Interstate **C**ommission for **W**ater **C**oordination in Central Asia	**BULLETIN № 3 (69)**	November 2015

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MINUTES OF THE 67TH MEETING OF THE INTERSTATE COMMISSION FOR WATER COORDINATION (ICWC) OF THE REPUBLIC OF KAZAKHSTAN, KYRGYZ REPUBLIC, REPUBLIC OF TAJIKISTAN, TURKMENISTAN AND REPUBLIC OF UZBEKISTAN

September 17, 2015 Issyk-Kul, Kyrgyz Republic

Chairman:	
Isabekov Tilek Asanakulovich	First Deputy Director General of Department of Water Management and Land Reclamation, Ministry of Agriculture and Land Reclamation of the Kyrgyz Republic
ICWC members:	
Nysanbaev Yerlan Nuraliyevich	Vice-Minister of Agriculture, Republic of Kazakhstan
Rakhimzoda Sulton Nurmakhmadpur	First Deputy Minister of Energy and Water Resources, Republic of Tajikistan (MEWR RT)
Annabaev Mergen Amandurdyevich	Deputy Minister of Water Resources, Turkmenistan
Fozilov Allamjon Karimovich	Deputy Head of Central Water Resources Administration, Ministry of Agriculture and Water Resources of the Republic of Uzbekistan (MAWR RUz)
ICWC executive bodies:	
Sokolov Vadim Ilyich	Deputy Director of SIC ICWC
Babadjanova Malika Pulatovna	Head of ICWC Secretariat
Kholkhuzhaev Odil Akhmedovich	Acting Head of BWO Syrdarya
Makhramov Makhmud Yakhshibaevich	Acting Head of BWO Amudarya
Invited:	

Karlykhanov Adilkhan Karlykhanovich	Head of the Aral-Syrdarya BWI, Committee for Water Resources, Ministry of Environment and Water Resources of the Republic of Kazakhstan
Zhienbaev Musilim Rysmakhanovich	Head of Transboundary rivers Division of Water and Biological Resources Department, Ministry of Agriculture of the Republic of Kazakhstan
Bekmaganbetov Serik Abdrakhmanovich	Advisor to Pan-Asian Cooperation Department, Ministry of Foreign Affairs, Republic of Kazakhstan
Karbozin Kaysar Kayratovich	First Secretary of Pan-Asian Cooperation Department, Ministry of Foreign Affairs, Republic of Kazakhstan
Kipshakbaev Nariman Kipshakbaevich	Director of Kazakh branch of SIC ICWC
Ospanov Medet Ospanovich	Director, Executive Direction of IFAS in the Republic of Kazakhstan
Ryabtsev Anatoliy Dmitrievich	Chairman of the Board of Production Cooperative “Kazgiprovodkhoz”
Bayalimov Dauletyar	Representative of the Republic of Kazakhstan at IFAS
Zheenaliev Almaz Zheenalievich	Head of Agricultural sector and Environment Administration, Government Office of the Kyrgyz Republic
Kerimaliev Zhanybek Kalkanovich	Deputy Minister of Agriculture and Land Reclamation of the Kyrgyz Republic
Mamataliev Nurgazy Patiidinovich	Director of Kyrgyz branch of SIC ICWC
Uzubekova Tinatin Sabrbekovna	Head of Orto-Tokoy reservoir Authority
Sulaymanov Azamat Abdishukurovich	Officer of State National Security Committee of the Kyrgyz Republic
Batyrkulov Bolot Baibachaevich	Head of Talass Basin Water Management Administration

Makarov Oleg Stepanovich	Director of Planning and Design Technological Institute (PDTI) “Vodoavtomatika i metrologia”
Atybaev Zhenishbek Abdumanapovich	Head of Jalal-abad Basin Water Management Administration
Sokeev Anarbek	Head of Naryn Basin Water Management Administration
Abibilaev Ruslan Arzykulovich	Head of Osh Basin Water Management Administration
Kaidulatov Beishenbek Kensheevich	Head of Issyk-Kul Basin Water Management Administration
Gafarov Bakhrom Abdulafizovich	Deputy Director of Land Reclamation and Irrigation Agency under the Government of the Republic of Tajikistan
Paschyev Yanov Durdyevich	Head of Operations Administration, Ministry of Water Resources of Turkmenistan
Kuchkarov Sharifzhon Zikrillaevich	Head of Water Balance and Advanced Water Saving Technologies Division, MAWR of the Republic of Uzbekistan
Nikolaenko Aleksandr Yurevich	Regional Adviser, German Society for International Cooperation (GIZ), Transboundary Water Resources Management Program in Central Asia (TWRMP CA)

Agenda of the 67th Meeting of ICWC

1. The results of fulfillment of water withdrawal quotas and operation regimes of the reservoir cascade in the Amudarya and Syrdarya River Basins over the growing season 2015 and the forecasts for the non-growing season 2015-2016.

2. Presentation and discussion of the proposals and comments received in the course of interdepartmental approval at the national level of the draft Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan, and the Republic of Uzbekistan on the Information and Analytical Support of Water Management, Use, and Protection in the Aral Sea Basin and the Arrangement of Interstate Exchange of Information.

3. Consideration of the GIZ Project Concept "Promoting enhancement of regional water cooperation in Central Asia by building capacities of BWO Amudarya, BWO Syrdarya and their divisions".

4. Agenda and venue of the next 68th ICWC meeting

Decisions on the first item:

1. Take note of the information of BWO Amudarya and BWO Syrdarya about the results of fulfillment of water withdrawal quotas and operation regimes of the reservoir cascades during the growing season 2015 in the Amudarya and Syrdarya River Basins;

2. Mention that water withdrawal quotas for the previous growing season in the Syrdarya River basin were not approved by all parties;

3. Take note of concerns by Tajik party of repeated situation in the Syrdarya River basin related to severe drop in inflow into the Kayrakkum reservoir in the second half of August and to reduced water delivery from the main interstate canals . The Tajik party underlined a need to take measures in order to avoid such kind of situation in the future.

4. Approve country water withdrawal quotas and the forecast operation regime of the reservoir cascades for the growing season 2015-2016 in the Amudarya River basin;

5. BWO Amudarya and BWO Syrdarya should take all measures to improve reporting in view of the time-frames (each ten-days and monthly) and water intake structures;

6. Take note of the forecast operation regime of the reservoir cascades for the non-growing season 2015-2016 in the Syrdarya River basin;

7. In the reports BWO Syrdarya should indicate data on water intake

downstream of the Shardara reservoir.

Decision of the second item:

1. Take note of the information of the Parties about the results of interdepartmental approval at the national level of the draft Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan, and the Republic of Uzbekistan on the Information and Analytical Support of Water Management, Use, and Protection in the Aral Sea Basin and the Arrangement of Interstate Exchange of Information.

Decisions on the third item:

1. Take note of the information about GIZ Project Concept "Promoting enhancement of regional water cooperation in Central Asia by building capacities of BWO Amudarya, BWO Syrdarya and their divisions, and ICWC Secretariat".

2. Recommend GIZ to coordinate activities with all parties in implementation of the Project.

Decision on the fourth item:

1. Approve agenda, date and venue of the 68th ICWC meeting in due course.

Republic of Kazakhstan	**Ye.N.Nysanbaev**
Kyrgyz Republic	**T.A. Isabekov**
Republic Tajikistan	**S.N.Rakhimzoda**
Turkmenistan	**M.A.Annabaev**
Republic of Uzbekistan	**A.K.Fozilov**

THE RESULTS OF THE GROWING SEASON 2015 IN THE AMUDARYA AND SYRDARYA RIVER BASINS AND THE FORECAST FOR THE NON-GROWING SEASON 2015-2016[1]

I. Amudarya River basin

The results of the growing season

The actual water availability in the Amudarya River Basin at the Atamurat gauging station upstream of Garagumdarya was 110.3 % of the norm. The calculations were made taking into account the natural flow in the Vakhsh River and the flow regulation by the Nurek reservoir. Given the norm 47,592 Mm³, the actual water availability amounted to 52,478 Mm³. In the past season, water availability was 89.2%.

High water availability in the midstream of the Amudarya River caused the erosion of riverbanks and waterlogging of land along the river channel during the growing season 2015.

The Middle-Amudarya Administration of the BWO Amudarya organized 24 hours a day watch to manage this situation. Water Management Organizations in this area carried out necessary activities to eliminate the consequences caused by high water.

The Commission consisting of all stakeholders was established within the short period. Owing to this Commission, accident-free passage of increased stream flow was organized, preventive measures were implemented, and emergency situations were avoided in the river downstream.

The use of the approved water withdrawal quotas during 5 months of the growing season under review, with a breakdown by states is as follows:

Taking into account the current water situation (high-water year), totally in the basin 91.5 % of the approved water withdrawal quotas was used. While the quota was 34,886.6 Mm³, actually used volume was 31, 916.6 Mm³, of which:

Republic of Tajikistan actually used 5,064.7 Mm^3; (85.1 % of the quota, 73 % of the total quota);

Republic of Uzbekistan actually used 14,334.3 Mm^3. (93 % of the quota, 83.2 % of the total quota);

Turkmenistan actually used 12,517.6 Mm^3; (92.6 % of the quota, 80.8 % of the total quota);

[1] Information on the first item of the 67th ICWC Meeting Agenda

Water user state	Quota Mm^3	Actual Mm^3	%%	%% of the total quota
Republic of Tajikistan	5,950	5,064.7	85.1	73.0
Turkmenistan	13,522.8	12,517.6	92.6	80.8
Republic of Uzbekistan	15,413.8	14,334.3	93.0	83.2
Total	34,886.6	31,916.6	91.5	80.5

During the five months of the growing season the use of the withdrawal quotas at the Atamurat gauging station upstream of Garagumdarya was 93.8%, and 82.9 % of the total quota, of which:

Republic of Uzbekistan actually used 13, 621 Mm^3. (95.0 % of the quota and 85.0 % of the total quota)

Turkmenistan actually used 12, 517.6 Mm^3 (92.6 % of the quota and 80.8 % of the total quota)

River reach Water user state	Quota Mm^3	Actual Mm^3	%%	%% of the total quota
Downstream of the Atamurat GS	27,865.0	26,138.6	93.8	82.9
Turkmenistan	13,522.8	12,517.6	92.6	80.8
Republic of Uzbekistan	14,342.2	13,621.0	95.0	85.0

The actual use of the approved water withdrawal quotas broken down by the river section is as follows:

1. Upper reaches – 82.3%, of which 85.1% – Republic of Tajikistan, 66.6 % - Republic of Uzbekistan.

2. Middle reaches – 96.1%, of which 96.4 % - Republic of Uzbekistan, 96.0 %.- Turkmenistan

3. Lower reaches – 91.4%, of which 94.2 % - Republic of Uzbekistan, 85.5 % - Turkmenistan.

River reach Water user state	Quota Mm^3	Actual Mm^3	%%	%% of the total quota
Upper reaches	7,021.6	5,778	82.3	71.0
Republic of Tajikistan	5,950.0	5,064.7	85.1	73.0
Republic of Uzbekistan	1,071.6	713.3	66.6	59.4

River reach Water user state	Quota Mm^3	Actual Mm^3	%%	%% of the total quota
Middle reaches	14,172.8	13,624.2	96.1	84.1
Turkmenistan	9,137.1	8,768.7	96.0	83.7
Republic of Uzbekistan	5,035.7	5,855.5	96.4	84.7

River reach Water user state	Quota Mm^3	Actual Mm^3	%%	%% of the total quota
Lower reaches	13,692.2	12,514.4	91.4	81.7
Turkmenistan	4,385.7	3,748.9	85.5	74.6
Republic of Uzbekistan	9,306.5	8,765.5	94.2	85.2

In the Priaralie and the Aral Se, water supply was planned to be 2,100 Mm³, however it would be 4,936 Mm³ according to preliminary estimate, which is 2.3 times more than planned, owing to high water availability during this growing season.

