation schemes). Issues of remote sensing application in the project were discussed as well. Cemagref team will explore opportunity to purchase satellite images (Central Asian countries are ready to cover a share of costs) and will provide the procedure for the estimation and validation of vegetation parameters. The first project year covers two plots (Uzbekistan and Kyrgyzstan). In the future we will explore possibility of including the plot in Tadjikistan. French specialists should plan for this year another one visit to the region for more detailed study of drainage problems and remote sensing application (date to be agreed later). SIC ICWC should find an opportunity of sending one specialist to France for training in GIS and remote sensing and of engaging young specialist to transform maps into digital format in GIS.

3. Work Package 3 "Crop water requirements and irrigation scheduling"

Considerable progress was made in this direction. Local specialists tested ISAREG model, and three institutes prepared skilled specialists to handle this model. Maria da Rosario Cameira and Galina Stulina prepared detailed protocol on field studies for this package. Eric Cholpankulov raised the following questions: EVAPOT needs to be further modified to run it from hard disk; more detailed consultations are required for KCISA model, such as how to create crop file for ISAREG model (K_c and p parameters). Maria da Rosario Cameira and Galina Stulina developed a protocol for adjusting and estimating RZWQM model in order to simulate water flux and salt movement in irrigated soil. As agreed with Habibulla Umarov an experimental site with corn would be established in Fergana.

4. Work Package 4 "Irrigation systems and irrigation technique"

Field experiments were approved. Jose Goncalves and Michael Horst agreed upon the program of future activities and outputs from first field studies. Gauging equipment was tested. SIRMOD model has been translated into Russian for further dissemination among all local partners.

5. Work Package 5 "Drainage and salinization control"

It was agreed to work at three levels: first - using one-dimensional RZWQM; second - using observations for two-dimensional simulation between two drains; and, third - simulation at farm level, using water-salt balance from Fergana valley. The necessity of accurate measurements in Fergana pilot plot for inflow-outflow, including in drains, was stressed. First priority is to install equipment and to train local staff. The partners approved special detailed protocol on further activities. It was concluded that two drainage models (Cemagref and SIC ICWC) should be parametrized, tested, and compared, using similar experimental data.

6. Work Package "Decision Support System"

A.Touchin fulfilled the first year program and presented an original approach to the optimization of water distribution at a level of irrigation system. Jose Goncalves and A.Touchin reached mutual understanding on further activities, including the formulation of limitations.

Responsibilities on the preparation of first report were discussed and agreed. It was decided to arrange second visit to Central Asian in the next year.

Signed by:

Luis Pereira
Vadim Sokolov
Amanzjul Atakanov

Daniel Zimmer
Michael Khorst
Miraval Oshurbekov

DECISIONS OF THE SECOND MEETING OF THE NATIONAL COORDINATORS' WORK TEAM, RELATED TO THE PREPARATION OF SUB-REGIONAL PROGRAM OF ACTIONS FOR COMBATING DESERTIFICATION IN THE ARAL SEA BASIN (SPACD)

April 26-27, 2001

Almaty, Kazakhstan

1. Work Team outlined the decision of ministerial conference on SPACD (July 18, 2000, Bishkek, Kyrgyzstan) that SPACD should be developed by existing in CAR organizations and research institutes.

2. It was agreed that Work Team of National Coordinators on SPACD should play the coordinating role while developing SPACD. Chairman of the meeting will be the contact person of the Work Team until next meeting.

3. The meeting's participants appreciated GEF attempts on initiating Regional Technical Assistance (RETA) together with ADB and in cooperation with Commission for Combating Desertification (CCD). The participants emphasized the development of RETA as the strategic broad partnership between GEF, ADB, and GTZ.

4. The Work Team particularly emphasized high scientific potential in Central Asia and confirmed the importance of scientific collaboration in sub-region as a component of SPACD, using capacities of SIC CSD and SIC ICWC.

5. The Work Team selected 5 urgent priority areas out of 11 ones identified in Bishkek:

- i. Monitoring and evaluation of desertification processes, and environmental impact assessment.
- ii. Water use improvement in agriculture; control of erosion, salinization, and water-logging.
- iii. Agrosilviculture and forest resources management in plains and mountains; upper watershed management.
- iv. Pasture management.
- v. Biodiversity and nature conservation; ecotourism development.

Besides, it was proposed to extend priority areas by "The creation of early warning system and the mitigation of drought effects". Other areas identified in Bishkek were considered as the main tools during cooperation, viz: public participation in natural resources management; scientific collaboration in sub-region; awareness raising and information management; educational programs; institutional support of national coordinating agencies; and, policy and law harmonization. At the same time, the participants mentioned to the need of creating Topic networks within SPACD.

SPACD development should be accompanied by the establishment of pilot projects in every Central Asian country. It was recommended to start: pilot project on item IV in Kazakhstan; pilot project on items III and V in Kyrgyzstan; pilot project on item II in Tajikistan; pilot project on "Biodiversity and nature conservation; ecotourism development" in Turk-

menistan; and, pilot projects on item I and on "The creation of early warning system and the mitigation of drought effects" in Uzbekistan. At the same time the countries can develop projects in other above-mentioned areas. The Work Team requested donors' community to start fund raising for those pilot projects.

6. Work Team noted that on-going regional and national programs in Central Asia should be taken into account during SPACD development.

