Interstate **C**ommission for **W**ater **C**oordination in Central Asia	**BULLETIN № 1 (63)**	January 2014

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MINUTES OF THE 62nd MEETING OF THE INTERSTATE COORDINATION WATER COMMISSION (ICWC) OF THE REPUBLIC OF KAZAKHSTAN, THE KYRGYZ REPUBLIC, THE REPUBLIC OF TAJIKISTAN, TURKMENISTAN, AND THE REPUBLIC OF UZBEKISTAN

December 18, 2013 **Almaty city**

Chairperson:

Bekniyaz Bolat Kabykenovich	Acting as the Chairperson of the Committee of Water Resources under the Ministry of Environment and Water Resources of the Republic of Kazakhstan

ICWC members:

Tashtanaliyev, Kokumbek Zhumagulovich	Director General, Department for Water Resources and Land Reclamation, the Ministry of Agriculture and Land Reclamation of the Kyrgyz Republic
Rakhimov, Sulton Nurmakhmadovich	First Deputy Minister of Energy and Water Resources of the Republic of Tajikistan
Atadzhanov, Allamurat Charievich	Deputy Minister of Water Resources of Turkmenistan
Khamraev, Shavkat Rakhimovich	Acting as the Chairman of the IFAS Executive Committee, Deputy Minister, Head of the Central Water Administration, Ministry of Agriculture and Water Resources of the Republic of Uzbekistan

ICWC Executive bodies:

Sokolov, Vadim Ilyich	Deputy Director of SIC ICWC
Kdyrniyazov, Burkitbay Tadzhiniyazovich	Head of BWO “Amudarya”
Kholkhuzhaev, Odil Akhmedovich	acting as Head of BWO “Syrdarya”
Mukhitdinov, Khayrullo Ergashevich	Head of the ICWC Secretariat

Invitees:

Ryabtsev, Anatoliy Dmitrievich	Chairman Advisor of the Committee for Water Resources, MEWR of the Republic of Kazakhstan
Zhienbaev, Muslim Ryysmakhanovich	Senior Expert of the Committee for Water Resources, MEWR of the Republic of Kazakhstan
Nursadykov, Darkhan Kuanyshovich	First Secretary of the Department on *SCO* activities and Trans-Boundary rivers Cooperation, Ministry of Foreign Affairs of the Republic of Kazakhstan
Karlykhanov, Adilkhan Karlykhanovich	Head of the Aral-Syrdarya BWI, Committee for Water Resources, Ministry of Environment and Water Resources of the Republic of Kazakhstan
Ibatullin, Saghit Rakhmatullaevich	Deputy Chairman for adherence of the UN Convention on Protection of Transboundary Watercourses
Kipshakbaev, Nariman Kipshakbaevich	Director of the SIC ICWC Kazakh branch, Honorable member of ICWC
Seysenov, Sembay Baymenovich	Director of the South Kazakh branch of RSE "Kazvodkhoz", Committee for Water Resources, Ministry of Environment and Water Resources of the Republic of Kazakhstan
Balpikov, Tolkyn Oktemovich	Deputy Director of the South Kazakh branch of RSE "Kazvodkhoz", Committee for Water Resources, Ministry of Environment and Water Resources of the Republic of Kazakhstan
Arystanbaev, Bolat Sabyrovich	Director of the Ryzylorda branch of RSE "Kazvodkhoz", Committee for Water Resources, Ministry of Environment and Water Resources of the Republic of Kazakhstan
Paschyev, Yanov Durdyevich	Senior mirab of Operations Department of Operations Administration, Ministry of Water Resources of Turkmenistan
Kuchkarov, Akmalzhon Artykovich	Counsellor of the Embassy of the Republic of Uzbekistan for the Republic of Kazakhstan

Kuchkarov, Sharifzhon Zikrillaevich	Head of Water Resources and Improved Water Saving Technologies Administration, MAWR of the Republic of Uzbekistan
Kichibaev, Asiraridin Mizamovich	Director of OJSC "Kyrgyzsuudolboor"
Beglov, Iskander Ferdinandovich	Head of Information Department, SIC ICWC
Gafarov, Bakhrom Abdulafizovich	Deputy Director of the Tajik branch of SIC ICWC

Agenda of the 62nd ICWC meeting

1. Results of the growing season 2013 in the Amudarya and Syrdarya basins; water supply, operation regimes of reservoir cascades and water withdrawal limits during the non-growing season 2013-2014 in the Amudarya and Syrdarya basins (responsible: BWO Amudarya and BWO Syrdarya).

2. Viewing comments and proposals to the Draft Concept for developing information exchange and relationship mechanisms among its participants in Central Asia (responsible SIC ICWC).

3. Primary areas for improvement of ICWC activity and mechanisms to achieve them:

- Plan for achievement of the primary areas in improvement of ICWC activity;
- Strategy of capacity building in the water sector of CA countries (responsible SIC ICWC).

4. Next 63rd ICWC meeting.

Additional points

5. About appointment of the Director of BWO Syrdarya

6. About the ICWC Secretariat.

The first item:

1. Take into consideration the information of BWO Amudarya and BWO Syrdarya about the results of the growing season 2013.

2. Charge the BWO Syrdarya with entering proper adjustment in the certificate of the results of the growing season, the Kayrakkum reservoir operation.

3. Note that coordinated relationship of the parties ensured successful vegetative irrigations.

4. Approve proposals of BWO Amudarya and BWO Syrdarya on reservoir cascades operation regimes and water withdrawal limits during the non-growing season 2013-2014 for the Amudarya and Syrdarya basins.

5. Charge BWO Amudarya and Syrdarya with providing monthly information on water limits and withdrawal, the operation regime of the reservoir cascade during the growing and non-growing seasons, and including data on water withdrawal downstream of the Shardara reservoir in the certificate on the Syrdarya River basin.

The second item:

Charge the SIC ICWC to completing the following documents with representatives from the parties: Draft Concept for developing information exchange and relationship mechanisms among its participants in Central Asia and Agreement on Establishment and function of national, basin and regional data bases of integrated use and conservation of water resources in the Aral Sea basin, and also Temporal regulations for use of the regional information system on water and land resources in the Aral Sea basin, and submitting at the next ICWC meeting.

The third item:

1. Agree with the main lines of further development of regional water cooperation:

- water saving;
- implementation of integrated water resources management in the all regional countries as a tool of “green development” and climate change adaptation;
- improved quality and accuracy of water resources accounting and implementation of automation facilities in water allocation;
- capacity building of regional and national organizations through development of information systems and training.

2. Charge SIC ICWC with forming a working group to complete drafts as agreed upon with the ICWC members:

- Plan for achievement of the primary areas in improvement of ICWC activity (term adjustment, expected results, implementation mechanisms, financing).

- Strategies of capacity building in the water sector of CA countries (implementation mechanism, national center development, financing).

3. Charge SIC ICWC with submitting the draft proposal on capacity building in the water sector to submit to donor organizations to the ICWC members for endorsement.

The fourth item:

1. Hold the next 63rd ICWC meeting in the first ten-day period of April 2014 in the Republic of Uzbekistan.

2. Approve the agenda of the next 63rd ICWC meeting.

Agenda of the next 63nd ICWC meeting

1. About results of the non-growing season of 2013–2014 and approval of diversion limits, reservoir cascade mode operation at the next growing season of 2014 for the Amudarya nad Syrdarya basins.

2. Consider completed versions of Concept for developing information exchange and relationship mechanisms among its participants in Central Asia and Agreement on Establishment and function of national, basin and regional data bases of integrated use and conservation of water resources in the Aral Sea basin.

3. Consider completed versions of Plan for achievement of the primary areas in improvement of ICWC activity and Strategy of capacity building in the water sector of CA countries.

4. The agenda and venue of the next 64th ICWC meeting.

Additional issues:

The fifth item:

1. Comply with the request of resignation from the position of BWO Syrdarya for health reasons from Khamidov Makhmud Khamidovich.

2. Appoint Kholkhuzhaev Odil Akhmedovich to the position of acting as Director of BWO Syrdarya.

The sixth item:

1. Agree with the offer from the Tajik party regarding relocation of the ICWC Secretariat from Khudjand city to Dushanbe city of the Republic of Tajikistan.

2. Relieve Mukhiddinov Khayrullo Ergashevich of his position of the Head of the ICWC Secretariat due to a transfer to another appointment.

3. Assign Gafarov Bakhrom Abdulafizovich to the position of the Head of the ICWC Secretariat.

For the Republic of Kazakhstan	Б. К. Бекнияз
For the Kyrgyz Republic	K.D. Tashtanaliyev
For the Republic of Tajikistan	S.N. Rakhimov
For Turkmenistan	A.Ch. Atadzhanov
For the Republic of Uzbekistan	Sh.R. Khamraev

RESULTS OF THE GROWING SEASON 2012-2013 FOR THE AMUDARYA AND SYRDARYA RIVER BASINS[1]

1. Amudarya River Basin

For the growing season, the actual water content for the Amudarya River basin, at the Atamurat gauging station, upstream of the Garagumdarya, made 82.3 % of the norm. The actual volume was 39 182 mln m^3 at the norm of 47 592 mln m^3. In the past season, the water content made 113.4 %.

The use of the fixed water diversion limits broken down by the countries for the reporting growing season is as follows:

Totally, for the basin, 84.0% out of the fixed water diversion limits were used at the limit of 39 605.3 mln m^3, the actual diversion was 33 271.4 mln m^3, of which:

- the Republic of Tajikistan used 80.9 % out of the fixed water diversion limits at the limit of 6885.3 mln m^3, 5572.3 mln m^3 were actually used;

- the Republic of Uzbekistan used 82.6% out of the fixed water diversion limits, at the limit of 17 220 mln m^3, 14 225.2 mln m^3 were actually used;

- Turkmenistan used 86.9 % out of the fixed water diversion limits, at the limit of 15 500 mln m^3, 13 473.9 mln m^3 were actually used.

85.7% of the fixed water diversion limits were used within the downstream reach of the "Atamyrat" gauging station, upstream of the Garagumdarya, at the water diversion limits of 31 520 mln m^3, 27 002.6 mln m^3 were actually used, including:

- The Republic of Uzbekistan used 84.4 % out of the fixed water diversion limits; at the limit of 16 020 mln m^3, 13 528.7 mln m^3 were actually used;

- Turkmenistan used 86.9 % out of the fixed water diversion limits, at the limit of 15 500 mln m^3, 13 473.9 mln m^3 were actually used.

924 mln m^3 of water were supplied into the Priaralie and Aral Sea over the growing season.

The use of the fixed water diversion limits broken down by the river reaches was as follows:

1. Upper reach – 77.5 %, including the Republic of Tajikistan – 80.9 %, the Republic of Uzbekistan – 58.0 %.

2. Middle reach – 90.8 %, including the Republic of Uzbekistan – 95.6 %, Turkmenistan – 88.2%.

[1] Materials to the first issue of the agenda of the 62 ICWC meeting

3. Lower reach – 80.2 %, including the Republic of Uzbekistan – 78.2 %, Turkmenistan – 84.2 %.

The actual water volume in the Tuyamuyun reservoir made 2510 mln m^3 at the end of the growing season.

Tables 1.1-1.3 present more detailed information.

Table 1.1

Analysis
of use of the fixed water diversion limits during the growing season of 2013 within the Amudarya River basin, mln m3

Description	Limits for the growing season	Actual	%%
Upper Amudarya Administration			
(Upper reach)	8085.3	6268.8	77.5
including:			
Tajikistan	6885.3	5572.3	80.9
Uzbekistan:	1200.0	696.5	58.0
Water diversions from the Amudarya River			
to the Atamurat gauging station (g/s) (Kerki)	31520.0	27002.6	85.7
including:			
Turkmenistan	15500.0	13473.9	86.9
Uzbekistan:	16020.0	13528.7	84.4
Middle Amudarya Administration	16207.0	14723.7	90.8
(Middle reach) including:			
Turkmenistan	10472.0	9241.1	88.2
Uzbekistan	5735.0	5482.6	95.6
Lower reach:	15313.0	12278.9	80.2
including:			
Turkmenistan	5028.0	4232.8	84.2
Uzbekistan	10285.0	8046.1	78.2
Total for the basin	39605.3	33271.4	84.0
including:			
Tajikistan	6885.3	5572.3	80.9
Turkmenistan	15500.0	13473.9	86.9
Uzbekistan	17220.0	14225.2	82.6

Table 1.2

Actual operation mode of the Tuyamuyun reservoir (from April 2013 to September 2013)

	Unit	Actual						Total
		April	May	June	July	August	Sep-tember	
Volume: at the beginning of the period	mln m3	3535	3040	2866	4166	3213	2740	3535
Inflow to the reservoir	m3/s	457	590	1362	1231	1306	663	
	mln m3	1185	1580	3530	3297	3498	1718	14809
Release from the reservoir	m3/s	648	655	861	1587	1483	752	
	mln m3	1680	1754	2230	4250	3971	1948	15834
Volume: at the end of the period	mln m3	3040	2866	4166	3213	2740	2510	2510
Accumulation (+), drawdown (-)	mln m3	-495	-174	1300	-953	-473	-230	-1025

Table 1.3

Information on water supply to the Aral Sea and the Amudarya River delta during the growing season of 2013, mln m^3

	April	May	June	July	August	Septem-ber	Actual water supply from 01.04.13 to 30.09.13
From the Amudarya River							
through the Samanbay g/s	47	46	46	92	96	143	470
Total release from the Kyzketken and Suenli canals system							
C D F	100	72	39	56	97	90	454
T O T A L:	147	118	85	148	193	233	924
Aggregate, mln m3	147	265	350	498	691	924	

2. Syrdarya River Basin

In conformity with the forecast by the Hydrometeorological services, during the growing season of 2013, the water contents within the rivers basins in the north of the Ferghana Valley and the Chirchik River were expected to be 90–95 % of the norm, within the Karadarya basins, the rivers in the south of the Ferghana Valley and the Akhangaran – within 95–100 % of the norm.

The inflow of 83% of the norm to the Toktogul reservoir was forecasted, to the Andizhan reservoir – 93 %, to the Charvak reservoir – 89 % of the norm.

In total, the water content of the rivers within the Syrdarya basin was expected to be within 90% of the norm.

The operation mode of the Naryn-Syrdarya reservoir cascade (NSRC) and water diversion limits from the Syrdarya River for the growing season of 2013 were considered during the 61st ICWC meeting in the city of Bishkek on April 16, 2013. For the growing season of 2013, taking into account the forecasted water deficit in the Syrdarya River basin, it was decided to approve water diversion limits with cut of 10% for each of the countries in the Syrdarya River basin.