The forecast inflow to the Nurek reservoir was expected to be 16,908 Mm³; it actually would be 19,177 Mm³ according to preliminary estimate. The release from the reservoir was planned to be 13,012 Mm³, according to preliminary estimate, it actually would be 15,448 Mm³. By the end of the growing season 2015, water volume in the reservoirs is planned to be 10,540 Mm³, however it is expected to be 10,520 Mm³ according to preliminary estimate.

During the growing season the forecast inflow to the Tuyamuyun reservoir was expected to be 19,353 Mm³, however it would be 25,741 Mm³ according to preliminary estimate. The release from the reservoir was planned to be 19,091 Mm³, it actually would be 23,312 Mm³ according to preliminary estimate.

By the end of the growing season 2015, water volume in the reservoir was planned to be 3,357 Mm³, however it would be 5,524 Mm³ according to preliminary estimate.

Parameter		Unit	Nurek reservoir	Tuyamuyun reservoir
Volume: beginning of the period		Mm^3	6,781	3,095
Inflow to the reservoir	forecast	Mm^3	16,908	19,353
	actual	Mm^3	19,177	25,741
		%%	113.4	133
Release from the reservoir	forecast	Mm^3	13,012	19,091
	actual	Mm^3	15,448	23,312
		%%	118.7	122.1
Volume: end of the period	forecast	Mm^3	10,540	3,400
	actual	Mm^3	10,520	5,524
		%%	99.8	162.5
Accumulation(+), drawdown(-)	forecast	Mm^3	3,897	262
	actual	Mm^3	3,739	2,429
		%%	95.9	927.1

More detailed information is provided in the tables below.

Analysis of the use of withdrawal quotas in the Amudarya River basin for the growing season 2015

Name	Withdrawal quotas for the growing season 2015, Mm³	Cumulative, Mm³ by September 1, 2015			% to the total quota
		Quota	Actual	%%	
Upper - Amudarya Administration	**8,142.5**	**7,021.6**	**5,778**	**82.3**	**71.0**
(upper reaches)					
of which:					
Tajikistan	6,942.5	5,950	5,064.7	**85.1**	**73.0**
Uzbekistan	1,200.0	1,071.6	713.3	**66.6**	**59.4**
Water withdrawals from the Amudarya river					
at the Atamurat gauging station (Kerki)	**31,520.0**	**27,865.0**	**26,138.6**	**93.8**	**82.9**
of which:					
Turkmenistan	15,500.0	13,522.8	12,517.6	**92..6**	**80.8**
Uzbekistan	16,020.0	14,342.2	13,621.0	**95.0**	**85.0**
Middle-Amudarya Administration	**16,207.0**	**14,172.8**	**13,624.2**	**96.1**	**84.1**
(middle reaches) of which					
Turkmenistan	10,472.0	9,137.1	8,768.7	**96.0**	**83.7**
Uzbekistan	5,735.0	5,035.7	4,855.5	**96.4**	**84.7**
Lower reaches:	**15,313.0**	**13,692.2**	**12,514.4**	**91.4**	**81.7**
of which:					
Turkmenistan	**5,028.0**	**4,385.7**	**3,748.9**	**85..5**	**74.6**
Uzbekistan	**10,285.0**	**9,306.5**	**8,765.5**	**94.2**	**85.2**

Name	Withdrawal quotas for the growing season 2015, Mm³	Cumulative, Mm³ by September 1, 2015			% to the total quota
		Quota	Actual	%%	
Total for the basin:	39,662.5	34,886.6	31,916.6	**91.5**	**80.5**
of which					
Tajikistan	6,942.5	5,950.0	5,064.7	**85.1**	**73.0**
Turkmenistan	15,500.0	13,522.8	12,517.6	**92.6**	**80.8**
Uzbekistan	17,220.0	15,413.8	14,334.3	**93.0**	**83.2**

Actual hydraulic situation in the Amudarya River for the growing season 2015

Parameters	Unit	actual					forecast
		April	May	June	July	August	September
Inflow to the Nurek reservoir	m3/sec	562.0	1,039.0	1,424.0	2,180.0	1,512.0	517.0
Nurek reservoir capacity	Mm³	6, 700.0	7,761.0	8,810.0	10,145.0	10,500.0	10,544.0
Offtake from Nurek	m3/sec	603.0	643.0	1,023.0	1,683.0	1,370.0	500.0
Atamurat GS, actual	m3/sec	**1,272.0**	**2,030.2**	**3,119.7**	**4,099.8**	**2,381.0**	**1,233.0**
Norm	m3/sec	**1,072.0**	**2,313.9**	**2,853.3**	**3,447.4**	**2,453.5**	**1,460.0**
%%	%	118.7	87.7	109.3	118.9	103.0	84.5
Upstream of Garagumdarya (actual water content)	m3/sec	1,864.3	3,119.3	4,270.3	5,411.2	3,300.3	1,886.0
Norm	m3/sec	1,613.3	2,646.1	3,783.3	4,528.7	3,464.8	1,970.0
%	%	115.6	117.9	112.9	119.5	105.0	95.7
Cumulative, actual	Mm³	4,833.0	13,188.0	24,257.0	38,751.0	47,590.0	52,478.0
Norm	Mm³	4,182.0	11,269.0	21,076.0	33,205.0	42,485.0	47,592.0
%	%	115.6	117.0	115.1	116.7	112.0	110.3
Surkhandarya province	m3/sec	37.8	51.2	67.3	57.0	56.5	49.0
Water intakes upstream of Atamurat	m3/sec	586.1	641.8	678.7	756.0	694.7	590.0
Water inflow in the Kelif GS	m3/sec	1,858.0	2,671.9	3,798.3	4,856.3	3,111.2	1,820.0
Water intakes in Kelif-Birata	m3/sec	845.2	929.1	1,070.7	1,237.5	1,158.2	780.0
Return water in Kelif-Birata	m3/sec	129.0	135.9	129.2	132.9	118.3	80.0
Water losses in Kelif-Birata	m3/sec	175.7	306.4	900.7	718.2	-679.0	44.0
Inflow to the Birata GS	m3/sec	966.0	1,572.1	1,956.0	3,033.1	2,750.8	1,074.0

Parameters	Unit	actual					forecast
		April	**May**	**June**	**July**	**August**	**September**
actual							
norm	m3/sec	898.7	1,689.0	2,076.7	2,781.0	1,959.0	1,076.0
Cumulative, actual	Mm³	2,504.0	6,716.0	11,786.0	19,910.0	27,278.0	30,061.0
norm	Mm³	2,329.0	6,853.0	12,236.0	19,685.0	24,932.0	27,721.0
%	%	107.5	98.0	96.3	101.1	109.4	108.4
Water losses in Birata-Tuyamuyun	m3/sec	315.3	326.3	202.1	430.5	373.8	86.0
Tuyamuyun reservoir capacity; beginning of the period	Mm³	**3,095.0**	**3,290.0**	**4,206.0**	**4,968.0**	**6,100.0**	**6,018.0**
Inflow to the Tuyamuyun reservoir	m3/sec	756.0	1,246.0	1,754.0	2,602.4	2,377.2	988.0
Offtake from the Tuyamuyun reservoir	m3/sec	681.0	904.2	1,459.7	2,180.1	2,408.1	1,178.0
Tuyamuyun reservoir capacity; end of the period	Mm³	**3,290.0**	**4,206.0**	**4,968.0**	**6,100.0**	**6,018.0**	**5,524.0**
Accumulation (+),drawdown (-)	Mm³	195.0	916.0	762.0	1,132.0	-82.0	-494.0
Water withdrawals from the Tuyamuyun reservoir	m3/sec	250.3	272.8	340.0	402.7	379.4	308.0
Water withdrawals in Tuyamuyun-Samanbay	m3/sec	240.3	393.3	673.3	976.7	899.1	532.0
Water losses in Tuyamuyun-Samanbay	m3/sec	114.3	193.0	426.0	456.5	343.4	138.0
Water releases from Takhiatash	m3/sec	75.5	45.1	20.7	344.3	786.1	200.0
Water intakes in Kelif-Samanbay	m3/sec	1,336.0	1,594.9	2,083.7	2,616.8	2,436.2	1,619.0

Information
on water supply to the Aral Sea and the Amudarya River delta for the growing season 2015

Mm^3

Item	actual										forecast		Water supply from April 2015 to September 2015		Performance %%
	April		May		June		July		August		September				
	plan	actual	plan	actual	plan	actual	plan	actual	plan	actual	plan	actual	plan	actual	
From Amudarya river , at the Samanbay GS	260	196	250	120	260	54	280	900	280	2,239	270	518	1,600	4,027	251.7
Total water discharge from system Kyzketken and Suenli canals	0	30	0	4	0	0	0	17	0	51	0	30	0	132	
CDF	80	135	80	102	80	92	90	129	90	179	80	140	500	777	155.4
TOTAL:	340	361	330	226	340	146	370	1,046	370	2,469	350	688	2,100	4,936	235.0
Cumulative	340	361	670	587	1,010	733	1,380	1,779	1,750	4,248	2,100	4,936			

Note: Data on water supply to the Priaralie are agreed with the State Hydro meteorological Service (Hydromet) of the Republic of Uzbekistan

Actual operation regime of the Nurek reservoir (from April 2015 to September 2015)

Nurek reservoir	Unit	actual					forecast	TOTAL
		April	May	June	July	August	September	
Volume: beginning of the period	Mm³	6,781	6,700	7,761	8,810	10,145	10,500	6,781
Inflow to the reservoir	m³/sec	562	1,039	1,424	2,180	1,512	524	
	Mm³	1,457	2,783	3,691	5,839	4,050	1,358	19,177
Release from the reservoir	m³/sec	603	643	1,023	1,683	1,370	515	
	Mm³	1,563	1,722	2,652	4,508	3,669	1,334	15,448
Volume: end of the period	Mm³	6,700	7,761	8,810	10,145	10,500	10,520	10,520
Accumulation (+), drawdown (-)	Mm³	-81	1,061	1,049	1,335	355	20	3,739

Actual operation regime of the Tuyamuyun reservoir (from April 2015 to September 2015)

Tuyamuyun reservoir	Unit	actual					forecast	TOTAL
		April	May	June	July	August	September	
Volume: beginning of the period	Mm³	3,095	3,290	4,206	4,968	6,100	6,018	3,095
Inflow to the reservoir	m³/sec	756	1,246	1,754	2,603	2,377	988	
	Mm³	2,025	3,230	4,698	6,972	5,750	2,646	25,741
Release from the reservoir	m³/sec	681	904	1,460	2,180	2,408	1,178	
	Mm³	1,824	2,343	3,910	5,839	5,825	3,155	23,312
Volume: end of the period	Mm³	3,290	4,206	4,968	6,100	6,018	5,524	5,524
Accumulation (+), drawdown (-)	Mm³	195	916	762	1,132	-82	-494	2,429

The forecast for the non-growing season 2015-2016

The forecast operation regime of the Nurek reservoir (from October 2015 to March 2016) (water availability 90%)

Nurek reservoir	Unit	forecast						TOTAL
		October	November	December	January	February	March	
Volume: beginning of the period	Mm³	10,520	10,163	9,507	8,666	7,522	6,637	10,520
Inflow to the reservoir	m³/sec	347	247	220	173	147	222	
	Mm³	928	640	589	463	367	595	3,584
Release from the reservoir	m³/sec	480	500	534	600	500	382	
	Mm³	1,286	1,296	1,430	1,607	1,253	1,023	7,895
Volume: end of the period	Mm³	10,163	9,507	8,666	7,522	6,637	6,209	6,209
Accumulation (+), drawdown (-)	Mm³	-357	-656	-841	-1,144	-885	-428	-4,311

