Interstate **C**ommission for **W**ater **C**oordination in **C**entral Asia	**BULLETIN № 2 (81)**	June 2019

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MINUTES OF THE 76th MEETING OF THE INTERSTATE COMMISSION FOR WATER COORDINATION (ICWC) OF THE REPUBLIC OF KAZAKHSTAN, KYRGYZ REPUBLIC, REPUBLIC OF TAJIKISTAN, TURKMENISTAN AND REPUBLIC OF UZBEKISTAN

19 April 2019 Tashkent, Republic of Uzbekistan

Chairman:

Khamraev Shavkat Rakhimovich	Minister of Water Management, Republic of Uzbekistan

ICWC members:

Nysanbayev Yerlan Nuralievich	Vice Minister of Agriculture, Republic of Kazakhstan
Rakhimzoda Sulton Nurmakhmadpur	First Deputy Minister of Energy and Water Resources, Republic of Tajikistan (MEWR RT)
Baydjanov Baygeldi	Head of Water Use Department, State Committee for Water Management of Turkmenistan (by proxy)

ICWC executive bodies:

Dukhovniy Viktor Abramovich	Director, Scientific Information Center (SIC) of ICWC
Nazarov Umar Abdusalomovich	Head, ICWC Secretariat
Makhramov Makhmud Yakhshibayevich	Head, BWO Amudarya
Kholkhuzhaev Odil Akhmedovich	Head, BWO Syrdarya

Invited:

Zhienbaev Musilim	Head, Division of Transboundary Rivers,

Rysmakhanovich	Department of Transboundary Rivers, Ministry of Agriculture, Republic of Kazakhstan
Kipshakbaev Nariman Kipshakbaevich	Director, Kazakh branch of SIC ICWC
Kenshimov Amirkhan Kadyrbekovich	Head, Department of Water Resources, Executive Board of IFAS in the Republic of Kazakhstan
Suyundikov Maksat Zhumataevich	Advisor at the SCO Administration, Asian Cooperation Department, Ministry of Foreign Affairs of the Republic of Kazakhstan
Sharip Daniyar Esenuly	Chief Expert, Division of Transboundary Rivers, Department of Transboundary Rivers, Ministry of Agriculture of the Republic of Kazakhstan
Abdullaev Aydar Sysenbekovich	Head of the Natural Resources Department of Kyzylorda province, Republic of Kazakhstan
Auen Kenes Auenovich	Director, Turkestan brach of RSE Kazvodkhoz
Tanirbergenov Bakhtybay	Deputy Director, Turkestan brach of RSE Kazvodkhoz
Bakashbaev Zhandarbek Kenderbekovich	Head of the Zakh-Keles production area, South Kazakhstan branch of RSE Kazvodkhoz, Committee for Water Resources, Ministry of Agriculture, Republic of Kazakhstan
Khasanov Khamid	Deputy Director, Agency for Land Reclamation and Irrigation under the Government of the Republic of Tajikistan
Mommadov Begench Amanovich	Head, “Garagumderyasuvkhodjalyk” Association, State Committee for Water Management of Turkmenistan
Charyyev Dovran	Chief expert, Water Use Department, State Committee for Water Management of Turkmenistan

Mamutov Ravshan Aminaddinovich	Deputy Minister of Water Management, Republic of Uzbekistan
Kuchkarov Sharifjon Zikrillayevich	Head, Water Balance and Advanced Water Saving Technology Division, MWM of the Republic of Uzbekistan
Ahmadjonov Vokhidjon Muhammadjonovich	Director, Information-Analytical and Resource Center, MWM of the Republic of Uzbekistan
Ziganshina Dinara Ravilyevna	Deputy Director, SIC ICWC
Beglov Iskander Ferdinandovich	Head of Division, SIC ICWC
Uktamov Avaz Rakhimberdievich	Deputy Head of Division, BWO Syrdarya

Agenda of the 76th ICWC meeting

1. Results of the use of water withdrawal limits and operation regimes of the reservoir cascades in the Amudarya and Syrdarya River basins over the non-growing season 2018-2019;

2. Approval of the water withdrawal limits and forecast operation regime of the reservoir cascades in the Amudarya and Syrdarya River basins over the growing season 2019;

3. Participation of members and executive bodies of ICWC in the development of the Program of Actions in support of the countries of the Aral Sea basin (ASBP-4).

4. Agenda and venue of the next 77th regular ICWC meeting.

5. Supplementary items.

Decision on the first item:

Take into account information provided by BWO Amudarya and BWO Syrdarya on the results of the non-growing season 2018-2019 in the Amudarya and Syrdarya River basins.

Decisions on the second item:

1. Approve water withdrawal limits in the Amudarya and Syrdarya River basins for the growing season 2019 (Annexes 1 and 2).

2. Approve forecast operation regime of the reservoirs in the Amudarya River basin over the growing season 2019 (Annex 3).

3. BWO Syrdarya proposed the forecast operation regime of the Naryn-Syrdarya reservoir cascade for the growing season 2019 (Annex 4). Uzbekistan and Kazkahstan approved this operation regime provided by BWO Syrdarya. In its turn, Tajikistan expressed readiness to ensure water releases from the Bakhri Tochik reservoir as follows:

1st ten-day of June: Akdjar GS+50 m^3/s;

2nd ten-day of June: Akdjar GS +100 m^3/s;

3rd ten-day of June: Akdjar GS +100 m^3/s;

July: Akdjar GS +150 m^3/s;

1st and 2nd ten-day of August: Akdjar GS +100 m^3/s;

3rd ten-day of August: Akdjar GS +50 m^3/s.

4. Representaives of the Republic of Uzbekistan, Republic of Kazakhstan, and Republic of Tajikistan agreed to hold a joint meeting in the beginning of June to negotiate on provision of needed inflow to the Akdjar GS and water releases from the Bakhri Tochik reservoir in summer 2019. Representatives of the Republic of Uzbekistan and the Republic of Kazakhstan agreed to work out the issue of electricity reception from the Kyrgyz Republic and the Republic of Tajikistan for June-August 2019 before this meeting.

Decisions of the third item:

1. Take into account information of SIC ICWC on project proposals to be included in ASBP-4 and recommend the IFAS Executive Committee to include

them in the list of regional projects of ASBP-4, with comments submitted by ICWC members.

2. Entrust SIC ICWC, BWO Amudarya and BWO Syrdarya with participating in the Second Meeting of the Regional Working Group on development of ASBP-4 and improvement of institutional and legal frameworks of IFAS. It is to be held on 7-8 May 2019 in Ashgabat.

Decisions on the forth item:

1. Hold the next 77th meeting of ICWC in Nursultan (Republic of Kazakhstan) in the second ten-day of September 2019. The date and venue of the meeting are to be approved in due course.

2. Propose the following agenda for the next 77th meeting of ICWC.

1) Results of the use of water withdrawal limits and the operation regimes of the reservoir cascades in the Amudarya and Syrdarya River basins over the growing season 2019.

2) Approval of water withdrawal limits and operation regimes of the reservoir cascades in the Amudarya and Syrdarya River basins over the non-growing season 2019.

3) Implementation of proposals and initiatives of the Heads of IFAS founder-states voiced at the Summit of the Heads of IFAS founder-states (24 August 2018, Turkmenbashi city).

4) Agenda and venue of the next 78th regular ICWC meeting.

5) Supplementary items.

Republic of Kazakhstan	**Y.N.Nysanbayev**
Kyrgyz Republic	
Republic of Tajikistan	**S.N.Rakhimzoda**
Turkmenistan	**B.Baydjanov**
Republic of Uzbekistan	**Sh.R.Khamraev**

Annex 1

Limits of water withdrawal from the Amudarya River and water supply to the river delta and the Aral Sea over the growing season 2019

River basin, state	Water withdrawal limits, mcm	
	Total annual (1.10.18 to 1.10.19)	**Including non-growing season (1.04.19 to 1.10.19)**
Total withdrawal from the Amudarya River	53,822	38,471
Of which:		
Republic of Tajikistan	9,822	6,951
From the Amudarya River to the nominal Kerki gauging station	44,000	31,520
Turkmenistan	22,000	15,500
Republic of Uzbekistan	22,000	16,020
Plus:		
- water supply to the river delta and Aral Sea, including irrigation water and CDW	4,200	2,100
- sanitary and environmental releases to irrigation systems in	800	
Dashoguz province	150	
Khorezm province	150	
Republic of Karakalpakstan	500	
Total	58,822	40,571

Note:
Water withdrawal limits include water for irrigation, industrial, municipal and other needs. If water availability in the basin changes, the limits will be adjusted accordingly.

Annex 2

Limits of water withdrawal of states in the Syrdarya River basin for the growing season 2019

Water user states	**Limits, mcm**
Republic of Kazakhstan (Dustlik canal)	918
Kyrgyz Republic	246
Republic of Tajikistan	1,905
Republic of Uzbekistan	8,800
Total	**11,869**

Annex 3

Forecast operation regime of the Nurek reservoir (April-September 2019)

	unit	Forecast						total
		April	May	June	July	August	September	
Volume: beginning of the period	mcm	6,099	6,244	6,611	7,907	9,568	10,569	6,099
Inflow to the reservoir	m^3/s	550	867	1,400	1,650	1,370	593	
	mcm	1,426	2,322	3,629	4,419	3,669	1,538	17,003
Water releases from the reservoir	m^3/s	494	730	900	1,030	996	593	
	mcm	1,280	1,955	2,333	2,759	2,668	1,538	14,247
Volume: end of the period	mcm	6,244	6,611	7,907	9,568	10,569	10,569	10,569
Accumulation (+) drawdown (-)	mcm	145	367	1,296	1,661	1,001	0	4,449

Forecast operation regime of the Tuyamuyun reservoir (April-September 2019)

	unit	Forecast						total
		April	May	June	July	August	September	
Volume: beginning of the period	mcm	2,543	3,658	4,113	4,645	5,984	5,404	2,543
Inflow to the reservoir	m^3/s	1,330	1,550	1,905	2,400	1,429	630	
	mcm	3,447	4,152	4,938	6,428	3,827	1,633	24,425
Water releases from the reservoir	m^3/s	900	1,380	1,700	1,900	1,646	860	
	mcm	2,333	3,696	4,406	5,089	4,408	2,228	22,160
Volume: end of the period	mcm	3,658	4,113	4,645	5,984	5,404	4,808	4,808
Accumulation (+) drawdown (-)	mcm	1,115	455	531	1,339	-580	-687	2,265

Annex 4

Forecast operation regime of the Naryn-Syrdarya reservoir cascade
(1 April to 30 September 2019)

		April	May	June	July	August	September	Total, mcm
Toktogul reservoir								
Inflow to the reservoir	m^3/s	287	617	939	808	562	321	
	mcm	744	1,653	2,434	2,164	1,505	832	9,332
Volume: beginning of the season	mcm	13,563	13,298	14,071	15,636	16,689	17,270	
end of the season	mcm	13,298	14,071	15,636	16,689	17,270	17,374	
Water releases from the reservoir	m^3/s	388	327	334	411	339	274	
	mcm	1,006	876	866	1,101	908	710	5,466
including: 1. internal needs of the	m^3/s	388	327	292	301	284	274	
Kyrgyz Republic	mcm	1,006	876	757	806	761	710	4,915
2. additional releases	m^3/s			42	110	55		
(energy receipt)	mcm			109	295	147		550
Bakhri Tochik reservoir								
Inflow to the reservoir	m^3/s	530	489	404	350	302	323	
(Akdjar GS)	mcm	1,373	1,309	1,048	939	810	837	6,315
including: water supply from	m^3/s			50	67	29		
Andizhan reservoir	mcm			130	179	77		386
Volume: beginning of the season	mcm	2,825	3,423	3,499	3,101	2,327	1,812	
end of the season	mcm	3,423	3,499	3,101	2,327	1,812	2,004	
Water releases from the reservoir	m^3/s	300	430	500	550	430	220	
	mcm	778	1,152	1,296	1,473	1,153	570	6,421
Shardara reservoir								
Inflow to the reservoir	m^3/s	441	340	250	200	200	320	

	mcm	1,143	910	648	536	536	829	4,602
Volume: beginning of the season	mcm	5,175	5,180	4,751	3,784	2,324	1,186	
end of the season	mcm	5,180	4,751	3,784	2,324	1,186	1,414	
Water releases from the reservoir	m^3/s	350	400	500	570	550	200	
	mcm	907	1,071	1,296	1,527	1,473	518	6,793
Discharge into Kyzylkum canal	m^3/s	50	50	70	115	50	15	
	mcm	130	134	181	308	134	39	926
Supply to the Aral Sea	m^3/s	147	110	68	63	65	83	
	mcm	382	295	176	168	175	214	1,409
Charvak reservoir								
Inflow to the reservoir	m^3/s	259	455	567	416	235	140	
(4 rivers in total)	mcm	670	1,218	1,471	1,115	628	362	5,464
Volume: beginning of the season	mcm	548	843	1,444	1,921	2,005	1,842	
end of the season	mcm	843	1,444	1,921	2,005	1,842	1,669	
Water releases from the reservoir	m^3/s	173	230	383	385	295	207	
(Releases from Gazalkent HPP)	mcm	449	617	994	1,032	791	536	4,418
Andizhan reservoir								
Inflow to the reservoir	m^3/s	160	277	300	163	68	48	
	mcm	415	743	778	437	182	125	2,680
Volume: beginning of the season	mcm	969	1,144	1,503	1,762	1,574	1,188	
end of the season	mcm	1,144	1,503	1,762	1,574	1,188	1,106	
Water releases from reservoir	m^3/s	93	144	200	234	212	80	
	mcm	242	384	518	626	568	207	2,545

RESULTS OF THE USE OF WATER WITHDRAWAL LIMITS AND OPERATION REGIMES OF THE RESERVOIR CASCADES IN THE AMUDARYA AND SYRDARYA RIVER BASINS OVER THE NON-GROWING SEASON 2018-2019[1]

Amudarya River basin

The actual water availability in the Amudarya River basin at the nominal Kerki gauging station upstream of Garagumdarya was 87.7 % of the norm over the non-growing season 2018-2019. The estimations were made taking into account the natural flow in the Vakhsh River and regulation by the Nurek reservoir. In the past non-growing season, this value was 63.5 % of the norm.