7. Work Team stressed the importance of NGO involvement. The Team showed interest in further development of RIOD-Central Asia's activities (newsletter, web-site in Internet, various publications). RIOD-Central Asia was ready to share its communication ways and the experience in information exchange. Work Team's participants confirmed the need for the involvement of NGO dealing with social sector and local communities. It was suggested to establish NGO's public council in order to provide involvement of NGO in SPACD development. Potential and experience of NGO should be considered during the development of pilot projects. It was also decided to organize in 2001 sub-regional meeting of NGO from Central Asia and Europe where the role and capacities of Central Asian NGO for SPACD would be discussed. Besides, NGO's role was marked in CCD implementation by allocating 100,000 \$US within GEF program "Training and sharing experience between communities".

8. Work Team stressed the importance of the development and use of indicators as the monitoring tool and an integral part of planning, implementation, and improvement of national and sub-regional programs of actions. Work Team decided to hold in Autumn 2001 training workshop on indicators, including CCD implementation.

9. Work Team accepted an offer to hold in 2001 DSE courses on strategic project planning and management. These courses could be crowned with a meeting on the formulation of pilot projects (see item 5 of given decision) for Central Asian countries. It was decided to organize in 2002 DSE courses on the following topics: land use planning at a level of local communities; and, catchment management planning. Work Team appreciated that DSE granted 5 vacant positions for Central Asian countries in DSE courses on project management (November-December, 2001, Germany).

10. Work Team accepted two suggestions to develop cooperation between Central Asia and Israel in combating desertification: MASHAV, Department of International Cooperation at the Ministry for Foreign Affairs of Israel suggested to conduct (1) courses in Central Asia on the adaptation of environmentally safe agricultural technologies for dry lands; and (2) appropriate training in combating desertification for Central Asian experts in Israel. Institute for Desert Studies suggested training for Central Asian skilled specialists in International School for Desert Studies of Albert Katz on the implementation of research and development projects, similar to SPACD, in order to take master's degree in desert studies upon completion of their research/projects.

11. Work Team recognized that formulation of SPACD should be completed as soon as possible, using information capacities of the Regional Environmental Center and other existing organizations in sub-region.

12. The participants also stressed the need for cooperation and interaction during development of SPACD and REPA (Regional Environmental Program of Actions). Work Team also recognized that ICSD should be kept informed on progress within SPACD.

13. It was decided to hold the third meeting of the Work Team in Geneva during the fifth conference of CCD to analyze progress and make decisions on date of the next preparatory meeting to International conference for SPACD adoption and on the conference itself.

14. The participants expressed their gratitude to the Government of Germany for financial support of the meeting, as well as to the Government of Kazakhstan for perfect arrangements and hospitality.

CCD National Coordinators from Central Asian countries:

Kazakhstan
Kyrgyzstan
Tajikistan
Turkmenistan
Uzbekistan

Ye.Adjigaliyev
K. Kulov
D.Gulmakhmadov
M.Durikov
A.Ovchinnikov

PREPARATORY MEETING ON THE ORGANIZATION OF GLOBAL WATER PARTNERSHIP (GWP) ACTIVITIES IN CENTAL ASIA AND TRANSCAUCASIA

Preparatory meeting on the organization of global water partnership (GWP) activities in Central Asia and Transcaucasia was held in ICWC Training Center, May 15-17, 2001. Representatives of Armenia, Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan and other regional organizations took part in this meeting. GWP was represented by Halid Motadullah, executive secretary, Torkil Yonch-Klauzen, chairman of GWP Technical Committee, and Henrik Larsen, director of GWP Resources Center in Denmark.

Global Water Partnership was established in 1996 as an international network of water-related (governmental, private, regional, research, design, etc.) organizations. The main objectives of GWP are the development and worldwide application of integrated water management principles, as well as the exchange of information and experience. Since its establishment GWP was directed towards a dialogue on approaches to integrated water management, and has expanded to eight regions, such as Europe, the Mediterranean, Southeast Asia, South Asia, West Africa, South Africa, Central America, and South America. Basic GWP organizations are Advisory Group (60 representatives of water-related organization all over the world) and Steering Committee (12 people). In 2000 Prof. V.A.Dukhovny, director of SIC ICWC, became a member of the Advisory Group.

During last three-four years representatives of Central Asia and Transcaucasia expressed their opinion to take an active part in GWP activities. However, GWP Board was limited in funds to expand its activities. In June 2000 Steering Committee decided to include another two regions in its membership: Central Asia and Transcaucasia as single region; and, China. In August and September 2001 Danish Agency for Environmental Cooperation in Eastern Europe (DANCEE) at the Ministry of Environment and Power Engineering started the preparation of the regional strategy to support Central Asia and Transcaucasia in integrated water management.

It was agreed at the meeting in Tashkent that due to Danish financial support it would be possible to start establishing GWP Regional Network in Central Asia and Transcaucasia on a basis of SIC ICWC and two Regional Ecological Centers (in Almaty and Tbilisi) together with water departments and NGO from eight countries. It was suggested to focus regional activities on three major directions:

- Strengthening of (communication) network of water-related organizations from eight countries. This can be reached through the extension of existing IPTRID Network in Transcaucasia and Central Asia.
- Development of public participation and the information network in integrated water management with NGO involvement in each of eight countries.
- Extension of training network established by ICWC with the support of CIDA and other donors.

Besides, representatives of the region expressed their interest in the participation in GWP Associated program, which consists of a range of projects. Thus, the participants presented their proposals on WATERHOUSE (creation of water saving network), IPTRID programs (exchange of irrigation and drainage information), and INFONET (information service on water saving). Moreover, GWP's representatives were acquainted with a detailed work program on the demonstration of advanced water saving practices and the improvement of

irrigation system productivity, prepared by SIC ICWC and IWMI. As before agreed GWP promised to promote donor support for this program in the Government of the Netherlands.