The forecast operation regime of the Tuyamuyun reservoir (from October 2015 to March 2016)

Tuyamuyun reservoir	Unit	forecast						TOTAL
		October	November	December	January	February	March	
Volume: beginning of the period	Mm³	5,524	5,172	5,434	5,382	5,819	5345	5,524
Inflow to the reservoir	m³/sec	445	459	544	434	342	449	
	Mm³	1,191	1,190	1,457	1,162	857	1,203	7,059
Release from the reservoir	m³/sec	576	358	563	271	531	897	
	Mm³	1,543	928	1,508	726	1,331	2,403	8,439
Volume: end of the period	Mm³	5,172	5,434	5,382	5,819	5,345	4,145	4,145
Accumulation (+), drawdown (-)	Mm³	-352	262	-51	437	-474	-1,200	-1,379

Water withdrawal quotas from the Amudarya River and water supply to the Aral Sea and river deltas for the non-growing season 2015-2016

River basin, state	Water withdrawal quotas, Mm^3	
	Total in hydrological year, (from October 1, 2015 to October 1, 2016)	including in non-growing season (from October 1, 2015 to April 1, 2016) (Preliminary)
Total from the Amudarya River	55,070	15,407.5
Of which:		
Republic of Tajikistan	9,500	2,557.5
From the Amudarya River at the Atamurat GS	44,000	12,480.0
Turkmenistan	22,000	6,500
Republic of Uzbekistan	22,000	5,980
In addition:		
Surkhandarya province, Republic of Uzbekistan	1,570	370
In addition: -		
- water supply to Priaralie including irrigation water and CDW	4,200	2,100
- sanitary and environmental water releases to irrigation systems in:	800	800
Dashkhovuz province	150	150
Khorezm province	150	150
Republic of Karakalpakstan	500	500

Note: water withdrawal quotas imply water supply for irrigation, industry, municipal and other needs. In case the water availability in the basin changes, water withdrawal quotas will be adjusted accordingly.

II. Syrdarya River basin

The results of the growing season

According to the Hydromet's forecast, during the growing season 2015 the water availability in the Syrdarya River basin was expected to be 90-100% of the norm. As water deficit was expected, the forecast operation regime schedules of the Naryn-Syrdarya reservoir cascades for the growing season (with 4 options) and state water withdrawal quotas in the Syrdarya River basin were taken into account but not approved at the 66th ICWC Meeting.

The results of reservoir cascades operation and the use of quotas in the Syrdarya River basin during 5 months of the growing season (from April 1, 2015 to August 31, 2015) are the following:

The total normal inflow to the upstream Naryn-Syrdarya reservoir cascades is 17,038 Mm³ during the growing season.

According to the Hydromet's forecast, the inflow was expected to be 17,195 Mm³ (101% of the norm).

Actual inflow to the upstream reservoirs amounted to 17,216 Mm³, i.e. 21 Mm³ more than the forecast (Table 1).

Lateral inflow to the Syrdarya River up to the Shardara reservoir is 9,702 Mm³ of the norm.

According to the Hydromet's forecast, the lateral inflow was expected to be 9,461 Mm³ or 98% of the norm.

The actual lateral inflow was 8,752 Mm³ or 709 Mm³ less than the forecast.

The total lateral inflow to the Syrdarya River is 26,740 Mm³ of the norm. Whereas, according to the Hydromet's forecast, it was expected to be 26,655 Mm³ (99.7% of the norm) that was 687 Mm³ less than expected.

According to the operation regime schedule of the Naryn-Syrdarya reservoir cascades, the average 3,906 Mm³ of water were to be discharged from the Toktogul reservoir during 5 months of the growing season (from April 1,2015 to August 31, 2015). The actual water discharge amounted to 3,400 Mm³ or 506 Mm³ less (Table 2).

Table 1

Parameter	Volume, Mm^3 (from April 1,2015 to August 31, 2015)			actual/ forecast (%)	actual/ rate (%)
	norm	forecast	actual		
Inflows to the upstream reservoirs					
Toktogul	8,784	9,133	9,558	105	109
Andizhan	2,880	2,982	2,631	88	91
Charvak (4 rivers in total)	5,373	5,080	5,027	99	94
Total:	**17,038**	**17,195**	**17,216**	**100**	**101**
Lateral inflows					
Toktogul-Uchkurgan	1,093	1,038	1,086	105	99
Uchkurgan, Uchtepa-Kairakkum	2,846	2,954	2,717	92	95
Andizhan – Uchtepe	2,251	2,347	2,049	87	91
Kairakkum –Shardara	27,27	2,454	2,223	91	82
Gazalkent- Chinaz (excluding Ugam)	785	667	676	101	86
Overall:	**9,702**	**9,461**	**8,752**	**93**	**90**
Total:	**26,740**	**26,655**	**25,968**	**97**	**97**

Water was supplied to the user states, taking into account submitted water requests and actual water availability (Tables 3 and 4):

Table 2

Reservoir	Water releases, Mm³ (from April 1,2015 to August 31,2015)					Actual / Schedule (%)			
	Schedule options				actual	Schedule options			
	1	2	3	4		1	2	3	4
Toktogul	3,906	3,930	3,826	3,906	3,400	87	87	89	87
Andizhan	3,047	3,054	2,959	3,035	2,773	91	91	94	91
Charvak	4,071	4,071	4,071	4,071	4,193	103	103	103	103
Kairakkum	6,434	6,329	6,025	5,885	5,938	92	94	99	101
Shardara	4,626	4,626	4,626	4,626	4,577	99	99	99	99
Total:	**22,084**	**22,010**	**21,507**	**21,523**	**20,882**	**95**	**95**	**97**	**97**

Table 3

Reach, Water user state	Water intake, Mm³ (from April 1,2015 to August 31,2015)		
	Quota	Actual	%%
Toktogul – Uchkurgan HS,	**3,523**	**2,778**	**79**
of which:			
Kyrgyz Republic	142	86	61
Tajikistan	208	59	28
Uzbekistan	3,173	2,633	83
Uchkurgan – Kairakkum HS,	**963**	**997**	**104**
of which:			
Kyrgyz Republic	72	63	88
Tajikistan	400	471	118
Uzbekistan	491	463	94
Kairakkum HS – Shardara reservoir,	**6,341**	**4,430**	**70**
of which:			
Kazakhstan	760	549	72
Tajikistan	1,103	817	74
Uzbekistan	4,478	3,064	68

Table 4

Water user state	Quota during six months 100% (Mm³)	From April 1,2015 to August 31, 2015 (Mm³)		
		Quota	Actual	%
TOTAL:	**11,737**	**10,828**	**8,205**	**76**
Republic of Kazakhstan (Dostyk canal)	786	760	549	72
Kyrgyz Republic	246	214	150	70
Republic of Tajikistan	1,905	1,712	1,348	79
Republic of Uzbekistan	8,800	8,142	6,159	76

It should be noted that because of low lateral inflow during summer months, water availability downstream of the Kairakkum reservoir was 1.2 times less than in the upper reaches.

In the upper reaches the Kyrgyz Republic received 70 %, Tajikistan – 87%, and Uzbekistan – 84 % of the quota provided for this reach.

Downstream of the Kairakkum Kazakhstan received 72%, Tajikistan – 74% and Uzbekistan – 68% of the quota provided for this reach.

According to the schedule, the inflow to the Shardara reservoir was to be 3,599 Mm³. The actual inflow amounted to 3,334 Mm³ or 265 Mm³ less during five months (Table 5). During the hydrological year 2014-2015 the total water inflow to the reservoir will be 14,814 Mm³, including 11,480 Mm³ during the past non-growing season. During the hydrological year, the inflow to the Shardara reservoir would be 2,814 Mm³ more than the inflow in the amount of 12 Bln.m³ scheduled for average water availability.

The inflow to the Aral Sea and Priaralie was planned to be 2,058 Mm³ from April to August. According to the Hydromet's data, the actual inflow at the Karateren GS was 926 Mm³. The inflow was less than scheduled, owing to the following reasons:

1. The inflow was in 3-4 times less at this GS during summer months, whereas the water from the Shardara reservoir was released according to the schedule.
2. The part of the water released from the Shardara reservoir in July and August has not reached the Priaralie yet, as at this reach it takes more than 30 days for water to reach it.

Table 5

Parameter	According to the schedule (From April 1,2015 to August 31, 2015) Mm³	Actual ((From April 1,2015 to August 31, 2015) Mm³
Inflow to the Shardara reservoir	3,599	3,334
Water supply to the Aral Sea and Priaralie	2,058	926 (Karateren GS)

According to the operation regime schedule of the Naryn-Syrdarya reservoir cascades, the total water volume in the reservoirs was planned to be 17,222 Mm³ by the end of the growing season. Taking into account the data by August 31 and the forecast for September, the actual water volume by October 1 is expected to be 18,357 Mm³ or 1,135 Mm³ more than scheduled (Table 6).

Table 6

Reservoir	Reservoir capacity, Mm³					
	Actual, by April 1, 2015	By October 1, 2015 according to the schedule				Actual, by October 1, 2015
		Option I	Option II	Option III	Option Iv	
Toktogul	6,405	11,720	11,719	11,823	11,743	12,892
Andizhan	953	878	870	965	888	834
Charvak	588	1,493	1,495	1,495	1,495	1,513
Total:	**7,946**	**14,091**	**1,4084**	**14,283**	**14,126**	**15,239**
Kairakkum	3,478	1,689	1,787	1,891	2,188	1,900
Shardara	3,910	1,442	1,365	1,399	1,261	1,218
Overall:	**7,388**	**3,131**	**3,152**	**3,290**	**3,449**	**3,118**
Total:	**15,334**	**17,222**	**17,236**	**17,573**	**17,575**	**18,357**

Table 7 gives information on operation schedule of the Naryn-Syrdarya reservoir cascades from April 1, 2015 to September 30, 2015 with actual data for 5 months and the forecast for September.

As a conclusion, it is necessary to mention that the lateral inflow was higher than scheduled only in April and May, i.e. during the period of low water demands. Midstream inflow to the Kairakkum reservoir was 633 m³/sec (by 124m³/sec higher than the schedule) in April and 453 m³/sec in May (by 24m³/sec higher than the schedule). As the reservoir preserved its capacity until June 7, the whole water, which was not used for irrigation, reached the Kairakkum reservoir and was discharged into the river to the Shardara reservoir.

The lateral inflow upstream of the Kairakkum decreased by 19% in June, by 40 %(!) in July and by 14% in August as compared to the forecast and schedule.

To support the inflow to the Akjar GS, from June the Uzbek party limited water withdrawals in the upper reaches. Moreover, to recharge stem stream, additional water was released from the Andizhan reservoir. The water was released until August 17 and then was stopped, because reservoir resources were exhausted. During two and a half months, the Andizhan reservoir recharged stem stream by 632 Mm³.

Additional releases from the Toktogul reservoir were supplied by the Kazakh and Kyrgyz parties from July 1 to August 12. According to the data by the Coordination Dispatch Center “Energy”, additional water releases form the Toktogul reservoir into the river amounted to 247 Mm³ during 45 days. In comparison with the last year, the Kazakh party supplied additional releases twice more and increased their duration thrice.

Additional releases from the upstream reservoirs at the low lateral inflow increased the inflow to the Kairakkum reservoir up to 300-330 m³/sec. The Tajik party, owing to the drawdown of the Kairakkum reservoir, could ensure releases of 447 m³/sec on average or 189 m³/sec more than the inflow at the Kyzylkishlak GS.

The low lateral inflow was observed in August. Additional releases were cut. The Kazakh party began returning electric power to Kyrgyz Republic; the Toktogul reservoir released water less than needed. The release from the Uchkurgan HPP to the Naryn River was reduced from 350-400 m³/sec to 180-185 m³/sec. The inflow to the Kairakkkum reservoir was reduced down to 230-250 m³/sec. Moreover, water volume in the Kairakkum reservoir decreased. Under such conditions, the Tajik party had to reduce releases from the Kairakkum reservoir down to 376 m³/sec averaged, taking into account “Akjar plus 130…140”.