The use of the approved water withdrawal limits over the growing season under consideration is as follows (breakdown by state):

Given the current water situation, totally in the basin 95.5 % of the approved water withdrawal limits was used. While the limit was 15, 721.1 mcm, the actually used volume amounted to 15,017.6 mcm, of which:

- Republic of Tajikistan actually used 2,597.4 mcm or 90.5 % of the total limit;
- Republic of Uzbekistan actually used 6,223.2 mcm or 98 % of the total limit;
- Turkmenistan actually used 6,197 mcm or 95.3 % of the total limit.

Over the non-growing season 2018-2019, the use of water limits downstream of the nominal Kerki gauging station, upstream of Garagumdarya was 96.9 % of the total limit, of which:

Republic of Uzbekistan actually used 5,895.4 mcm or 98.6 % of the total limit;

Turkmenistan actually used 6,197 mcm or 95.3 % of the total limit.

[1] Information on the first item of the 76th ICWC Meeting's Agenda

Water user state	Water withdrawal limits for the non-growing season 2018-2019	Adjusted water withdrawal limits for the non-growing season 2018-2019	Actual, mcm	%% of use
Republic of Tajikistan	2,871.1	2,871.1	2,597.4	90.5
Turkmenistan	6,500.0	6,500.0	6,197.0	95.3
Republic of Uzbekistan	6,350.0	6,350.0	6,223.2	98.0
Total	15,721.1	15,721.1	15,017.6	95.5

Water user state	Water withdrawal limits for the non-growing season 2018-2019	Adjusted water withdrawal limits for the non-growing season 2018-2019	Actual, mcm	%% of use
Downstream of the Kerki nominal GS	12,480	12,480	1,2092.4	96.9
Turkmenistan	6,500.0	6,500.0	6,197.0	95.3
Republic of Uzbekistan	5,980.0	5,980.0	5,895.4	98.6

Actual use of the approved water withdrawal limits broken down by river reach is as follows:

- Upper reaches – 90.3 % of the total limit, including 90.5 % in the Republic of Tajikistan and 88.6 % in the Republic of Uzbekistan.
- Middle reaches – 96.3% of the total limit, including 98.6% in the Republic of Uzbekistan and 94.8% in Turkmenistan.
- Lower reaches – 98.1 % от of the total limit, 98.5% in the Republic of Uzbekistan and 97.2 % in Turkmenistan.

Water user state	Water withdrawal limits for the non-growing season 2018-2019	Adjusted water withdrawal limits for the non-growing season 2018-2019	Actual, mcm	%% of use
Upper reaches	**3,241.1**	**3,241.1**	**2,925.2**	**90.3**
Republic of Tajikistan	2,871.1	2,871.1	2,597.4	90.5
Republic of Uzbekistan	370	370	327.8	88.6
Middle reaches	**8,345**	**8,470**	**8,160.5**	**96.3**
Turkmenistan	5,100	5,100	4,836.8	94.8
Republic of Uzbekistan	3,245	3,370	3,323.7	98.6
Lower reaches	**4,135**	**4,010**	**3,931.9**	**98.1**
Turkmenistan	1,400.0	1,400.0	1,360.2	97.2
Republic of Uzbekistan	2,735.0	2,610.0	2,571.7	98.5

For the non-growing season, water supply to the Amudarya delta and the Aral Sea was planned to be 2,100 mcm. However, the actual supply was 503 mcm.

For the non-growing season, the inflow to the Nurek reservoir was to be 3,504 mcm; however, the actual inflow was 3,762 mcm or 107.4%. Water releases from the reservoir were planned to be 7,672 mcm; the actual releases were 7,723 mcm or 100.7%.

By the end of the non-growing season 2018-2019, water storage in the reservoir was to be 6,388 mcm. The actual volume was 6,099 mcm or 95.5 %.

The inflow to the Tuyamuyun reservoir was to be 6,269 mcm; however, the actual inflow was 6,817 mcm or 108.7%. Water releases from the reservoir were planned to be 6,189 mcm, while the actual releases were 6,474 mcm or 104.6%.

By the end of the non-growing season 2018-2019, water storage in the reservoir was planned to be 2,281 mcm; however, the actual storage was 2,543 mcm or 111.5 %.

Name		unit	Nurek reservoir	Tuyamuyun reservoir
Volume: beginning of the season		mcm	10,549	2,201
Inflow to the reservoir	forecast	mcm	3,504	6,269
	actual	mcm	3,762	6,817
		%%	107.4	108.7
Water releases from reservoir	forecast	mcm	7,672	6,189
	actual	mcm	7,723	6,474
		%%	100.7	104.6
Volume: end of the season	forecast	mcm	6,388	2,281
	actual	mcm	6,099	2,543
		%%	95.5	111.5
Accumulation(+), drawdown(-)	forecast	mcm	-4,161	80
	actual	mcm	-4,450	342
		%%	106.9	427.5

More detailed information is given in Tables (Annexes 1.1; 1.2; 1.3).

Analysis
of the use of water withdrawal limits in the Amudarya River basin over the non-growing season 2018-2019

Name	Water withdrawal limits for the non-growing season 2018-2019	Adjusted water withdrawal limits for the non-growing season 2018-2019	Actual, mcm	%%
Upper Amudarya Administration	**3,241.1**	**3,241.1**	**2,925.2**	**90.3**
(Upper reaches)				
of which:				
Tajikistan	2,871.1	2,871.1	2,597.4	90.5
Uzbekistan	370	370	327.8	88.6
Water withdrawals from the Amudarya River at nominal Kerki gauging station	12,480	12,480	12,092.4	96.9
of which:				
Turkmenistan	6,500.0	6,500.0	6,197.0	95.3
Uzbekistan	5,980.0	5,980.0	5,895.4	98.6
Middle Amudarya Administration	**8,345**	**8,470**	**8,160.5**	**96.3**
(Middle reaches), of which				
Turkmenistan	5,100	5,100	4,836.8	94.8
Uzbekistan	3,245	3,370	3,323.7	98.6
Lower reaches:	**4,135**	**4,010**	**3,931.9**	**98.1**
of which:				
Turkmenistan	1,400.0	1,400.0	1,360.2	97.2
Uzbekistan	2,735.0	2,610.0	2,571.7	98.5
Additionally, sanitary releases, total	800	800	748.5	93.6
including Karakalpakstan	500	500	451.1	90.2
Dashoguz province	150	150	149.7	99.8
Khorezm province	150	150	147.7	98.5
Total for the basin:	**15,721.1**	**15,721.1**	**15,017.6**	**95.5**
of which:				
Tajikistan	2,871.1	2,871.1	2,597.4	90.5
Turkmenistan	6,500.0	6,500.0	6,197.0	95.3
Uzbekistan	6,350.0	6,350.0	6,223.2	98.0

Water supply to the Aral Sea and the Amudarya River delta over the non-growing season 2018-2019, mcm

Name	X	XI	XII	I	II	III	Supply from 01.10.18 to 31.03.19, actual
From the Amudarya River, at Samanbay GS	14	30	52	17	32	67	212
Total water discharge from the Dustlik and Suenli canals system	0	0	0	0	0	0	0
CDF	38	32	36	45	50	90	291
TOTAL:	52	62	88	62	82	157	503
Cumulative	52	114	202	264	346	503	

Note: Data on water supply to the Amudarya River delta and the Aral Sea are agreed with the Hydromet of Uzbekistan

Actual operation regime of the Nurek and Tuyamuyun reservoirs (October 2018 to March 2019)

	unit	actual						Total
		October	November	December	January	February	March	
Nurek reservoir								
Volume: beginning of the season	mcm	10,549	10,398	9,782	8,892	7,802	6,676	10,549
Inflow to the reservoir	m^3/s	300	243	197	214	231	249	
	mcm	804	629	528	574	558	668	3,762
Water releases from the reservoir	m^3/s	357	480	529	578	611	403	
	mcm	957	1,243	1,418	1,547	1,478	1,080	7,723
Volume: end of the season	mcm	10,398	9,782	8,892	7,802	6,676	6,099	6,099
Accumulation (+), drawdown(-)	mcm	-151	-616	-890	-1,090	-1,126	-577	-4,450
Tuyamuyun reservoir								
Volume: beginning of the season	mcm	2,201	2,249	2,781	3,096	4,050	3,398	2,201
Inflow to the reservoir	m^3/s	322	336	463	480	518	487	
	mcm	861	871	1,240	1,287	1,253	1,305	6,817
Water releases from the reservoir	m^3/s	303	131	345	124	787	806	
	mcm	813	340	924	333	1,904	2,160	6,474
Volume: end of the season	mcm	2,249	2,781	3,096	4,050	3,398	2,543	2,543
Accumulation (+), drawdown(-)	mcm	48	531	315	954	-652	-855	342

Syrdarya River basin

On 26 September 2018, the forecast data were received from UzHydromet for the non-growing season 2018-2019.

According to the forecasts by UzHydromet, the inflow to the upstream reservoirs was expected to be:

- 97 % of the norm to the Toktogul reservoir;
- 93 % to the Andizhan reservoir;
- 95 to the Charvak reservoir.

The total lateral inflow was expected to be within 99 % of the norm.

Totally in the basin, water content was expected to be 98% of the norm.

Actual water content in the Syrdarya basin was 102% of the forecast and 100% of the norm in the non-growing season 2018-2019.

The results of operation of the reservoir cascades and use of water withdrawal limits in the Syrdarya River basin are as follows for the non-growing season, from 1 October 2018 to 31 March 2019:

Inflow to upstream reservoirs

Over the non-growing season, the normal inflow to the upstream reservoirs of the Naryn-Syrdarya cascade is 5,233 mcm.

According to the UzHydromet's forecast, the inflow was expected to be 5,010 mcm.

The actual inflow to the upstream reservoirs was 5,384 mcm, which is 374 mcm and 151 mcm more than the forecast and the norm, respectively (Table 2.1).

Lateral inflow

The norm of lateral inflow to the Syrdarya River up to the Shardara reservoir is 11,074 mcm.

According to the UzHydromet's forecast, lateral inflow was expected to be 10,915 mcm.

The actual lateral inflow amounted to 10,860 mcm, which is 55 mcm and 214 mcm less than the forecast and the norm, respectively (Table 2.1).

Total inflow

Over the non-growing season, the norm of the total inflow to the Syrdarya River is 16,307 mcm.

According to the UzHydromet's forecast, it was expected to be 15,925 mcm.

The actual inflow amounted to 16,244 mcm, which is 319 mcm more than the forecast and 63 mcm less than the norm (Table 2.1).

Table 2.1

Name	Non-growing season, mcm						
	2018-2019					2017-2018	
	norm	forecast	actual	actual/ forecast (%)	actual/ norm (%)	forecast	actual
Inflow to upstream reservoirs							
Toktogul	2,891	2,804	3,162	113	109	2,985	3,655
Andizhan	934	866	784	91	84	981	864
Charvak (4 rivers in total)	1,408	1,340	1,438	107	102	1,735	1,797
Total:	**5,233**	**5,010**	**5,384**	**107**	**103**	**5,701**	**6,316**
Lateral inflow							
Toktogul – Uchkurgan	398	387	254	66	64	410	386
Andizhan – Uchtepe	2,518	2,518	2,658	106	106	2,754	2,565
Uchkurgan, Uchtepe - Bakhri Tochik	4,365	4,396	4,707	107	108	4,710	5,686
Bakhri Tochik – Shardara	2,953	2,828	2,376	84	80	2,985	2,733
Gazalkent-Chinaz (excluding Ugam)	841	786	865	110	103	865	972
Total	**11,074**	**10,915**	**10,860**	**99**	**98**	**11,724**	**12,342**
Overall (total inflow)	**16,307**	**15,925**	**16,244**	**102**	**100**	**17,425**	**18,658**

Water releases from the reservoir

According to the schedule, 30,833 mcm were to be released from reservoirs.