The results of the growing season of 2013 are generally characterized as follows.

From April 1 to October 1, the inflow to the upper reservoirs (Table 2.1) made 16 bln 187 mln m^3 of water (88% of the norm).

8 bln 827 mln m^3 (92% of the norm) of water were supplied to the Toktogul reservoir, 4 bln 897 mln m^3 (85% of the norm) – to the Charvak reservoir, 2463 mln m3 (81% of the norm) – to the Andizhan reservoir,

The total inflow to the basin reached 25 631 mln m^3 (86% of the norm), instead of 26 797 mln m^3 (90% of the norm) forecasted. Compared to the forecast, the actual inflow did not exceed 96% of the expected values, i.e. water was supplied less by 1 bln 166 mln m3 than forecasted. At that, the lateral inflow reached just 84% of the norm instead of 97% forecasted, or by 1.4 bln m^3 less than the expected inflow.

The total water resources deficit for irrigated lands in the Ferghana Valley and the middle reach was covered, firstly, due to intake of 373.7 mln kWh of electric power by Kazakhstan from Kyrgyzstan, which ensured additional releases from the Toktogul reservoir in an equivalent volume of 398 mln m3 of water above own needs of Kyrgyzstan. Secondly, despite the significantly decreased inflow to the Andizhan reservoir (81% actual instead of 93% forecasted of the norm), Uzbekistan ensured additional feeding of the basin in amount of about 200 mln m^3 due to deep drawdown of the reservoir. Thirdly, Tajikistan used all the available resources of the Kayrakkum reservoir to increase water supply for land irrigation in Maktaaral district of South Kazakhstan province, Golodnaya and Dzhizak Steppes during the peak of the growing season.

In general, releases from the reservoirs made 104% of those scheduled by the Naryn-Syrdarya cascade operation, or 21.8 bln m3 (Table 2.2). The total volume of releases from the Toktogul reservoir reached 4167 mln m3.

As of October 1, the water volumes in the reservoirs make: in the Toktogul – 15 916 mln m^3, Andizhan – 565 mln m^3, Charvak – 1507 mln m^3, Kayrakkum – 1509 mln m^3, Shardara - 999 mln m^3 (Table 2.3).

During the growing season, water was supplied to the water consuming states in conformity with limits approved at the 61st ICWC meeting with cut of 10%. As of 01.10.13, water supply made as follows:

Kazakhstan 541 mln m3 (87%)

Kyrgyz Republic 225 mln m3 (109%)

Tajikistan 1452 mln m3 (85%)

Uzbekistan 7927 mln m3 (100%)

Inflow to the Chardara reservoir for the non-growing season reached 12.2 bln m^3. 1.86 bln m^3 of water (as per calculations of BWO "Syrdarya") were supplied to the Aral Sea.

3543 mln m3 of water were supplied to the Shardara reservoir (Table 2.6).

The inflow to the Aral Sea and Priaralie reached 1326 mln m3 of water.

The actual operation mode of the Naryn-Syrdarya reservoir cascade during the growing season from April 1 to October 1 of 2013 is shown in Table 2.7.

Table 2.1

Parameters	Norm	Volume, mln m3 (from 01.04 to 01.10.2013)		% of the norm		Actual, in % of predicted
		Predicted	Actual	Predicted	Actual	
Inflow to the upper reservoirs:						
To the Toktogul	9588	7924	8827	83	92	111
To the Andizhan	3054	2853	2463	93	81	86
To the Charvak (total of the 4 rivers)	5777	5150	4897	89	85	95
Sub-total:	**18419**	**15927**	**16187**	**86**	**88**	**102**
Lateral inflow (calculated):						
Toktogul – Uchkurgan	1184	1184	1184	100	100	100
Uchkurgan, Uchtepe - Kayrakkum	3352	3530	2800	105	83	79

Parameters	Norm	Volume, mln m3 (from 01.04 to 01.10.2013)		% of the norm		Actual, in % of predicted
		Predicted	Actual	Predicted	Actual	
Andizhan – Uchtepe	2576	2451	2036	95	79	83
Kayrakkum – Shardara	3162	2828	2641	89	83	93
Gazalkent - Chinaz-Chirchik g/s (w/o Ugam)	923	877	783	95	85	89
Sub-total:	**11197**	**10870**	**9444**	**97**	**84**	**87**
Total:	**29616**	**26797**	**25631**	**90**	**86**	**96**

Table 2.2

Reservoir	Releases (from 01.04.2013 to 01.10.2013), mln m3		%%
	As per schedule	Actual	
Toktogul	3055	4167	136
Andizhan	2804	2766	99
Charvak (Release from the Gazalkent HEPS)	4438	4113	93
Kayrakkum	5746	5962	104
Shardara	5011	4804	96
Total:	**21054**	**21812**	**104**

Table 2.3

Reservoir	Volume of reservoir, mln m3			
	As of 01.04.13	As per schedule as of 01.10.2013	Actual as of 01.10.2013	Actual as of 01.10.2012
Toktogul	11246	16080	15916	17512
Andizhan	874	903	565	564
Charvak	708	1384	1507	1510
Kayrakkum	3325	1537	1509	1496
Shardara	3954	1371	999	907
TOTAL:	**20107**	**21275**	**20496**	**21989**

Table 2.4

Reach, water consuming state	Fixed water diversion volume, mln m3	Actual water diversion, mln m3	%%
Toktogul – Uchkurgan hydroscheme			
Kyrgyz Republic	128	167	130
Tajikistan	213	73	34
Uzbekistan	3193	3453	108
Uchkurgan – Kayrakkum hydroscheme			
Kyrgyz Republic	79	58	73
Tajikistan	404	522	129
Uzbekistan	490	523	107
Kayrakkum hydroscheme – Shardara reservoir			
Kazakhstan	624	541	87
Tajikistan	1098	857	78
Uzbekistan	4237	3951	93

Table 2.5

Water consuming state	Fixed water diversion volume, mln m3	Actual water diversion, mln m3	%%
Republic of Kazakhstan (Dostyk canal)	624	541	87
Kyrgyz Republic	207	225	109
Republic of Tajikistan	1715	1452	85
Republic of Uzbekistan	7920	7927	100

Table 2.6

Parameters	As per schedule, mln m3	Actual, mln m3
Water supply to the Aral Sea	2422	1326
Release to the Arnasay	0	0
Inflow to the Shardara reservoir	4182	3543

Table 2.7

SCHEDULE
of the Naryn-Syrdarya reservoir cascade operation
over the period of April 1, 2013 to September 31, 2013

		April (actual)	May (actual)	June (actual)	July (actual)	August (actual)	Septemb. (actual)	Total mln m3
Toktogul reservoir								
Inflow to the reservoir	m3/sec	313.77	451.58	947.87	670.42	630.13	333.37	
	mln m3	813.28	1209.51	2456.87	1795.65	1687.73	864.09	8827.14
Volume: At the beginning of the period	mln m3	**11246.00**	**11205.00**	**11785.00**	**13727.00**	**14835.00**	**15634.00**	
At the end of the period	mln m3	**11205.00**	**11785.00**	**13727.00**	**14835.00**	**15634.00**	**15916.00**	
Release from the reservoir	m3/sec	330.70	237.74	206.80	250.39	331.90	222.93	
	mln m3	857.17	636.77	536.03	670.64	888.97	577.84	4167.42
Release from the reservoir	m3/sec	**210.00**	**200.00**	**330.00**	**370.00**	**380.00**	**290.00**	
(actual - 2012)	mln m3	544.32	535.68	855.36	991.01	1017.79	751.68	4695.84
Kayrakkum reservoir								
Inflow to the reservoir	m3/sec	462.30	361.36	290.20	239.87	324.58	276.07	
	mln m3	1198.28	967.86	752.20	642.47	869.36	715.56	5145.73
Volume: At the beginning of the period	mln m3	**3325.00**	**3433.00**	**3428.00**	**2874.00**	**2109.00**	**1547.00**	
At the end of the period	mln m3	**3433.00**	**3428.00**	**2874.00**	**2109.00**	**1547.00**	**1509.00**	
Release from the reservoir	m3/sec	406.30	312.19	391.66	425.71	467.15	257.15	
	mln m3	1053.14	836.16	1015.19	1140.21	1251.20	666.53	5962.44
Release from the reservoir	m3/sec	**475.20**	**495.60**	**534.10**	**563.50**	**537.70**	**273.70**	
(actual - 2012)	mln m3	1231.72	1327.42	1384.39	1509.28	1440.18	709.43	7602.41
Shardara reservoir								
Inflow to the reservoir	m3/sec	524.31	233.68	197.08	117.85	120.53	157.68	
	mln m3	1359.02	625.88	510.84	315.64	322.82	408.71	3542.91
Volume: At the beginning of the period	mln m3	**3954.00**	**4005.00**	**3598.00**	**3392.00**	**1886.00**	**926.00**	
At the end of the period	mln m3	**4005.00**	**3598.00**	**3392.00**	**1886.00**	**926.00**	**999.00**	
Release from the reservoir	m3/sec	425.17	269.19	189.50	458.39	358.06	117.00	
	mln m3	1102.03	721.01	491.18	1227.74	959.04	303.26	4804.27
Release to the Kzylkum canal	m3/sec	34.33	32.74	50.00	104.68	49.35	7.50	
	mln m3	88.99	87.70	129.60	280.37	132.19	19.44	738.29
Release to the Arnasay depression	m3/sec	0.00	0.00	0.00	0.00	0.00	0.00	
	mln m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water supply to the Aral Sea	m3/sec	247.33	90.65	41.33	23.39	20.03	84.33	
	mln m3	641.09	242.78	107.14	62.64	53.65	218.59	1325.89
Charvak reservoir								
Inflow to the reservoir (total of the 4 rivers)	m3/sec	265.41	375.32	529.68	324.52	222.86	140.88	
	mln m3	687.95	1005.27	1372.94	869.20	596.92	365.16	4897.43
Volume: At the beginning of the period	mln m3	**708.00**	**990.00**	**1541.00**	**1963.00**	**1895.00**	**1670.00**	
At the end of the period	mln m3	**990.00**	**1541.00**	**1963.00**	**1895.00**	**1670.00**	**1507.00**	
Release from the reservoir (release from the Gazalkent HEPS)	m3/sec	142.20	194.94	375.37	352.84	303.65	189.23	
	mln m3	368.58	522.12	972.95	945.04	813.28	490.49	4112.47

		April (actual)	May (actual)	June (actual)	July (actual)	August (actual)	Septemb. (actual)	Total mln m3
Andizhan reservoir								
Inflow to the reservoir	m3/sec	142.00	233.26	287.03	131.13	84.13	57.67	
	mln m3	368.06	624.76	743.99	351.22	225.33	149.47	2462.83
Volume: At the beginning of the period	mln m3	**874.48**	**932.02**	**1180.40**	**1419.95**	**897.30**	**600.00**	
At the end of the period	mln m3	**932.02**	**1180.40**	**1419.95**	**897.30**	**600.00**	**564.50**	
Release from the reservoir	m3/sec	118.21	140.15	191.00	323.42	201.42	70.71	
	mln m3	306.39	375.38	495.07	866.25	539.47	183.28	2765.85

ABOUT WATER SUPPLY, RESERVOIR CASCADE OPERATION MODES AND WATER DIVERSION LIMITS OVER THE NON-GROWING SEASON 2013-2014 FOR THE AMUDARYA AND SYRDARYA BASINS[2]

1. Amudarya River Basin

As of December 1, 2013, the actual water content over the non-growing season for the Amudarya River basin made about 80.0% of the norm, and preliminary calculations show that such level of the water content will remain till the end of the season.

Over 2 months of the current non-growing season, the Tyuyamuyun reservoir managed to be filled with joint efforts up to 3168 mln m^3. Good weather conditions allowed to successfully start washing irrigation in the Amudarya River lower reaches.

The use of the fixed water diversion limits broken down by the countries for the reporting non-growing season as of 01.12.13 is as follows:

The water diversion limit set for the basin as a whole was used by 89.7 % at the limit of 4901.4 mln m^3, the actual diversion made 4398.4 mln m^3, of which:

- the Republic of Tajikistan used 85.1 % out of the fixed water diversion limits at the limit of 1111.6 mln m^3, 946.4 mln m^3 were actually used up;

- Turkmenistan used 96.4 % out of the fixed water diversion limits, at the limit of 2077.6 mln m^3, 2003.7 mln m^3 were actually used;

– the Republic of Uzbekistan used 84.6% out of the fixed water diversion limits, at the limit of 1712.3 mln m^3, 1448.3 mln m^3 were actually used.

[2] Materials to the first issue of the agenda of the 62 ICWC meeting

92.3% of the fixed water diversion limits were used within the downstream reach of the "Atamyrat" gauging station, upstream of the Garagumdarya, at the water diversion limits of 3604.0 mln m^3, 3324.8 mln m^3 were actually used, including:

- The Republic of Uzbekistan used 86.5 % out of the fixed water diversion limits; at the limit of 1526.5 mln m^3, 1321.1 mln m^3 were actually used;

- Turkmenistan used 96.4 % out of the fixed water diversion limits, at the limit of 2077.6 mln m^3, 2003.7 mln m^3 were actually used.

The use of the fixed water diversion limits broken down by the river reaches was as follows:

1. Upper reach – 82.7 %, including the Republic of Tajikistan – 85.1 %, the Republic of Uzbekistan – 68.5%.

2. Middle reach – 98.3 %, including the Republic of Uzbekistan – 95.1 %, Turkmenistan – 100.2%.

3. Lower reach – 74.5 %, including the Republic of Uzbekistan – 70.5 %, Turkmenistan – 80.0%.

For the non-growing season of 2013-2014, the basin states stated the following water diversion limits for normal water content in the basin:

1. the Republic of Tajikistan –	2833 mln m3
2. Turkmenistan –	6500 mln m3
3. the Republic of Uzbekistan –	6350 mln m3
including Surkhandarya province –	370 mln m3

Total water diversion limit of 15 683 mln m^3 were required to state for the Amudarya River basin for normal water content.

For the non-growing season, the water in the amount of 2100 mln m^3 is provided for supplying to the Priaralie and Aral Sea.

Taking into account the water content forecast, the water situation in the region, water diversion limits for the non-growing season of 2013-2014 are submitted to the ICWC members (Table 1.4).

Table 1.5 presents the operation mode of the Tuyamuyun reservoir.

The BWO Amudarya proposes the following for consideration and approval by the ICWC members: reservoir operation modes, water diversion limits, volume of water supply to the Aral Sea and the Amudarya River delta for the non-growing season of 2013-2014.