However, owing to the joint efforts of the parties, the water supply to the irrigated areas has sufficiently been increased in the middle reaches.

Table 7

OPERATION SCHEDULE
of the Naryn-Syrdarya reservoir cascade from April 1,2015 to September 30,2015 (Quota-100%)

Toktogul reservoir		April	May	June	July	August	September	**forecast**	**actual**	Total for 6 months	Total for 6 months
		actual	actual	actual	actual	actual	estimate	For 5 months	For 5 months	**forecast**	**Actual+ estimate**
Inflow to the reservoir	*m^3/sec*	**340.53**	**790.29**	**1003.87**	**916.23**	**561.13**	**326.67**				
	Mm^3	882.66	2116.72	2602.02	2454.02	1502.93	846.72	9132.8	9558.3	9910.4	10405.1
Volume: beginning of the period	*Mm^3*	**6405.00**	**6532.00**	**8030.00**	**10076.00**	**11688.00**	**12573.00**	**6405.0**	**6405.0**	**6405.0**	**6405.0**
end of the period	*Mm^3*	**6532.00**	**8030.00**	**10076.00**	**11688.00**	**12573.00**	**12892.08**	**11595.4**	**12573.0**	**11720.1**	**12892.1**
Release from the reservoir	*m^3/sec*	**301.37**	**231.42**	**216.47**	**308.94**	**228.03**	**196.67**				
	Mm^3	781.14	619.83	561.08	827.45	610.77	509.76	3905.5	3400.3	4540.6	3910.0
Kairakkum reservoir		April	May	June	July	August	September	**forecast**	**actual**	Total for 6 months	Total for 6 months
		actual	actual	actual	actual	actual	estimate	For 5 months	For 5 months	**forecast**	**Actual+ estimate**
Inflow to the reservoir	*m^3/sec*	**632.80**	**453.84**	**301.57**	**258.48**	**241.22**	**292.13**				
	Mm^3	1640.22	1215.56	781.66	692.32	646.10	757.21	4999.8	4975.9	5896.2	5733.1
Volume: beginning of the period	*Mm^3*	**3478.00**	**3501.80**	**3496.00**	**3114.40**	**2313.90**	**1761.00**	**3478.0**	**3478.0**	**3478.0**	**3478.0**
end of the period	*Mm^3*	**3501.80**	**3496.00**	**3114.40**	**2313.90**	**1761.00**	**1900.45**	**1513.6**	**1761.0**	**1688.6**	**1900.5**
Release from the reservoir	*m^3/sec*	**625.29**	**454.09**	**346.07**	**447.08**	**375.97**	**210.00**				
	Mm^3	1620.76	1216.24	897.02	1197.46	1007.01	544.32	6433.8	5938.5	7081.8	6482.8
Shardara reservoir		April	May	June	July	August	September	**forecast**	**actual**	Total for 6 months	Total for 6

											months
		actual	actual	actual	actual	actual	estimate	For 5 months	For 5 months	**forecast**	**Actual+ estimate**
Inflow to the reservoir	m^3/sec	**468.90**	**328.30**	**245.24**	**113.65**	**111.70**	**246.96**				
	Mm^3	1215.38	879.31	635.65	304.40	299.17	640.11	3598.6	3333.9	4409.8	3974.0
Volume: beginning of the period	Mm^3	**3910.00**	**4084.00**	**3932.00**	**3645.00**	**2082.00**	**1071.00**	**3910.0**	**3910.0**	**3910.0**	**3910.0**
end of the period	Mm^3	**4084.00**	**3932.00**	**3645.00**	**2082.00**	**1071.00**	**1217.77**	**1257.9**	**1071.0**	**1441.8**	**1217.8**
Release from the reservoir	m^3/sec	**297.17**	**329.52**	**196.67**	**498.55**	**402.90**	**150.00**				
	Mm^3	770.26	882.58	509.76	1335.31	1079.13	388.80	4625.9	4577.0	5144.3	4965.8
Release to the Kzylkum canal	m^3/sec	54.67	43.87	55.83	105.48	42.42	23.33				
	Mm^3	141.70	117.50	144.72	282.53	113.62	60.48	1140.5	800.1	1205.3	860.6
Release to the Arnasay depression	m^3/sec	0.00	0.00	0.00	0.00	0.00	0.00				
	Mm^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water supply to the Aral Sea	m^3/sec	**177.63**	**100.04**	**46.28**	**21.29**	**7.67**	**137.82**				
	Mm^3	460.43	267.94	119.97	57.01	20.55	357.23	2057.9	925.9	2465.0	1283.1
Charvak reservoir		April	May	June	July	August	September	**forecast**	**actual**	Total for 6 months	Total for 6 months
		actual	actual	actual	actual	actual	estimate	For 5 months	For 5 months	**forecast**	**Actual+ estimate**
Inflow to the reservoir (4 rivers in total)	m^3/sec	**283.60**	**510.39**	**553.42**	**365.04**	**191.30**	**125.33**				
	Mm^3	753.08	1367.04	1434.47	977.72	512.39	324.86	5080.0	5026.7	5460.8	5351.6
Volume: beginning of the period	Mm^3	**588.00**	**911.00**	**1528.00**	**1895.00**	**1941.00**	**1710.00**	**588.0**	**588.0**	**588.0**	**588.0**
end of the period	Mm^3	**911.00**	**1528.00**	**1895.00**	**1941.00**	**1710.00**	**1513.09**	**1582.5**	**1710.0**	**1493.3**	**1513.1**
Release from the reservoir (*Release from the Gazalkent HEPS*)	m^3/sec	**194.43**	**327.74**	**444.00**	**347.77**	**272.16**	**200.00**				
	Mm^3	503.97	877.82	1150.85	931.47	728.96	518.40	4071.2	4193.1	4537.7	4711.5

Andizhan reservoir		April	May	June	July	August	September	**forecast**	**actual**	Total for 6 months	Total for 6 months
		actual	actual	actual	actual	actual	estimate	For 5 months	For 5 months	**forecast**	**Actual+ estimate**
Inflow to the reservoir	*m^3/sec*	**204.77**	**346.03**	**255.63**	**138.74**	**52.12**	**74.40**				
	Mm^3	530.76	926.82	662.60	371.61	139.62	192.84	2981.8	2631.4	3164.3	2824.2
Volume: beginning of the period	*Mm^3*	**953.14**	**1235.83**	**1712.35**	**1652.92**	**1213.90**	**825.20**	**953.1**	**953.1**	**953.1**	**953.1**
end of the period	*Mm^3*	**1235.83**	**1712.35**	**1652.92**	**1213.90**	**825.20**	**833.96**	**879.4**	**825.2**	**877.8**	**834.0**
Release from the reservoir	*m^3/sec*	**99.45**	**170.39**	**276.83**	**302.74**	**198.19**	**70.00**				
	Mm^3	257.77	456.37	717.55	810.86	530.84	181.44	3047.2	2773.4	3228.7	2954.8

The forecast for the non-growing season 2015-2016

The forecast for the non-growing season 2015-2016 will be provided by the Hydromet at the end of September and beginning of October.

Water availability at the level of 100% of the norm was taken into account when the forecast operation regime schedule of the Naryn-Syrdarya reservoir cascades was planned. The norm is established by the Hydromet for the inflows to the upstream reservoirs and for the lateral inflows.

As of the norm, the inflow to the Toktogul reservoir is 2,798 Mm^3, to the Andizhan reservoir is 936 Mm^3, and to the Charvak reservoir is 1,418 Mm^3. As of the norm, the upstream reservoirs will receive 5,152 Mm^3 totally during the non-growing season (Table 8).

Table 8

Name	Non-growing season, Mm^3		
	2015	2014	
	norm	actual	forecast
Inflows to the upstream reservoirs			
Toktogul	2,798	2,890	2,614
Andizhan	936	1,101	785
Charvak (4 rivers in total)	1,418	1,619	1,335
Total:	**5,152**	**5,610**	**4,734**
Lateral inflow			
Toktogul - Uchkurgan	400	257	383
Uchkurgan-Uchtepe-Kairakkum	4,323	4,507	4,085
Andizhan-Uchtepe	2,549	2,337	2,125
Kairakkum-Shardara	2,971	2,668	2,675
Gazalkent-Chinaz-Chirchik (excluding Ugam)	861	687	785
Overall:	**11,104**	**10,456**	**10,053**
Total:	**16,256**	**16,066**	**14,787**

For comparison: during the past non-growing season 2014-2015 the inflow to the upstream reservoirs was expected to be 92% of the norm or 4,734 Mm^3. It actually was 108% of the norm or 5,610 Mm^3.

As of the norm, the total lateral inflow is 11,104 Mm^3.

As of the forecast, the lateral inflow was expected to be 10,053 Mm³ (90 % of the norm) last year. It actually was 10,456 Mm³ (104% of the norm).

By October 1, 2015, the Toktogul reservoir capacity will be 12,892 Mm³. Last year it was 11,921 Mm³ on the same date (Table 9).

Table 9

Reservoir	Water storage in the reservoirs by October 1 (Mm³)				Dead storage, Mm³
	Including dead storage		Excluding dead storage		
	2015	2014	2015	2014	
Toktogul	12,892	11,921	7,392	6,421	5,500
Andizhan	834	392	684	242	150
Charvak	1,513	1,504	1,087	1,078	426
Kairakkum	1,900	1,120	983	203	917
Shardara	1,218	933	698	413	520
Total:	**18,357**	**15,870**	**10,844**	**8,357**	**7,513**

The water storage in the Toktogul reservoir, excluding dead storage, will be 7,392 Mm³. Last year the water storage was 6,421 Mm³.

In the Andizhan reservoir the water storage will be 834 Mm³ by the beginning of the non-growing season this year. Last year it was 392 Mm³.

The water storage, excluding dead storage, would be 684 Mm^3, whereas last year it was 242 Mm^3.

By October 1, the Charvak reservoir capacity will be 1,513 Mm^3. Last year it was 1,504 Mm^3 at the same period.

The water storage in the reservoir, excluding dead storage, will be 1,087 Mm^3. Last year the water storage by the beginning of the growing season differed from the current year and amounted to 1,078 Mm^3.

By October 1, the Kairakkum reservoir capacity would be 1, 900 Mm³, wheareas last year it was 1,120 Mm³.

The water storage in the reservoir, excluding dead storage, would be 983 Mm^3, whereas last year it was 203 Mm³.

By the beginning of the non-growing season, in the Shardara reservoir the water storage will be 1,218 Mm³. Last year at the same period the water storage was 933 Mm³. The water storage in the reservoir, excluding dead storage, would be 698 Mm³, while last year it was 413 Mm³.

The total water volume in all reservoirs will be 18,357 Mm³ by October 1. In 2014, it was 15,870 Mm³. The water storage, excluding dead storage, would be 10,844 Mm³, while last year it was 8,357 Mm³ or 2,487 Mm³ more.

Available water resource are determined based on the norms of inflow set by Hydromet for the non-growing season and the water storage in the reservoirs by October 1, excluding dead storage.

The total amount of available water resources will be 27,100 Mm³ for the non-growing season 2015-2016. During the past growing season it amounted to 24,423 Mm³ or 2,677 Mm³ less than this year.

Country water withdrawal quotas for the non-growing season are determined by the actual average water withdrawals during many years, taking into account the submitted requests by water user states.

The total water withdrawal volume in all countries is 3,311 Mm³ for the non-growing season 2015-2016.

Taking into account this fact, the water withdrawal quotas to be submitted to ICWC for consideration were determined (Table 10).