Major result of the Tashkent meeting was the decision to hold extended meeting of the regional water partnership (50-70 representatives of eight countries) in Khodjent, Tajikistan in late October 2001. It was decided to establish 'pushing group', which would be occupied with meeting arrangements and with the preparation of all required documents. 'Pushing group' would include one representative per Water Ministry and one representative per non-governmental organizations from each country, as well as representatives of three regional centers - SIC ICWC, REC CAR, and REC Caucasus. 'Pushing group' would be coordinated and supported by GWP Resource Center in Denmark (DHI).

PROTOCOL OF SEMINAR OF WATER, NATURE CONSERVATION AND ENERGY SECTOR SPECIALISTS OF CENTRAL ASIA COUNTRIES – LISTENERS OF SIC ICWC TRAINING CENTRE AND MCGILL UNIVERSITY (CANADA) ON RESULTS OF TRAINING ON “TRANSBOUNDARY WATER RESOURCES: STRATEGIES FOR REGIONAL COOPERATION IMPROVEMENT” (WITH PARTICIPATION OF USAID PROJECT “PERFECTION”)

April 26, 2001

Tashkent

The training participants have passed a training course of program on “Transboundary water resources for regional cooperation improvement” in accordance with confirmed subjects, have acquainted with prepared lectures, have heard the presentations of moderators and have held an active discussion of intercommunicated regional and national water, energy and environmental problems. As a result, the participants have worked out practical recommendations for water-power resources rational use, nature conservation and improvement of regional water-power system management forms on different levels of management, keeping in mind national interests and directions, and occurring economic reforms in the countries.

The training participants are representatives of regional organizations (Executive Committee of IFAS, SDC), heads and deputy heads of district (oblast) and basin water administrations, specialists of committees on nature conservation, power services and water resources controls of Central Asia states.

In the capacity of moderators have appeared: professor N.K. Kipshakbayev - Director of the Kazakh subsidiary of SIC ICWC, A.A. Jalalov - Prime Deputy Minister of Agriculture and Water Resources of the Republic of Uzbekistan, A.M. Ramazanov – Chairman of Committee on Water Resources of the Republic of Kazakhstan, M.M. Sarkisov – former director of Turkmengiprovodkhoz, U.S. Saparov – Technical Director of Executive Committee of International Fund for the Aral Saving; reports in the name of energy organizations were presented by I.D. Ametov - Head Controller of Center “Energy”, A.G. Zyryanov – Head of Hydrotechnical Service “Kyrgyzenergo”, G.N. Petrov – adviser of Minister of Energy of the Republic of Tajikistan. Programs of studies and copies of lectures, that were distributed in advance for a preview and preparation of them for comprehension, have promoted organization of discussions by moderators. Presentation was accompanied by attracting modern training means on the basis of computer technique and technology: video materials on various aspects of water-power resources use, on resolution of environmental problems in the world and in the Aral Sea basin, and materials on implementation of regional projects WARMAP, WUFMAS, GEF.

The listeners have noted a wide thematical scope of training program that touches upon the issues of water management, water-power resources rational use, taking into account environmental requirements. The listeners have emphasized historical and geographical community of Central Asia countries united by common SyrDarya and AmuDarya Rivers of the Aral Sea basin and also the need for further development of regional cooperation, positively estimating taken in the region measures on cooperation of regional organizations. The listeners have approved the need for transboundary water resources use limits observance, the agreed reservoir operation mode, taking into account rational use of water-power potential, environmental requirements, and efficient fulfillment of commitments on compensatory alternatives. There was underlined the need for further improvement of elaborated mathematical models of the Aral Sea basin water-power resources management, training of specialists–users of this

models, dissemination of these models of management among Central Asia countries. The meeting participants have considered the necessity of improvement of hydrometeorologic service delivery to sectors of economy in Central Asia countries, particularly, on the transboundary rivers for the purpose of reliable forecasting of the river water availability, and water sources pollution monitoring. In this connection, there was underlined the timely ICWC decision on need for meteorostations on the Fedchenko and Abramov glaciers restoration, and need for determination of countries share holding in their restoration.

Professor S. Vinogradov (University of Dandy, Scotland), D. Pierce (the World Bank Regional Mission in Central Asia countries), M. Biddison (USAID), professor D.Herring (USA), N.Mutyran (Mission "Mediciens saus frontiers") and other participants have met with the listeners and have presented their lectures.

The Training Center audience has listened intently and with interest to lectures of R.A.Giniyatullin, Head of GEF Agency, regional monitor, on holding of contest on water saving in the framework of subcomponent A-2 of the GEF Project by M.Khorst.

The participants noted high level of preparation of SIC ICWC thematical materials and lectures, also the level of work and analysis of available abundant information materials.

The listeners have been satisfied by structure of lectures, contents of stated materials, technique, organization of dwelling and have expressed their wishes to supplement the structure of lectures by the theme of metrological support, more active participation of ecologists in the Training Center activities.

The listeners have stated the need of more active work with the community in different aspects of water-power cooperation, on resolution of environmental problems, and attraction of opportunities of non-governmental organizations for informing of population on water resources rational use problems, especially, in the years of extreme water shortage.

The lasting decline of infrastructure and the drawbacks of staff preparation in water systems of Central Asia countries have caused anxiety as they can cast doubt on sustainable operation of water resources systems in the midterm perspective.

The seminar participants have also noted the need of enhancement of responsibility and status of regional organizations for their successful activity.