Table 1.4

Limits
of water diversion from the Amudarya River and water supply to the Aral Sea and the river delta for the non-growing season of 2013-2014

No.	River basin, Country	Water diversion limits, km3	
		Total for the year (from 1.10.13 to 1.10.14)	Including for the non-growing season (from 1.10.13 to 1.04.14)
	Total diversion from the Amudarya River	55 070	15 683
	Of which:		
1	Republic of Tajikistan	9 500	2 833
	From the Amudarya to		
	the Atamyrat gauging station	44 000	12 480
2	Turkmenistan	22 000	6 500
3	Republic of Uzbekistan	22 000	5 980
	In addition:		
4	Surkhandarya province of the Republic of Uzbekistan	1 570	370
5	In addition: - water supply to the Priaralie taking into account irrigation releases and CDF	4 200	2 100
6	- sanitary and environmental releases to irrigation systems within:	800	800
	Dashkhovuz province	150	150
	Khorezm province	150	150
	Republic of Karakalpakistan	500	500

Note:
1. Water diversion limits assume water supply for irrigation, industrial and municipal as well as other needs. Given the changes of the basin's water content, the water diversion limits will be adjusted accordingly.

Table 1.5

Predicted operation mode of the Tuyamuyun reservoir (within the period of October 2013 to March 2014)

	Unit	Actual		Prediction				Total
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar	
Volume: at the beginning of the period	mln m3	2510	2717	3168	3419	4056	3755	2510
Inflow to the reservoir	m3/s	428	437	461	484	469	462	
	mln m3	1147	1133	1234	1296	1133	1236	7180
Release from the reservoir	m3/s	351	263	367	246	593	869	
	mln m3	940	682	983	659	1435	2328	7026
Volume: at the end of the period	mln m3	2717	3168	3419	4056	3755	2664	2664
Accumulation (+), drawdown (-)	mln m3	207	451	251	637	-301	-1091	154

2. Syrdarya River Basin

On September 7, 2013, from Hydrometeorological services, forecasts for the non-growing season of 2013-2014 and the specified forecast for the 4th quarter, according to which the inflow to the Toktogul reservoir is expected to be 100 % of the norm, to the Andizhan reservoir – 94 %, the Charvak reservoir – 96 %, and the total lateral inflow – 98 % of the norm (Table 2.8), were received.

In total, the water content of the rivers within the Syrdarya basin is forecasted to be 98 % of the norm, or 15.7 bln m^3.

Based on this and taking into account the water reserve in the reservoirs (Table 2.9), the available water resources for the non-growing season make 28.6 bln m3.

Table 2.8

Parameters according to the forecast from the Hydrometeorological service for the non-growing season 2013 -2014	Volume, mln m3				% от нормы		
	Norm	Range of the forecasted values		Average	Range of the forecasted values		Average
		Min.	Max.		Min.	Max.	
Inflow to the upper reservoirs:							
To the Toktogul	2721	2406	3036	2721	88	112	100
To the Andizhan	923	710	1020	865	77	111	94
To the Charvak (total of the 4 rivers)	1393	1180	1495	1337	85	107	96
Sub-total:	**5037**	**4296**	**5551**	**4923**	**85**	**110**	**98**
Lateral inflow:							
Toktogul – Uchkurgan	398	351	445	398	88	112	100
Uchkurgan, Uchtepe - Kayrakkum	4235	3930	4560	4245	93	108	100
Andizhan – Uchtepe	2468	2360	2670	2515	96	108	102
Kayrakkum – Shardara	2959	2360	3300	2830	80	111	96
Gazalkent - Chinaz-Chirchik g/s (without Ugam)	875	730	840	785	83	96	90
Sub-total:	**10935**	**9731**	**11815**	**10773**	**89**	**108**	**98**
Total:	**15972**	**14027**	**17366**	**15696**	**88**	**110**	**98**

Table 2.9

Water reserve in the reservoirs without dead storage capacity	**12982**
Toktogul	10416
Andizhan	414
Charvak	1081
Kayrakkum	592
Shardara	479

The forecasted water diversions were accepted taking into account the existed practice of water supply during the non-growing season over the recent years.

The proposed water diversion limits for the states are presented in the Table below.

Table 2.10

Water diversion limits for the states for the non-growing season of 2013-2014 (mln m3)

Total from the Syrdaryqa River	**3100**
of which:	
Republic of Kazakhstan	400
Kyrgyz Republic	37
Republic of Tajikistan	179
Republic of Uzbekistan	2484
In addition, water supply to the Aral and Priaralie	**1906**

The actual water situation for the non-growing season to date is characterized with the following.

The inflow to the upper reservoirs (Table 2.11) made 1.9 bln m3, which practically coincides with the forecast.

Table 2.11

Parameters	**Volume (from 01.10.2013 to 01.12.2013), mln m3**		
	Predicted	**Actual**	**%%**
Inflow to the upper reservoirs:			
To the Toktogul	1109	1189	107
To the Andizhan	311	229	74
To the Charvak (total of the 4 rivers)	520	495	95
Sub-total:	**1940**	**1913**	**99**
Lateral inflow:		(calculated)	
Toktogul – Uchkurgan	145	145	100
Uchkurgan, Uchtepe - Kayrakkum	1250	1326	106
Andizhan – Uchtepe	832	769	92
Kayrakkum – Shardara	774	762	98
Gazalkent - Chinaz-Chirchik g/s (without Ugam)	245	395	161
Sub-total:	**3246**	**3397**	**105**
TOTAL:	**5186**	**5310**	**102**

1189 mln m^3, that is by 80 mln m^3 more than forecasted, were supplied to the Toktogul reservoir, 229 mln m^3, that is by 82 mln m^3 less than forecasted, to the Andizhan reservoir, 495 mln m^3, that is by 25 mln m^3 less than forecasted, to the Charvak. The total inflow to the basin was 5.3 bln m^3, including the lateral inflow of

3.4 bln m^3. Over the similar period of the past year, these volumes made 5.5 and 3.5 bln m^3 respectively.

6.7 bln m^3 were released from the reservoirs, instead of forecasted 8.1 bln m^3 that allowed keeping the reserve of 1.4 bln m^3 (Table 2.12).

Table 2.12

Reservoir	Releases (from 01.10.2013 to 01.12.2013), mln m^3		%%
	As per schedule	Actual	
Toktogul	2153	2322	108
Andizhan	318	353	111
Charvak (release from the Gazalkent HEPS)	713	719	101
Kayrakkum	2475	2010	81
Shardara	2403	1268	53
TOTAL:	**8062**	**6672**	**83**

As of December 1, 2013, the volumes of water in the reservoirs made as follows: in the Toktogul – 14.7 bln m^3, the Andizhan – 454 mln m^3, the Charvak – 1.2 bln m^3. In general, the water reserve in the upper reservoirs was 16 445 mln m^3 (Table 2.13).

Table 2.13

Reservoir	Volume of reservoir, mln m3			
	As of 01.10.13	As per schedule as of 01.12.2013	Actual as of 01.12.2013	As of 01.12.2012 Actual
Toktogul	15916	14863	14777	16409
Andizhan	564	556	454	532
Charvak	1507	1308	1214	1242
Kayrakkum	1509	2445	2732	2349
Shardara	999	1673	1569	1011
TOTAL:	**20495**	**20845**	**20746**	**21543**

The water was supplied for land leaching and irrigation of winter cereals in line with requests from water consumers.

Water supply to the water consuming states as of 01.12.2013 made as follows (Table 2.14 and 2.15):

Kyrgyzstan	22 mln m^3 (96%)
Tajikistan	22 mln m^3 (21%)
Uzbekistan	2137 mln m^3 (100%)

Kazakhstan did not state its claims for water along the Dostyk canal.

Table 2.14

Reach, Water consuming country	**Actual water diversion as of 01.12.2013, mln m3**
Toktogul – Uchkurgan hydroscheme, of which	895
Kyrgyzstan	19
Tajikistan	13
Uzbekistan	863
Uchkurgan – Kayrakkum hydroscheme, of which	168
Kyrgyzstan	3
Tajikistan	4
Uzbekistan	161
Kayrakkum hydroscheme – Shardara reservoir, of which	1118
Kazakhstan	0
Tajikistan	5
Uzbekistan	1113

Table 2.15

Water consuming country	**Actual water diversion as of 01.12.2013, mln m3**
Kyrgyz Republic	22
Republic of Uzbekistan	2137
Republic of Tajikistan	22
Republic of Kazakhstan (Dostyk canal)	0

Water diversion increase for Uzbekistan in comparison with the limits is connected with necessity of restoring the required capacity of main canals through hydroblasting (cleaning) channels from sediments and weediness. Out of the total water diversion of 2137 mln m^3 for Uzbekistan, 1187 mln m^3 were supplied for the

operations in the Ferghana Valley and the reach downstream of the Kayrakkum reservoir. The water volume taken in excess of the limit for canal cleaning can be referred to the transit, i.e. water was not supplied to fields and released back to the river.

1699 mln m^3 of water were supplied to the Shardara reservoir, 462 mln m^3 of water - to the Aral Sea and Priaralie (Table 2.16).

Based on the water situation at the beginning of December taking into account the forecast from the Hydrometeorological services and actual water diversion over the non-growing season to date, BWO Syrdarya scheduled the forecast Naryn-Syrdarya reservoir cascade operation till April 1, 2014 (Table 2.17).

Таблица 2.16

Parameters	**Actual as of 01.12.2013, mln m3**
Water supply to the Aral Sea (calculated)	462
Release to the Arnasay	0
Inflow to the Shardara reservoir	1699

Table 2.17

Schedule of the Naryn-Syrdarya reservoir cascade operation over the period of October 1, 2013 to March 31, 2014

		Oct. actual	Nov. actual	Dec.	Jan.	Feb.	Mar.	Total, mln m3
Toktogul reservoir								
Inflow to the reservoir	m^3/sec	**250.45**	**200.07**	**160.00**	**150.19**	**148.14**	**158.23**	
	mln m^3	670.81	518.57	428.54	402.28	358.39	423.79	2802.38
Volume: At the beginning of the period	mln m^3	**15916.00**	**15741.00**	**14777.00**	**13541.78**	**12229.50**	**11087.70**	
At the end of the period	mln m^3	**15741.00**	**14777.00**	**13541.78**	**12229.50**	**11087.70**	**10171.97**	
Release from the reservoir	m^3/sec	**313.39**	**572.00**	**620.00**	**640.00**	**620.00**	**500.00**	
	mln m^3	839.38	1482.62	1660.61	1714.18	1499.90	1339.20	8535.89
Kayrakkum reservoir								
Inflow to the reservoir	m^3/sec	**435.61**	**817.13**	**941.14**	**919.48**	**917.70**	**681.50**	
	mln m^3	1166.74	2118.01	2520.75	2462.75	2220.11	1825.33	12313.69
Volume: At the beginning of the period	mln m^3	**1509.00**	**2285.00**	**2731.80**	**2884.84**	**2997.94**	**3219.86**	
At the end of the period	mln m^3	**2285.00**	**2731.80**	**2884.84**	**2997.94**	**3219.86**	**3418.00**	
Release from the reservoir	m^3/sec	**152.98**	**617.23**	**900.00**	**900.00**	**850.00**	**623.76**	
	mln m^3	409.74	1599.87	2410.56	2410.56	2056.32	1670.68	10557.73
Shardara reservoir								
Inflow to the reservoir	m^3/sec	**182.28**	**467.24**	**1109.36**	**1158.69**	**1062.14**	**832.56**	
	mln m^3	488.23	1211.09	2971.31	3103.44	2569.54	2229.93	12573.53
Volume: At the beginning of the period	mln m^3	**999.00**	**1055.00**	**1569.00**	**2893.09**	**4094.87**	**4946.78**	
At the end of the period	mln m^3	**1055.00**	**1569.00**	**2893.09**	**4094.87**	**4946.78**	**5399.69**	
Release from the reservoir	m^3/sec	**169.35**	**314.04**	**600.00**	**700.00**	**700.00**	**650.00**	
	mln m^3	453.60	814.00	1607.04	1874.88	1693.44	1740.96	8183.92
Release to the Kyzylkum canal	m^3/sec	**5.00**	**3.50**	**5.00**	**5.00**	**5.00**	**6.77**	
	mln m^3	13.39	9.07	13.39	13.39	12.10	18.14	79.49
Release to the Arnasay depression	m^3/sec	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	
	mln m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water supply to the Aral sea	m^3/sec	**63.48**	**112.67**	**136.79**	**143.20**	**137.00**	**135.20**	
	mln m^3	170.04	292.03	366.37	383.55	331.43	362.12	1905.54
Charvak reservoir								
Inflow to the reservoir (total of the 4 rivers)	m^3/sec	**101.91**	**85.69**	**72.00**	**69.80**	**63.66**	**94.83**	
	mln m^3	272.94	222.12	192.84	186.95	154.01	254.00	1282.86
Volume: At the beginning of the period	mln m^3	**1507.00**	**1318.00**	**1214.00**	**1058.06**	**895.21**	**757.95**	
At the end of the period	mln m^3	**1318.00**	**1214.00**	**1058.06**	**895.21**	**757.95**	**690.28**	
Release from the reservoir (release from the Gazalkent HEPS)	m^3/sec	**158.90**	**113.20**	**130.00**	**130.00**	**120.00**	**120.00**	
	mln m^3	425.61	293.41	348.19	348.19	290.30	321.41	2027.12
Andizhan reservoir								
Inflow to the reservoir	m^3/sec	**43.68**	**43.33**	**50.00**	**46.88**	**46.01**	**61.70**	
	mln m^3	116.99	112.32	133.92	125.55	111.31	165.26	765.35
Volume: At the beginning of	mln m^3	**564.50**	**458.20**	**454.02**	**544.52**	**643.21**	**703.64**	

		Oct. actual	Nov. actual	Dec.	Jan.	Feb.	Mar.	Total, mln m3
the period								
At the end of the period	mln m^3	**458.20**	**454.02**	**544.52**	**643.21**	**703.64**	**681.33**	
Release from the reservoir	m^3/sec	**83.39**	**50.17**	**16.00**	**10.00**	**21.00**	**70.00**	
	mln m^3	223.34	130.03	42.85	26.78	50.80	187.49	661.31

1st INTER-REGIONAL CONFERENCE ON LAND AND WATER CHALLENGES OF THE INTERNATIONAL COMMISSION OF AGRICULTURAL AND BIOSYSTEMS ENGINEERING "WATER, ENVIRONMENT AND AGRICULTURE: CHALLENGES FOR SUSTAINABLE DEVELOPMENT"

September 10-14, 2013, Bari, Italy

The Conference was organized by the Board of the International Commission of Agricultural and Biosystems Engineering (CIGR) and International Centre for Advanced Mediterranean Agronomic Studies – Mediterranean Agronomic Institute of Bari (CIHEAM-IAMB), Italy.