Table 10

Country water withdrawal quotas for the non-growing season

Water user state	Quota, Mm³		
	2015-2016	2014-2015	
		plan	actual
Republic of Kazakhstan	410	400	405
Kyrgyz Republic	37	37	21
Republic of Tajikistan	368	365	24
Republic of Uzbekistan	2,496	2,484	2,699
Total from the Syrdarya River	**3,311**	**3,286**	**3,149**

Moreover, water supply to the Aral Sea and Priaralie is planned to be 1,992 Mm³.

The forecast operation regime schedule of the Naryn-Syrdarya reservoir cascades for the non-growing season (October 1, 2015 to April 1, 2016) will also be submitted to ICWC for consideration (Table 11).

Table 11

Forecast schedule of the Naryn-Syrdarya reservoir cascade from October 1, 2015 to March 31, 2016

Toktogul reservoir		*October*	*November*	*December*	*January*	*February*	*March*	*Total* Mm^3
Inflow to the reservoir	m^3/sec	**229.00**	**199.00**	**165.00**	**155.00**	**152.00**	**161.00**	
	Mm^3	613.35	515.81	441,94	415.15	380.85	431.22	2798.32
Volume: beginning of the period	Mm^3	**12892.08**	**12697.36**	**12172.48**	**11325.62**	**10454.76**	**9632.63**	
end of the period	Mm^3	**12697.36**	**12172.48**	**11325.62**	**10454.76**	**9632.63**	**9126.09**	
Release from the reservoir	m^3/sec	**300.00**	**400.00**	**480.00**	**480.00**	**480.00**	**350.00**	
	Mm^3	803.52	1036.80	1285.63	1285.63	1202.69	937.44	6551.71
Kayrakkum reservoir		*October*	*November*	*December*	*January*	*February*	*March*	*Total* *Mm3*
Inflow to the reservoir	m^3/sec	**471.55**	**733.93**	**846.45**	**749.23**	**752.97**	**532.35**	
	Mm^3	1263.00	1902.36	2267.13	2006.73	1886.65	1425.84	10751.70
Volume: beginning of the period	Mm^3	**1900.45**	**2354.90**	**2865.91**	**3304.73**	**3333.53**	**3370.73**	
end of the period	Mm^3	**2354.90**	**2865.91**	**3304.73**	**3333.53**	**3370.73**	**3418.00**	
Release from the reservoir	m^3/sec	**300.00**	**550.00**	**700.00**	**760.00**	**760.00**	**527.13**	
	Mm^3	803.52	1425.60	1874.88	2035.58	1904.26	1411.87	9455.71
Shardara reservoir		*October*	*November*	*December*	*January*	*February*	*March*	*Total* *Mm3*
Inflow to the reservoir	m^3/sec	**385.03**	**758.89**	**976.31**	**1039.48**	**998.89**	**722.15**	
	Mm^3	1031.26	1967.05	2614.95	2784.15	2502.82	1934.20	12834.43
Volume: beginning of the period	Mm^3	**1217.77**	**1614.25**	**2246.42**	**3214.16**	**4096.64**	**4945.76**	
end of the period	Mm^3	**1614.25**	**2246.42**	**3214.16**	**4096.64**	**4945.76**	**5370.79**	
Release from the reservoir	m^3/sec	**220.00**	**500.00**	**600.00**	**700.00**	**650.00**	**550.00**	
	Mm^3	589.25	1296.00	1607.04	1874.88	1628.64	1473.12	8468.93
Release to	m^3/sec	**5.00**	**5.00**	**5.00**	**5.00**	**5.00**	**6.77**	

the Kzylkum canal	*Mm3*	13.39	12.96	13.39	13.39	12.53	18.4	83.81
Release to the Arnasay depression	*m^3/sec*	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	
	Mm^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water supply to the Aral Sea	*m^3/sec*	129.90	122.30	128.10	123.20	127.00	125.20	
	Mm^3	347.92	317.00	343.10	329.98	318.21	335.34	1991.55
Charvak reservoir		*October*	*November*	*December*	*January*	*February*	*March*	*Total Mm3*
Inflow to the reservoir (4 rivers in total)	*m^3/sec*	**109.00**	**96.60**	**81.90**	**72.70**	**71.90**	**105.00**	
	Mm^3	291.95	250.39	219.36	194.72	180.15	281.23	1417.80
Volume: beginning of the period	*Mm^3*	**1513.09**	**1426.66**	**1337.39**	**1181.19**	**999.33**	**827.69**	
end of the period	*Mm^3*	**1426.66**	**1337.39**	**1181.19**	**999.33**	**827.69**	**787.25**	
Release from the reservoir (release from the Gazalkent HEPS)	*m^3/sec*	**140.00**	**130.00**	**140.00**	**140.00**	**140.00**	**120.00**	
	Mm^3	374.98	336.96	374.98	374.98	350.78	321.41	2134.08
Andizhan reservoir		*October*	*November*	*December*	*January*	*February*	*March.*	*Total Mm3*
Inflow to the reservoir	*m^3/sec*	**63.10**	**65.70**	**59.30**	**51.00**	**50.50**	**65.20**	
	Mm^3	169.01	170.29	158.83	136.60	126.53	174.63	935.89
Volume: beginning of the period	*Mm^3*	**833.96**	**814.92**	**880.99**	**1012.47**	**1130.24**	**1236.65**	
end of the period	*Mm^3*	**814.92**	**880.99**	**1012.47**	**1130.24**	**1236.65**	**1250.50**	
Release from the reservoir	*m^3/sec*	**70.00**	**40.00**	**10.00**	**7.00**	**8.00**	**60.00**	
	Mm^3	187.49	103.68	26.78	18.75	20.04	160.70	517.45

PILOT TRAINING “STRENGTHENING MODEL CAPACITY”

Analysis on integrated water resources management carried out by the World Bank in 2013 revealed low capacity in computer modeling across all five countries of Central Asia, and Afghanistan. Special training courses on application of computer models in the region were initiated within the framework of Central Asia Energy-Water Development Program (CAEWDP).

The work began with the establishment of Model Advisory group, which organized a three-day videoconference for the specialists from all Central Asia countries in Tashkent on October 15-17, 2014. This conference facilitated interactive discussions of model use aspects and initiated joint activity of the World Bank and GWP CACENA “Strengthening model capacity”.

The aim of these activities is to ensure understanding of modeling tool concepts and capabilities by specialists from Central Asia who are responsible for decision making at the middle and high level of water management.

The Model Advisory Group (established in 2014) chose three of eight models put into practice in Central Asia so that the specialists could analyze and compare various analytical approaches. These models are AralDIF (Aral Sea Basin Dynamic Information Framework that can be adapted to Aral Sea basin conditions), ASBmm (Aral Sea Basin Management Model – basin simulation-optimization model of water allocation with calibrated information for planning zones) and BEAM (Aral Sea Basin Economic Allocation Model emphasizing economic investment analysis in the basin).

Pilot training was held at the World Bank premises in Almaty, Kazakhstan from September 28, 2015 to October 2, 2015. The task of the pilot training is to test the curriculum and other features of the proposed training program by the participants, i.e. to test the acceptability of course for model tools use (in terms of three models) but not getting “under the hood” too much.

Mid-level experts from the Central Asia countries and Afghanistan (two from each country), as well as representatives of EC-IFAS, BWO Amudarya and BWO Syrdarya and RCH who have little experience in modeling were invited to pilot training. Unfortunately, representatives of Turkmenistan did not participate in the pilot training.

The program of the seminar lasted for five working days. **On** t**he first working day** participants got acquainted with each other and considered main concepts of water cycle/balance. Hydrology specification in the Aral Sea basin as well as water related issues in terms of reconciliation of hydro energy and agriculture were considered.

Furthermore, background information about river basins modeling, modeling objectives, water use by competing sectors and integrated water resources management issues (IWRM) was provided on the first day of the seminar. Various models and approaches were discussed.

IWRM is a process that enables coordinated development and management of water, land and other related resources to achieve high socioeconomic growth on an equitable basement without causing damage to stability of vital ecosystems. To ensure IWRM it is important to take note of different social, economic and environmental aspects related to resource use and protection. Coordinated management of water and other resources may demand to make decisions on a range of space-and-time scales - where modeling can assist.

In the afternoon of the first day the participants were given brief information about each of the three models (AralDIF, BEAM and ASBmm), their capabilities and the interconnectedness of them in terms of hydrology, economy and planning zones management. The purpose of this discussion was to understand the capabilities of the available models to solve different problems. Model assumptions and limitations were discussed. A brief presentation was made of objective functions (hydropower, agricultural production, municipal water use benefits), constraints and a few other details: simulation vs. optimization, economics, crop production functions, etc.

Participants discussed pre-defined sample problems (for solution of which three models were developed) with sample exercises for each model, including water cycle samples, planning and management options.

The second day of the seminar used the BEAM model to demonstrate the development and use of an economic basin allocation model to improve the understanding of water allocation options in river basins. The participants gain an understanding of the BEAM model structure, assumptions, and possible applications.

Participants discussed a scenario to demonstrate BEAM model capabilities. Group exercises considered a scenario in BEAM in detail taking into account approved limitations, basin hydrological structure, water sources, water intakes, time horizon and intervals. Data necessary for modeling of the pre-defined sample problems were discussed and analyzed in details. The basic BEAM mechanisms, including constitutive equations, optimization and other features were discussed.

The separate session was dedicated to consideration of BEAM calibration options in solving pre-defined sample problems and to sensitivity analysis. Indicators and quantitative aspects of model effectiveness and of alternative options were also discussed. Participants considered how the model could be used to assess effectiveness of solutions for pre-defined sample problems.

In this session participants had an opportunity to work with BEAM in a hands-on environment. Using some pre-computed results for the problem(s) and model(s), the group determined if the models were well calibrated or not.

On the third day of the seminar participants discussed modeling in ASBmm. ASBmm demonstrated the development and use of a basin allocation simulation model to improve the understanding of water management allocation options in the river basins. The participants gained an understanding of the ASBmm model structure, assumptions, and possible applications.

Participants discussed a scenario to demonstrate ASBmm model capabilities. Participants reviewed in details the sample problem in ASBmm model, taking into

account boundaries, flow network, water sources, water flows, time horizon and intervals. Necessary assumptions and related limitations in model use were discussed. Participant discussed data necessary for pre-defined sample problem modeling at the basin level and in separate planning zones. The basic ASBmm mechanisms, including basic constitutive equations, optimization and other features were discussed. In this session participants had an opportunity to work with ASBmm in a hands-on environment in the Syrdarya River basin and Fergana planning zone.

Unfortunately, on that day we lost our dearest colleague Mr.Yuriy Ukhalin who died suddenly of a heart attack during practical sessions on ASBmm.

The fourth day of the seminar was dedicated to modeling in AralDIF. AralDIF model demonstrated development and use of a hydrology model platform to improve the understanding of water availability options in the river basins. The participants gained an understanding of the ASBmm model structure, assumptions, and possible applications.

Participants discussed a scenario to demonstrate AralDIF model capabilities. Necessary assumptions and related limitations in model use were discussed.

Data necessary for scenario modeling were considered and analyzed. The importance of model calibration was discussed during practical exercises. Model output was compared with actual recorded data to determine exact model parameters. In this session participants had an opportunity to work with AralDIF in a hands-on environment.

The fifth – the last day of the seminar participants discussed how three models complement each other and help find solutions to water resources management in Central Asia. Participants had an opportunity to prepare their own remarks for discussions beforehand. On the third day of training the participants were asked to answer the following questions:

1. What problems/tasks occur in model use and how to solve them?
2. What information missed during the course?
3. What is the future vision?

There also discussed issues how to work with those who are responsible for decision making and policymaking process: how to fortify confidence and keep responsible persons informed to facilitate them to make reasonable decisions.