The actual releases were 32,005 mcm or 1,172 mcm more than the schedule (Table 2.2).

Table 2.2

Reservoir	Water releases, mcm				
	2018 - 2019			2017 - 2018	
	Operation schedule of NSRC	actual	actual/ schedule (%)	Operation schedule of NSRC	actual
Toktogul	8,551	8,883	104	8,943	8,782
Andizhan	603	680	113	658	657
Charvak (water releases from the Gazalkent HPP)	2,384	2,482	104	2,442	2,561
Bakhri Tochik	11,374	12,219	107	13,242	13,250
Shardara	7,921	7,741	98	9,234	10,230
TOTAL:	30,833	32,005	104	34,519	35,480

Water storage in the reservoirs by the end of the non-growing season 2018-2019

As of 1 April 2019, the forecast water storage was to be 23,999 mcm, whereas the actual water storage amounted to 23,080 mcm (919 mcm less than the schedule).

As of 1 April 2019, the forecast water storage was to be 15,381 mcm in the upstream reservoirs.

By the end of the non-growing season, the actual water storage amounted to 15,080 mcm, which is 301 mcm less than the schedule and 1,270 mcm less than the volume in 2018 (Table 2.3).

By the end of the non-growing season, the scheduled water storage amounted to 13,538 mcm in the Toktogul reservoir; however, the actual water storage was 13,563 mcm, which is 25 mcm more than the schedule and 893 mcm less than the volume in 2018.

By the end of the growing season, the scheduled water storage in the Andizhan reservoir was to be 1,142 mcm; however, the actual water storage

amounted to 969 mcm, which is 173 mcm less than the schedule and 249 mcm less than the volume in 2018.

By the end of the growing season, the scheduled water storage in the Charvak reservoir was to be 701 mcm; however, the actual water storage amounted to 548 mcm, which is 153 mcm less than the schedule and 128 mcm less than the volume in 2018.

In the in-stream reservoirs, the forecast water storage was to be 8 billion 618 million cubic meters as of 1 April 2019.

By the end of the non-growing season, the actual water storage was 8 billion cubic meters, which was 618 mcm less than the schedule and 326 mcm more than the volume in 2018 (Table 2.3).

By the end of the non-growing season, the forecast water storage amounted to 3,418 mcm in the Bakhri Tochik reservoir; however, the actual water volume was 2,825 mcm, which is 593 mcm less than the schedule and 584 mcm less than the volume in 2018.

By the end of the non-growing season, the scheduled water volume in the Shardara reservoir was 5,200 mcm; however, the actual water volume was 5,175 mcm or 25 mcm less than the schedule and 910 mcm more than the volume in 2018.

Table 2.3

Reservoir	Water volume, mcm			
	Actual, as of 1 October 2018	Scheduled, as of 1 April 2019	Actual, as of 1 April 2019	Actual, as of 1 1 April 2018
Upstream reservoirs				
Toktogul	19,298	13,538	13,563	14,456
Andizhan	881	1,142	969	1,218
Charvak	1,754	701	548	676
TOTAL:	**21,933**	**15,381**	**15,080**	**16,350**
In-stream reservoirs				
Bakhri Tochik	2,110	3,418	2,825	3,409
Shardara	952	5,200	5,175	4,265
TOTAL:	**3,062**	**8,618**	**8,000**	**7,674**
OVERALL:	**24,995**	**23,999**	**23,080**	**24,024**

Water supply to the states

Over the non-growing season, water was supplied to the user states based on approved limits and submitted requests (Table 2.4):

- Republic of Kazakhstan: limit – 475 mcm, actual – 474 mcm;
- Kyrgyz Republic: limit – 37 mcm, actual – 31 mcm;
- Republic of Tajikistan: limit – 365 mcm, actual – 53 mcm;
- Republic of Uzbekistan: limit – 2,483 mcm, actual – 2,475 mcm.

Table 2.4

Water user state	Water withdrawals, mcm 1 October 2018 to 31 March 2019		
	based on request	actual	%
Republic of Kazakhstan (Dustlik canal)	475	474	100
Kyrgyz Republic	37	31	84
Republic of Tajikistan	365	53	15
Republic of Uzbekistan	2,483	2,475	100
Total:	**3,360**	**3,033**	**90**

Inflow to in-stream reservoirs and water supply to Priaralie and the Aral Sea

The inflow to the Bakhri Tochik reservoir was scheduled to be 12,448 mcm.

The actual inflow was 12,793 mcm or 345 mcm more than the schedule.

The inflow to the Shardara reservoir was scheduled to be 12,341 mcm.

The actual inflow was 11,524 mcm or 817 mcm less than the schedule.

The inflow to the Aral Sea and Priaralie was scheduled to be 3 billion m^3. The actual inflow to the Aral Sea and Priaralie as measured at the Karateren gauging station was 2,960 mcm or 40 mcm less than the schedule (Table 2.5).

Table 2.5

Name	Scheduled, 1 October 2018 to 31 March 2019, mcm	Actual, 1 October 2018 to 31 March 2019, mcm	Actual/ schedule (%)	Actual, 1 October 2017 to 31 March 2018, mcm
Inflow to in-stream reservoirs				
Inflow to the Bakhri Tochik reservoir	12,448	12,793	103	13,355
Inflow to the Shardara reservoir	12,341	11,524	93	13,041
Supply to the Aral Sea				
Supply to the Aral Sea	3,000	2,960	99	4,650

Table 2.6 presents forecast operation regime of the Naryn-Syrdarya reservoir cascade approved at the 75th meeting of ICWC for the period of 1 October 2018 to 31 March 2019.

Table 2.7 provides actual operation regimes of the Naryn-Syrdarya reservoir cascade from 1 October 2018 to 31 March 2019.

Table 2.6

Forecast operation schedule of the Naryn-Syrdarya reservoir cascade
(1 October 2018 to 31 March 2019)

		October	November	December	January	February	March	Total, mcm
Toktogul reservoir								
Inflow to the reservoir	m3/s	231	200	166	156	153	162	
	mcm	617	519	445	418	370	434	2,804
Volume: beginning of the season	mcm	19,298	18,839	17,877	16,712	15,442	14,336	
end of the season	mcm	18,839	17,877	16,712	15,442	14,336	13,538	
Water releases from the reservoir	m3/s	400	570	600	630	610	460	
	mcm	1,071	1,477	1,607	1,687	1,476	1,232	8,551
Bakhri Tochik reservoir								
Inflow to the reservoir	m3/s	570	864	940	872	870	644	
(Akdjar GS)	mcm	1,525	2,239	2,517	2,335	2,106	1,726	12,448
Volume: beginning of the season	mcm	2,110	2,425	2,575	2,863	3,064	3,289	
end of the season	mcm	2,425	2,575	2,863	3,064	3,289	3,418	
Water releases from the reservoir	m3/s	450	820	850	820	800	611	
	mcm	1,205	2,125	2,277	2,196	1,935	1,635	11,374
Shardara reservoir								
Inflow to the reservoir	m3/s	405	825	982	841	903	765	
	mcm	1,085	2,139	2,630	2,251	2,186	2,050	12,341
Volume: beginning of the season	mcm	952	1,322	2,256	3,252	4,015	4,372	
end of the season	mcm	1,322	2,256	3,252	4,015	4,372	5,200	
Water releases from the reservoir	m3/s	250	450	600	550	750	444	
	mcm	670	1,166	1,607	1,473	1,814	1,190	7,921

		October	November	December	January	February	March	Total, mcm
Supply to the Aral Sea	m3/s	64	120	178	238	268	282	
	mcm	172	310	476	638	648	756	3,000
Charvak reservoir								
Inflow to the reservoir	m3/s	103	92	78	69	68	99	
(4 rivers in total)	mcm	276	238	209	185	166	266	1,340
Volume: beginning of the season	mcm	1,754	1,584	1,392	1,199	954	756	
end of the season	mcm	1,584	1,392	1,199	954	756	701	
Water releases from the reservoir	m3/s	165	165	150	160	150	120	
(Releases from Gazalkent HPP)	mcm	442	428	402	429	363	321	2,384
Andizhan reservoir								
Inflow to the reservoir	m3/s	57	62	56	48	47	60	
	mcm	153	160	149	129	114	161	866
Volume: beginning of the season	mcm	881	839	852	925	1,009	1,087	
end of the season	mcm	839	852	925	1,009	1,087	1,142	
Water releases from reservoir	m3/s	73	57	28	17	15	39	
	mcm	195	147	76	44	36	105	603

Table 2.7

Actual operation schedule of the Naryn-Syrdarya reservoir cascade
(1 October 2018 to 31 March 2019)

		October, actual	November, actual	December, actual	January, actual	February, actual	March, actual	Total, mcm
Toktogul reservoir								
Inflow to the reservoir	m3/s	228	235	190	181	183	188	
	mcm	611	610	509	484	443	505	3,162
Volume: beginning of the season	mcm	19,298	18,825	17,925	16,763	15,545	14,412	
end of the season	mcm	18,825	17,925	16,763	15,545	14,412	13,563	
Water releases from the reservoir	m3/s	401	580	622	635	653	508	
	mcm	1,074	1,504	1,665	1,700	1,579	1,361	8,883
Bakhri Tochik reservoir								
Inflow to the reservoir	m3/s	578	869	969	882	902	693	
(Akdjar GS)	mcm	1,548	2,252	2,595	2,361	2,181	1,855	12,793
Volume: beginning of the season	mcm	2,110	2,426	2,518	2,879	3,031	3,232	
end of the season	mcm	2,426	2,518	2,879	3,031	3,232	2,825	
Water releases from the reservoir	m3/s	449	838	884	836	835	828	
	mcm	1,201	2,171	2,369	2,240	2,019	2,218	12,219
Shardara reservoir								
Inflow to the reservoir	m3/s	404	853	936	840	723	644	
	mcm	1,081	2,212	2,506	2,249	1,750	1,726	11,524
Volume: beginning of the season	mcm	952	1,392	2,349	3,439	4,048	4,633	
end of the season	mcm	1,392	2,349	3,439	4,048	4,633	5,175	
Water releases from the reservoir	m3/s	246	505	622	676	581	332	

		October, actual	November, actual	December, actual	January, actual	February, actual	March, actual	Total, mcm
	mcm	659	1,309	1,667	1,811	1,405	890	7,741
Supply to the Aral Sea	m3/s	63	150	226	260	283	156	
	mcm	170	388	605	696	684	417	2,960
Charvak reservoir								
Inflow to the reservoir	m3/s	98	95	88	79	67	119	
(4 rivers in total)	mcm	263	247	237	211	162	319	1,438
Volume: beginning of the season	mcm	1,754	1,547	1,305	1,015	812	536	
end of the season	mcm	1,547	1,305	1,015	812	536	548	
Water releases from the reservoir	m3/s	167	178	184	144	168	108	
(Releases from Gazalkent HPP)	mcm	447	463	492	386	406	289	2,482
Andizhan reservoir								
Inflow to the reservoir	m3/s	34	50	70	59	41	44	
	mcm	90	129	187	158	100	119	784
Volume: beginning of the season	mcm	881	775	742	886	1,003	1,041	
end of the season	mcm	775	742	886	1,003	1,041	969	
Water releases from reservoir	m3/s	72	61	15	15	25	69	
	mcm	194	159	40	40	61	186	680

WATER WITHDRAWAL LIMITS, OPERATION REGIME OF THE RESERVOIR CASCADE IN THE SYRDARYA AND AMUDARYA RIVER BASINS OVER THE GROWING SEASON 2019[2]

Amudarya River basin

BWO Amudarya submits water withdrawal limits for the growing season 2019 to ICWC for consideration. These limits have been agreed beforehand with water management agencies of the states, taking into account 100% of water availability.

Limits of water withdrawal from the Amudarya River over the growing season 2019

Name	April	May	June	July	August	September	Total, mcm
Total from the Amudarya River	1,592.3	1,885.2	2,276.0	2,506.9	2,225.9	1,454.0	31,520.0
Uzbekistan, total	696.7	897.2	1,239.3	1,424.4	1,176.0	630.7	16,020.0
Turkmenistan, total	895.7	988.0	1,036.7	1,082.5	1,049.8	823.3	15,500.0
Dashoguz velayat, total	299.3	300.7	298.0	335.0	368.3	305.0	5,028.0
Karakalpakstan, total	250.0	385.5	583.3	648.2	518.1	200.1	6,835.0
Water withdrawals of the 1st section	926.3	1,038.3	1,141.3	1,190.1	1,066.4	780.8	16,208.0
Water withdrawals of the 2nd section	666.0	846.9	1,134.7	1,316.8	1,159.5	673.2	15,313.0
Total from the Amudarya basin	1,977.2	2,381.5	2,857.0	3,119.7	2,806.7	1,886.6	3,9671.1
Tajikistan	324.9	426.3	497.6	514.4	488.0	382.9	6,951.1
Turkmenistan	895.7	988.0	1,036.7	1,082.5	1,049.8	823.3	15,500.0
Uzbekistan	696.7	897.2	1,239.3	1,424.4	1,176.0	630.7	16,020.0

Based on these limits, flow conditions and information provided by BWO Amudarya, the forecast operation regimes were developed for the Nurek and Tuyamuyun reservoirs.