Over the recent years, the link between water, land and agricultural development became more tight, functional and complex due to multiple factors such as the population growth, the trends for increasing the urbanized population, the changes in behavior of rural societies, climate change, and the progressive loss of agricultural land. By the mid of this Century, the world population growth up to 9 billion results in the need to produce almost one-third more agricultural production, which will require the considerable increase of water and land productivity and allows to significantly alleviate poverty and hunger. The challenges associated were set by Prof. Luis S. Pereira, CIGR Honorary President CEER, Prof. Angelo Corendi, President, Institute of Bari, and Prof. Mahmoud Abu Zeid, President, Arab Water Council, former President of the World Water Council, in their welcome speeches. Abu Zeid highlighted that in 2025, 5 billion people will live in water-stressed countries.

More than 100 reports and the same number of posters were delivered at the Conference. The themes of the Conference included: water use performance and water productivity; conservation agriculture and water saving; sustainability of groundwater exploitation for agriculture; decision support systems and modelling tools; innovative data-acquisition and information and communication technologies; climate change: adaptation and mitigation; drought/flood risk management; socio-economic aspects of land and water management; policies, governance and institutional development; water-food-energy nexus, eco-efficiency and ecological footprint

A big scientific school of developers of the theory of water consumption, under leadership of Luis S. Pereira, R. Allen – the authors of FAO manuals 24 and 56, celebrated 25th anniversary of successful use of these tools in estimating and planning water use throughout the world. Specialists from Italy, Spain, Portugal, USA, Brazil, China, African countries and Uzbekistan demonstrated the further development and improvement of the line, which is now aimed at taking into account climate change, more accurate estimates of crop coefficients, capabilities for operative forecast of water supply and assessment of damage from insufficient water supplied. CROPWAT

model served as the basis for a range of different models in the world: Aquacrop (Stedutto), CropSyst (University of Leuven), SIMdual (Italy), Isareg (Pereira et al.), SIMTAW (California). Two model complexes – Hydrotech (Mladen Todorovic) and Foodplus (University of Nottingham) include different aspects of agrarian production. The latter complex covers fish production, linkage with livestock sector, processing, etc. The University of Cranfield developed for farmers the field passports similar in their content to our developments under Water and land Productivity Improvement Programme. Based on satellite images, they evaluate uniformity of crops and identify reasons for inequality, which are then incorporated into recommendations on leveling not only surface, but homogeneity of soil properties as well. Inequality of drainage impact is taken into account.

Prof. Giuseppe Rossi Paradiso, University of Catania, Executive Board of International Water Resources Association (IWRA), delivered the interesting report "Achieving ethical responsibilities in water management: a challenge". The report stated ideas and suggestions tune in to our ideas of hydrosolidarity development by means of strengthening the international water law through inclusion of a special water right for food production. He supposed to dramatically strength global water governance due to UN monitoring violation of water rights of some countries and specially irrigated lands.

Prof. V.A. Dukhovny participated as the Conference Scientific Committee Member, delivering the report on Uzbekistan's experience in improving land and water productivity in the Ferghana Valley. Dr. Galina Stulina delivered the presentation on applying Reqwat program based on refined hydromodule zoning in the Ferghana Valley to reduce water consumption by Water Users' Associations (WUAs), while climate-based adjusting irrigation schedules.

Dr. Nadir Al-Hati, Head of the National Water Center, Palestine, said that the countries sharing the Jordan River organized "Unity of Jews, Christians and Muslims in Water Use". They took the lead in developing the master plan for the Jordan River water resources use in order to restore its flow. Israel made its first step: they released the first 50 mln m3 of water right to the Jordan River from the Lake Kineret, taking into account that great amount of water is desalinated by the country.

Large system researches of irrigation systems carried out in Italy, Spain enabled to establish the integral cluster "The way from plant to irrigation system" where the national governments of both countries take an active part. They organized the meteohydrologic service system for agriculture. It daily provides agrarians with information not only on climatic indicators, but daily estimated "potential alfalfa requirements", referenced to which it is possible to adjust water requirements of each crop through recomputation. At that, it is typical the policy of compulsory having their own economic and water strategies by each Water Users' Association as well as every field is supported.

Chinese colleagues implemented a similar forecasting information system covering 570 thousand hectares within the Yellow River basin, and on this basis, they

developed and implemented a farmers' support system as a set of recommendations on and models of water consumption.

In Italy, Naples (Napoli) province, IRRISTAT system was developed and based on data from remote measuring and on the ground. It is connected with Internet and every 10 days transfers to farmers the information on leaf-area index, plant condition, plant suppression and reference evapotranspiration of plant cover. Taking into account crop coefficients, every farmer is informed through SMS on required irrigation models referring to his/her plot at 20x20 grid. Although the cost is rather high – 7 euro/ha, and the state takes almost a half of it, the model is gaining ground and starts to spread in Australia and Mexico.

Even a more modern step was taken by Spanish scientists, who developed the automated system for sprinkling irrigation with Fregat-type machines by means of the remote control turn-off of machine's some sections, based on satellite information on moisture content in one or another plot.

FIRST WORKSHOP "RIVER BASIN COMMISSIONS AND OTHER JOINT BODIES FOR TRANSBOUNDARY WATER COOPERATION: LEGAL AND INSTITUTIONAL ASPECTS"

On 23-24 September, 2013, in Geneva, Switzerland, First Workshop "River Basin Commissions and Other Joint Bodies for Transboundary Water Cooperation: Legal and Institutional Aspects" was hold. The First Workshop aims to highlight advanced experience in legal and institutional frameworks for activities of joint bodies. More than 120 delegates took participation in the work of the workshop. They included representatives from state bodies, river basin organizations, scientific and expert communities, which have practical experience in activities of joint bodies for transboundary water cooperation.

Two key notes were delivered at the workshop. The first key note address "Strengthening legal frameworks for transboundary water cooperation at global level – what value for cooperation in Transboundary basins?" was delivered by Mr. Alejandro Iza, International Union for Conservation of Nature (IUCNC). The second key note address "UNECE Water Convention – 20 years of promoting and supporting joint institutions for transboundary water cooperation", Ms. Heide Jekel, Germany.

The International Commission for the Protection of the Rhine (ICPR), the European River Prize 2013 winner, delivered the report on evolution of organizational structure and substantive scope and cooperation with non-Convention countries. The representative from the International Commission for the Congo-Oubangui-Sangha basin (CICOS) told about the transformation of the navigation-dominated commission towards integrated management. Representatives from the bilateral Authority of Lake

Titicaca (ALT) shared their experience in the implementation of the Master plan on utilizing the water resources of Lake Titicaca, the Desaguadero River, Lakes Poopo and saltwater Koipasa. The representative of the Mekong River Commission told about the pass of organizational reforms towards decentralization. The International Commission for the Protection of the Danube River shared its experience in the work with NGOs and stakeholders, and ways of reporting. Internal procedures in the International Sava River Basin Commission were highlighted as well. D. Ziganshina, the representative from SIC ICWC for Central Asia, delivered the report on the role of IFAS and ICWC in conflict prevention in the Aral Sea Basin.

At the "Marketplace of tools" session, the following specific tools were presented and discussed in roundtable format: Tool 1. Atlas of Afghan-Tajik cooperation; Tool 2. GWP Toolbox; Tool 3. International Commission for the Protection of the Oder: education for children; Tool 4. Joint Danube Survey 3; Tool 5. Border crossing and customs formalities – practical experience; Tool 6. GEF-IW: Learn projects for the improvement of legal, regulatory and institutional frameworks; Tool 7. Website and annual report of International Sava River Basin Commission (ISRBC); Tool 8. Champion's Network, IUCN.

The discussion of the initiative of the Champion's Network, International Union for Conservation of Nature (IUCN), was particularly interesting in the context of water diplomacy development. It considers water diplomacy as a process, which works in sovereign states and requires states' direct involvement, but while enabling to cooperate among other numerous stakeholders, including municipalities, provinces, and civil society. Working within such broad and multilevel governance system, water diplomacy can very successfully integrate state's priorities regarding its water security and economic growth by means of enabling to integrate biodiversity protection into water resources management. This understanding of bottom-up water diplomacy is successfully implemented by IUCN through the BRIDGE programme and development of Champion's Network in a range of Latin American countries.

During the second day of the workshop, efforts made for development of new agreements and establishment of joint bodies were highlighted. Rapporteurs told about signing the Memorandum on the Drin River Basin, the establishment of Zambezi Watercourse Commission (ZAMCOM), Afghan-Tajik cooperation on hydrology and environment in the Amudarya River basin upstream.

The separate session was devoted to primary tools for developing cooperation in the framework of joint bodies. By the example of the Finnish-Russian Commission the importance of exchange of data and information was demonstrated. The Russian-Estonian Commission demonstrated the development of joint monitoring and assessment. Also, the report on consultations on planned measures - the experience of Hungary was delivered.

During the workshop, discussions in groups were organized. In the working group for Central Asia, the participant gave the following answers to the set question "How can agreement/joint body be further improved?" First, it is necessary to recognize the current situation, including decreasing multilateral cooperation to some

extent and intensification of bilateral contracts within the Aral Sea basin. The main problem is politicization of water-related issues and not always positive impact of "water-associated" and third countries. Identification of solutions should be searched for in strengthening of technical cooperation with the focus on specific problems (dam security, water quality) or specific watercourses, including small rivers. The necessity to reform regional institutions was discussed as well. The participants delivered different opinions, including the idea that it is required to strength the fundament of institutions in countries; reduce number of organizations at regional level; keep the available structures, with compulsory reforming, starting from technical issues (e.g., clarified the IFAS Executive Committee rotation procedure). It was also said that institutional mechanisms should be drastically changed, as the existing problems cannot be solved by just reforms.

The Second Workshop, tentatively planned for 9-10 April 2014, will focus on specific areas and technical aspects of cooperation in the framework of joint bodies, such as cooperation on preservation and restoration of ecosystems, water infrastructure, contingency planning, navigation, fisheries, etc.

EIGHTH MEETING OF THE WORKING GROUP ON INTEGRATED WATER RESOURCES MANAGEMENT

On 25 - 26 September, 2013, Geneva, Switzerland, the Eighth Meeting of the Working Group on Integrated Water Resources Management within the framework of the UN ECE Water Convention was held. The main goal of the meeting was to consider the progress of the Work Programme for 2013-2015. The Working Group elected its co-Chairs - Ms. Heide Jekel (Germany) and Ms. Lea Kauppi (Finland) and adopted the Report of the joint meeting with the Working Group on Monitoring and Assessment (Geneva, 3-4 July, 2012), discussed the ways to activate the ratification process of the Convention, listened to the report of S. Ibatulin, Vice-Chair of the Implementation Committee, on the first meeting of the Implementation Committee. The secretariat informed the Working Group on the progress achieved in different projects supporting implementation of the Convention in South-Eastern Europe, Eastern Europe and the Caucasus, as well as Central Asia, developed with the support of the ECE Regional Adviser. The progress report of the pilot projects on climate change adaptation in transboundary basins was delivered. The working group discussed the relevant information paper describing possibilities and problems in view of creating a reporting mechanism, to make a decision regarding the way of analysis on the needs for reporting under the Convention.

The Meeting of the Parties at its sixth session decided to support countries to estimate the benefits of transboundary cooperation (including the costs of non-action) by providing guidance on how to identify, quantify and communicate the range of benefits linked to cooperation. In this regard, the secretariat reported about the outcomes of the first Expert Scoping Workshop on Quantifying the Benefits of

Transboundary Water Cooperation, held in Amsterdam, on 6 and 7 June 2013, as well as presented a draft outline of the guidance note on quantifying benefits of transboundary cooperation. The Working Group discussed the outline, and the participants were invited to provide comments, including on potential case studies.

The Chair of the Task Force on the Water- Food-Energy-Ecosystems Nexus reported about the outcomes of the first meeting of the Task Force, held on 8 and 9 April 2013 in Geneva. The secretariat presented the basins, including of the Syrdarya River, planned to be assessed. Representatives of Kazakhstan, Uzbekistan and Tajikistan thanked for inclusion of the Syrdarya River Basin in the assessment and showed their interest in the action.

The secretariat informed the Working Group on difficulties with financing the activities on Quantifying the Benefits of Transboundary Water Cooperation and Thematic assessment of the water-food-energy-ecosystems nexus. This, inter alia, can limit participation of pilot basins in the actions. The secretariat called the countries for raising, wherever possible, additional funds for the two items of the actions programs.

The Working Group also discussed issues related to opening of the Convention to countries outside the United Nations Economic Commission for Europe region, with promotion of the Convention and establishment of strategic partnership, with inclusion of water into the post-2015 development agenda, with carrying out processes together with the European Union Water Initiative on National Policy Dialogues, and development of activities in the areas of water and industrial accedents.

FIRST WORLD IRRIGATION FORUM

29 September - 1 October 2013, Mardin, Turkey

As of 2011, there are 299 mln ha of irrigated lands and 203 mln ha of drained lands, which accounts for nearly 25 % of all agricultural lands over the world. These lands are of paramount importance especially given that humankind can no way reduce anyhow the number of the starving population below 850 million people, since 1/5 of the total agricultural areas fives over 37 % of all agricultural products of the world, while the other 4/5 yield only 63 %, i.e. less than two thirds. Under changing climate conditions irrigation is a guarantee of sustainable food security. According to FAO, during low-water periods China did not cut the production of irrigated areas, and rain-fed lands lost 30% of their products!!!

In such circumstances, organization of the First Irrigation Forum seems quite sound and appropriate. It is significant that during the past two decades use of new irrigated lands dramatically decreased; but now the area of irrigated lands has increased again up to 2.8 mln ha per year from 2005 to 2011 (+15 mln ha) versus the period from 2000 to 2005, when the growth rate was 1.2 mln ha per year (6 mln ha).

At present ICID is composed of 96 member countries, of which 58 active countries are from Africa, 4 from America, 23 from Asia, and 2 from Europe. The following countries are pioneer in irrigation: India – 62.0 mln ha; China – 60 mln ha; USA – 25 mln ha; Pakistan – 19.4 mln ha; and Iran – 8.9 mln ha.

This Forum was peculiar in that by a decision made by the Executive Committee 63rd meeting a number of non-national corporations became ICID members, except NCID: India Water Foundation, WAPCOS (India), Suyapi Eng (Turkey), Katteki Inst (Japan).

The Forum was organized by ICID and Turkish Ministry of Agriculture and Forestry through DSI, state agency for use of water resources in the Mardin city, one of the oldest cities of Mesopotamia, which is currently located at the center of the vast area named GAP – Great Analytical Project.