The training participants have set out the following recommendations and proposals for improvement and further development of regional cooperation and training activity:

1. Although international water law doesn't give precise recommendations for application and use of various conventions on international water flows (or transboundary water resources) management, conservation and development, there is no doubt about necessity of recognition of cooperation doctrine on the basis of equitable and reasonable use of joint water resources. Strengthening of this part is the only possible way of survival for Central Asia countries in conditions of increasing water supply deficit.

2. Priority direction of water-power cooperation development between Central Asia countries is information exchange between countries and trust between adjacent countries.

3. Economic relations on transboundary water resources should be based on understanding of common responsibility of countries for joint water resources management, conservation and use and for creation of financial mechanism that will help to fulfill the regulations of international water law:

- equitable and reasonable water share of each country;
- not to cause damage, but in that case to establish payment for it;
- joint efforts on water use stability maintenance.

Recommended economic approaches should be regularly improved for the purpose of introduction of economic and financial instruments for water resources rational use and conservation.

4. Strengthening of collaboration of Central Asia countries economic sectors between each other and between countries on creation of integrated methods of management and conservation in basin management, and strengthening of ecological aspects of management. For this purpose, to agree with the proposal of A.M.Ramazanov, representative of Committee on Water Resources of Kazakhstan, on admittance of the energy sector representative of the country into ICWC working groups staff.

5. To note insufficient measures on reconstruction and development of Hydrometeorological Services network of five countries, especially, in part of sustainable forecast basis ensuring. To support ICWC activities on finding means and renewal of observation on the hydrometeorological posts on the Fedchenko and Abramov glaciers, also on joint holding of ice storage surveys in the mountains.

6. Although water resources management is constantly improved under the efforts of BWO, the issues of river water resources quality are remaining beyond BWO control, that can lead to further deterioration of water resources parameters. Hence, to promote improvement of hydrometric observation in the main transboundary posts; in part of water resources quality, to reinforce the water sources pollution monitoring determining contribution of each country. To make this information available to all countries in the region. To hold special training courses on issues of water resources conservation and water saving technologies in agriculture.

7. To approve mathematical models of the Aral Sea basin water-power resources management, that have been worked out by SIC ICWC.

To consider expedient holding of the training seminar of management mathematical models users.

To begin dissemination of elaborated management mathematical models in various versions in the countries. To establish their based cost.

At the same time, it is appropriate to develop the software environment in Central Asia states in the following directions:

- optimization of seasonal regulation modes taking into account interests of different countries;
- optimization of economic interaction mechanisms including compensatory measures;
- multi-year planning of water resources use;
- evaluation of environmental impacts and selection of environmental mechanisms.

8. Issues of both international and national water law should be reviewed in part of their development and improvement within the region. From these positions, intended special seminars on international water law are important for joint analysis of existing and emerging legal documents in the field of water and power relationship and the environment.

9. To consider expedient during training to deliver the listeners information materials on comparative statistical data of Central Asia countries in part of water resources and environment. To recommend SIC ICWC jointly with SIC SDC to organize preparation of such brochures.

The participants applauded wide development of training activity, which is connected with issues of Central Asia countries sectoral interaction in the field of water resources and environment, and noted the importance of involvement of SPA, SDC and CAEC into this activity.

RESOLUTION OF THE SEMINAR “INCREASE OF PARTICIPATION SHARE OF NON-GOVERNMENTAL ORGANIZATIONS IN THE PROCESS OF DECISION MAKING CONCERNING ENVIRONMENTAL PROTECTION IN UZBEKISTAN”⁴

March 22-23, 2001

Tashkent

Being based on the principles of cooperation in the field of environment and guided by idea of amalgamation of efforts of state, non-governmental and international organizations for protection of human rights to acquire and disseminate environmental information, and noting the necessity of enhancement of public awareness of ecological rights, and also taking into account the importance of implementation of civil rights for compensation of environmental damages.

The participants of seminar have come to single opinion on necessity:

1. To appeal to Oliy Majlis of the Republic of Uzbekistan with recommendation on relevance of ratification of the UN Convention on access to environmental information for enhancement of participation of community in the process of important ecological decision making and access to justice on issues concerning environmental protection;
2. To develop cooperation of state and non-governmental organizations on enhancement of public awareness of the nature state and civil rights for protection against pollution impacts and introduction of environmental damage recovery mechanism;
3. To challenge environmental SPA's to activate the participation in the procedure of evaluation of acting and designed producers and projects impact on the environment through holding of public lectures, public opinion polls, and organization of public ecological assessment with further coverage of results in mass media.

To recommend:

- to support the offer of the participants of the seminar on inclusion changes and additions to the Law of the Republic of Uzbekistan “About ecological expertise”;
- to consider timely statement of issue on creation of qualified staff preparation system in the sphere of environmental law;
- to take necessary steps jointly with state bodies for enhancement of environmental law culture level of population through environmental law enlightenment (holding of seminars, round tables, quizzes, contests, exhibitions with wide coverage in mass media);
- to support idea of environmental youth clubs development;
- to note the need of working out training aids on environmental law in Uzbek and Russian;
- to offer ABA CEELI to establish integrated data bank of environmental experts of Central Asia for rendering necessary assistance in resolution of potential conflicts and introduction of access to it to state, commercial and non-governmental organizations;
- to continue cooperation of state and non-governmental organizations in law field formation in the Republic to increase their potential in the process of essential decision making in the sphere of environmental protection;

⁴ Seminar was held under the aegis of Organization for Security and Cooperation in Europe, American Lawyers Association, Central Eastern European Law Initiative (ABA/CEELI).

- to approve the initiative of Uzbekistan Information Ecological Bulletin establishment;
- to request the administration of European Security and Cooperation Organization and ABA CEELI to support proposal of the seminar participants to hold Eco-Forum of SPA's of Uzbekistan in June 2001 in Almalyk, Tashkent region.