[2] Information on the second item of the 76th meeting of ICWC

Forecast operation regime of the Nurek reservoir (April-September 2019)

	unit	Forecast						total
		April	May	June	July	August	September	
Volume: beginning of the season	mcm	6,099	6,434	6,935	8,092	9,579	10,548	6,099
Inflow to the reservoir	m^3/s	609	1,126	1,517	1,852	1,358	593	
	mcm	1,579	3,015	3,931	4,959	3,637	1,538	18,660
Water releases from the reservoir	m^3/s	494	939	1,070	1,297	996	593	
	mcm	1,281	2,514	2,773	3,473	2,668	1,538	14,247
Volume: end of the season	mcm	6,434	6,935	8,092	9,579	10,548	10,548	10,548
Accumulation (+), drawdown (-)	mcm	335	501	1,158	1,486	969	0	4,449

Forecast operation regime of the Tuyamuyun reservoir (April-September 2019)

	unit	Forecast						total
		April	May	June	July	August	September	
Volume: beginning of the season	mcm	2,543	3,013	3,532	4,437	5,737	5,117	2,543
Inflow to the reservoir	m^3/s	920	1,415	1,974	2,275	1,414	595	
	mcm	2,386	3,790	5,115	6,093	3,788	1,541	22,713
Water releases from the reservoir	m^3/s	739	1,221	1,625	1,789	1,646	860	
	mcm	1,915	3,271	4,211	4,793	4,408	2,228	20,826
Volume: end of the season	mcm	3,013	3,532	4,437	5,737	5,117	4,430	4,430
Accumulation (+), drawdown (-)	mcm	470	519	905	1,300	-620	-687	1,887

Limits of water withdrawal from the Amudarya River and water supply to the river delta and Aral Sea over the growing season 2019

River basin, state	Water withdrawal limits, mcm	
	Totally for year (1.10.18 to 1.10.19)	**including for the growing season (1.04.19 to 1.10.19)**
Totally from the Amudarya River	53,822	38,472
Of which:		
Republic of Tajikistan	9,822	6,951
From the Amudarya River to the nominal Kerki GS	44,000	31,520
Turkmenistan	22,000	15,500
Republic of Uzbekistan	22,000	16,020
In addition:		
- water supply to the River delta and Aral Sea, taking into account water to be released for irrigation and collector-drainage water	4,200	2,100
- supply of sanitary and environmental releases to irrigation systems:	800	
Dashoguz velayat	150	
Khorezm province	150	
Republic of Karakalpakstan	500	
Total	**58,822**	**40,571**

Syrdarya River basin

Hydromet's forecast

On 8 April 2019, forecasts were received from UzHydromet for the growing season 2019.

In the growing season 2019, water content is expected to be as follows: river basins in the South of the Fergana Valley -100-110 % (105 %), in the basins of the Naryn, Karadarya, in the North of the Fergana Valley, Chirchik, and Akhangaran Rivers - 90-100% (95%) of the norm.

On 11 April 2019, the Coordinating Dispatch Center (CDC) "Energy" provided forecast operation regime of the Toktogul reservoir for the growing season 2019. Based on the data received, the forecast inflow to the Toktogul reservoir is to be 97% of the norm.

According to UzHydroMet, the forecast inflow is as follows:

- to the Andizhan reservoir – 92 % of the norm;
- to the Charvak reservoir– 95 % of the norm.

The total lateral inflow is expected to be 97 % of the norm.

In general, water content in the Syrdarya River basin is forecasted to be 96% of the norm.

Inflow to upstream reservoirs

The normal inflow to the upstream reservoirs in the Naryn-Syrdarya reservoir cascade is 18,286 mcm for the growing season.

According to the UzHydromet's forecast, the inflow to upstream reservoirs is expected to be 17,476 mcm, which is 96% of the norm or 810 mcm less than the norm (Table 2.8).

Lateral inflow

The normal lateral inflow to the Syrdarya River up to the Shardara reservoir is 11,042 mcm.

According to the UzHydromet's forecast, the lateral inflow is expected to be 10,667 mcm, which is 97 % of the norm or 375 mcm less than the norm (Table 2.8).

Total inflow

The normal total inflow in the basin is 29,328 mcm for the growing season.

The forecast total inflow is expected to be 28,143 mcm, which is 96% of the norm or 1,185 mcm less than the norm (Table 2.8).

Table 2.8

Forecast inflow in the Syrdarya River basin for the growing season 2019

Name	Growing season, mcm					
	2019			2018		
	norm	forecast	forecast/ norm (%)	forecast	actual	actual/ forecast (%)
Inflow to upstream reservoirs						
Toktogul	9,620	9,332	97	8,754	9,853	113
Andizhan	2,915	2,680	92	2,591	2,491	96
Charvak (4 rivers in total)	5,751	5,464	95	5,335	4,673	88
Total:	**18,286**	**17,476**	**96**	**16,680**	**17,017**	102
Lateral inflow						
Toktogul – Uchkurgan	1,216	1,180	97	1,156	1,299	112
Andizhan – Uchtepe	2,529	2,371	94	2,213	2,324	105
Uchkurgan, Uchtepe – Bakhri Tochik	3,368	3,320	99	3,162	3,949	125
Bakhri Tochik – Shardara	3,020	2,846	94	2,688	2,631	98
Gazalkent- Chinaz (excluding Ugam)	909	949	104	870	1,045	120
Total:	**11,042**	**10,667**	**97**	**10,089**	**11,248**	111
Overall (total inflow):	**29,328**	**28,143**	**96**	**26,769**	**28,265**	106

Water storage in the reservoirs

By the beginning of the growing season, water storage in the reservoirs is 23,080 mcm, including dead storage.

By the beginning of the growing season, water storage in the reservoirs, excluding dead storage, is 15 billion 117 million cubic meters, which is 944 mcm less than the last year.

By the beginning of the growing season 2018, water storage in the reservoirs was 16 billion 61 million cubic meters (excluding dead storage) (Table 2.9).

Table 2.9

Reservoir	Water storage, mcm				
	Actual, as of 1 April 2019	Actual, as of 1 April 2019 (excluding dead storage)	Actual, as of 1 April 2018	Actual, as of 1 April 2018 (excluding dead storage)	dead storage
Upstream reservoirs					
Toktogul	13,563	8,063	14,456	8,956	5,500
Andizhan	969	819	1,218	1,068	150
Charvak	548	122	676	250	426
TOTAL:	15,080	9,004	16,350	10,274	6,076
In-stream reservoirs					
Bakhri Tochik	2,825	1,908	3,409	2,492	917
Shardara	5,175	4,205	4,265	3,295	970
TOTAL:	8,000	6,113	7,674	5,787	1,887
OVERALL:	23,080	15,117	24,024	16,061	7,963

The total water volume is 43,260 mcm (“total water storage” plus “total forecast inflow”).

(15,117 + 28,143 = 43,260)

Water withdrawal limits

Taking into account submitted requests, the following water withdrawal limits for water user states are proposed for the growing season (Table 2.10):

Requests (mcm)	
Republic of Kazakhstan (Dustlik canal)	**918**
Kyrgyz Republic	**246**
Republic of Tajikistan	**1,905**
Republic of Uzbekistan	**8,800**
Total:	**11,869**

Table 2.10

Water withdrawal limits of states in the Syrdarya River basin

Water user state	Limits for growing season 2019, mcm	Limits for growing season 2018, mcm
Republic of Kazakhstan (Dustlik canal)	918	705
Kyrgyz Republic	246	246
Republic of Tajikistan	1,905	1,905
Republic of Uzbekistan	8,800	8,800
Total:	**11,869**	**11,656**

Forecast operation schedule of NSRC

Taking into account water storage in the reservoirs and forecast water content, the Republic of Uzbekistan plans to receive electricity from the Toktogul reservoir in June, July, and August in the volume of 500 million kWh, which is equal to 550 mcm, and additional water supply from the Andizhan reservoir in the amount of 386 mcm to ensure inflow to the Bakhri Tochik reservoir and water supply in the upper and middle reaches of the Syrdarya River.

The forecast operation schedule of the Naryn-Syrdarya reservoir cascade is submitted to ICWC for consideration for the period from 1 April to 30 September 2019 (Table 2.11).

Table 2.11

Forecast operation schedule of the Naryn-Syrdarya reservoir cascade
(1 April to 30 September 2019)

		April	May	June	July	August	September	Total, mcm
Toktogul reservoir								
Inflow to the reservoir	m3/s	287	617	939	808	562	321	
	mcm	744	1653	2,434	2,164	1,505	832	9,332
Volume: beginning of the season	mcm	13,563	13,298	14,071	15,636	16,689	17,270	
end of the season	mcm	13,298	14,071	15,636	16,689	17,270	17,374	
Water releases from the reservoir	m3/s	388	327	334	411	339	274	
	mcm	1,006	876	866	1,101	908	710	5,466
including: 1. internal needs of the Kyrgyz Republic	m3/s	388	327	292	301	284	274	
2. additional releases	m3/s			42	110	55		
(energy receipt)	mcm			109	295	147		550
Bakhri Tochik reservoir								
Inflow to the reservoir	m3/s	530	489	404	350	302	323	
(Akdjar GS)	mcm	1,373	1,309	1,048	939	810	837	6,315
including: supply from	m3/s			50	67	29		
Andizhan reservoir	mcm			130	179	77		386
Volume: beginning of the season	mcm	2,825	3,423	3,499	3,101	2,327	1,812	
end of the season	mcm	3,423	3,499	3,101	2,327	1,812	2,004	
Water releases from the reservoir	m3/s	300	430	500	550	430	220	
	mcm	778	1,152	1,296	1,473	1,153	570	6,421
Shardara reservoir								

		April	May	June	July	August	September	Total, mcm
Inflow to the reservoir	m3/s	441	340	250	200	200	320	
	mcm	1,143	910	648	536	536	829	4,602
Volume: beginning of the season	mcm	5,175	5,180	4,751	3,784	2,324	1,186	
end of the season	mcm	5,180	4,751	3,784	2,324	1,186	1,414	
Water releases from the reservoir	m3/s	350	400	500	570	550	200	
	mcm	907	1,071	1,296	1,527	1,473	518	6,793
Discharge to Kyzylkum canal	m3/s	50	50	70	115	50	15	
	mcm	130	134	181	308	134	39	926
Supply to the Aral Sea	m3/s	147	110	68	63	65	83	
	mcm	382	295	176	168	175	214	1,409

*2017 – high-water year

Charvak reservoir								
Inflow to the reservoir	m3/s	259	455	567	416	235	140	
(4 rivers in total)	mcm	670	1,218	1,471	1,115	628	362	5,464
Volume: beginning of the season	mcm	548	843	1,444	1,921	2,005	1,842	
end of the season	mcm	843	1,444	1,921	2,005	1,842	1,669	
Water releases from the reservoir	m3/s	173	230	383	385	295	207	
(Releases from Gazalkent HPP)	mcm	449	617	994	1,032	791	536	4,418
Andizhan reservoir								
Inflow to the reservoir	m3/s	160	277	300	163	68	48	
	mcm	415	743	778	437	182	125	2,680
Volume: beginning of the season	mcm	969	1,144	1,503	1,762	1,574	1,188	
end of the season	mcm	1,144	1,503	1,762	1,574	1,188	1,106	
Water releases from the reservoir	m3/s	93	144	200	234	212	80	
	mcm	242	384	518	626	568	207	2,545

ANALYSIS OF HYDROLOGICAL CONDITIONS IN THE SYRDARYA AND AMUDARYA RIVER BASINS OVER THE NON-GROWING SEASON 2018-2019

1 Syrdarya River basin

The actual inflow to the upstream reservoirs in the Syrdarya basin (Toktogul, Andizhan, and Charvak reservoirs) was 5.38 km³ during the non-growing season. Inflow to the Toktogul reservoir was 3.16 km^3 or 113 % of the forecast. Inflow to the Andizhan reservoir was 10 % lower than expected, while inflow to the Charvak reservoir was 7 % higher than the forecast. The actual total water releases from upstream reservoirs were 12.05 km³. This is 4 % more than planned according to BWO Syrdarya schedule (11.54 km^3).

The total lateral inflow in the reach from the Toktogul reservoir to the Shardara reservoir, including discharges from the Karadarya and Chirchik rivers, was 9.96 km³. This is 1.85 times more than the total inflow to the upstream reservoirs.

By the end of the non-growing season, 15.08 km³ were accumulated in the upstream reservoirs, including 13.56 km³ in the Toktogul reservoir or 100 % of the BWO Syrdarya's scheduled amount, 0.969 km^3 (85 %) in the Andizhan reservoir, and 0.548 km^3 (78 %) in the Charvak reservoir. The Toktogul reservoir discharged water in the amount of 5.74 km^3, the Charvak reservoir was drawn down by 1.21 km^3, whereas the Andizhan reservoir accumulated water in the amount of 0.09 km^3.