The seminar was followed by the working meeting of the Coordinating Group (Daryl, Dane, Marta, Bekele, Sasha Ricci, Michel and Vadim) which was held on October 3**.** The participants agreed upon further steps on joint activity promotion of the World Bank and GWP CACENA «Strengthening model capacity».

Detailed report on pilot training held in Almaty will be provided by Dane McKinney for further distribution by December 1. What is important is that we got a better understanding about three models capabilities and how to organize training on their basis. We now better understand who and how should be trained to use model tools.

The final version of the training courses will also be submitted by this date. At the same time separate training course on each model will be considered:

- Separately consider BEAM and ASBmm used for prospective economic and mathematical modeling with their imitations and optimizations.
- Separately consider models for water resources and potential flow fluctuations assessment using AralDIF platform.
- It makes sense to consider cooperation with FAO and ICARDA in training on model tools for water consumption assessment – taking into account soil structure change, climate change, and irrigated agriculture productivity assessment change within the framework of food security and so on.
- Maybe a combined approach for model demonstrations should be accepted– step by step/in chain order – firstly, water resources assessment (AralDIF) – then calculation of development options based on this assessment (BEAM and ASBmm). Thus, to demonstrate that models do not compete but complement each other.

The group also considered training process institutionalization issues, i.e. its organization and coordination and management. These matters should be solved before the launching of a new, big, regional project by the World Bank (CAWARM). After launching, this project can support this organizational platform.

In cooperation with concerned Water Management Departments it is of great importance to determine and appoint focal points. They should meet the following two requirements:

1) To have technical knowledge and be aware of model use, and

2) To be able to lobby on this issue at the political level.

To sum up the results of the training, it can be said that 3 persons as focal points can be already appointed – Sayed Razekhudin in Afghanistan, Saule Shalmaganbetova in the Republic of Kazakhstan and Yekaterina Sakhvaeva in Kyrgyz Republic. It is of great importance to appoint the persons of the same level in the Republic of Tajikistan and the Republic of Uzbekistan as the representatives of these countries do not fully meet the above mentioned requirements. It is important to involve Turkmenistan into this process.

The participants also discussed how to arrange exchange of information and documents within the framework of the Coordinating group. One can use Dropbox but not everyone can work with this tool. Alternatively GWP CACENA will discuss with Stockholm how to create a special page like “See in One” or Share Point at GWP web-site. There will be provided current information for training “Strengthening model capacity” held within the framework of joint work with the World Bank and GWP CACENA. It is necessary to prepare Press Release or Policy note (Dane, Martha and Vadim can prepare till the end of October) based on available materials and results of pilot training to raise awareness of a wider range of people about this activity in the region.

Participants also discussed whom the course should be orientated for and the curriculum. Two types of courses may be organized:

1. General courses without detailed study of models for the representatives of academic and research institutes, concerned Ministries and Departments.
2. Special courses with detailed study of models for the specialists of Water Management Organizations including Basin Organizations.

The next exchange of views of the Coordinating Group will be organized on October 16 via Skype.

Participants of the pilot modeling training in Almaty, September 29, 2015

Working moments of the seminar

Seminar coordinators: Anatoliy Sorokin (SIC ICWC),
Daryl Fields (WB), Vadim Sokolov (GWP CACENA)

Yuriy Ukhalin (SIC ICWC) speaks about specifications of ASBmm model

13th INTERNATIONAL CONFERENCE "EUROPE-INBO 2015" FOR THE IMPLEMENTATION OF THE EUROPEAN WATER DIRECTIVES

Thesalloniki, Greece, 21-24 October 2015

The Conference was organized jointly by INBO and the Greek Ministry of Reconstruction of Production, Environment and Energy with the support of the French National Agency for Water and Aquatic Environments (ONEMA).

The meeting of the INBO World Liaison Bureau was held before the Conference. The INBO Permanent Technical Secretary J-F Donzier presented annual report about Network activity over the past year since the Conference in Bucharest.This year was marked with INBO preparations to the 7th World Water Forum, where INBO took active part and led some themes, in particular, IWRM, transboundary water resources management, adaptation to climate change and others. The organization also ran the European regional process. At the moment, there are 192 members from 81 countries in INBO. In the current year 28 EU countries and 2 INBO associate members in cooperation with OECD have prepared guidelines on improvement of governance by Water Management Organizations and on adaptation to climate change.

Alongside with other directors of regional networks, Professor Dukhovny presented report on work performed within the framework of NWO EECCA, including participation in organization of several local conferences, 7th World Water Forum, and organization of a special regional conference in Minsk on May 21-22, 2015. He demonstrated efforts made to develop the information network of NWO EECCA, establish knowledge base and glossary on water management and irrigated agriculture and tools for e-learning, etc. At the same time, he mentioned that the Network was working within the limited financing as most financing was only provided by UNECE, Uzbekistan and through small contracts signed with INBO Headquarters. It is necessary to request INBO to enhance interaction with other donors in order to improve financial support to operational activities of NWO EECCA. This is of great importance taking into account increased water scarcity in the region and financial crisis occurring simultaneously in almost all regions. The meeting approved the program of the Ordinary regional conference to be held in Almaty in February, 2016.

The Inaugural of the “EUROPE-INBO” International Conference on the Water Framework Directive Implementation was held at the Mediterranean Palace Hotel on October 22 at 09.00 a.m. Professor Jacques Ganoulis (Special Water Secretary, Ministry of Reconstruction of Production, Environment and Energy of Greece), Afanasiy Papas (Vice President of the Central Macedonia province), Professor Pericles Mitkas (Rector, Aristotle University of Thessaloniki), George Marinakis (President, Greece National Water Users Association), Nicholas Papadanis (President and Executive Director, Water supply company of Thessaloniki), and Directors of Networks for Central Europe, the Mediterranean, Eastern Europe, Caucasus, Central Asia, and European INBO delivered their welcome speeches to the participants of the conference. Pavel Misiga, EU Directorate General of the Environment, welcomed the participants via videoconference. He underlined that as of 2015 – the period of the completion of the Water Directive Implementation- 25 national and 2 regional reports were submitted. Some members – Belgium, Spain, Portugal, France, and Italy – presented reports on condition of all basins as well. In 2009 43% of all European rivers achieved good ecological status, whereas in 2015, 53 % of rivers achieved the same status. WFD is acknowledged by all countries in part of sub-basins, tributaries and aquifers. At the same time, there is a lack of control over water releases for environmental purposes. It is necessary to reconsider the licenses on water intakes, i.e. issue licenses for reduced water intakes WFD instruction on establishment of financial mechanism is not fulfilled, only several basins have managed to develop it. Agriculture is still the main source of diffuse pollution, particularly, this relates to chemical fertilizers. The general strategical assessment will be carried out till 2018, whereas implementation of WFD– till 2022.

Professor Jacques Ganoulis made an interesting report on the work of the newly established Special Water Secretariat under his direction. Its aim is to provide support

to implementation of IWRM through specialized governance system. To address current challenges – water disasters, floods, droughts and climate change – the Secretariat is obliged to create a water security system. This system includes development of a mechanism for sustainable functioning of the water sector taking into account financial restrictions, socioeconomic pressure, inflation rate, and economic crisis. Simultaneously, the National Water Committee consisting of Parliament and Government representatives, as well as the National Advisory Water Council consisting of the most recognized and experienced scientists, experts, practitioners, and water users were established. The Special Water Secretariat is responsible for shaping agenda of the National Advisory Council, as well as for preparing documents and issues to be considered by the National Advisory Council. The Secretariat coordinates the work in 14 regions and supervises preparation and implementation of 14 basin development plans. It also prepared water tarification rules for all contracts between water management organizations and the users. The Secretariat is instructed to control updating of the Regional Basin Management Plan every 5 years.

Jerzy Zwozdziak, Water Director, Poland shared his country's experience on implementation of the 2nd planning cycle of WFD. Ten river basins achieved good water status in the country. Since 2009, the second evaluation of the water status was carried out, whereas changes in the River Basin Management Plan were made in 2015. The training system on the basis of WFD was established in 2014-2015.

Jean-Marie Quemener from the Ministry of Environment of France said that climate change would have serious impacts on France. The modeling reveals that river flow, mostly in the South, will decrease by 20 % by 2070. In dry years water resources will also decrease – as much as by 30%. All these factors demand the Ministry to accept a new concept for addressing these challenges. Information, trainings, dialogues, knowledge generation, water conservation, and environmental restoration are the key adaptation tools.

Professor Maria Lazaridou from Greece reported that good water status will be achieved in the country only in 2027. At the moment, the monitoring network is developed and the adaptation strategy to climate change is worked out.

Mr. Andreas Angelakis from Greece added that the problem of return water and wastewater use is not solved, though these waters are delivered for free. The Ministry of Health objects to the use of these waters because of their quality.

In Romania (Mr. Bogdan Ion and Mrs. Daniela Radulescu) the flood risk maps for most of small basins were generated. The structures that are at highest risks are to be reconstructed immediately.

The water wellbeing in Cyprus depends on local water sources located on the territory of Greece and external water delivery after construction of the aqueduct in the territory of Turkey, says Panaetis Khodjilikous.

The session on water governance in transboundary basins started with the speech of Dr. Dejan Komatina, Secretary of the International Sava River Basin Commission. Established in 2005 the Commission consists of both EU members and non-members – Croatia, Serbia, Montenegro, Czech Republic and Slovenia. The

Commission works out and approves the River Basin Management Plan, Sediment Management Plan, Risk Management Plan and Climate Change Adaptation Plan. General activities of the Commission are exchange of information, forecasting, flood warning, and provision of normal conditions for navigation and tourism. In its membership the Commission involves representatives of all water related sectors from neighboring countries.

In the reports on water governance in transboundary basins representatives from other European countries (Austria, Ukraine, Greece, Romania, Macedonia, and Germany) gave information on the results of joint activities in achievement of WFD goals – i.e. good water status and other goals stipulated in the Directive. In particular, Romania, the Ukraine and the Republic of Moldova achieved the planned quality indicators in the Prut and Seret rivers. The joints efforts of these countries regarding provision of information for early flood warning were rather effective and prevented destructive effects on these rivers. To demonstrate the results of joint activities, UNECE and Albanian representative have shared the experience in managing good water quality in Presna Lake, which is situated at the cross of water bodies in Albania, Greece and Macedonia. Here the cooperation is carried out with wider involvement of NGOs. According to Alyona Boyeva from the Ukraine, the country has the obligations on surface water use in front of 5 European countries. It has prepared all guiding materials, taking into account all European Water Directives.

On October 23, the meeting addressed financial and economic aspects of water management. In the report presented by Ioanis Tsiloktis from the Ministry of Reconstruction of Production, Environment and Energy of Greece it was stated that the water sector is financed fully by tax payers and water consumers. Water consumers pay from 0.46 to 4 Euros per m^3 depending on total water intake; industry pays 0.5-0.81 Euro per m^3. Irrigation water use, in particular, is paid by municipal authorities at the price less than 10 cents per m^3, whereas drainage water used for irrigation is for free. The representative from Germany stated that her country failed in financial policy related to water. Having reviewed the current situation, the Ministry of Environment prepared a guide named “Economic instrument for water policy”. This guide will be put into practice the next years.

In conclusion, the Pact on Water and Adaptation to Climate Change has been signed by all regional organizations. The Presidency in EUROPE-INBO has been transferred from Romania to Greece.


PARIS2015
COP21-CMP11


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EUROPE-INBO DECLARATION OF THESSALONIKI

The 13th conference of the "EUROPE-INBO" group, which took place in Thessaloniki, Greece, from 21 to 24 October 2015, at the invitation of the Greek Ministry of Reconstruction of Production, Environment and Energy – Special Water Secretariat, gathered 193 participants, representatives of national administrations and basin organizations as well as of NGOs, companies, international and regional organizations, coming from 32 countries.