UNESCO ORGANIZATIONAL CONFERENCE "FROM POTENTIAL CONFLICTS TO COOPERATION DEVELOPMENT" (WATER CONFLICTS RESOLUTION IN INTEGRATED WATER RESOURCES MANAGEMENT)

July 7-10, 2001

Delft, IHE

UNESCO within WWAP program frames (World Water Assessment) in accordance with decision of Declaration of Ministerial Conference in Hague at World Water Forum in March 2000 developed PCCP project "From potential conflicts to cooperation development in water management" and organized meeting of world well-known scientists as experts in this project.

In organizational meeting held in IHE Scientific-Training Center more 40 experts from different world parts took participation, and basic aspects of scientific-practical works, practical outputs were formulated, as well as contexts of fulfillment were outlined.

In this project UNESCO takes into account premises appropriate to their mandate that world cooperation concept in human thinking creates philosophic basis and ethic commitments to overcome possibility of water conflicts. Popular in recent time version of Ismail Serageldin that next century will be century of water wars has neither historical nor ideological basis - humanity aspiring to use water advantages always took into account necessity of common actions in this direction that reflected in moral principles of all confessional religions. Historians date recent water war in 4th century BC (on Tigris and Euphrates between Lagash and Umma).

West awareness of "conflicts" differs from our and Asian one and is formulated broadly classifying them in competition, confrontation, disputes and direct sudden conflicts related to water management problem.

Two notions of water conflicts were proposed:

J. Bogardi, Project Director - "Water conflict is any problem in water management, which involves 2 or more participants presenting different point of views of distribution, goals, norms, methods and approaches as well as other sides of water-economic activity".

V.A. Dukhovny, SIC ICWC Director - "Water conflict is action or set of actions, which can cause significant deviation or breaking of coordinated order of integrated water management with account for environment requirements".

Latter definition was adopted as the most appropriate to PCCP program that is oriented on zonal basin impact.

Project has purpose to identify issues of future conflicts and on base of analysis to elaborate measures and complex of consultative policy in this area to ensure conflicts prevention on base of cooperation.

5 basic project aspects are planned:

- historical - aspects of past, present, analysis of future alternatives;
- juridical - legal base of cooperation and conflicts prevention including organizational cooperation base (analysis of international water right, its disadvantages, necessity to complete system of contracts, agreements and guidelines);

- methodical - base of approaches and guidelines to discussion, reaching understanding and consensus, public participation of concern people, social and dynamic approaches;
- system analysis - complex of decision support systems including forecasts, models, data-bases etc.;
- educational - preparation of proper training programs, mechanisms, virtual libraries in Internet.

It was underlined that "training and educational activities should become method of replacement of brains fighting for friendship and understanding".

Project Director Prof. J. Bogardi in his introductory speech said that instead of cultivated in the West the Aral Sea basin demonstration as negative example of water resources use and development in 60-80-ies of last century it is necessary to concentrate attention on following thing. Due to coordinated actions of Central-Asian head of states effectively using decisions of regulating water management situation adopted by Soviet Government in recent years structure and system of work was created among five national and regional departments, which allowed no conflicts in water management in spite of complex situation in region and in spite of that quantity of participants in this basin in comparison with other basins reached five! This is indicator of that balanced structure can serve as buffer against conflict arising.

At conference SIC ICWC Director Prof. V.A. Dukhovny report "International water right aspects on example of the Aral Sea basin" was presented.

GENERAL ASSEMBLY MEETING "TECHWARE" (EUROPEAN ASSOCIATION ON RESEARCH AND WATER EDUCATION DEVELOPMENT)

11th European meeting of General Assembly "TECHWARE" was held on July 15-16, 2001 in Capotera (Sardinia), where new trends of activity and development were discussed. Researches and training should follow directivity of European Union new directive titled "Water management basic provisions" (WFD 2000/60/EU). Though we do not belong to European region and more so to EU activity zone, nevertheless EU views of environment and their development can be good example for water management all over the world in part of perfecting water management in Europe.

European Commission representative Dr. Guido Prenazi, Senior Adviser of URC-USPRA EU Institute presented general report.

Main aspects of WFD directive were defined as necessity during 15 years after it started to work (WFD was approved in Stockholm on May 2-4, 2001) in all country - EU members:

- good quality of all waters including surface, ground, shelf, and wastewater;
- formation of basin organizations as bodies of this management;
- review of legal base to decide two mutual beneficial tasks.

WFD signifies new approach to nature protection at European level on base of subsidies to maintain environment, specification of regional and national tasks including restriction of norms and appropriate measures at governmental level. This supposes, in first turn, introduction of economic mechanism on base of principle of covering all costs, quantitative limitation and pollution of flow and ground water disposal and, finally, environment management with broad participation of all water users and concern organizations.

WFD planned four basic ways to decide these tasks:

- coordination between all world community countries, national and regional organizations in implementing integrated and effective water policy;
- measures on creating "security network" that meet restricted tightening demands of Directive including surface and ground water diversion control;
- data collection to create reliable information base of water environment, monitoring, and environmental analysis. All this will allow appropriate agencies to develop perfect and sustainable policy;
- transparence of water bodies activity and overall information disseminating as well as public consultation organizing. This direction includes also network of information exchange among professionals as well as between professionals and users.