During the non-growing season, the inflow to the Bakhri Tochik reservoir amounted to 12.79 km³, which is 0.34 km³ more than scheduled by BWO Syrdarya. Water releases were 12.39 km³ from the reservoir (in 2015-2016 – 9.8 km³). 12.22 km^3 of water were discharged from the reservoir; this was 0.78 km^3 more than scheduled by BWO. The accumulation of water in the reservoir amounted to 2.83 km³. Water losses in the reservoir were estimated at 0.21 km^3.

During the non-growing season, the total water withdrawal from the Naryn and the Syrdarya rivers in the reach up to the Shardara reservoir was 3.03 km³, of which: for the Kyrgyz Republic – 0.03 km³, the Republic of Tajikistan – 0.05 km³, the Republic of Kazakhstan (along the Dustlik canal) – 0.47 km³, and for the Republic of Uzbekistan – 2.48 km³. Water supply was uneven in space and time (Table 1.1).

The difference between the actual water supply and the water limit was from -39 % (2nd ten-day period of December) to 260 % (1st ten-day period of October) in the Toktogul-Bakhri Tochik reach and from -63% (1st ten-day period of

December) to 22 % (2nd ten-day period of October) in the Bakhri Tochik-Sharadara reach (Table 1.4).

Water losses were recorded in the amount of 3.72 km³ in the Toktogul-Shardara reach; this is 20% of the regulated flow (estimated by the balance method). As a comparison, these losses amounted to 3.89 km³ in the same reach during the non-growing season 2017-2018.

During the non-growing season 2018-2019, the inflow to the Shardara reservoir was 11.5 km³ or 0.82 km³ less than scheduled by the BWO Syrdarya. By the end of the season, the reservoir accumulated water to 5.18 km^3 (99.6 %). Unrecorded inflow in the amount of 0.70 km^3 was found. The discharge into the river from the Shardara reservoir amounted to 8.01 km³ (110 %), including: 7.74 km^3 into the river; 0.13 km^3 into the Kzylkum canal; and, 0.13 km^3 into Arnasay.

The actual water delivery to the Aral Sea was 1.36 km³, according to KazHydromet's data, while the Kazakh Committee for Water Resources shows 2.96 km^3.

Tables 1.2 and 1.3 show the river channel balance and the water balance of reservoirs, respectively.

Table 1.1

Water availability for the Syrdarya River basin countries for the non-growing season 2018-2019

№	Water user	Water volume,km^3		Water availability, %	Deficit(-), surplus (+), km^3
		Limit/ schedule	Actual	Season	Season
1	Total water diversion	3.36	3.03	90	-0.33
2	Water withdrawal by state:				
	Kyrgyz Republic	0.037	0.03	84	-0.01
	Republic of Uzbekistan	2.48	2.48	100	-0.01
	Republic of Tajikistan	0.37	0.05	15	-0.31
	Republic of Kazakhstan	0.47	0.47	100	0.00
3	By river reach				
3.1	Toktogul reservoir – Uchkurgan hydroscheme	1.37	1.33	97	-0.04
	of which:				
	Kyrgyz Republic	0.03	0.03	97	-0.001
	Republic of Tajikistan	0.08	0.05	55	-0.038
	Republic of Uzbekistan	1.25	1.25	100	0.001
3.2	Uchkugran hydroscheme – Bakhri Tochik hydroscheme	0.25	0.17	68	-0.078
	of which:				
	Kyrgyz Republic	0.01	0.00	27	-0.005
	Republic of Tajikistan	0.07	0.00	4	-0.066
	Republic of Uzbekistan	0.17	0.16	96	-0.007
3.3	Bakhri Tochik hydroscheme – Shardara reservoir	1.75	1.54	88	-0.21
	of which:				
	Republic of Kazakhstan	0.47	0.47	100	0.00
	Republic of Tajikistan	0.21	0.00	2	-0.21
	Republic of Uzbekistan	1.06	1.06	100	0.00
4	Inflow to the Shardara reservoir	12.34	11.52	93	-0.82
	Discharge into Arnasay	0.40	0.13	34	-0.27
5	Water delivery to the Aral Sea (Karateren gauging station)	3.00	1.36	45	-1.65

Table 1.2

Syrdarya River channel water balance for the non-growing season 2018-2019

№	Balance item	Water volume, km^3		Deviation (actual - plan)
		Forecast/ plan	Actual	
1	Inflow to the Toktogul reservoir	2.80	3.16	0.36
2	Lateral inflow in the reach of Toktogul reservoir – Shardara reservoir (+)	9.65	9.96	0.32
	of which:			
2.1	*Discharge along Karadarya River*	1.62	1.63	0.01
2.2	*Discharge along Chirchik River*	1.06	1.00	-0.06
2.3	*Lateral inflow from CDF and small rivers*	6.97	7.34	0.37
3	Flow regulation in the reservoirs: inflow (+) or diversion (-)	4.44	5.15	0.70
	of which:			
3.1	*Toktogul reservoir*	5.75	5.72	-0.03
3.2	*Bakhri Tochik reservoir*	-1.31	-0.57	0.73
4	Regulated flow (1+2+3)	16.89	18.27	1.38
5	Water withdrawal at the Toktogul – Shardara reach (-)	-3.36	-3.03	0.33
6	Water losses (-) or unrecorded inflow to the channel (+) in the Токtogul-Shardara reach	-1.19	-3.72	-2.52
6.1	*Including % of the regulated flow*	7	20	
7	Inflow to the Shardara reservoir	12.34	11.52	-0.82
8	Flow regulation in the Shardara reservoir: inflow (+) or diversion (-)	-3.93	-3.52	0.42
9	Release from the Shardara reservoir to the river	8.41	8.01	-0.40
10	Supply to the Aral Sea (Karateren GS)	3.00	1.36	-1.65

Table 1.3

Water balance of the Syrdarya River basin reservoirs for the non-growing season 2018-2019

№	Balance item	Water volume, km^3		Deviation (actual – plan)
		Forecast/ plan	Actual	
1	**Toktogul reservoir**			
1.1	Inflow to the reservoir	2.80	3.16	0.36
1.2	Water volume in the reservoir:			
	- beginning of the season (1 October 2018)	19.30	19.298	0.00
	- end of the season (1 April 2019)	13.54	13.563	0.03
1.3	Water releases from the reservoir	8.55	8.88	0.33
1.4	Unrecorded inflow (+) or losses (-)	-0.01	-0.014	-0.001
	Including % of inflow to the reservoir	0	0	0
1.5	Flow regulation: inflow (+) or diversion (-)	5.75	5.72	-0.03
2	**Andizhan reservoir**			
2.1	Inflow to the reservoir	0.87	0.78	-0.08
2.2	Water volume in the reservoir:			
	- beginning of the season (October 1 2017)	0.88	0.88	0.00
	- end of the season (April 1 2018)	1.14	0.97	-0.17
2.3	Water releases from the reservoir	0.60	0.68	0.08
2.4	Unrecorded inflow (+) or losses (-)	0.00	-0.02	-0.01
	Including % of inflow to the reservoir	0	2	2
2.5	Flow regulation: inflow (+) or diversion(-)	-0.26	-0.10	0.16
3	**Charvak reservoir**			
3.1	Inflow to the reservoir	1.34	1.44	0.10
3.2	Water volume in the reservoir:			
	- beginning of the season (1 October 2018)	1.75	1.75	0.00
	- end of the season (1 April 2019)	0.70	0.55	-0.15
3.3	Water releases from the reservoir	2.38	2.48	0.10
	Unrecorded inflow (+) or losses (-)	-0.01	-0.16	-0.15
	Including % of inflow to the reservoir	1	11	11
3.5	Flow regulation: inflow (+) or diversion(-)	1.04	1.04	0.00
4	**Bakhri Tochik reservoir**			
4.1	Water inflow to the reservoir from the river	12.45	12.79	0.34
4.2	Lateral inflow	0.300	0.356	0.06
4.3	Water volume in the reservoir:			
	- beginning of the season (1 October 2018)	2.11	2.11	0.00
	- end of the season (1 April 2019)	3.42	2.83	-0.59
4.4	Water releases from the reservoir	11.44	12.22	0.78
	of which:			
	- releases to the river	11.37	12.22	0.84
	- water withdrawal from the reservoir	0.07	0.00	-0.07
4.5	Unrecorded inflow (+) or losses (-)	0.00	-0.21	-0.21
	Including % of inflow to the reservoir	0	2	2

№	Balance item	Water volume, km^3		Deviation (actual – plan)
		Forecast/ plan	Actual	
4.6	Flow regulation: inflow (+) or diversion (-)	-1.31	-0.57	0.73
5	**Shardara reservoir**			
5.1	Inflow to the reservoir	12.34	11.52	-0.82
5.2	Lateral inflow	0.0	0.0	0.00
5.3	Water volume in the reservoir:			
	- beginning of the season (1 October 2018)	0.95	0.95	0.00
	- end of the season (1 April 2019)	5.20	5.18	-0.03
5.4	Water releases from the reservoir	8.41	8.01	-0.40
	of which:			
	- Discharge into Arnasay	0.40	0.13	-0.267
	- Water releases to the river	7.92	7.74	-0.18
	- water withdrawal from the reservoir	0.08	0.13	0.05
5.5	Unrecorded inflow (+) or losses (-)	0.31	0.70	0.39
	Including % of inflow to the reservoir	3	6	4
5.6	Flow regulation: inflow (+) or diversion(-)	-3.93	-3.78	0.15
	Total flow regulation by reservoirs: inflow (+) or diversion (-)	1.29	2.30	1.01
	Total unrecorded inflow (-) or losses (+)	0.29	0.30	0.01

Table 1.4

Deviation of actual water supply from limit in the Syrdarya River basin over the non-growing season 2018-2019

Indicator		Unit	October			November			December			January			February			March			Per season
			I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	
Toktogul-Bakhti Tochik reach																					
Total water withdrawal, of which:	Limit	m^3/s	189.3	183.0	163.3	81.4	39.0	20.2	4.6	11.3	30.5	67.8	74.9	75.4	88.1	76.5	104.9	191.5	211.9	224.3	**1,612**
	Actual	m^3/s	140.0	142.3	141.0	82.9	61.0	47.5	16.4	6.9	28.5	67.7	79.9	75.2	79.0	69.5	96.1	164.1	189.3	218.1	**1,497**
	Deviat.	**%**	-26.0	-22.2	-13.7	1.8	56.5	135.1	260.4	-39.1	-6.5	-0.2	6.7	-0.2	-10.3	-9.2	-8.4	-14.3	-10.7	-2.8	**-7**
Kyrgyz Republic	Limit	m^3/s	8.5	7.1	6.8	1.5	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.7	7.1	**37**
	Actual	m^3/s	5.8	4.4	2.3	2.2	1.7	0.9	0.73	0.50	0.50	0.50	0.50	0.72	1.00	1.00	1.15	2.5	3.6	4.9	**31**
	Deviat.	**%**	-31.8	-38.0	-66.1	51.4	117.9	53.3										-37.8	-23.7	-31.4	**-16**
Tajikistan	Limit	m^3/s	23.0	20.0	20.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	8.0	10.0	22.0	25.0	28.0	**153**
	Actual	m^3/s	10.1	8.4	8.0	5.4	4.2	2.4	0.6	0.0	0.2	0.0	0.0	0.0	0.0	0.1	1.4	1.4	4.9	8.2	**49**
	Deviat.	**%**	-56.2	-58.3	-60.0	-55.4									-100	-98.4	-86.4	-93.6	-80.4	-70.8	**-68**
Uzbekistan	Limit	m^3/s	157.8	155.9	136.5	67.9	38.2	19.6	4.6	11.3	30.5	67.8	74.9	75.4	82.1	68.5	94.9	165.5	182.2	189.2	**1,423**
	Actual	m^3/s	124.2	129.6	130.7	75.3	55.1	44.2	15.1	6.4	27.8	67.2	79.4	74.5	78.0	68.3	93.6	160.2	180.8	205.1	**1,417**
	Deviat.	**%**	-21.3	-16.9	-4.3	10.8	44.3	125.5	232.1	-43.5	-9.0	-0.9	6.1	-1.2	-5.0	-0.2	-1.4	-3.2	-0.8	8.4	**0**
Bakhri Tochik-Shardara reach																					
Total water withdrawal, of which:	Limit	m^3/s	148.6	142.6	139.6	85.5	75.5	67.5	76.4	80.8	80.8	83.1	80.0	112.6	139.7	127.8	113.7	148.5	146.4	148.3	**1,748**
	Actual	m^3/s	55.5	76.2	104.0	73.7	76.5	70.8	57.6	52.8	49.6	55.2	97.2	133.0	151.8	148.2	133.6	152.6	138.8	136.0	**1,537**
	Deviat.	**%**	-62.7	-46.6	-25.5	-13.8	1.3	4.9	-24.6	-34.7	-38.7	-33.6	21.5	18.1	8.7	16.0	17.5	2.7	-5.2	-8.3	**-12**
Kazakhstan	Limit	m^3/s	0.0	0.0	0.0	0.0	0.0	0.0	25.0	30.0	35.0	35.0	45.0	80.0	95.0	75.0	45.0	35.0	25.0	20.0	**475**
	Actual	m^3/s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	50.2	92.1	95.0	89.0	75.0	73.0	51.6	24.1	**474**
	Deviat.	**%**							-100	-100	-100	-93.7	11.6	15.1	0.0	18.7	66.7	108.6	106.4	20.5	**0**
Tajikistan	Limit	m^3/s	36.0	30.0	27.0	16.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	22.0	32.0	32.0	35.0	**212**
	Actual	m^3/s	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**4**
	Deviat.	**%**	-86.4	-100	-100	-100	-100									-100	-100	-100	-100	-100	**-98**
Uzbekistan	Limit	m^3/s	112.6	112.6	112.6	69.5	69.5	67.5	51.4	50.8	45.8	48.1	35.0	32.6	44.7	44.8	46.7	81.5	89.4	93.3	**1,061**
	Actual	m^3/s	50.6	76.2	104.0	73.7	76.5	70.8	57.6	52.8	49.6	53.0	47.0	40.9	56.8	59.2	58.6	79.6	87.2	111.9	**1,058**
	Deviat.	**%**	-55.1	-32.3	-7.6	6.0	10.1	4.9	12.1	3.9	8.2	10.2	34.3	25.3	27.1	32.1	25.6	-2.4	-2.5	19.9	**0**

2 Amudarya River basin

The actual water availability in the Amudarya River at the nominal Atamyrat gauging station (upstream of the intake to Garagumdarya) was 12.44 km³, which is 33% more than scheduled by BWO Amudarya.