Established within INBO in 2003 in Valencia, Spain, the "EUROPE-INBO" Group of European Basin Organizations for the implementation of the Water Framework Directive (WFD – 2000/60/EC) aims at enriching the implementation of water policies in Europe, especially the Common Implementation Strategy (CIS) with its practical field experience to support the Candidate Countries and disseminate the principles and tools of European water-related Directives, especially to EU neighbouring partner countries in the Balkans, Eastern Europe, Caucasus and Central Asia and the Mediterranean.

As part of INBO, the Central and Eastern European Network of Basin Organizations (CEENBO), the Mediterranean Network of Basin Organizations (MENBO), and the new Network of Basin Organizations of Eastern Europe, Caucasus and Central Asia (EECCA - NBO), facilitate, in their respective regions, the exchanges of experience and discussions on basin management in an enlarged European context.

The "EUROPE-INBO" group holds annual plenary assemblies: Valencia (Spain) in 2003, Krakow (Poland) in 2004, Namur (Belgium) in 2005, Megeve (France) in 2006, Rome (Italy) in 2007, Sibiu (Romania) in 2008, Stockholm (Sweden) in 2009, Megeve (France) in 2010, Oporto (Portugal) in 2011, Istanbul (Turkey) in 2012, Plovdiv (Bulgaria) in 2013 and Bucharest (Romania) in 2014..

In the extension of the European Commission’s "Blueprint", the work of the 13th "EUROPE - INBO 2015" international conference in Thessaloniki was organized around four roundtables dedicated to current events in the practical implementation of the WFD and other European water-related directives. They allowed discussing the following issues:

- Measures of adaptation to the effects of climate change; "water" component of the COP21 in Paris in 2015; preparation of the 2nd European Water Framework Directive management plans (2016-2021);
- Water governance in Transboundary Basins;
- The financing of water policy and economic analyses;
- Local processes for the application of the Directives (tributaries, aquifers, bays….) and the participation of local stakeholders (Local Authorities,

farmers, industrialists, hydropower sector, fishermen, inland waterways, fish farmers, NGOs, etc.), and public involvement.

It should be reminded that, for INBO members, the term "basin" covers the basins of rivers, lakes and aquifers, either local, national or transboundary.

30 papers were presented during the conference and discussed.

A preparatory workshop took place before the EUROPE-INBO conference. It allowed discussing the practices of the various Member-States, highlighting the multiple benefits of the actions already undertaken and drafting recommendations on the implementation of water policy in Europe. The workshop outcomes were presented in a plenary session. The workshop, organized with the support of the National Agency for Water and Aquatic Environments (ONEMA, France), will be published later.

Roundtable 1: Measures of adaptation to the effects of climate change – "Water" component of the COP21 in Paris in 2015. Preparation of WFD 2nd Management Plans (2016-2021): Integration of water quantity issues; Better integration with other EU (Flood and Marine Strategy Framework) Directives and with EU sectoral policies; multisectoral approach on a river basin scale, Natural Water Retention Measures, dialogue and authorities for dialogue between stakeholders' communities…

Conscious of the importance of the effects of climate change on water resources, the participants considered that efforts should be made and resources used for measures to adapt to the effects of climate change and should be quickly developed in national and transboundary basins.

During the preparation of the 2nd management plans (2016-2021) and programmes of measures, managers began introducing actions related to climate change. But it is advisable to already think about the preparation of the 3rd cycle and to ensure that adaptation measures are kept in mind when developing the basin management plan. To avoid duplication or inconsistency, these adaptation measures should be part of the basin management plans as planned for by the WFD.

In addition, better integration with other EU directives, such as the Flood Risk Management and Marine Strategy Framework Directives, is to be sought for, especially in the definition of climate change adaptation measures. This is particularly the case for the preparation of the Flood Risk Management Plan (FRMP) in areas identified as being subject to potentially significant flood risk. These FRMPs should be both coordinated and synchronized with the River Basin Management Plans (RBMPs) and be coordinated with each other in the same basin, which requires, in the case of transboundary basins, a special coordination effort from the Member States and, when the basin extends beyond the EU territory, a joint approach with the EU neighbouring countries.

The multisectoral approach should also be in line with all the economic sectors having an impact on the areas concerned. Sectoral policies (energy, agriculture, urban

planning, etc.) and adaptation measures concerning them should also be integrated and made consistent with the adaptation component of the plan.

During the twenty-first Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) to be organized from 30 November to 11 December 2015 in Paris, a special day dedicated to the issue of "Water and Climate Change" will take place on 2 December. It will allow exchanges on adaptation to climate change in basins and will be the place to promote the Pact launched on INBO initiative, entitled "Commitments for adaptation to climate change in the basins of rivers, lakes and aquifers". This pact has been widely discussed inside INBO network and with its partners since June 2015.

The EUROPE-INBO Members emphasized the large number of experiments undertaken in basins for adaptation to climate change. The publication "Water and Climate Change Adaptation in Transboundary Basins: Lessons Learned and Good Practices" produced by UNECE and INBO and released at the 7th World Water Forum identifies and develops these positive experiences that should be more widely disseminated, especially within the EU and under the EU neighbourhood policy. The possibilities of transferring these good practices from one area to another should be studied and promoted by public and private stakeholders in the context of multi-partner and cross-border actions.

They reminded that better integrated river basin management is needed to implement the adopted measures and to face the multiple pressures, including those caused by climate change.

They also stressed the importance of strengthening the process of acquisition and processing of the necessary data and reiterated their recommendation to widen the exchange of experience among European countries on these aspects of integrated data management.

The Natural Water Retention Measures (NWRM) aim to improve water status, with a multi-functional approach, that covers hydrogeological, hydromorphological aspects of diffuse pollution as well as hydrological aspects of flood and low water management. By introducing a change in approach, the NWRMs and more broadly the green infrastructure should lead to greater resilience of the environments. They are thus good adaptation measures. By enabling the sharing of experiences already carried out and fostering the structuring of information, the European Platform put on-line with the NWRM project, should help the transfer of good practice among stakeholders but also the financing of these measures by providing a recognized framework. The EUROPE-INBO conference is an opportunity to inform and mobilize the authorities and basin managers on the issue of restoration and water retention by natural means, to integrate it into adaptation plans and make NWRMs full adaptation measures.

Roundtable 2: Water governance in Transboundary Basins: International Districts; Role and means of International Commissions; Bi and Multilateral Agreements and Conventions, Implementation of WFD principles and tools and of the Floods Directive in EU Neighbouring Countries, riparian of transboundary basins…

The UN Convention on the Law of the Non-navigational Uses of International Watercourses of 1997 entered into force on 17 August 2014. The 1997 Convention

seeks to ensure the development, conservation, management and protection of international rivers and to promote their optimum use. With the UNECE Water Convention (1992) and the 1997 Convention, international bodies and nations have a strong framework for international cooperation in transboundary basins.

It should be reminded that the two conventions address different aspects of transboundary water sources : for example, the 1997 Convention details the factors of equitable and reasonable use of water resources while the 1992 Convention prescribes the content of international agreements and activities to be undertaken jointly. They also provide critical elements to improve water governance in transboundary basins.

The EUROPE-INBO Members reminded their support to an effective implementation of these international conventions for better governance and management of international waters. Noting that 60% of EU territory is located in transboundary basins, the participants emphasized that International Commissions have a decisive role in the implementation of EU directives even beyond EU borders and called for increased support to these commissions of transboundary districts.

Water governance in transboundary basins should be further improved, especially for good water management in the international districts created for WFD implementation. Besides the WFD, this more efficient governance should allow for coordinated implementation of the Flood and Marine Strategy Framework Directives in transboundary basins and marine areas, including those shared with non-EU or EEA member neighbouring countries. .

This implies that riparian countries sign cooperation agreements or rely on already established Commissions or structures respectively to create the conditions for appropriate governance, established on the basis of mutual trust, a shared understanding of the problems of the basin based on accurate, accessible and shared data and analysis with stakeholder involvement. The role and resources of the International Commissions of transboundary rivers should be increased, when necessary, to enable effective implementation of the WFD and "Daughter" Directives in the countries concerned or associate in a common prospect of achieving good water status the non-EU or EEA member countries.

The work conducted within the OECD's Water Governance Initiative, especially the one led by INBO and UNESCO, may also fuel progress in the governance of national and transboundary basins inside the EU and beyond, including in EU neighbouring countries.

Roundtable 3: The financing of water policy and economic analysis. Implementation and funding of Programmes of Measures**:** Mobilization of funds and especially access to EU Structural Funds; Principle of cost recovery; Economic analysis for cost-effective combination of measures.

The funding of Programmes of Measures for the effective implementation of the WFD and its "daughter" directives remains a concern for water managers in the European Union.

The participants underlined the importance of granting adequate funding to achieve the WFD objectives and ensure its effectiveness and consistency with the

other EU directives.

The search for funds should be guided by the WFD polluter-pays principle and based on cost recovery mechanisms. These principles should be introduced and reinforced wherever necessary.

The EUROPE-INBO Members reminded the interest of ensuring that the 2nd and 3rd RBMPs be established on the basis of a more comprehensive economic analysis of pressures on water resources and proper quantification of costs and impacts of the measures needed to comply with the WFD objectives.

This economic analysis should determine the combinations of measures that will be most cost-effective. For such a purpose, clear and transparent methodologies should be established as well as economic research increased to better understand the costs of inaction, including the non-implementation of the WFD, the disproportionate cost and cost / benefit analysis. This also applies to legal research to find new public / private multi-partnership institutional responses for practical and quick implementation by local contracting authorities. Similarly, the effort made for improving common knowledge should continue as well as the development of a practical guide as part of the CIS.

A better understanding of environmental and climatic events of infinite complexity and of human impacts on the environment (especially water resources) passes through a long-term and coordinated investment for research, development and technological and social innovation. This will help to find solutions for adapting to the growing needs of our society and economy, to future changes that will occur at local and global levels, while preserving the ecosystem services that are vital to the people's life and well-being. This should enable the paradigm shift (water reuse, decentralized sanitation, etc.) needed for facing these new challenges.

The participants underlined the need for action at European, State and basin levels to increase the consistency of environmental objectives, sectoral policies and practices, especially in the agricultural sector.

An effort should be made so that the financial resources available at European level, namely the Structural Funds and at other levels (both in research and innovation and in the implementation of ad hoc policies) finds greater use in the measures for water resources management. The combination and integration of different funding sources help to improve the implementation of measures induced by the river basin management plans.

The EU and Member States should also maintain a high level of financial support for solidarity with the Southern and EU neighbouring countries, to promote better governance in basins shared with Member States and support the development of solidarity financing for access to water and sanitation both for public health reasons and for preventing the degradation of water quality.

Roundtable 4: Local processes for the application of the Directives (tributaries, aquifers, bays….) **and the participation of local stakeholders** (Local Authorities, farmers, industrialists, energy companies, inland waterway carriers, fishermen and fish farmers, NGOs, etc.), Public involvement…

The participants reminded that the involvement of stakeholders and the public is crucial to improve water resources management and that their information and their participation since the beginning in decision-making processes need to be developed for greater appropriation of the measures and actions included in the management plans.

The users' appropriation of water policies and of their resulting measures is essential in order to make progress and improve efficiency.

Public access to monitoring results and knowledge on water and aquatic environments facilitates this appropriation, and therefore increases the efficiency of actions. This refers not only to the establishment of decision-making or advisory bodies at different territorial levels, but also to the representation of different users or groups of users. These are essential in case of public participation to enhance the understanding of the challenges ahead and of the necessary efforts.

The participants in the EUROPE-INBO Conference emphasized the importance of better involvement of local communities in projects related to water resources management. This local community involvement should be developed through participatory exercises that introduce them to the more comprehensive approach by initially confronting them with issues directly affecting them. This progressive approach aims to bring all the local stakeholders (decision-makers, local authorities and the public in general) to discuss together.