The Forum gathered 640 people from 65 countries. Eastern Europe, Caucasus, and Central Asia countries were represented by persons from Georgia, Tajikistan, Russia, Ukraine, and Uzbekistan. Unfortunately, former ICID members, Kazakhstan and Kyrgyzstan, lost touch with ICID. The Tajikistan representative Mr. Kh. Khasanov negotiated with the ICID management concerning the Tajikistan membership renewal in ICID from 1 January 2014.

The Forum did not have the expected form of an open discussion, which usually takes place at a forum, with unplanned exchange of opinions, even may be disputable, controversial, but objective, whole-hearted, which produce not only but also spiritual unity of the people that equally understand their responsibility before humankind and future, as water is not petroleum, but it is future.

Such an attempt as far back as 2002 made John Hennessy at a conference in Oxford, having organized a big discussion in the form of a forum regarding the prospects of irrigation, what role water charge will play in ensuring irrigation sustainability. Nobody prepared speeches. John himself played the part of a moderator, sitting like in Westminister surrounded by all attendants and holding the gavel designed to calm down noisiest spokesmen. And such a free form was indeed a forum: at a forum one must convince. At the Congress and our First Forum, like at common conferences, everyone tried to show oneself and demonstrate one's works.

The Forum opened in the big hall of the University by an inter-religious music typical of Mardin where Muslims, Christians, Jews, Aramaeans, and Canaanites have lived for ages.

The President of the Turkish NCID Mr. Akif Uzkeldy, DSI Director, and later Mayor of Mardin, welcomed the guests. Then the ICID President Prof. Gao Zhani, IWRA President and WWC Vice-President Prof. Dogan Altynbek, Minister of the Turkish Republic of Northern Cyprus and later Minister of Internal Affairs of Turkey Mr. M. Gul, and Minister of Water Resources Mr. Veysel Eroglu spoke before the audience. Construction of the main water delivery canal to Mardin and afforestation of the Atatyurk dam vicinity was demonstrated using teleconference bridge.

Concluding the opening part, President Emeritus Mr. Peter Lee, Chairman of the Jury, announced the decision of the Jury to award the first Irrigation and Drainage Prize to Prof. V.A. Dukhovny and together with the ICID President gave him the Prize.

The following key reports by the Secretary General of ICID Mr. Avinash Tyagi, IWMI Director Mr. Jeremy Bird, Director of WMO Department Mr. Bruce Stewart, Vice-President of ICID Mr. Laurie Tollefson highlighted today's major challenges of irrigation and drainage and ways to solve those.

Whereas as far back as 1890 an average temperature was 13.67o C, now in 2010 it comes to 14.64o C. In comparison with the period of 1970-1985, when about 2 mln ha of new lands per year were used, investment to irrigation and water management has decreased, and it was not until 2005 that investment grew. Irrigation is increasingly oriented to watering more profitable crops, which allows reducing water consumption.

Irrigation is one of the most important components in the package of measures for adaptation to climate change. A great number of research activities are carried out in the world, but they all are scattered and are not goal-oriented. Irrigation and drainage as well as land reclamation need specific future-oriented researches.

All the works related to new technologies must be coordinated and supported by the government. However, innovations and modern technologies in themselves cannot help solving famine problems: policy, management, organizational structures, financial resources, and direction are needed. Particularly the role of water authorities is prominent; they have to control development, water management process, and provision of water and reclamation services at different levels.

Development and management of irrigated agriculture should take into consideration local conditions as well as social and economic conditions.

The government is the conductor of certain management and policy, but the organizer of this progress from top to downward.

The purpose of reclamation works must be achievement of social, economic, and environmental wellbeing in rural areas.

On the second day, Prof. V.A. Dukhovny took the floor first with the report "We are speaking up for irrigation and drainage". Then various reports were delivered on the following areas:

- Policy, science, and interaction with society;
- Challenges and progress in financing I&D;
- IWRM approach to ensure sustainable output of agricultural products;
- Water wisdom and sustainability;
- Drought and water deficit control strategy;
- Land, water, and plant control under climate change conditions.

1. Policy, science, and interaction with society

Key theses of the reports:

- Irrigation remains the main tool to ensure food security on the context of growing water crisis, employment and wellbeing of rural population in developing and economy-in-transition countries;
- Although irrigated agriculture is at first sight is inferior in direct effect – net income per cubic meter of water – to such water users as hydropower industry, taking into account all associated effects shows that net income rises by 2.5 times and wins by a mile the benefit of the hydropower industry;
- The existing potential of irrigated agriculture can be kept and augmented provided that growth of water demands will be balanced by the rate of employment of additional water sources especially marginal ones (owing to water purification, desalination, redistribution) and mainly due to improved water productivity and water conservation;
- It is necessary that any research carried out in favor of I&D should turn into an innovation that is adopted in practice This requires creating an interactive process of creation, introduction, an distribution, which is to become a tool for entrepreneurship providing science and research activities with open communication;
- Main way to improve the efficiency of agricultural production on irrigated lands reduces to water measurement, reduction of water losses in canals and infields, clear determination of water demand, scheduling of real-time water distribution, selection of proper water supply technology;
- It is necessary to develop and distribute simple manuals related to all indicated areas by means of trainings and various extension services, as well as demonstrate the best water users' experience;
- Internal reservoirs, which in the USA, for instance, are placed at every 20-40 ha, serve as an important element for reducing losses in canals and improving the water supply system;
- Involvement of end land and water users in the decision-making process is vital for modernization and improvement of irrigation network;
- Application of up-to-date systems must be in conformance with local relationship, including harmony between a human given and God, between a human being and nature, between people (as exemplified by the water use system on Bali named "Suban irrigation");
- When improving the management of irrigation systems, main emphasis should be made on strengthening the interaction between regional water organizations and WUAs, where, as the experience of "intensive large-scale interaction" in the years of 2009-2012 shows, water use rate can easily rise by 5-10 %;

- Turkey demonstrates wide experience in the transfer of the systems of open canals with furrow irrigation to closed delivery canal systems.

The Lower Gediz system was designed for open canals in 1960, and currently it is changed for a centralized pressure pipe system with distribution through polyethylene pipelines 150-200 mm in diameter with pumping feeding.

A similar system is installed on the South-East Anatolia land mass where the network is temporarily supplied with water by pumping stations that take water from deep (to 300 m) groundwater resources. After much amount of water comes from the Atatyurk dam, the pumping stations will be reequipped for water withdrawal from pipelines of big diameter of 1.5 along with keeping the distribution and sprinkling network.

The reconstruction cost amounts to 10 ths USD per ha plus considerable operation costs – over 300 $/ha.

Turkish colleagues explain such heavy expenditures by the necessity to get involved a large part of growing rural population:

- Drip irrigation systems are increasingly covering more areas of irrigated lands worldwide: 10.8 mln ha versus 43.2 mln ha under sprinkling. India is the pioneer: microirrigation area here comes to 1.9 mln ha; in China– 1.67 mln ha; in Spain – 1.66 mln ha; in the USA – 1.64 mln ha; in Italy – 570 ths ha. The program (APMIP) of the Andhra Pradesh state of India adopted in 2003 is a good case of successful microirrigation development: it aimed at equipping state's irrigation areas of 962 ths ha with three million pumping units for 7 years by providing electrification. The investments made by the government made it possible to cover 640 thousand farmers in the state. The project allowed producing additional products to the amount of 300 mln USD per year and saving water of 4 bln m3 per year.
- In Africa, in particular in Zambia and Burkina Faso, low-cost focal drip irrigation systems worth of at most 1000 $/ha, which are composed of a reservoir (tank), set of tubular distributors and watering pipes connected into a "microirrigation kit" that supplied water to 0.04 … 0.1 ha. Usually the tank is filled by means of irrigating machines or pumping systems, or from wells. However in India they began installing low-capacity solar-powered pumps on such systems.
- Occurrence of serious problems associated with changes in the social situation in rural areas is highlighted in the reports by Japan and India representatives. In Japan, water management based on high-tech standards is performed by public and private organizations that unite farming water users. However, rural depopulation, village urbanization, and increase in the number of non-agricultural land users in rural areas cause changes in the particular characteristics of water users – WUA members. This reduces the possibility of receiving funds for sustainable existence of these systems. The Andhra Pradesh state case study shows that some WUAs have lost up to 70% of their irrigated lands, which dramatically complicated their activities. Both countries have

adopted a regulation obligating new land users to make agreements with WUAs which will take care of their (users') capital resources.

2. Challenges and progress in financing irrigation and drainage

Key theses of the reports:

- The European Bank for Reconstruction and Development that has financed the Turkish irrigation system since 1985 noted great aggregate effect of irrigation as well as considerable social effect. Nevertheless, it mentioned a number of drawbacks such as lag of land development behind construction, weak farmers' sense of responsibility, high cost of pumping supply, poor planning, fluctuation of product prices.
- Annual irrigation growth was limited within 0.5 % against 1.5 % in 1960 because of reduced financial investment by international financial institutions; the need for raising financial investments in whole and particularly to irrigation as well as to African countries was underlined.
- Having expanded its irrigated areas for the last 15 years, Turkey however failed to meet growing irrigation systems' requirements for operating costs. This has an affect on the sustainability of developed irrigation systems; the cost of irrigation systems without dams in Turkey is 4500 $/ha for drip irrigation; 3000 $/ha for sprinkling; and 1000 $/ha for furrow irrigation. Irrigation service charge should be raised within 5-8 years in order to achieve sustainability of reclamation systems;
- The majority of the irrigation systems built during the period from 1980 to 2000 requires immediate capital investments to ensure their efficient performance, as their obsolescence process runs much faster than their restoration.

3. IWRM approaches to sustainable food production

Key theses of the reports:

- IWRM in brief consists in the combination of the relationship "water – food – energy for green economy", taking into account all the links between and around them. However more efficient use of all the resources will be ensured if this chain focuses on controlling all kinds of losses. Nowadays, food product loses are equivalent to 1380 km3 of water per year, which costs 252 bln USD;
- Employment of drainage water implies considerable potential of growing crops such as kapola, mustard, coral beans, and partly cotton;
- Salinity still remains a huge problem for irrigated lands in arid and semiarid areas as shown by the example of India where out of 60 mln ha 8 mln ha are subject to this effect. Advanced closed drainage systems are a must of IWRM and guarantee for land productivity. In India, some part of drainage costs is covered by farmers;

- Australia pioneered the combination of IWRM with water market. It rests on water right separate from land right. The experience of the Murray-Darling basin illustrates that this approach is oriented to enhancement of water productivity and economic growth of farms;
- Integrated ground and surface water utilization is widely used in the Nile delta, where under water shortage conditions up to 70 % of farmers apply this method;
- Building of online database is essential for successful development of IWRM in any irrigation system, resting on improving water accounting, more efficient reduction in water consumption, and control over water distribution according to needs.

Os special note are the following technical achievements and trends:

- Determination of canal flow rate and losses in canals allowing for their silting by using the Doppler system;
- ICT-based technologies are gaining ground for climate, water and development of plant (Africa, Egypt, Sudan, Mali). This is exemplified by Fruit 7 Look in Zambia where continuous monitoring is carried out over nine garden development indicators by means of remote images;
- Introduction of new design of Unifarm-system mobile sprinklers made by SIME Idromechanica having moistening uniformity of 75-90%. Potential water saving comes to 15 %;
- Extending use of SCADA;
- Rise in use of closed pipelines.

Meetings of all ICID working groups were held in addition to various events within the Forum.

The “Irrigation & Drainage in Economy-In-Transition Countries” Working Group (headed by (Prof. P. Kovalenko and Prof. V.A. Dukhovny) considered that issue in post-Soviet countries.

It was noted that along with the central Asian countries successfully developing in this area, all Eastern Europe countries, Russia, Ukraine, and Kazakhstan made significant cut of irrigated areas, by 11 mln ha in whole, unparticular over 3 mln ha in Romania, 2.5 mln ha in Russia, and more than 1 mln ha in Ukraine and Kazakhstan each.

At the same time, progress in Ukraine, sizeable reduction of water diversion in Turkmenistan and Uzbekistan, IWRM implementation in Kyrgyzstan, Tajikistan, and Uzbekistan are outlined.

It was proposed to popularize the experience of irrigation and drainage transformation in economy-in-transition countries by issuing a special monograph named “Irrigation & Drainage in Economy-In-Transition Countries: achievements and challenges”.

The Strategy Committee and later ICID EC supported this proposal.

ICID EC reviewed the annual results and made a series of decisions. One of those focuses on the need for more active involvement of young specialists to the ICID activity.

The IC also decided on holding the 2nd World Irrigation & Drainage Forum in the Chiang Mai city, Thailand, in 2016.

The IC elected three new vice-presidents:

- Dr. Basuki Hadimoeljono from Indonesia;
- Dr. Kadhim Mohsin Ahmed from Iraq;
- A.V. Pandia from India.

That was the first time the elections were non-alternative to all the three candidates from Asia.

The IC paid the tribute to the memory of an outstanding leader in irrigation and drainage, Honorary President of ICID Mr. Ali Shadi, who contributed greatly to the development and strengthening of ICID position in the world water community.

The report by the Secretary General of ICID Mr. Avinash Tyagi regarding new type of servicing introduced by the ICID headquarters aroused much interest.

- The new ICID website is open since February 2013; it includes also several thematic areas: irrigation, drainage, flood control, climate change and irrigation systems, drought control, etc.
- The website includes a few resources, such as basic model of IWRM (BHIWA), Podium (political dialogue model); WEAP model, Saltmed model, and a multilingual dictionary.
- Integrated library system (IGMS), which contains all ICID publications from 1950 onwards.

BUDAPEST WATER SUMMIT: THE ROLE OF WATER AND SANITATION IN THE GLOBAL SUSTAINABLE DEVELOPMENT AGENDA

The Budapest Water Summit convened from 9-11 October 2013, in Budapest, Hungary. The Summit brought together participants representing governments, international organizations, civil society, academia and the private sector. The Summit discussed, in particular, the developments within and without the UN system on the development of waterrelated goals for the post-2015 development agenda. The meeting took place in the context of the United Nations (UN) International Year of Water Cooperation 2013, the outcome of the UN Conference on Sustainable Development (UNCSD, or Rio+20) "The Future We Want," and the ongoing post-2015 development agenda process to negotiate sustainable development goals (SDGs).

The meeting included the high-level Summit and, in parallel, the Science Forum, Civil Society Forum, Youth Forum and Business Leaders Forum. Side events and a Water and Sanitation Expo took place throughout the meeting. The Summit and Fora addressed themes including: integrated water resources management (IWRM); access to water, sanitation and hygiene (WASH); good water governance; the water, energy and food nexus; water in the context of the green economy; and investment and finance.