Inflow to the Nurek reservoir was 3.8 km^3 (107 % of the forecast), while water releases from the reservoir were 7.72 km^3 (101 % of that scheduled by BWO Amudarya). The river received additional 3.96 km^3 through drawdown on the reservoir. The reservoir was drawn down to 6.1 km^3 by the end of season.

In the TMHS reservoirs, the water accumulation plan has been achieved – by the 1st of April the actual water volume was larger than the scheduled one by 0.26 km³ and totaled 2.54 km^3. The fulfillment of the accumulation plan is explained by higher inflow to the in-stream reservoir than was expected – flow at the Bir-Aral section was estimated at 8.95 km^3 (139 % of the forecast). Water releases from TMHS also were higher than scheduled – 6.47 km^3 (105 %). Water losses at the Bir-Ata – Tuyamuyun g/s reach (discrepancy calculated by the balance method) amounted to 2.13 km^3 or 24 % of river flow at Bir-Ata g/s.

The established limit of water withdrawal in the basin was 96 % used; the total water withdrawal was 15.02 km^3, including 12.09 km^3 downstream of the Atamyrat gauging station (starting from the intake to Garagumdarya).

Water supply of states changed from 89 % to 102 % (Table 2.1). The available water supply was 90 % in the upper reaches (up to Garagumdarya intake), 98 % in the middle reaches (from nominal Atamyrat g/s to TMHS), and 95 % (97 % - Turkmenistan, 94 % - Uzbekistan) in the lower reaches. The total water deficit amounted to 703 million m^3 (4 %) of water withdrawal, including 2 % in the Republic of Uzbekistan, 5 % in Turkmenistan, and 10 % in the Republic of Tajikistan.

The difference of actual water supply from the established water limit changed from -17 % (last 4 ten-day period of the season) to 38 % (1st ten-day period of December) in the Nurek-Tuyamuyun reach and from -96% (3rd ten-day period of November) to 218 % (1st ten-day period of February) in the Tuyamuyun-Samanbay reach (Table 2.4).

Water losses in the nominal Atamyrat-Bir-Ata reach were estimated at 0.52 km^3 (3 % of river flow at the nominal Atamyrat g/s). Water losses in the Tuyamuyun-Samanbay reach amounted to 1.58 km^3 (37 % of river flow at Tuyamuyun g/s). In the non-growing season 2017-18, water losses were slightly higher – 1.76 km^3. The total open-channel losses in middle and lower reaches amounted to 2.1 km^3 or 17 % of river flow plus losses in TMHS reservoirs 2.1+2.13=4.23 km^3 or 26 % of river flow at the nominal Atamyrat gauging station.

The established limits of environmental water releases into canals in the Amudarya lower reaches were 94% used; the water supply was 0.75 km³. According to the Uzbek Hydromet's data, 0.5 km³ were delivered to Priaralie and the Aral Sea or 24 % of planned water delivery.

Tables 2.2 and 2.3 show the river channel balance and the water balance of reservoirs, respectively.

Table 2.1

Water availability in the Amudarya River basin countries for the non-growing season 2018-2019

№	Water user	Water volume, km3		Water availability, %	Deficit (-), surplus (+), km^3
		Limit/ schedule	Actual	Season	Season
1	Total water withdrawal	15.72	15.02	96	-0.703
2	Water withdrawal by state:				
	Kyrgyz Republic	-	-	-	-
	Republic of Tajikistan	2.87	2.60	90	-0.27
	Turkmenistan	6.50	6.20	95	-0.30
	Republic of Uzbekistan	6.35	6.22	98	-0.13
3	Downstream of the Atamyrat reach	12.48	12.09	97	-0.39
	of which:				
	Turkmenistan	6.50	6.20	95	-0.30
	Republic of Uzbekistan	5.98	5.90	99	-0.08
4	By river reaches				
	Upper reaches	3.24	2.93	90	-0.32
	of which:				
	Kyrgyz Republic	-	-	-	-
	Republic of Tajikistan	2.87	2.60	90	-0.27
	Republic of Uzbekistan, Surkhandarya	0.37	0.33	89	-0.04
	Middle reaches	8.35	8.16	98	-0.18
	of which:				
	Turkmenistan	5.10	4.84	95	-0.26
	Republic of Uzbekistan	3.25	3.32	102	0.08
	Lower reaches	4.14	3.93	95	-0.20
	of which:				
	Turkmenistan	1.40	1.36	97	-0.04
	Republic of Uzbekistan	2.73	2.57	94	-0.16
5	Sanitary and environmental releases to canals within lower reaches	0.80	0.75	94	-0.05
	Including:				
	Turkmenistan	0.15	0.15	100	0.00
	Republic of Uzbekistan	0.65	0.60	92	-0.05
6	Supply to Priaralie and the Aral Sea	2.1	0.50	24	-1.60

Table 2.2

The Amudarya River channel water balance for the non-growing season 2018-2019

Balance item	Water volume, km^3		Deviation (actual-plan)
	Forecast/plan	Actual	
1.Water content of the Amudarya river - non-regulated flow at the Atamyrat GS*	9.34	12.44	3.097
2.Flow regulation in the Nurek reservoir: accumulation (+) or diversion (-)	4.17	3.96	-0.21
3.Water withdrawal in the midstream (-)	-8.35	-8.16	0.18
4.Midstream return CDF (+)	1.39	1.23	-0.16
5.Water losses (-) or unrecorded inflow to the channel (+)	-0.10	-0.52	-0.43
% of flow at the nominal Atamyrat GS	1	3	2
6.Flow at the Bir-Ata GS	6.46	8.95	2.49
7. Water releases from TMHS (including water diversion from the reservoir)	6.19	6.47	0.29
8. Downstream water diversion, including from TMHS (-)	-4.14	-3.93	0.20
9. Downstream return CDF (+)	0.00	0.00	0.00
10. Emergency and environmental water releases to canals (-)	-0.80	-0.75	0.05
11. Runoff losses (-) or unrecorded inflow to the channel (+)	-0.41	-1.58	-1.17
% of flow in the Tuyamuyun GS reach	9	37	29
12. Supply to Priaralie and the Aral Sea (Samanbay GS)	0.84	0.21	-0.63
TOTAL losses:	-0.50	-2.10	-1.60
% of water content	5	17	12

*Minus upstream water withdrawals (Tajikistan and Surkhandarya province)

Table 2.3

Water balance of the reservoirs in the Amudarya River basin for the non-growing season 2018-2019

Balance item	Water volume, km^3		Deviation (actual-plan)
	Forecast/plan	Actual	
1 Nurek reservoir			
2.1 Inflow to the reservoir	3.50	3.76	0.26
2.2 Water volume in the reservoir:			
– Beginning of the season (1 October 2018)	10.55	10.55	0.00
– End of the season (1 April 2019)	6.39	6.10	-0.29
2.3 Water releases from the reservoir	7.67	7.72	0.05
2.4 Lateral inflow (+) or losses (-)	0.01	-0.49	-0.50
% of the inflow to the reservoir	0	13	13
2.5 Flow regulation: accumulation (+) or diversion (-)	4.17	3.96	-0.21
2 Reservoirs of TMHS			
2.1 River flow at Bir-Ata GS	6.46	8.95	2.49
2.2 Water volume in the reservoirs:			
– Beginning of the season (1 October 2018)	2.20	2.20	0.00
– End of the season (1 April 2019)	2.28	2.54	0.26
2.3 Water release from the hydroscheme	6.19	6.47	0.29
of which:			
– release to the river	4.65	4.23	-0.42
– water diversion	1.53	2.24	0.71
2.4 Unrecorded inflow (+) or water losses (-)	-0.19	-2.13	-1.94
including %of inflow to the reservoir	3	24	21
2.5 Flow regulation: accumulation (+) or diversion (-)	-0.27	-4.72	-4.45
TOTAL losses (-), unrecorded inflow (+)	-0.18	-2.62	-2.44

Table 2.4

Deviation of actual water supply from limit in the Amudarya River basin over the non-growing season 2018-2019

Indicator		unit	October			November			December			January			February			March			Per season
			I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	
Nurek-Tuyamuyun reach																					
Total water withdrawal, of which:	Limit	m^3/s	892	877	832	722	684	534	465	524	524	576	612	624	656	770	853	996	1,055	1,079	11,586
	Actual	m^3/s	805	747	717	670	685	666	639	607	537	571	632	681	701	704	705	837	890	894	11,086
	Deviat.	**%**	-10	-15	-14	-7	0	25	38	16	2	-1	3	9	7	-8	-17	-16	-16	-17	-4
Tajikistan	Limit	m^3/s	238	233	213	207	207	190	146	138	132	128	128	134	143	162	193	222	239	238	2,871
	Actual	m^3/s	278	245	203	188	169	165	158	148	132	129	135	146	128	123	126	130	166	195	2,597
	Deviat.	**%**	17	5	-5	-9	-18	-13	8	7	0	1	5	9	-10	-24	-35	-41	-31	-18	-10
Turkmenistan	Limit	m^3/s	395	384	360	295	260	230	219	211	205	210	230	246	275	359	406	483	527	553	5,100
	Actual	m^3/s	324	309	313	287	265	241	233	225	205	215	251	305	330	327	331	440	478	459	4,837
	Deviat.	**%**	-18	-20	-13	-3	2	5	6	7	0	2	9	24	20	-9	-18	-9	-9	-17	-5
Uzbekistan	Limit	m^3/s	259	259	259	220	217	114	100	175	187	238	254	244	238	249	254	291	289	289	3,615
	Actual	m^3/s	203	193	201	196	252	261	249	234	199	227	246	230	243	255	249	266	247	240	3,652
	Deviat.	**%**	-22	-26	-23	-11	16	128	149	34	7	-5	-3	-6	2	2	-2	-8	-15	-17	1
Tuyamuyun-Samanbay reach																					
Total water withdrawal, of which:	Limit	m^3/s	343	333	173	125	125	126	179	156	121	10	15	19	108	402	548	677	697	644	4,135
	Actual	m^3/s	211	131	110	55	10	5	27	336	158	7	7	8	342	656	723	738	699	406	3,932
	Deviat.	**%**	-38	-61	-36	-56	-92	-96	-85	115	30	-26	-53	-60	218	63	32	9	0	-37	-5
Turkmenistan	Limit	m^3/s	130	115	35	0	0	1	2	2	11	10	15	19	108	193	210	253	263	263	1,400
	Actual	m^3/s	99	64	58	27	0	0	0	0	25	0	0	0	97	231	263	269	286	181	1,360
	Deviat.	**%**	-23	-45	67			-100	-100	-90	123	-100	-100	-100	-10	20	25	6	9	-31	-3
Uzbekistan	Limit	m^3/s	213	218	138	125	125	125	177	154	110	0	0	0	0	209	338	424	434	381	2,735
	Actual	m^3/s	112	67	52	28	10	5	27	336	133	7	7	8	245	425	460	468	413	224	2,572
	Deviat.	**%**	-47	-69	-62	-77	-92	-96	-85	118	21					104	36	10	-5	-41	-6

JOINT STATEMENT OF THE PRESIDENT OF THE REPUBLIC OF UZBEKISTAN MR. SHAVKAT MIRZIYOYEV AND THE PRESIDENT OF THE REPUBLIC OF KAZAKHSTAN MR. KASYM-ZHOMART TOKAEV

(extract)

Upon invitation of the President of the Republic of Uzbekistan Mr.Shavkat Mirziyoyev, the President of the Republic of Kazakhstan Mr. Kasym-Zhomart Tokaev paid the state visit to Uzbekistan on 14-15 April 2019.