Water strategy development should include:

- Integrated water management based on river basins in spite of administrative boundaries within water collection taking into account current analysis of all elements of nature and society interaction within basin. From this point of view WFD recommends to divide basin region into sub-basins that requires very close coordination between world community countries meaning transnational character of basins and sub-basins.
- Program of measures on achieving high water quality requires analysis of existing national legislature and level of its coincidence to WFD, and its review, if coincidence is absent. Strengthening of measures is proposed especially to tighten control of pollution from in-

dustry, agriculture, and urban treatment plants. Economically acceptable land use is one of most important aspects of this complex.

Constructive approach recommended by Directorate in tightening pollutants' control foresees:

- limitation of pollutants released to sources;
- establishment of allowable permissible concentration for water sources and water objects;

Attention of all EU countries is paid to necessity of defining cumulative effect from release of all pollutants within zone, country and restricting this limit orienting on requirements not only for drinking water but also for bath.

Water monitoring should include complex system of observations of quantity and quality of surface and ground water as:

- EU control monitoring;
- operative monitoring of each country;
- research monitoring.

Principle "polluter pays" is recognized as main tool promoting water sources treatment as payment for water as resource or for release of pollutants in sources. He must totally cover costs for these purposes in EU.

Public consultations should scope not only content of Directive itself and its implementation plan but also such issues as water quality of neighbors, water cost, industrial and agricultural emissions impact on fishery and recreational use as well as water treatment cost. Consultants should involve not only citizens, users, environmental groups, local municipal communities, but also governments, water bodies, industry, and agriculture. Delegates reported in detail about measures of Spain, France, Finland, and Hungary (as EU candidate) on preparation of this Directive implementation plan. Using high level in WFD implementing already in 1999 water law change was approved appropriate to WFD program. Hydrological aspect reaches high environmental status as base of progress of pointed countries. There is balance between regional and sectoral development.

Water saving is recognized as main aspect and term of future development.

Regarding SIC ICWC Director V.A. Dukhovny report about ICWC Training Center activity agreement about participation in range of joint actions on developing researches and education was reached:

- program SP-II - exchange of materials on distant vocational training;
- program SP-III-"ET-NET - electronic training",

that allow Training Center to obtain additional educational qualified information and knowledge. SIC ICWC will also be introduced in electronic network ETNET 21 including 71 organizations from 26 countries.

SIC ICWC Director was elected member of TECHWARE Council of Directors.

Dr. Marsel Leeman was elected Techware Chairman.

WATER-KEY RESOURCE FOR SUSTAINABLE DEVELOPMENT

UN General Secretary Report

I. Introduction

1. In given report progress in fulfilling Article 18 of the Agenda 21 “Fresh water resources availability and quality protection” and tasks set up are considered. Report focuses on current fresh water resource state and services with regard for questions put in Agenda 21 and basic elements of governance necessary for Integrated Water Resources Management (IWRM).

2. Water is limited natural resource necessary for supporting life and ecological ecosystems as well as key resources for social-economic development. In spite of water use effectiveness improvement, especially in developing countries, growth of fresh water demand and use is found due to demographic and economic growth. During last decade, access to safe water and sanitation facilities provision is behind of population growth and water demand for food and fiber production.

3. To provide population and environment basic needs society faces several important issues including: 1) intensive use and overuse of the deficit water resources and their uneven distribution over the earth; 2) unsatisfactory and inequitable investment in human potential and capacity building as well as in water infrastructure.

4. It is expected for next two decades that water consumption by population will increase on 40% and for food production-on 17%. One third of the countries under water stress will experience severe water scarcity. At 2025 population of these countries will increase by 6.5 times compared with 2000 (3.5bln.). It is found that more than half of big rivers of the world are strongly polluted and exhausted. Besides, it is necessary to provide water to support ecological functions and systems.

5. UN Millennium Assembly Declaration declared its goal – to reduce by half amount of population which does not have access to safe water by 2015. Declaration is also directed at unsustainable water resources use elimination through water management strategy development at the regional, national and local level. Presently, at least 1.1bln. of people have no access to safe water and about 2.5bln. – to sanitation facilities, mostly in developing countries. To reach the Assembly goal it is necessary to provide 1.6bln. of people additionally with safe water and 2.2bln. with sanitation facilities.

II. Strategic approaches to sustainable development and water resources management

A. Necessity of integrated approach to fresh water resources

6. After UN Conference on Environment and Development in 1992 international community undertook significant efforts in public awareness about integrated water resources management. Principles of integrated water resources management (Article 18, Agenda 21) were developed and refined during several international meetings, including UN expert group and Commission for Sustainable development in 1998. But, in spite of many international meetings, full integrated water management has not been achieved even in developed countries. Water management problems are being considered based on branch approaches.

7. In many countries approach based on proposal prevails because water services mainly cover public health and food production. Presently, opinion prevails that integrated water resources management and demand based approaches offer more effective means for

population water supply and food production with simultaneous load decrease on ecological goods and services provided by fresh water. Focus on IWRM and demand based approach shows shift to water management based on consensus, effectiveness and equitability in water distribution and services provision.

8. At present time, sustainable development and water resources management require integration of social-economic problems with ecological ones. Land use planning and sustainable management of forests, wetlands, mountains, oceans and seaside are important components of this equation because water resources and water cycle are laid in a base of all processes emerged in the biosphere. Ground and aquatic ecosystems depend on water resources and because of that proper attention should be paid to the most vulnerable zones. Environmental issues should have high priority in water resources distribution both in upstream and downstream. The same approach should be applied to dams and reservoir construction, which often are multipurpose, i.e. include energy generation, flood control, irrigation, drinking water supply, recreation and navigation. Dams and reservoirs construction is bound with many social and ecological expenses which should be designed.