The Budapest Water Summit addressed these issues in sessions and high-level panels, including: striving for universal access to water and sanitation; addressing WASH issues; implementing IWRM for the 21st century; serving a growing population with water in a changing climate; implementing good water governance; governing water wisely with specific, measurable, attainable, relevant and time-bound (SMART) SDGs; enabling a green economy for blue water; investing and financing to address the global water and sanitation crisis and related SDG; and leveraging finance.

On the 9th of October, a special high-level panel took place on the water-energy-food nexus and a philanthropy roundtable convened on the 10th of October evening. On the 11th of October, the Summit adopted the Budapest Statement, calling for a water-related SDG and the establishment of an intergovernmental mechanism on water, and this was followed by a closing ceremony.

"A SUSTAINABLE WORLD IS A WATER-SECURE WORLD" - THE BUDAPEST WATER SUMMIT STATEMENT

11 October 2013, Budapest, Hungary

The Budapest Water Summit was initiated at the United Nations Conference for Sustainable Development by the Hungarian Government with the principal objective to take stock of the various developments in preparing the water-related goal for the post-2015 development agenda. The Budapest Water Summit Statement reflects the outcomes of the thematic sessions and the deliberations of the civil society, science, youth and business fora that took place during the Summit.

1. **Water is fundamental.** Water has brought civilizations livelihood, sustenance and well-being. Water has been a central factor shaping both earth system history and human history. Therefore, water carries the collective memory of humanity. Water has been instrumental in our past development. It is equally the key to our future development, and safeguarding our life support on Earth, which is increasingly under pressure from global changes.

2. Water unites. It unites people among and across generations, nations and cultures and is a source of cooperation. However, its uneven temporal and spatial distribution worldwide, in addition to numerous challenges such as demographic and climatic changes, renders water management essential and critical as our entry point for sustainable development and poverty eradication. All basic planetary and ecosystem functions will be endangered if water is not governed properly, jeopardizing the human right to safe and clean drinking water and sanitation.

3. Water connects. Tapping the power of water for our era to meet the water challenge requires new, innovative policy approaches, both within the water sector and in concert with other social and economic sectors, especially, health, food and energy. Human-centered development, based on human rights approaches, and environmental stewardship, including preserving the function of ecosystems and protecting biodiversity must reinforce any modern paradigm of water management.

4. Water and ecosystems. Safeguarding and rehabilitating ecosystems in 21st Century water resources development approaches will be an important shift towards sustainability. Unintended impacts to ecosystems in the name of water uses are contrary to the aspirations of a sustainable water future.

5. A dedicated water goal. To achieve the agreed upon Millennium Development Goal targets related to water and sanitation and to move towards the new set of Sustainable Development Goals, as well as to create new approaches to water management, the Budapest Water Summit, in consideration of the many ideas and discussions preceding to and over the course of the Summit preparation process, recommends the development of a dedicated and comprehensive Sustainable

Development Goal on Water, a "Water-Secure World" while clearly addressing the inter-linkages to other Sustainable Development Goals.

This proposal is supported by additional outcome policy recommendations presented in the Annex I of this document. This Goal would be accompanied by SMART(ER)[3] targets addressing the following main water-related issues:

a) Achieve universal access to safe drinking water and sanitation: Achieve universal access to sustainable and safe drinking water as well as genderresponsive sanitation and hygiene services as part of human rights in all households, schools, health facilities, workplaces and emergency contexts including refugee camps;

b) Improve integrated and cross-sectoral approaches to water resources management: Manage freshwater resources in an integrated way at the basin level, including in transboundary river basins and aquifers, so to maximise benefits across sectors in an equitable, efficient and sustainable way, foster 1 food and energy security, protect ecosystems and enhance the services they provide, and increase water productivity;

c) Reduce pollution and increase collection, treatment and re-use of water: Protect human health and the environment from municipal, agricultural and industrial water pollution, by reducing pollution, collecting and treating wastewaters and maximising their re-use; and

d) Increase resilience against the water-related impacts of global changes:

Improve resilience to water-related disasters by enhancing preparedness against, and adaptation capabilities to, the impacts of on-going and future global changes such as growing water insecurity, climate change, population growth, land use change and the frequency of natural extreme hydrological events, through wise use and development of resilient water infrastructure and appropriate non-structural measures and timely exchange of information. Reduce impact on access to water and sanitation of man-made or natural disasters through risk reduction programs.

6. Capacity development for water. Lessons of the water and sanitation related Millennium Development Goals show the critical need for a sound scientific underpinning, socio-economic, institutional, technical, financial and engineering capacity. To support the development of broader and more inclusive Sustainable Development Goals provides an even greater challenge to sciences. In this context, the lack of trained professionals and delivery capacities is a recognized limitation toward attaining meaningful goals.

7. A robust intergovernmental institutional mechanism. The critical nature of water for human populations and the planet, conditioning any future sustainable development agenda, requires a robust intergovernmental process to regularly monitor, review and assess progress of the implementation of the future water goal. It is recommended that appropriate institutional mechanisms are soon put in place to regularly review and assess progress in an integrated manner.

[3] Specific, Measureable, Attainable, Relevant and Time-bound (Evaluated and Re-evaluated)

SECOND MEETING OF THE OECD INITIATIVE ON WATER GOVERNANCE

On November 7-8, 2013 in Paris, the Second Working Meeting under the OECD Water Governance Initiative was held in the Headquarters of the Organization for Economic Cooperation and Development (OECD), Paris.

The OECD Water Governance Initiative is an international multi-stakeholder network of delegates from public, private and not-for-profit sectors gathering twice a year to share on-going reforms, projects, lessons and good practices in support of better governance in the water sector. It was launched during the preparation of "Good Governance" Core Group for the 6th WWF in Marseille and finally formed in March 2013.

The OECD Water Governance Initiative aims to:

- Advise governments in taking the needed steps for effective water governance through policy dialogue at different levels;
- Provide a technical platform to discuss analytical work on water governance through peer-to-peer exchanges and knowledge sharing;
- Support the implementation of the 6 governance targets designed for the 6th World Water Forum (Marseille, 2012) up to the 7th World Water Forum (Korea, 2015);
- Contribute to the design of OECD Principles on Water Governance and OECD Indicators on Water Governance to engage decision-makers at all levels, within and outside the water sector, commit to action.

The 2nd meeting has the following objectives:

1. Kick-off the 4 Thematic Working Groups as "building blocks" of OECD Principles on Water Governance
    a. stakeholder engagement for effective water management (led by OECD, and Suez Environment);
    b. performance and governance of water supply and sanitation (led by ASTEE)
    c. basin governance (led by INBO/OIEau and UNESCO-IHP); and
    d. integrity and transparency (led by WIN, TI, SIWI-UNDP Water Governance Facility);

2. Introduce regional partners of and thematic contributors to the Initiative's Programme of Work to define who does what;

3. Discuss recent developments in the Global Water Agenda, especially the outcomes of the Water Integrity Forum (Delft, 5-7 June 2013), the Budapest Water Summit (8-11 October 2013) and the preparation of 7th World Water Forum (12-17 April, 2025, Daegu- Korea);

4. Discuss analytical work on water governance, especially the draft OECD report "Water Governance in the Netherlands: Fit for the Future?"

5. Exchange on recent water governance reforms and initiatives;

6. Define a Communication and Outreach Strategy for the Network.

During two days of intensive discussions, the objectives were accomplished. Participants of the Initiative defined work of which of the four Thematic Working Groups they are ready to support. For each of the groups, a scoping note, on which base thematic group objectives and its further actions were defined, was developed. SIC ICWC was included in the Thematic Working Group 3 "Basin Governance". Regarding the scoping note, the representative of SIC ICWC proposed to narrow down a list of tasks set to the Group and bring them to actions, which may make definite contributions in ensuring implementation of water governance in practice. This is especially urgent in the light of the fact that the 7th World Water Forum will focus on implementation of numerous solutions of water problems presented at the 6th WWF in Marseille. For instance, there is a need for specific indicators tracking steps performed towards more efficient water governance, which are to help on-site executors in their everyday work. In this regard, the proposal by Stefano Burke (AIDA) on development of indicators tracking implementation of water law was of interest. Detailed notes to the scoping note and suggestions on activities of the Group will be submitted to coordinators till November 29th, 2013.

OECD prepared a detailed peer-review of the OECD Report "Water Governance in the Netherlands: Fit for the Future?" More than 200 pages of the report state both the country's achievements in this direction and existing difficulties. Thus, for instance, the report mentions that the Netherlands are in a peculiar trap, which could prevent the country to further develop efficient water governance. The first element of the trap is citizens' overreliance on the state in water governance. Such a seemingly positive factor often leads to carelessness of citizens and their low awareness in water-related issues. The second element of the trap is a sense of security, which is not indeed consistent with the reality and lulls them into a false sense of that. Finally, the third element is a technological supremacy of Dutch approaches. It also raises concerns and prevents development of a new way of thinking and innovative approaches.

It appears that a summarized version of the report, after its publication at the beginning of 2014, would be interested for acquaintance the Central Asia with the Dutch centuries-old experience in governance of water, wetlands, and deltas that today intend to become an "updated version of themselves".

A representative from SIWI/UNDP introduced participants a new publication "User's Guide on Assessing Water Governance" (available at www.watergovernance.org). The guide provides an overview of different methodologies for assessment of water governance success, and their own basis for how to conduct such assessments proposed.

The OECD Secretariat promised to soon circulate a draft inventory of projects and initiatives in water governance for its further supplementation among the members of the OECD Initiative.

The representative from SIC ICWC informed the participants on activities of SIC and actions carried out under ICWC on water governance issues (data exchange, trainings, projects on IWRM implementation, etc.).

Currently, SIC ICWC is the only organization represented in the OESD Initiative from Central Asia and the whole post-Soviet area. Participation in the OECD Initiative allows sharing regional experience in water management, as well as participation of the region in formation of the Global Water Governance Agenda. Therefore, it would be desirable to engage organizations from Central Asia more broadly to the OECD Initiative.

The next meeting of the OECD Initiative members is planned in mid April, 2015.

CONFERENCE OF EECCA WATER-MANAGEMENT ORGANIZATIONS "COMMUNITY OF WATER PROFESSIONALS - A FRAMEWORK FOR INTERSTATE WATER COOPERATION"

The Conference was held at VNIIGiM named by A.N.Kostyakov (Moscow) on the 8th of November 2013.

The main aims of the Conference were:

- Political will of improvement and its implementation in practice
- Implementation of IWRM
- Water conservation - achievements over the five years
- Public participation in water management
- Improvement of water supply

- Food-water-energy nexus and solution of related problems
- Discussion of water sector problems in Eastern Europe, Caucasus and Central Asia (together with representatives from Central Europe (Romania and France)).

The Conference was organized by OAO "Vodstroy", the Russian Union of Water and Land Reclamation Professionals, VNIIGiM named by A.N.Kostyakov (Moscow) and the Scientific-Information Center of ICWC (NWO EECCA Secretariat, Tashkent). This event was supported by GWP CACENA and UNECE (through the RF grant).

The participants were welcomed by:

- P.A.Polad-Zade, EECCA Network President
- N.A.Sukhoy, Chairman of Conference Organizing Committee, President of the Russian Union of Water and Land Reclamation Professionals
- M.V.Seliverstova, Head of Federal Agency "Rosvodresursy"
- M-F. F. Pintus - on behalf of J-F Donzier, INBO Executive Secretary.

The following reports were delivered:

Issues in Land Reclamation and Water Management in EECCA Countries and Challenges Facing Water Community - Acad. P.A.Polad-Zade, President of EECCA Network

About Scientific Support of the Programs for Land Reclamation and Water-Management System Development in the Russian Federation - Dr. Prof. B.M.Kizyaev, Director, VNIIGiM

The Current State and Prospects of Water Resources Management in Ukraine - Dr. V.A. Stashuk, Chairman, State Water Resources Agency, Ukraine, corresponding member of the National Academy of Sciences

Federal Target Program (FTP) "Plans for Agricultural Land Reclamation in Russia for 2014-2020" - D.P.Putyatin, Acting Director, Department of Land Reclamation, Ministry of Agriculture, Russian Federation

Challenges in the Development of Transboundary Water Cooperation in the ECE Region - B. Libert, Regional Advisor for Environment, UNECE

Enhancement of Transboundary Cooperation: about EC IFAS Activities over 2009-2012 - Prof. S.R.Ibatullin, Vice-Chair, Implementation Committee of the UNECE Water Convention

About Program for Development of Water Knowledge Bases in EECCA - Prof. Dr. D.V.Kozlov, Chancellor, Moscow State University of Environmental Engineering

About Program of Global Water Partnership for Caucasus and Central Asia for 2014-2016 - Dr. V.I.Sokolov, Regional Coordinator, GWP CACENA, Deputy

Director of the Scientific-Information Center of the Interstate Commission for Water Coordination.

The Current State and Prospects of IWRM in Turkmenistan - G.Nurmukhammedova, Expert, Analytical Agency "Ynanch-Vepa", Turkmenistan

Cooperation among Water Research Institutions in Russia and EECCA Countries - Prof. Dr. N.B. Prokhorova, Director, Russian Water Research Institute

Water Management in the Republic of Uzbekistan: Current State and Plans for the Future - B.K.Ruziboev, Deputy Head, Central Water Resources Administration, Ministry of Agriculture and Water Resources, Republic of Uzbekistan

About Water Management in the Republic of Kazakhstan - B.K.Bekniyaz, Acting Chairman, Committee for Water Resources, Ministry of Environment and Water Resources, Republic of Kazakhstan

Water Management in Romania - E. Cserwid, National Institute of Hydrology and Water Management, Romania

BWO Amudarya about Water Security Issues in the Amudarya River Basin - A.M. Nazariy, Chief Engineer, BWO Amudarya, Uzbekistan

Promoting Small Transboundary Basin Cooperation in Central Asia - L. Kiktenko, Expert, CAREC, Kazakhstan

Irrigation and Drainage in Changing World – Prof. Acad. P.I.Kovalenko, Institute of Water Problems and Land Reclamation, National Academy of Sciences, Ukraine

Final Resolutions of INBO World General Assembly and Tasks of EECCA Network - Prof. V.A.Dukhovny, Executive Secretary of EECCA Network, Director of the Scientific-Information Center of the Interstate Commission for Water Coordination in Central Asia (read by V.I.Sokolov)

The major system-wide problems of water development in RUSSIA include:

- unsatisfactory conditions of drinking and household water supply system
- reduction of agricultural areas and poor condition of irrigated and drained land
- wasteful use of water
- reduced water quality
- poor state of hydraulic infrastructure
- increased damage to property from negative water impact of natural and anthropogenic origin
- low efficiency of water management in agro-industry
- shortage of qualified staff.