[…]

During the talks held in the spirit of friendship, mutual respect, trust and openness, the Presidents addressed the key issues of bilateral relations and topical regional and international issues of mutual interest and discussed the prospects for further deepening of large-scale cooperation between the two countries.

The Heads of State, noting with satisfaction close and strong friendly relations between the Republic of Uzbekistan and the Republic of Kazakhstan, based on deep historical and spiritual ties, good neighborliness and mutual support, expressed confidence that raising bilateral cooperation to a brand new level meets the interests of two fraternal nations.

[…]

The Heads of State have confirmed their mutual interest in revitalizing cooperation under the International Fund for Saving the Aral Sea (IFAS) by expanding interactions between the region's countries and international organizations, financial and ecologic institutions for implementation of concrete programs and projects in the Aral Sea basin.

[…]

President of the	President of the
Republic of Uzbekistan	Republic of Kazakhstan
Sh.M. Mirziyoyev	K.K. Tokaev

RESOLUTION OF THE UN GENRAL ASSEMBLY A/RES/73/297 ON COOPERATION BETWEEN THE UNITED NATIONS AND THE INTERNATIONAL FUND FOR SAVING THE ARAL SEA

Adopted by the General Assembly on 28 May 2019

The General Assembly,

Taking note with satisfaction of the report of the Secretary-General on cooperation between the United Nations and regional and other organizations,

Referring to the Articles of the Charter of the United Nations that encourage measures for regional cooperation to advance the purposes and principles of the United Nations,

Referring also to its resolution 63/133 of 11 December 2008, by which it granted the International Fund for Saving the Aral Sea observer status in the General Assembly,

Referring further to its resolution 72/273 of 12 April 2018 on cooperation between the United Nations and the International Fund for Saving the Aral Sea,

Taking note with appreciation of the joint communiqué adopted by the Heads of State of Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan during a meeting of the Council of Heads of the Founding States of the International Fund for Saving the Aral Sea, held in the Avaza national tourist area in Turkmenbashi, Turkmenistan, on 24 August 2018,

Acknowledging that the negative humanitarian, environmental and socioeconomic consequences of the Aral Sea basin tragedy go well beyond the region and represent a global concern,

Welcoming the efforts of the States members of the International Fund for Saving the Aral Sea to attain objectives consistent with the purposes and principles of the United Nations,

Noting the creation of the multi-partner human security trust fund for the Aral Sea region under the auspices of the United Nations, which aims to overcome the negative circumstances of the ecological catastrophe in the Aral Sea region and implement projects to improve the socioeconomic situation in the region,

Convinced that the activities of the International Fund for Saving the Aral Sea and its bodies should take into account the interests and needs of all the

countries of Central Asia,

Reaffirming that achieving international cooperation in solving international problems of an economic, social or humanitarian nature is one of the purposes of the United Nations,

Referring to the relevant resolutions of the Security Council, including resolution 1631 (2005) of 17 October 2005, as well as statements by the President of the Council in which the Council emphasized the importance of developing effective partnerships between the United Nations and regional and subregional organizations, in accordance with the Charter,

Welcoming the commitment of the International Fund for Saving the Aral Sea to intensifying and deepening its cooperation with the agencies, programmes and funds of the United Nations system, Referring to its resolution 72/279 of 31 May 2018 on the repositioning of the United Nations development system in the context of the quadrennial comprehensive policy review of operational activities for development of the United Nations system, and calling for more effective cooperation between Central Asian States and United Nations agencies in support of the implementation of the 2030 Agenda for Sustainable Development,

Convinced that strengthening cooperation between the United Nations and the International Fund for Saving the Aral Sea will advance the purposes and principles of the United Nations,

1. Notes the need for further improvement of the activities of the International Fund for Saving the Aral Sea to strengthen regional cooperation in such areas as social and economic development; environmental protection and response to natural disasters; water resources management; adaptation to climate change and mitigation of its consequences; exchange of information; science and innovation; and other related areas;

2. Also notes the importance of strengthening cooperation and coordination between the United Nations system and the International Fund for Saving the Aral Sea, and invites the Secretary-General to hold for that purpose regular consultations with the Chair of the Executive Committee of the International Fund, making use of appropriate inter-agency forums and formats, including consultations between the Secretary-General and the heads of regional organizations; 3. Further notes the proposal on the need to consider the possibility of developing a United Nations special programme for the Aral Sea basin and in this regard to hold consultations in 2019 with the Executive Committee of the International Fund for Saving the Aral Sea, Member States and relevant United Nations agencies;

3. Further notes the proposal on the need to consider the possibility of developing a United Nations special programme for the Aral Sea basin and in

this regard to hold consultations in 2019 with the Executive Committee of the International Fund for Saving the Aral Sea, Member States and relevant United Nations agencies;

4. Emphasizes the importance of the development and effective implementation of regional environmental protection programmes for sustainable development in Central Asia, including assistance programmes for the countries of the Aral Sea basin;

5. Invites the specialized agencies and other organizations, programmes and funds of the United Nations system, as well as international financial institutions, to develop their cooperation with the International Fund for Saving the Aral Sea;

6. Requests the Secretary-General to report to the General Assembly at its seventy-fifth session on the implementation of the present resolution;

7. Decides to include in the provisional agenda of its seventy-fifth session, under the item entitled “Cooperation between the United Nations and regional and other organizations”, the sub-item entitled “Cooperation between the United Nations and the International Fund for Saving the Aral Sea”.

CALL FOR ACTION BY PARTICIPANTS OF THE SECOND CENTRAL ASIA CLIMATE CHANGE CONFERENCE

On April 3-4, 2019, Tashkent hosted the Central Asia Climate Change Conference (CACCC) powered by the Regional Environmental Center for Central Asia (CAREC) in close cooperation with the Government of Uzbekistan, the support of World Bank within the “Climate Adaptation and Mitigation Program for Aral Sea Basin” (CAMP4ASB) project.

The Conference aimed at promoting regional cooperation and partnerships in climate change adaptation, as well as mitigating its consequences in Central Asia. More than 300 participants - representatives of Central Asian governments, international and regional organizations, diplomatic missions, multilateral development banks and civil society organizations, leading experts in the field of climate change, young leaders and representatives of the environmental sector attended the conference.

The Conference included three pre-conference sessions, plenary discussions, as well as five parallel sessions dedicated to the issues of global and regional climate tendencies, countries' obligations under the Paris Agreement, the development of climate services, the introduction of innovative technologies and practices, broad stakeholder involvement, increased academic capacity and access to climate finance. According to the results of the Conference and this Call for Action was adopted to promote regional cooperation and joint implementation of mitigation and adaptation measures, in which the participants of the Conference:

- Consider that in the context of the growth of population in Central Asia, followed by an increase in the consumption of water, energy, biological and land resources, changing climate could jeopardize the UN Sustainable Development Goals up to 2030, adopted by the countries of the region and the call to increase attention to climate change issues;
- Take into account the need to limit global warming to 1,5 ° C, and are calling for consideration and immediate science-based solutions in the fields of energy management, industrial, land, transport and urban systems;
- Value the voluntary, nationally determined contributions (NDCs) of the Central Asian countries to global processes for reducing greenhouse gas emissions and adaptation, as well as the quality of reporting to the

UNFCCC and call for a revision of quantitative commitments in the direction of their increase;

- The underutilized potential of regional and transboundary cooperation in reducing greenhouse gas emission is noted and a call for regional integration of efforts is done;
- Not only a potential threat of increase in the number of water-related natural disasters in the short and medium term, which are resulted from the intensive melting of the Tien Shan and Pamir glaciers, is noted, but also irreversible changes in the water supply regimes of the Aral Sea basin countries in the long term are observed. It is understood that despite the fact that countries are vulnerable to climate change in different ways, the region's adaptive capabilities directly depend on the level of transboundary cooperation, foundation of which is to be found in global legal frameworks such as the Paris Agreement and the Sendai Framework for Disaster Risk Reduction. As a result, a call for integration and coordination of adaptation measures is done;
- The importance of delivering high-quality and timely climate services for the purposes of decision-making in various sectors of the economy is recognized and a call for strengthening technical and educational potential for the use of modern methods of processing and interpreting data is done. This will help societies to cope with current climate variability and to limit economic and social damage caused by climate disasters;
- The World Bank's activities in modernizing the hydrometeorological services of Central Asia, which are carried out in the framework of the regional CAHMP project, and CAMP4ASB project activities in providing technical assistance in equipping and upgrading the weather and climate observation network, which is aimed at improving the quality of provided climate services, are highly appreciated. The call for mutually beneficial cooperation of stakeholders is done;
- The Technical Assistance Capabilities (CTCN) were taken into account. The call for the development or updating of the existing Technology Needs Assessment, which will be carried out by countries in the region, is done,
- The positive results from the introduction of best adaptation practices were taken into account and call for increasing the capacity of local communities, as well as mobilizing resources, creating a favorable investment environment, sharing knowledge and lessons learned in order to scale and replicate in other countries of the region with similar climatic conditions is done;

- The insufficiently active participation of the countries in the region in attracting climate finance from the GCF is recognized and call for increased efforts through capacity building is done;
- It is noted that due to the timely financial, technical and advisory support provided by international organizations, funds and multilateral development banks, the effectiveness of countries' efforts in reduction greenhouse gas emissions and adaptation to climate change can be significantly exceeded. Call for coordination of efforts among the process's parties in order to ensure the synergism is done;
- Support the initiative to launch the "Environment for Central Asia" process (hereinafter referred to as OCCA) and urge to unite efforts to increase coherence and enhance the effectiveness of regional interaction in the context of the implementation of the Paris Agreement and the agenda for sustainable development for the period up to 2030;
- Highly appreciate the potential of Central Asian youth in the issue of promoting sustainable development, her motivation and support a proactive approach and call for the involvement of young leaders in the implementation and projects related to strengthening it national capacity and regional cooperation on climate change;
- Take into account the set of rules for the implementation of the Paris Agreement, determining the order and structure of monitoring and reporting on the activities of countries to reduce greenhouse gas emissions and adaptation, and urge all interested parties to take this innovation into account in the NDC documents;
- Emphasize and recognize the role of World Bank, international organizations, financial institutions and donor governments in their support in climate change adaptation and mitigation of its negative effects and call for embarking of activities and strengthening the regional cooperation;
- Appreciate the Government of Uzbekistan Uzhydromet and the CAMP4ASB project implemented by the Regional Environmental Center for Central Asia in cooperation with EC IFAS with financial support from the World Bank, for conferences of innovative expertise and synthesis of experiences of leading experts as well as to the people of Uzbekistan for the warm welcome and hospitality.

Following the discussions of pre-conference, plenary and parallel sessions, the conference participants noted the need implementation next steps:

1. Support and strengthen the first regional dialogue, exchange of knowledge and information to refine decision-making process on issues of climate change;

2. Promote information of the best practices and technologies gained through plenary sessions, learned of research outcomes, and the ability to attract investments and innovative technology for climate-resilient action;

3. Coordinate regional efforts to implement supportive programs and development of the Aral Sea region;

4. Contribute to attracting additional investment is, in support of initiatives on sustainable development of the region and the sustainable development of the Aral Sea basin, in particular by supporting the UN Trust Fund for the Aral Sea region;

5. Provide Assistance to the implementation of the project “Program for adaptation to climate change and mitigation of its consequences in the Aral Sea Basin” CAMP4ASB in terms of development of the Information Platform on climate change, technical modernization and increase capacity-building of hydrometeorological services, development of knowledge products, promotion of gender equality, technical and expert capacity as well as promotion of awareness in the wider public.

UNECE ACTIVITIES ON ECOSYSTEM-BASED ADAPTATION

1. Global Workshop on Ecosystem-based Adaptation in Transboundary Basins

On 29-30 April 2019, Geneva hosted the 7th Global Workshop on adaptation to climate change in transboundary basins on the theme “Ecosystem-based Adaptation in Transboundary Basins”. It was organized jointly by UNECE, International Network of Basin Organizations (INBO), Alliance for Global Water Adaptation (AGWA), and International Union for Conservation of Nature (IUCN). The workshop was aimed to share ecosystem-based adaptation experiences in water resource management from basins around the world. It reviewed ecosystem-based approaches and measures to adapt to climate change taken in transboundary basins and at national level, identified good practices and lessons learned and formulated some conclusions for further activities.

The opening ceremony included addresses by Ms. Olga Algayerova, Executive Secretary of UNECE, Ms. Sibylle Vermont, Federal Office for the Environment of Switzerland, Mr. Niels Vlaanderen, Ministry of Infrastructure and Water Management of the Netherlands, and Mr. Antonio Canas Calderon, Ministry of Environment and Natural Resources of El-Salvador, who presented

The United Nations decade on ecosystem restoration 2021- 2030.