9. Increase of natural and associated ecological and technological disasters, caused by earth quake, volcano eruption, land slides, floods, draughts and tropical storms led to significant human and economic losses creating threat to our planet. Climate changes, environment degradation, population growth, quick urbanization and industrialization as well as growing poverty make humanity vulnerable to disasters. Resent report of the Interstate Commission on climatic changes shows that global air temperature will rise quicker than it was predicted before causing accelerated sea level rise with associated draughts and floods. Millions of people would be forced to leave their places of residence due to flood or draughts. Negative impact of these factors is main obstacle to sustainable development. It is important to work out systems of risk management and disaster consequences mitigation, to introduce early warning and monitoring systems as well as measures of emergency in the regions subjected to disasters.

10. It is recognized that to realize IWRM potential appropriate funding is necessary, capacity building and realistic assessment of hydrological and other physical resources. These measures should be combined with measures on information dissemination and technologies introduction, especially in developing countries already experiencing water deficit. Process of separated water sector integration into new strategic integrated sector has been successfully completed in some developed countries where it has being done within the framework of international collaboration in capacity building at the national, basin and local level.

B. Water users role

11. During resent decade recognition grew to turnover water resources management on lower level and strengthen collaboration between public and private sector for more productive their use. Main groups, including NGO, farmers local authorities, scientific and technical societies, business and industry, trade unions, local population, children, youth and women, became inseparable part sustainable development and water resources management at the international, national and local level. Until now influence of various groups was different. For example, NGO activity was more successful in public awareness and capacity building than in technical support of water supply and sanitation. Attempts to transfer water system O&M to WUA had different results, because irrigation farming low profit and uncertainties in land ownership do not give farmers incentives for long-term investments. At the international and national level GWP promotes and supports various activities in IWRM.

12. There is big growth potential in services sphere in urban areas of developing countries. But private sector participation in services provided to rural poor remains problematic. It

is caused by price and subsidies policy which should allow to private sector to receive profit on their investments. At present, in developing countries only 30% of water services are covered by water charges. Irrigated farming and industry continue to base on subsidies to make water services cheap.

13. As national and local power move from services provision to favorable environment creation, their common role should not be under estimated. For rational water use and services provision by public and private enterprises, stable regulatory environment is necessary. Water laws were accepted in all countries, but there is no water right in some countries. Besides, sometimes there is no political will, resources and other means to introduce water laws into force.

C. Information for decision-making

14. Fresh water resources have high variability in time and space. It is necessary to control and manage its amount, quality, distribution and use. For decision-making on water resources assessment and monitoring collection of hydrological, meteorological, geo-hydrological, ecological and social-economic information is necessary. Recent developments in information and communication technologies are important for scientific-technical knowledge dissemination. Significant progress in information search and dissemination has been achieved thanks to such technologies as GIS and computerized database on water resources and associated social-economic information. Similar technologies in combination with capacity building should be spread in developing countries. In spite of innovative information technologies, data collection on the field level remains decisive for water resources assessment and management. Financial difficulties cut water organizations opportunities in developing countries to gather information in the field. In many cases information amount and quality reduction is found.

15. According to CSD-6 request for periodical assessment of fresh water resources development and management strategic approach, ACC Sub-committee on water resources is preparing under donors support Report about world water resources development. Report is aimed at continuous systematic assessment of water resources amount and quality as well as critical issues connected with water resources management. Report will be based on social-economic, hydrological, meteorological and geo-hydrological data gathered by UN agencies.

D. International collaboration and national mechanisms of capacity building

16. There is not any international organization which deals exclusively with water resources. These issues are multidisciplinary and this organization should deal with wide range of ecological and social-economic problems at all levels. It is necessary that international organizations set up priorities in coordination, collaboration and integration activity.

17. During last decade, necessity of collaboration of the riparian countries in common water resources management strategy development was recognized. Such collaboration should take into account agreements related to water resources as well as Convention on desertification and draught combat, Convention on biological diversity, UN Frame Convention on climatic changes and Convention on wetlands of international meaning. (Ramsar convention).

18. Another associated question is international collaboration strengthening in financial, organizational and human potential development, scientific information and technologies exchange. Technical collaboration is an important tool for support of regional, national and local activities in integrated water resources management.

19. In nineties technical cooperation in the framework of UN system was shifted from UN organizations to national agencies to strengthen national organizations. UN organizations are directed now to technical assistance in capacity building and water organization strengthening. This support is considered by many developing countries as an important element of water resources integrated management.

E. Financing of sustainable water resources development and management

20. Financial commitment in water supply and sanitation remain non-fulfilled. Though some developing countries increased subsidies to this sector, substantial gap between investments needed and current investments. According to last assessments, governments of developing countries spend annually \$10-15bln. On water supply and sanitation, most part of which is spent for urban areas. Beside that, \$25 bln. Were spent by private investors on water supply and sanitation structure since 1990 till 1997. It is striking that investments in urban water supply sector are found ineffective even for decline preventing, that leads to growth of people amount not having access to safe water. Besides, means for improving water regulating structures are needed.

21. Recent years official assistance reduction and direct foreign investments increase were observed. Drinking water supply sector could not attract investments enough because of lower return rate and governmental participation. These difficulties show that state funding still remains decisive. This tendency are of big concern, taking into account, that for reduction at 2015 amount of people not having access to safe water big investments are needed.

22. It is evident, that in order to provide integrated approach to safe water supply and sanitation both internal and external resources should be mobilized. In spite of economic growth in some developing countries, they could not provide population with water supply and sanitation. External debts mostly prevent them to do that.