The strategic objectives of water sector development are seen as follows:

- guaranteed supply of rural population with drinking water of good quality
- development of rural water supply
- rehabilitation and development of irrigation and drainage
- prohibition of polluted wastewater discharge into water bodies
- development and application of innovation technologies and technical facilities
- ensuring of hydraulic structure security
- provision with labor resources

The following mechanisms should be used for implementation of water strategy in agro-industry:

- improvement of legal, regulatory and methodological bases and state regulation methods
- achievement of effective management system
- development of human capacity
- research and development and data support
- federal and regional target programs for innovation development.

The Federal Target Program (FTP) "Plans for Agricultural Land Reclamation in Russia for 2014-2020", which received 75.3 billion roubles from the federal budget, sets the following objectives:

- Improve productivity and sustainability of agricultural production and of soil fertility through comprehensive land reclamation under global and regional climate changes and natural anomalies.
- Increase production capacity of reclaimed land and better use natural resources.

To achieve the above objectives and ensure effective implementation of the Program, an integrated approach will be used. All Program measures are grouped into three projects:

1. "Rehabilitation and improvement of operation of irrigation and drainage systems and separate hydraulic structures under the Russian Federation's state ownership";
2. "Development of irrigation and drainage systems and separate hydraulic structures under the Russian Federation's state ownership, municipal property and agricultural enterprises' property";

3. “Prevention of agricultural land abandonment through afforestation, phyto-reclamation and land clearing.”

The following results are expected from the Federal Target Program:

- Annual quantity of agricultural production – 5 160 700 tons of feed units
- Guaranteed crop yields, irrespective of natural conditions, through putting of 840 960 ha of reclaimed land into operation
- Reserved existing job places and created new 92 890 ones
- Reduced vulnerability of population and land to floods and other negative water impacts (potential prevented damage of 66 100 000 000 roubles from negative water impact)
- The share of state ownership decreased from 58.4 % to 40 % of the total amount of irrigation and drainage systems and separate hydraulic structures
- Quantity of ownerless irrigation and drainage systems and separate hydraulic structures decreased from 34.7 % to 0.

The basic objectives of the UKRAINIAN State Water Resources Agency are:

- supplying Ukrainian population and economic sectors with water, implementing inter-basin transfers and ensuring efficient water use;
- implementing integrated water resources management on basin basis and adapting the national water legislation to standards of the European Union;
- promoting land reclamation and improving environmental status of irrigated and drainage land;
- providing, in the first place, centralized water supply to rural settlements that use water brought from afar;
- protecting rural settlements and agricultural land from harmful water impact and ensuring comprehensive flood protection in Dniester, Prut, and Siret basins, as well as in the Tisa River basin in Zakarpats'ka province;
- improving environmental conditions in the Dnieper River basin;
- maintaining international cooperation on transboundary water use, protection and restoration.

The Government adopted the State Target Program for water development and environmental improvement in the Dnieper River basin until 2021. Along with Basin councils, the interdepartmental commissions were established in major river basins to set operating regimes of reservoirs and water systems.

The Ukrainian Government pays increased attention to the water sector. For example, the President’s Decree No. 351/2013 of 27 June 2013 made amendments to

By-laws of the Ukrainian State Water Resources Agency. The next decree by the Ukraine Cabinet of Ministers No. 662-p of 28 August 2013 established territorial bodies of the Agency.

Finally, it was noted that drip irrigation area extended from 5 500 ha to 76 000 ha since 2002.

Being the most densely populated country with the largest irrigated area in the region, UZBEKISTAN is very vulnerable country in terms of water availability. Therefore, Uzbekistan takes all necessary measures to achieve efficient use of limited water resources. Strict water limitation was introduced, application of water-conservation technologies is encouraged, and the legal framework is updated regularly. Over the last years, drip irrigation was adopted on more than 10 000 ha, with an annual increase by 5 000 ha. As a whole, water conservation technologies were applied on about 100 000 ha. As a result of agricultural diversification, the area of water-intensive crops, such as cotton, were reduced from 2 Mha to 1.2 Mha and that of rice decreased from 180 000 ha to 40 000 ha.

In the last decade, more than $500 M from state budget and $1.2 billions of foreign investments were spent for rehabilitation and reconstruction of irrigation and drainage infrastructure.

As a result, despite population growth and economic development, water withdrawals have decreased from 64 to 51 billion m^3 a year or by 21%. Since 1992, 328 billion m^3 of saved water has been delivered towards the Aral Sea, and a share of this water was used for 380 000 ha in the Amudarya River delta and recharged local water bodies, thus reviving flora and fauna.

For 2013-2017, the Government plans to allocate about $1 billion for more efficient water use and improved conditions of irrigated land.

TURKMENISTAN every year approves and implements several projects for comprehensive reconstruction of irrigation systems and their modernization. The projects propose various options combining the following measures:

- optimization of initial irrigation and collector-drainage network layout;
- increase of unit drainage length;
- anti-filtration coating;
- micro-irrigation systems (drip and sprinkling irrigation);
- construction or rehabilitation of regulating structures;
- land leveling and leaching;
- change of institutional framework.

In order to catch and accumulate small river flows and mudflows, small reservoirs are under construction in mountain area and piedmont (three projects completed and the forth one is ongoing).

A new Water Code is to be adopted in Turkmenistan in the nearest future.

The Government of KAZAKHSTAN attaches great importance to the water sector. This is clear from the establishment - according to the President's Decree No.677 of 29 October 2013 - of the Ministry for Environment and Water Resources and the finalization of State Program for water management in the Republic of Kazakhstan for 2014-2040. The Program is to be adopted soon.

The common problem for all countries in EECCA and Central Europe is the drastic reduction of irrigated area:

Country	before 1990	2008-2010	difference
Armenia	316	270	- 46
Azerbaijan	1243	1215	- 28
Georgia	414	150	- 264
Kazakhstan	2253	1300	- 953
Uzbekistan	4280	4270	- 10
Russia	6160	4500	- 1660
Ukraine	2600	700	- 1900
Moldova	316	30	- 286
Turkmenistan	1185	1842	+ 657
Kyrgyzstan	1080	1030	-50
Tajikistan	715	755	+40
Hungary	300	200	-100
Bulgaria	1250	40	-1210
Macedonia	128	22	-106
Poland	343	79	-264
Czechia	153	30	-123
Romania	3077	405	- 2672

Source: Kovalenko P.I., Irrigation and Drainage in Changing World.

Moreover, the Declaration of Fortaleza adopted by the General Assembly of INBO set the following:

1. Floods, droughts, water-borne diseases, pollution, wastage and destruction of aquatic ecosystems occur in many countries in the world.

2. Integrated water resources management at the level of river basins is essential worldwide!

3. This IWRM should be based on integrated information systems, short- and long-term forecasts.

4. Basin management plans or master plans should be the basis for needed investments and should consider all types of water.

5. Sustainable financing of water resources management and of the organizations that are in charge of it must be guaranteed through combination of public and private investments, system of tariffs, and the application of the "polluter pays" and "user pays" principles.

6. Active participation in decision-making of the public and water user associations.

Finally, the Conference adopted its Resolution.

INTERNATIONAL CONFERENCE OF EECCA WATER-MANAGEMENT ORGANIZATIONS "COMMUNITY OF WATER PROFESSIONALS - A FRAMEWORK FOR INTERSTATE WATER COOPERATION" RESOLUTION

Moscow, Russia, 8 November 2013

The participants of the Conference of EECCA water-management organizations "Community of Water Professionals - a Framework for Interstate Water Cooperation" gathered in Moscow on the 8th of November 2013, discussed delivered reports and speeches and noted high significance of maintaining professional unity and information exchange and of best practices dissemination within the Network of water-management organization from EECCA.

Regular information of the Network's members about measures taken in their countries to improve management and implement integrated water resources management and dissemination of information about new publications, software products and training materials contribute to broader horizons of water professionals and encourage progress in the water sector within EECCA space.

Further development of NWO EECCA is seen in strengthening of the Network's national centers, their equipping and involvement in their activities of more

water-management, academic and non-governmental organizations in order to create a kind of public platform, improve water management for better solution of problems and meeting of challenges that the global water community faces, in the light of specific regional features.

Joint activity of the members regarding transboundary water cooperation is of particular importance. The positive experience of such cooperation on Russian-Ukrainian, Russian-Kazakh, and Russian-Azerbaijani transboundary water bodies may serve an example of efficient water use and water pollution control.

The participants underlined:

- as a matter of concern – by 6 Mha reduced irrigated area in EECCA space;
- decreased quantity and quality and reliability of accounting water quantities and quality;
- continuing pollution of water, including in transboundary bodies;
- positive role, as a water development promoter, of Global Water Partnership and UNECE;
- further enhancement and improvement of cooperation between the NWO EECCA and the GWP for Central Asia and Caucasus;
- a need for enhanced dialogues and mutual understanding among riparian states.

In this context, the following is proposed:

- Intensify exchange of information with the focus on dissemination of knowledge and best practices accumulated in the region.
- Organize training in major areas contributing to improved water management (IWRM, water use technologies, IS, international water law, water diplomacy) in form of both traditional training courses and e-learning.
- Develop (regional and national) knowledge hubs for assistance to water users at various hierarchical levels.

The Conference recommended the NWO EECCA Board to concentrate its efforts on the following:

- Strengthen institutional and financing bases of NWO EECCA.
- Organize regular exchange of information on:
    - Status of water resources (quantity and quality);
    - Integrated water management and use;
    - Water use economics;
    - Water restoration and protection;

- Problems occurring in transboundary water bodies;
- Development of information systems, including e-databases on water quantity and quality;
- Hydrological and water-management modeling;
- Environmental safety of water use;
- IT in water sector and implementation of SCADA systems;
- Training, lifelong education, advanced professional training;
- International water law, its development and application;
- National water law.

The Conference considers involvement of the general public and non-governmental self-regulating organizations in solution of water-related problems as top priority. Thus, it seems advisable to make use of Basin councils that comprise all water users in given basin. It is necessary to establish close cooperation with the ICID Working group on irrigation and drainage in the states under socio-economic transformation.

The Conference recommended exploring a possibility to establish within the Network an Expert Council for independent assessment of anticipated engineering structures, especially those planned in transboundary water bodies.

The participants thanked GWP CACENA and UNECE for support and assistance provided to the Network, including in organization of this Conference.

The participants renewed their thanks to the Russian Government for the long standing support of NWO EECCA.

HIGH-LEVEL INTERNATION CONFERENCE "WATER SECURITY AND PEACE"

On November 14-15, 2013, in the Hague, the Water Diplomacy Consortium, with support of the Ministry of Foreign Affairs of Holland, organized the High-Level International Conference "Water Security and Peace".

The Water Diplomacy Consortium, which includes the Hague Institute for Global Justice, Clingendael Netherlands Institute of International Relations, UNESCO-IHE Institute for Water Education, UPEACE Centre The Hague, and the Water Governance Centre, was established by the Netherlands to unite potential in the water diplomacy sphere, including issues of conflict prevention, water governance and management, international water law, and water systems. The Consortium aspires to become a global hub, which offers the following:

- advisory services to governments and public entities at all levels on improving water governance and management systems;
- training and capacity building on a broad range of water diplomacy issues;
- knowledge exchange and partnerships among water diplomacy stakeholders;
- advice on conflict resolution methods;
- direct assistance as an honest broker in conflict resolution
- advice or direct assistance on post-conflict peace building in and through the water sector;
- research and publications;
- organization of conferences and other events on water diplomacy.

The conference was aimed to discuss a role of water diplomacy on the basis of specific on-hands examples, with involving experts and practitioners, who are active on international, national, and sub-national levels. The conference was organized as two plenary sessions and parallel sessions of three working groups.

At the opening plenary session, in his report, a keynote speaker, Professor David Grey of Oxford University stated three key notions – sovereignty (water issues touch on sovereignty issues), secrecy (data sharing challenge), and stationarity (climate change undermined the fundamental notion of "stationarity" in hydrology, which envisages that natural systems change within invariable envelope of probabilities). As a response, he proposed to invest in information, institutes, and infrastructure.

Pavel Kabat, Director of International Institute for Applied Systems Analysis (IIASA), delivered a report "Challenges to water security now and in 2050 – A

scientific outlook". In addition to frequently cited challenges related to issues of water, energy, ecosystems and health, he particularly emphasized two "hidden challenges", to which due attention have not been given while: salinization intrusion and groundwater depletion. As a solution, he proposed to consider water issues as global issues, strengthen inter-sectoral and multi-disciplinary systems thinking in water management, as well as encourage a positive vision of the situation, through demonstrating how water challenges can provide opportunities to develop.

The report by Aaron Wolf, Oregon State University, USA, had two key messages. People matter – implying that decisions are made by a small group of individuals, and actions of each of them can play a key role in changing the dynamics of water relations. The second thesis of the rapporteur was about significance of education ("universities are centers of the Universe").

The report by Mark Smith, Director - IUCN Global Water Program, urged to pay attention to a system approach to solving water challenges, and how the notion of "system" works in water diplomacy. He noted that IWRM works only when it is examined as a systems change process.

The first working group, which was organized under coordination of the Hague Institute for Global Justice, considered a legal and institutional perspective. In the working group, the session panelists took stock of the existing tools and methods in institutional, legal and diplomatic processes of conflict prevention and resolution, in particular focusing on the international/transboundary level. Among other session outcomes at the final plenary session, as follows:

- trust building is vividly required for success of all projects;
- policy without science is confidence trick;
- a role of policy is understood differently: policy as impediment, policy as solution, policy as the basis;
- conventions are the basis but, in the politically complex situation, bilateral accords can work;
- procedure of joint gathering of data and facts is difficult to arrange;
- transboundary issues are not to consider with detachment from socio-economic and political issues;
- there are no universal solutions;
- diplomacy on low level can move processes;
- it is importance to hold meetings – if not to hold meetings, then cooperation loses a lot.

The following regulations are marked as actions for future:

- It is required to continue to emphasize benefits of transboundary cooperation for national level.
- Water diplomacy and regional cooperation function as support for sharing knowledge and information, and for holding open discussions.
- Focus on new tools as a cooperation platform (e.g., strategic impact assessment).