Implementation of the measures is, in many countries, the responsibility of local public or private contracting authorities. It is therefore essential to ensure their active participation in the national WFD implementation process from the beginning of the project and in the drafting of programmes of measures.

The users' appropriation of the water-related policies and measurements which result from them is a passage impossible to circumvent to progress and gain in effectiveness. The access of the public to the results of the monitoring and knowledge on water and aquatic environments facilitates this appropriation, and thus improves the effectiveness of the actions. These elements are essential with a public participation to increase the understanding of the challenges to come and efforts needed.

If the efforts made during the first WFD cycle mainly aimed at meeting the WFD obligations now the focus should be more on the exploitation and sound use of the knowledge produced, and its wide dissemination to and appropriation by decision makers and the general public, at suitable levels, not to mention the local level.

Beyond the practice of providing local stakeholders and the public with the results obtained by monitoring systems, training plans and experience sharing among multiple basin stakeholders, the use of interpretation tools leading to better communication with decision makers and the general public should be considered at the local level. The monitoring programme may be a communication tool in itself if it is based on standardized methods for improving understanding, comparison and use of the information.

This problem should be viewed with emphasis laid upon integration of quantitative issues, adaptation to climate change, coordination between the directives

of the European Union (water, flood, marine strategy, habitats, flora and fauna) and the link to sectoral policies (agriculture, energy, navigation, urbanization, forest, environment...).

In addition, the participants in the EUROPE-INBO conference recommended that European basin organizations and decision makers promote the development of local approaches that lay out overall goals for use, development, quantitative and qualitative protection of water resources on a suitable local scale. The effectiveness of local approaches involves the transformation of general issues, on the one hand, and local issues, on the other, into local challenges by promoting the cross-cutting of the interests of local stakeholders especially in the context of a local dialogue. Public authorities should encourage and participate in these dialogues to improve cooperation and vertical coordination.

Furthermore, the change of scale is very enabling to meet European guidelines and lead actions implemented in the river basin. For example, by changing perspectives (having a local vision), it is easier to respond to new European guidelines regarding eco-engineering (such as natural water retention measures).

In this sense, the development of river committees/commissions composed of different stakeholders (elected officials, users, State) and their participation, being either voluntary, flexible, non-formalized or institutionalized and regulated, should be firmly promoted. The local stakeholders thus gathered define together the shared water management objectives and the ways to achieve them.

The success of these approaches is based on a triad of stakeholders: a dynamic local leader who mobilizes local stakeholders from the start of the process, a local facilitator, a local support structure that promotes the project strategy and implements its orientations; this structure can be an association, an NGO, a local authority, a union or a regional natural park, etc.

It is recommended to preferentially support actions undertaken within this framework.

Local approaches are a transmission belt between the local, basin and State levels and a tool for appropriation of the space by local stakeholders thus enabling the conditions for action.

It is recommended that operations demonstrating their added value should be carried out to encourage the implementation of such initiatives, including the creation of a forum for exchange of practices and experiences particularly in the context of a European network of basin organizations having territorial approaches. In this context, transboundary territorial approaches should help to ensure the consistency of actions undertaken on both sides of the borders.

A preliminary socio-economic assessment of the territory ensures that all interests will be represented in decision-making bodies of the local management plan. The evaluation of these plans is to be encouraged.

Information sharing and harmonization, including spatial information, must go beyond the EU territory and concern all the riparian countries of the same

transboundary basin, thus promoting the emergence of coordination in the development of river basin management plans in transboundary basins.

The "EUROPE - INBO 2015" conference is a new important step not only for assessing the implementation of the first cycle of River Basin Management Plans (2010-2015), but also for formulating proposals to improve the implementation of the WFD and associated Directives in the next cycles, especially for the 2016-2021 period.

While welcoming the progress made in WFD implementation, as announced by the Director of the DG Environment during his speech at the conference, the EUROPE-INBO Members consider that the efforts made in the implementation of measures should be increased so that all water bodies achieve "good status" within a reasonable time.

For future progress, they emphasized the great need for better coordination between the European water policy and other EU economic and sectoral policies, such as the CAP, the policy on transnational transport or renewable energy.

The recommendations also fed the preparatory work for the COP 21 that will deal with the issue of climate change and water resources during a specific Day.

All conference participants welcomed the adoption of a sustainable development goal (SDG 6) on access to water and sanitation for everyone and on sustainable water resource management and each person expresses its willingness to act for the achievement of this ambitious goal.

The participants thanked Romania and especially Ms. Daniela RADULESCU (Romania), for having fulfilled with determination and success the EUROPE-INBO Group presidency during the year 2014/2015.

The Professor Jacques GANOULIS, Special Secretary for Water in the Ministry of Environment & Energy of Greece was elected President of the EUROPE-INBO Group for the year to come, until the next conference in 2016.

The delegates gratefully accepted the proposal of the French Authorities to organize "EUROPE- INBO 2016" conference in Lourdes.

They also decided to hold next “EUROPE-INBO“ conference in 2017 in Dublin in Ireland.

The delegates thanked the Greek Authorities for their excellent hospitality and for the excellent organization of this 13th Conference.

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WATEC 2015 CONFERENCE AND EXHIBITION

Director of SIC ICWC Prof. V. Dukhovny took part at the International Water Technology Conference and Exhibition in Tel-Aviv, Israel from 12 to 15 October 2015.

This event consisted of the meeting for investors to identify future prospective technologies, the international conference and the exhibition.

On 12th of October during the meeting of investors four groups of companies were represented and demonstrated their pilot proposals together with investors who contributed money to initial ideas and developments. All inventors in essence were the small teams of students or graduates, consisting of 3 to 15 young initiative creators who received small support from production and investment companies to realize their ideas in practice. Such approach saves the public money at initial stages of development, on the one hand, and allows young students and professionals to try their creative force in practice under the supervision of investors.

The Solex-Water company specializes on treatment of water through gas and oil industry. The proposed technologies help to have municipal water at a price of 47 cents per cubic meter.

The Aquanos company proposes biotechnology for cleaning effluents, with parallel production of biogas and biomass used for fertilizers. The technology was adopted for application in two enterprises in the US and Israel.

The Memtech company offers changeable membranes for treatment of water and effluents through ultraviolet treatment.

The Aquarius Spectrum company developed a system of monitoring over piped networks and for detection of leakages as small as 1.5 mm in them. Specific algorithm and sensory acoustic devices allow daily maintenance of large systems and reception of information through GSM. The technology was applied in 2015 in one of American systems serving four settlements.

The Aqua Rimat developed the Flowless technology, which detects leakage in the pipeline network and, at the same time, cuts water if leakages reach certain threshold. Besides, it controls both quantitative and qualitative water parameters. The technology helps to optimize water distribution between the user for equitable and sustainable distribution in the network. This technology is applied in Israel.

The Neotop company developed a module system for serving reservoirs, including the system of floating hemispheres that allow reducing evaporation from the reservoir surface by 90%, decreasing the water temperature, preventing blooming in the reservoirs and creating favorable conditions for fish breeding. This proposal won the 2014 Prime-Minister award.

The ICS developed the system of cyber-security, which protects infrastructure

from potential cyber-attacks against monitoring systems. Recent experience has shown that we need the systems than can quickly rehabilitate its operation.

The Aqualens company created a very small ozone generator, which can ozonize both stationary and mobile systems for urban, rural and private effluent treatment on the base of solar batteries. The plant capacities are from 1,000 to 100,000 liters per day. This generator is used in Israel.

The Renergy Water technology was developed by the company with the same name for reduction of energy consumption in desalination plants based on reverse osmosis technology.

The Super Spectra technology is based on spectroscopy and allows detecting pollutants of any size in minimal concentrations.

Based on presentations, the participants voted to determine the winner. The Aquanos company became the winner and won a package of subsidies from the Ministry of Industry, Trade and Labor.

The International Conference on Water Technologies and Environmental Control opened the next day at the Tel-Aviv Convention Center. The welcome speeches were delivered by Aryeh Machluf Deri**,** Minister of Economy**,** Minister of the Development of the Negev and Galil, Dr. Yuval Steinitz, Minister of National Infrastructures, Energy and Water Resources, Avi Gabai, Minister of Environmental Protection, H.E. William Samoei Ruto, Deputy President, Republic of Kenya, Nairobi, Doug Ducey, Governer of the State of Arizona, and Alex Kushnir, CEO of the Israel Water Authority.

Very dry land occupies 60 % of Israeli area. Nevertheless, the country managed to irrigate its 60% of desert with waste water during the dry period of 2004-2012. In five years the national government invested 2 billion US dollars to desalination; consequently, water resources were augmented by 750 million cubic meters a year. This allowed solving the problem of water scarcity and meeting obligations towards Palestine and Jordan regarding an increase of environmental flow in the Jordan River by 50 million cubic meters a year. Implementation of IWRM started 20 years ago and oriented towards environmental improvement in the country has proven its value. Here, Israel follows the rule that first of all it is necessary to use its internal possibilities as far as possible and only afterwards use desalinated seawater for compensation of water scarcity.

The former Israeli Prime-Minister Shimon Peres took part in the opening of the Conference and delivered his informal speech:

Mr. Peres talked about water development in Israel. Particularly he noted that they did have nothing except for human resources. He told that however nowadays, Israel had the top high-tech in land and water use in the world and was ready to share it. This has proven that human capabilities helped to achieve much even under very complex conditions. The modern science made it possible to adapt Israeli experience to any conditions under guidance of wisdom and analysis of the past. Mr. Peres underlined that there was no future without the past and in the future we should search for lessons from the past. He also told that water was infinite but we knew little about

it and should treat it carefully so that to keep the nature. Water looked like politics - it was not discovered completely in the past and had unpredictable future!

Several reports were dedicated to common problems of the U.S. western states and Israel and to possibilities of applying Israeli experience in the U.S. Development of Israeli desalination technologies in California (IDE), Los-Angeles (C.Hernandez) and in Arizona (A.Putnam) was demonstrated. In general, more than 20 desalination plants based on the Israeli reverse osmosis technology were to be built in this part of the country. The total volume of desalination in the U.S. western coast by 2025 is supposed to be 0.63 km^3 a year. This would be of much help in overcoming chronic water scarcity in western states.

In the session “Lessons from different regions all over the world”, the following speakers delivered their reports:

- the INBO Permanent Technical Secretary J-F Donzier,

- Prof. V.A.Dukhovny about water management in Central Asia “Between regional demands and national interests”,

- Dr. Gesner Olivier, about water management in Brazil, the most water-rich country, which however suffers from local water scarcity,

- Dr. Ramik Ashrafov, about experience of decentralized water treatment in Azerbaijan,

- Dinesh Kumar, about water management in Rajasthan state in India,

- Dr. Clive Lipchin, Director of Arava Institute’s Center, who presented lessons from implementation of six household demonstration plants for treatment of gray water and recycling in the Western Bank of Jordan River and in Israel using the Israeli technologies for wetland construction in combination with membrane bioreactor.

At the exhibition 179 companies presented their innovations, including:

- seawater desalination, with capacity of up to 150 million m^3 a year;

- comprehensive set of solutions for treatment of industrial and household effluents, from the portable unit (GAL mobile) with capacity from 10 cubic meters per day to large plants serving cities with capacity of up to 400 million cubic meters per year. All these solutions are equipped with the system of programmed controllers and data processors that ensure automatic control at all stages of treatment, including post-operation control of treatment quality;

- wide range of solutions for monitoring of piped water supply, with detection of leakage immediately after its occurrence and with provision of uniform and optimal water supply to urban and rural users;

- low-pressure drip systems for both large-scale irrigation systems and small private farms and for complete service (irrigation, fertigation and air control) in greenhouses;

- plants for treatment of wastes into biomass, etc.

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