III. Sustainable development and water management in inter-branch context

A. Sustainable agriculture and rural development

23. Water is increasing limit for food production for growing population. About 70% of fresh water resources is used for irrigated farming. Rest 30% are used for municipal and industrial needs. Competition among water users on water amount and quality is growing to such extent, that for many countries opportunities for water resources development are strongly restricted. It is recognized that water use effectiveness and water availability increase are necessary to satisfaction of current and future needs. In spite of some improvements, only 30% of water is used by crops. Some countries start to use technologies which are effective under water use reduction. Some countries are approaching water deficit and have no means to arrange situation through food import or food demand management. International, national and local trade systems and markets will face new commercial and financial issues.

B. Settlements sustainable development

24. Expected urbanization growth during next decades will create range of organizational, economic and ecological issues to support water quality through its treatment. It is proved, that at 2015 50% of population in developing countries will live in the cities. Since 1990 till 2000 share of population having access to safe water increased from 72 to 78% and to sanitation – from 42 to 52%. Simultaneously, in urban water supply systems of developing countries 50% of water is unaccountable. To achieve international goal-to reduce by 2

times population share without access to safe water and sanitation, more than 1bln. Should be provided with safe water and 1.1bln. - with sanitation facilities. Population growth will strengthen competition for water between urban and rural areas.

C. Eliminating poverty

25. Water supply and sanitation is one of the most important tasks to support productive and sound life of the poor. Agricultural and industrial water supply is also important for employment and income increase. Both in developed and developing countries these services are provided at expense of state subsidies. Sometimes, governments and local authorities leave these services without support shifting from role of suppliers to founders of favorable conditions. In this case poor are mostly vulnerable strata. Poor often are forced to pay more to private suppliers than to municipal ones. According to UN Center and Joint Council on water supply and sanitation, poor in some countries of Latin America and Asia are forced to pay by 5-28 times more for water unit. Besides, private supplies do not guarantee water quality.

D. Social aspects of sustainable water development and management

26. Promoting and facilitating human resources development, particularly, women, natives and local communities are necessary but not sufficient precondition for effective water resources management. Human potential development through education and training should be combined with capacity building. If women, natives and local communities would be excluded from education and public health program as well as from managerial and administrative functions, their potential will not be used. That is why it is very important to involve women in water resources management. Simultaneously, capacity building is necessary for autonomous agencies establishing responsible for integrated water resources management as well as transparent decision-making and obligations distribution.

IV. Tasks of sustainable water resources development and management

27. We should define how governments, private sector and civil society under UN support will meet social, economic and ecological challenges under conditions of growing population, industries and water demand. Minimum water resources should also be provided for ecologically vulnerable zones. IWRM is very useful for these problems solution.

For sustainable water resources management and development it is important:

- support social stability through IWRM strategy, equitable and effective water resources allocation and distribution;
- develop and improve public awareness, human and institutional potential through water users participation and riparian countries partnership, collaboration of national and local water users, public and private sector;
- provide access to safe water and sanitation for poor as necessary component in public health, economic productivity improvement and food security provision;
- protect surface and ground water quality as well as aquatic ecosystems;
- strengthen international technical collaboration based on demand and financing of sustainable development and management of water resources;
- strengthen role of governments in water legislation promoting and give more possibilities to local water management.

HIS EMPEROR HIGHNESS CROWN-PRINCE OF JAPAN HAS AGREED TO BE HONORABLE PRESIDENT OF THE THIRD WORLD WATER FORUM

We state with pride, that May 16, 2001 Crown-Prince of Japan has agreed to be Honorable President of the Third World Water Forum. Emperor Court Secretary has informed Mr. Riutaro Hasimoto, WWF-3 Steering Committee Chairman, who made official statement on May 17, 2001. His Highness will keep this position since May 17 till the Forum closure.

JOHANNESBURG (SOUTH AFRICA) – ORGANIZER OF THE EARTH SUMMIT TO BE HELD IN 2002

Johannesburg Earth Summit will be held in Getenge in 2002. UN General Assembly called for meeting in 2002 in order to analyze progress in the Un program on environment and development (UNCED) announced by UN Conference (Agenda 21 and UN Convention) and restore at the global level commitments on sustainable development. This summit will be one of the most important events of the next decade, which will formulate future viable program of sustainable development in global scale.

Summit will be held in Sandton Convention in Johannesburg with satellite communication as well as in Getenge for large groups participation.

Summit program

Some themes have been already defined: interrelation between environment and development, financial mechanisms, technology transfer, trade and environment, water, power engineering, ecological health and land resources degradation.

Necessity of public mobilization is very important. On the recent session of UN Managing Council for ecological program in Nairobi main directions were determined: management and institutional arrangements including agreement on financing; setting up system which allows small and developing countries to participate significantly in decision-making.

UN preparatory work will be coordinated by UN Working Group under Deputy Secretary General Mr. Luis Freshet supervision.

Regional preparation (Africa and SADC)

Process of the regional preliminary preparation will include regional assessment of the progress in Agenda 21 fulfillment with regard for national reports and country profile:

- General and specific preventing factors;
- Restricting factors emerging due to global developments and changing conditions;
- New initiatives and commitments within the region and its sub-regions in obstacle overcoming and further development stimulation;
- Preparation of regional “platforms” to plan main political questions, priorities and subsequent actions based on regional assessment. These platforms may form a base for contribution to global interstate preliminary process.

Main areas of interest will include:

- Key questions of sustainable development which require special attention and actions at the global level.
- Questions which can be solved more effectively at the regional/sub-regional level.
- Specific proposals from the region in terms of international collaboration effectiveness strengthening and improvement including relations between regional and international organizations.

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