The second working group organized by UNESCO-IHE Institute for Water Education (Pieter van der Zaag and Joop de Schutter) together with SIC ICWC Central Asia and Eastern Nile Technical Regional Office (ENTRO) was devoted to a system analytical perspective system analysis. The panelists had the following issue in front of them: "How can system analytical approaches improve the dialogue between politicians, diplomats and systems analysts in a trans-boundary context and lead to fair sharing of international waters?" To answer the question, a kick-off session was organized where rapporteurs presented economic (Erik Ansink, VU Amsterdam), diplomatic (Alexander Verbeek, Ministry FA Netherlands) and mixed (Eugene Stakhiv, USACE, UNESCO-ICIWaRM) perspectives on the problem. Then, examples of using analytical approaches in the Aral Sea basin and the Nile River basin бассейне Нила were presented.

The report "Presentation Aral Sea Basin: evolution and use of the Aral Sea Basin management model and database as an integrated modelling framework for planning and communication of transboundary water management in the Aral Sea Basin" was delivered by Joop de Schutter, UNESCO-IHE Institute for Water Education, and Ziganshina D.R, SIC ICWC Central Asia. The report mentioned work on development of cooperation tools under ICWC, including activities on information sharing, capacity building, research, regional pilot projects, and creating of a modelling complex to analyze future development scenarios. The panelists from Kazakhstan (Ibatullin S.R.), Kyrgyzstan (Dyayloobaev A.Sh.) and Uzbekistan (Nurimbetov R.) delivered their comments and shared experiences in the issue under investigation. The rapporteurs noted that it is required to continue activities on development of the existing models and creation of new ones, increase in credibility and accuracy of available data, particularly in the context of climate change. As there cannot be ideal universal models, in addition to the ASBmm presented, the rapporteurs mentioned advantages of the Basin Economic Allocation Model (BEAM) developed by the group consisting of experts from DHI, COWI and Global Water Partnership Caucasus and Central Asia. The scenario approach to assessment of the water situation can be useful as well. During the discussion, the issues of need for increased efficiency of ICWC activities and activation of implementing activities under ASBP-3 Program were raised. It was mentioned that the reality is more complicated than capacities of any models, specially taking into account geopolitical aspects in the regional water sector. Just recently, diplomats have commenced to participate in talks and discussions on water-related issues in Central Asia, therefore, trainings for diplomats to deeply familiarize with water-related issues would be desirable.

The Ambassador of Afghanistan for Holland participated in the session. With his comments, he noted that trust building in mutual relations among countries is

important. Afghanistan does not intend to take actions, which may damage, but hopes on fairness in utilization of water within the basin.

During the second session, the working group considered development of a model base in the Nile River basin. The reports covered the role of models in negotiations over the Eastern Nile, provided the example of modelling the Nile River basin from an integrated perspective, and introduced to the audience from a political science perspective and a perspective NGO as well. Judging by the reports delivered, development of the modelling the Nile basin is on the initial stage, especially in terms of provisioning of data bases.

In conclusion of the session of the working group on a system analytical perspective, interactive sharing of opinions was organized where every panellist answered on two questions: 1) What are critical knowledge gaps? 2) What are opportunities for action?

The most frequent answers on the first questions may be summarized as follows:

- Risks and uncertainty: definition, assessment, and communication;
- Elaboration of new indicators for politicians: peace, security, well-being;
- Transition from subjective knowledge to “collective” or “shared” knowledge.

The answers on the second question included:

- openness: open access to data and models;
- interaction between science and policy to strengthen a dialogue between analysts and politicians;
- pay more attention to the role of civil society and mass media;
- need for capacity building and education improving;
- using and strengthening institutional grounds, including international conventions, where technical specialists, diplomats and decision-makers could work together.

The third working group discussed possibilities of creating the links for development of multi-level water diplomacy, including with involving of civil society. The working group addressed the following questions:

- Can best practices of decentralised water governance arrangements be translated and implemented in different physical, socio-economic and political contexts (session 1)?
- How do international NGOs succeed in connecting the grassroots level and national decision-makers? What lessons can be learned from them (session 2)?

- Donors can support development programmes based on their own agenda, which allows them to target the interests of social groups that are not targeted by the recipient government. Do these donors link the activities at the grassroots level they finance with local government and how (session 3)?
- What can we learn from grassroots practitioners, who - confronted with conflicting interests - establish the connection and create the trust for cooperation (session 4a)?

Those questions were discussed on the basis of examples of activities in South Africa, Ethiopia, Mali, Bangladesh, India, Myanmar and Central America.

At the final plenary, H.E. Rob Swartbol, Director-General for International Cooperation, the Netherlands Ministry of Foreign Affairs delivered concluding remarks, and the coordinators of the three working groups presented summarized outcomes of the sessions and discussions hold.

INTERNATIONAL CONFERENCE 'EURASIAN FOOD SECURITY NETWORK AND EURASIAN SOIL PARTNERSHIP"

Within the framework of the L'Aquila Food Security Initiative, the G8 and G20 member countries have undertaken a commitment to take measures to improve the situation related to food security and nutrition worldwide. These measures include the development of agricultural science and education. Within the scope of these commitments, the Government of the Russian Federation has decided to establish the Eurasian Center for Food Security (Agrarian Center of the Moscow State University). One of key missions of the Agrarian Center of the Moscow State University is to build up a dynamic community for experience exchange composed of both theoreticians and practitioners in the field of food security. Another important mission consists in the establishment of the Eurasian Soil Partnership within the FAO Global Soil Partnership (GSP) Initiative.

The Agrarian Center of the Moscow State University and the World Bank held a conference devoted to the creation of the Eurasian Food Security Network and Eurasian Soil Partnership in Moscow on 18-20 November 2013. The Conference provided the opportunity to discuss and analyze the current situation in the area of food security, condition of soil resources, as well as network development and partnership related issues.

The Conference was attended by experts from Russia, Caucasus and Central Asia (Armenia, Kyrgyzstan, Tajikistan, and Uzbekistan are the countries the Center is focusing on) as well as representatives of international organizations (World Bank, FAO, International Food Policy Research Institute (IFPRI), Global Forum on Agricultural Researches (GFAR), International Maize and Wheat Improvement Center (CIMMYT[4]), Central Asian and Transcaucasian Association of Research Institutes, and Scientific Information Center of the Interstate Commission for Water Coordination of Central Asia (SIC ICWC)).

The Conference Program of the day one included presentation and discussion of the issues of food security and nutrition in the Eurasian region; presentation of the networking experience in the region; analysis of practice in the building up of agricultural information networks in the region; and discussion of networking cooperation in solution of food security problems. Based on that information, the participants considered the practical aspects of the functioning of the Eurasian Center for Food Security.

SIC ICWC of Central Asia was represented by Dr. D.R. Ziganshina, who emphasized the importance of the issues related to water resources management and settlement of salinity problems for making food security sustainable, since irrigation serves as the basis for making food available worldwide and especially in arid areas. She presented the SIC ICWC experience in capacity building and setting up of networking cooperation on water problems. Among the lessons learned in the course of reaching a consensus in water resources allocation in Central Asia are the following:

- Establishment and strengthening of institutional frameworks for capacity building and communications networking (centers of excellence/knowledge centers, training centers, extension services, farmer schools, demonstration fields and testing sites);
- Development of partnership and cooperation (national agencies: water management organizations (WMO), educational institutions, technical experts; regional organizations and international partners, donors);
- Strengthening of interrelations and cross-pollination between training, applied researches, and best practice (Projects “IWRM-Fergana Valley” and “Water Productivity Initiative at Plot Level”);
- Development of knowledge bases, databases, modeling & analytical complex, and making them accessible;
- Investment to future water leaders; contribution to cross-training for transboundary cooperation;
- Availability of a single methodological approach to capacity building, data exchange, and networking cooperation.

The report provided three examples of SIC ICWC activities. The first was about the creation of innovation cycle of knowledge ad information transmission to end users and agricultural producers, which was developed and tested in the Project “Water

[4] From Spanish acronym CIMMYT for Centro Internacional de Mejoramiento de Maíz y Trigo - translator’s note.

Productivity Initiative at Plot Level" implemented in the Fergana Valley (Kyrgyzstan, Tajikistan, and Uzbekistan) with the assistance of the Swiss Agency for Development and Cooperation.

The second example presented the experience in the development of the system of capacity building on land and water resources associated issues within the scope of ICWC for different target groups.

The third example demonstrated the experience in communications networking in the territory of post-Soviet countries by establishing Network of Eastern Europe, Caucasus and Central Asia Water Management Organizations (EECCA-NBO). The Network was set up on December 11, 2008 for exchanging opinions, experience, and information on various aspects of water management activities with the common purpose to reconstruct integrated capacity of the water science and practice in CIS countries. Within the scope of the Network, first steps have already been taken towards the creation and loading the contents of Russian-language databases on water, agriculture, and ecology. In particular, Scientific and Information Agency of the Ministry of Nature have prepared a collection of terms; SIC ICWC have worked out a rubricator and program of works. Additional financing is required for the creation of databases that could be adapted to the needs of farmers, WUAs, WMOs, and other interested parties in all the countries of the region.

Execution of these works is particularly important in the light of rising risks (climatic, e.g. droughts and floods, financial, political, etc.) in agriculture and water sector and necessity to assist farmers and other end water users in adaptation to those.

An interesting presentation was delivered by Mr. Aziz Aliev, National Manager of the Project "Strengthening of the National Food Security Information System in the Kyrgyz Republic", where he highlighted key opportunities and problems of ensuring food security in Kyrgyzstan. The reporter informed of the changes in the food patterns in the country towards considerable decrease in meat and fruit consumption and rise in bread consumption, which implies the reduction of the caloric value of nutrition. He also noted the decline in the productivity of livestock farming with keeping overall livestock population. The following challenges were marked: decrease of efficiency of agricultural production; political problems; low control over food security and food quality; insufficient development of the system for early warning of price surges; and lack of risk management mechanisms.

The Executive Director of the Global Forum on Agricultural Researches Dr. Mark Holderness indicated the importance of involvement farmers as not only ultimate users of knowledge and information but also as active participants in the knowledge and information exchange process. He spoke of the necessity to reconsider the measures (metrics) applied in agriculture: for example, assessing food supply in terms of hectares in addition to the assessment of food production per hectare; also focus on sustainability performance, life-support systems, water use, etc. Such reconsideration is essential for ensuring equity in the access to food. For instance, in India the food security factors estimated based on production seem very favorable; however, at the same time the majority of population has not been provided with access to food.

When discussing the Eurasian Food Security Network, its objectives, areas of activity, and organizational issues, the participants found it reasonable to assign national coordinators in respective countries for dealing with Network related issues and appoint moderators for different subject matters of the Network when these subjects are agreed upon. Among such subjects may be technological aspects of agricultural production and range of problems associated with the development of framework agreements.

The second day of the Conference was dealing with the estimation of educational needs for the purpose of identifying main requirements to the teaching process which in future will be provided with distance education programs developed by the Eurasian Food Security Network. The participants were divided into groups with a breakdown by countries. A particular group was composed of the representatives of international and regional organizations and donors, in the work of which the SIC ICWC representative took part too.

In response to the questions asked by the moderator about the most pressing needs and problems in the improvement of knowledge and skills in social and economic as well as biophysical issues related to food security, which have to be solved within the next five years, the participants summarized as follows:

- Knowledge, information and data management: data collection, exchange, and making those available; improvement of analytical and cross-disciplinary expertise; flexibility and adaptation of the contents and methods of education to constantly changing demands and risks; resolving of the information fragmentation problem.
- Definition of the concepts “agriculture” and “education in the area of agriculture”. This includes the necessity of broader comprehension of agriculture, including rural development. This point also reflects the trends taking shape in the West, issue of renaming the subject “Agriculture” for “Environmental Sciences” or “Management of Natural Resources”; combination of agriculture with other disciplines. Furthermore, synergy between agriculture and food industry and food suppliers.
- Coordination and interface between science, education, production sector, and decision makers. Reconsideration of the metrics applied in agriculture is an accent on sustainability and life-support system.
- “Smart” technologies based on present-day and traditional knowledge.
- Equitable partnerships.
- Enhancement of individual’ capabilities (incentives, personal development, weight, strength of expertise).

The third day of the Conference revolved around the establishment of Eurasian Soil Partnership within the Global Soil Partnership.

Dr. S.A. Shoba, Dean of the Soil Science Faculty of the Moscow State University, marked among the tasks for the future the necessity to develop innovative

farming methods and systems, education in the field of soil science (greater attention to the secondary school, training and retraining of personnel), scientific knowledge, practice-oriented researches, extension services, increasing the quantity and improving the quality of soil data, need for setting up of an agrarian service (independent federal body) with shared information; necessity of the Law on Soil. The role of Global Soil Partnership will help to activate the activities of national communities, involve administrative and managerial institutions, and harmonize approaches, methods, technologies, and information.

Mr. A. Mermut, President of the European Confederation of Soil Science Societies, outlined the priorities of practical researches in the area of soil, among of which are carbon dioxide sequestration and climate change, conservation tillage, food security, organic farming, environmental sustainability, biological fuel, aerosol in the air (dust), and ground-penetrating radar survey.

J. Turok, Head of the Tashkent Office of the International Center for Agricultural Research in the Dry Areas (ICARDA), told about soil conservation problems in arid areas and the Center's activity in that direction.

Finally, the participants agreed upon the communiqué on founding of the Eurasian Division of the Global Soil Partnership and establishment of its steering committee, which would develop a short-term program of actions.

FORUM "REALIZING THE WATER, ENERGY AND FOOD SECURITY NEXUS"

On 28-29 November 2013, the Berlin 2013 Forum "Realizing the Water, Energy and Food Security Nexus", held by Federal Ministry for Economic Cooperation and Development (BMZ) and Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU), which in 2011 initiated a dialogue of the Nexus within the Bonn Conference.

The main purpose of the Forum was to discuss the achievements in the assessment and implementation of the cross-sectoral nexus within the period after the Bonn Conference. The discussions were articulated on two main issues as follows:

1. Implementing the Nexus-based approach: What can we learn from the previous lessons? What prerequisites and documents are needed to effectively implement this cross-sectoral approach? What is the degree of the likelihood of its effective implementation?

2. Spreading the cross-sectoral Nexus: What are the chances of linking this approach with other processes and focus areas? How to provide a closer coordination between different processes? How to demonstrate the benefits of the cross-sectoral approach to decision makers?

The following messages were voiced in the reports and during discussions:

- There may be no cross-sectoral approach applicable for all and any: it is essential to consider the specifics of each case.
- The cross-sectoral approach itself cannot solve the problems; this is one of the approaches for successful resolution of current problems: concrete examples of successful application are needed.
- Importance of implementation at the regional level.
- Necessity to improve knowledge and understand cross-sector relationships and approaches.
- It is critical to develop proper incentives for working cooperatively;
- Setting strategic and clear goals and indicators of implementation.

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