At the Session 1 “Introduction of ecosystem-based adaptation, its measures and value for adapting to climate change and reducing disaster risk”, representative of the IUCN Global Ecosystem Management Program made a presentation on ecosystem-based adaptation in the concept of nature-based solutions and its application for climate change adaptation and disaster risk reduction. According to the 2009 Convention on Biological Diversity, an ecosystem-based adaptation is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people adapt to the adverse effects of climate change. Ecosystem-based adaptation has its own limits, such as potential limitations of ecosystem services; difficulty in monitoring, evaluating, and establishing the evidence base; governance and institutional constraints; economic and financial constraints; and social and cultural barriers. IUCN prepared a practical assessment framework for defining qualification criteria and quality standards for EbA. This paper provides a practical assessment framework for designing, implementing and monitoring EbA measures by proposing a set of 3 elements, 5 qualification criteria and 20 quality standards. The IUCN representative also provided some practical examples of EbA, including mountain ecosystem restoration in Peru, wetland, forest, and pastures restoration, intercropping of adapted species, greenspace storm water management, and coastal wetland protection.

The EU representative spoke about ecosystem-based adaptation in the EU adaptation policy. The EU Strategy on Adaptation was adopted in 2017. It is focused on the EU’s territory, and it did not address the potential interrelations with climate change adaptation outside the EU. However, its implementation provided some lessons, including the need for a greater focus on implementation measures, new knowledge about tipping points, and greater involvement of private sector. There is a need for more systemic solutions that include strategies, finances, involvement of all stakeholders and knowledge and awareness raising.

The EbA case-studies were also presented for the Mekong basin, South East Queensland in Australia, and the Guadalquivir basin. Australia's experience has clearly demonstrated economic benefits of EbA, which are extremely cost effective compared to grey infrastructure. Interesting discussions were held on the role of forests in adaptation, e.g. how trees themselves adapt to climate change and how their ecosystem services may change as a result of climate change. These issues will be discussed at the UN Forum on Forests to be held in mid-May in New York.

Session 2 devoted to the Governance and sustainability of ecosystem-based adaptation in transboundary basins presented issues related to enhancing the role of nature for adaptation: governance dimensions, natural water retention

measures, the concept of free-flowing rivers and its application within the Living Danube Partnership, as well as ecosystem-based adaptation in the Sixaola and Niger Basin rivers.

Marketplace on case-studies and tools in ecosystem-based adaptation was presented from the following basins and regions: (i) Adaptation to floods in the Amur River basin: considering ecosystems, (ii) Links between reforestation, river flow and climate change adaptation in the Ili-Balkhash basin, (iii) Examples of ecosystem-based adaptation in the basin of the transboundary river Syrdarya (Serik Bekmaganbetov, IFAS in Kazakhstan), (iv) Ramsar sites in the transboundary (Dniester and Prut) basins for climate change adaptation and disaster risk reduction, (v) Building basin wide resilience through ecosystem-based adaptation in the Lockyer Valley, Southeast Queensland, Australia, (vii) Restoration in the Fouta Djallon Highlands as an example of ecosystem-based adaptation in the Senegal River basin, (viii) Examples of ecosystem-based adaptation in Lake Chad, (ix) Case study El Salvador: Ahuachapán Sur, (x) CLIMA: a rapid self-assessment guide on governance frameworks for EbA, (xi) Assessing and addressing risks through CRIDA. In particular, Mr. S. Bekmaganbetov (IFAS in Kazakhstan) spoke about the ecosystem-based approach to climate change in the middle and lower reaches of the Syrdarya River and the Northern Aral Sea through the projects “Regulation of the Syrdarya river flow and preservation of the Northern Aral Sea”, to afforestation in Prearalie and biodiversity conservation, and to integrated basin planning. At present, a fish-protection structure, the Prearalie Center for Wild Animals Adaptation, a scientific and tourist center (*ecotourism*), a GIS-based atlas of interactive maps of Prearalie are also developed. Additionally, a project on the development of a green belt along the Aral Sea coast is under consideration.

At the Session 4: Financing opportunities for ecosystem-based adaptation in transboundary basins, the World Bank reprensentative presented its publication Integrating green and gray infrastructure – and its financing prepared jointly with the World Resources Institute. The participants also discussed preparing bankable projects for ecosystem-based adaptation, valuing and financing forests for water, nature insurance value: assessment and demonstration, and resilient green finance with climate bonds.

Representative of SIC ICWC informed about the established Multi-Partner Human Security Trust Fund for the Aral Sea region (MPHSTF) as an example of innovative financing and invited all interested parties to join the efforts of Uzbekistan to mitigate the consequences of environmental degradation in Prearalie.

2. Introduction to the field visit on the restoration of the river Rhone in the Swiss canton of Valais

Marshy floodplains were not viable before the 19th century in the Rhone floodplain. Two major river training works of 30 years titanic labor (first in 1863-1893 and second in 1930-1960) allowed developing intensive agriculture in the floodplain and progressive urbanization after the second Rhone Correction. Current problems in the basin include the risk of dike destruction and failure and insufficient river discharge capacity to meet flood protection objectives. Potential damage is estimated at 10 billion Swiss francs in case of major floods. In this context, the Third Rhone Correction is in process. It includes expansion and deepening of the river channel at a scale of 1:10,000 between Gletsch and Lake Geneva (160 km). The project is designed for 30 years. The project was approved at the Referendum. The project cost is 3 billion Swiss francs. Work is funded by the federal budget and the Canton of Valais. It was estimated that if the project was not implemented, the damage could amount to 20 billion francs.

The work will be carried out in stages in priority areas. The first stage is intended for the Martigny bend. Potential damage may reach over 600 million Swiss francs for a 100-year flood event. 3 main objectives of the development plan include safety, environmental and socio-economical. Flood protection goals are aimed to reduce the high hazard zones in Martigny; ensure protection for an extreme flood; residual risk management in case of overload (discharge greater than extreme flood). Environmental goals include enhanced and more natural morphology of the Rhone; integration of the network of existing nature protection areas, and revitalization of aquatic and riverine habitats. At present, the plankton needed to reproduce fish cannot be formed because of the too fast-flowing river. Social-economic goals include anchoring of the project in the territory, in coordination with land use planning at different scales; improvement of soft mobility and recreational areas; protection of existing construction and industrial areas to promote economic development.

Numerical and physical models were developed to assess hydrologic and morphologic solutions and study sediment transportation. A physical modeling tool is necessary to optimize design of river training, but also to better understand the hydrodynamic behavior of the Rhone River and the confluence with the Dranse River, as well as the morphological evolution. The participants were shown the physical model, as well as the ongoing work on embankment consolidation.

At the 3-km section of the Rhone River, where settlements are located

close to the river, the work on bank protection is underway. Metal structures are buried at a depth of 60 cm to protect banks and reduce flow velocity in case of floods.

The project will result in the loss of 5% of agricultural land. One-third of the land falling within the project area has already been bought from farmers. Moreover, efforts are made to ensure that farmers who have plots falling within the project area change their plots with farmers who wish to sell land elsewhere. Thus, the situation of direct expropriation of land from farmers for the public interest is avoided as much as possible. At about 150 million francs were paid to the farmers for their plots along the Rhone. The Fund was also established to improve productivity of the remaining agricultural land.

One of the project tasks is to return the river to its natural status as much as possible. In this context, river sections that passed along canals are transformed into a gravel-covered river bed.

3. 10th meeting of Task Force on Water and Climate, 1st May 2019

On 1 May 2019, the 10th meeting of the Task Force on Water and Climate was held under the Water Convention, which is responsible for activities related to adaptation to climate change in transboundary basins, including flood and drought management, in accordance with the programme of work for 2019-2021 of the Water Convention. The meeting was aimed to discuss, plan and provide guidance to the implementation of the activities on water and climate under the programme of work for 2019-2021 of the Water Convention.

The Task Force was informed about the outcomes of the last meeting of the global network of basins working on climate change adaptation held on 14-15 February 2019 in Geneva, as well as about activities of pilot projects and other basins of the global network of basins working on climate change adaptation.

Under the Agenda item “Water and disasters”, the Words into action guide: Implementation Guide for Addressing Water-related disasters and transboundary cooperation was presented, as well as latest developments with implementation of the Sendai Framework for Disaster Risk Reduction 2015 – 2030. The Task Force also discussed how to promote implementation and use of the guide.

While discussing the item “Water and climate change”, the Task Force was informed about the latest developments with regards to water and climate under the United Nations Framework Convention on Climate Change, namely the outcomes of the 24th UNFCCC Conference of the Parties (Katowice, 2-15

December 2018), the Nairobi Work Programme, the Adaptation Committee etc. It will also be briefed about related processes such as the Marrakech Partnership, the Global Alliances for Water and Climate etc.

In small groups, the participants discussed how they can provide input to the UNFCCC processes and raise attention to the importance of water, regional and transboundary cooperation when preparing Nationally Determined Contributions (NDCs). In this context, the participants proposed to strengthen intersectoral and inter-ministerial cooperation by involving all stakeholders in the work of basin councils (where available), promoting water issues more actively in the national coordinating commissions on climate change (e.g., in Kyrgyzstan and Armenia), and specifying these issues directly in templates of the NDCs.

Then the Task Force discussed financing climate change adaptation in transboundary basin. Particularly, the Financing climate change adaptation in transboundary basins: preparing bankable project publication was presented (January 2019), and a training workshop on how to prepare bankable projects on adaptation to climate change in transboundary basins of the Eastern Europe and Asia regions was announced. The World Bank approved the 2021 – 2025 Climate Targets to double climate financing over 5 years. Moreover, if the current ratio of climate change mitigation and adaptation projects is 80/20, it should be 50/50 by 2025. In other words, the World Bank is committed to scaling up the number of climate change adaptation projects.

The Task Force was informed about preparations for the World Water Day 2020 on water and climate, including the World Water Development Report, as well as discussed cooperation with partners and other actors in the area of water and climate.

D.R.Ziganshina

VIKTOR DUKHOVNIY IS 85 YEARS OLD

On 20 April 2019, Victor Dukhovniy, a prominent scientist and important contributor to land reclamation and water management, Honorable ICID Vice-President, ex-member of the Board of Governors of the World Water Council, Doctor of Technical Sciences, Professor, Director of the Scientific Information Center of the Interstate Commission for Water Coordination in Central Asia (ICWC), celebrated his 85th birthday.

Having graduated from the Kiev Hydromeliorative Institute as hydraulic engineer in 1956, he began working in the Kazgolodnostepstroy Group.

The day he began working was coincided with the adoption of a Soviet Government Resolution on the Large-Scale Land Development in the Golodnaya Steppe.

Among hundreds of young professionals who joined the “army” of builders and developers of the Golodnaya Steppe, he was one of the most active and initiative assistants of talented organizers and authors of this development, such as A.A.Sarkisov, I.Y.Kaminsky, E.I.Ozersky, as well as scientists who took part in scientific justification of this development, including V.V.Poslavsky, V.A. Kovda, and N.M. Reshetkina.

Together with these “water giants” of the 60-70s, Viktor Dukhovniy developed and implemented an integrated approach to development and irrigation of large land schemes, first in the Golodnaya Steppe and then in the Karakum Canal zone, Djizzak and Karshi Steppes, Asht and Kizil areas in Tajikistan, Laylak area in Kyrgyzstan, and rice planting areas in Karakalpakstan.

The Golodnaya Steppe and then the Karakum and Karshi Canal zones served as a certain polygon, where he put in practice advanced methods of vertical, subsurface horizontal and combined drainage, buried conduits, flumed and lined canals, including the combined lining method developed under his supervision. It was a unique experience to organize machine harvesting of cotton in the Golodnaya Steppe. This allowed harvesting up to 95% of produced cotton in 1970-1973.

In 1972, he defended his PhD thesis and became a director of the largest institute in the country, Central Asian Scientific Research Institute of Irrigation (SANIIRI), in 1973.

As the head of SANIIRI, he focused its activity on research that meets the needs of production and used in the development of new lands, reconstruction of

water management systems, land reclamation, and introduction of new irrigation techniques.

At his suggestion, SANIIRI was transformed into a large multi-disciplinary research and production association, which included the State Special Design Bureau, Engineering Centre, industrial, construction and agricultural enterprises. This helped adopting new technologies, equipment, devices, building materials, structural elements, and establishing a network of pilot farms in a short period of time.

SANIIRI and its director actively participated in the work of many governmental commissions on the Aral Sea problem, the "Land Reclamation in USSR" program, a project on transferring a part of the Siberian river runoff to the Aral Sea basin.

Prof. Dukhovniy personally introduced a number of principal provisions on the Aral Sea basin program and improvement of water use in the region. On his initiative, the USSR Ministry of Water Resources entrusted SANIIRI with establishing the Automated Water Management System for the Syrdarya River Basin (ASMS-Syrdarya) and Amudarya River Basin (ASMS-Amudarya), which formed the basis for future BWOs of these rivers.

Since 1969, V. Dukhovniy has been actively involved in the work of international organizations. He was a member of the Soviet Committee on Irrigation and Drainage since 1966, participated as a speaker at the 8th ICID Congress in Mexico in 1969, where he presented a report on comprehensive development of the Golodnaya Steppe, in 1975 - in Moscow, in 1978 - in Athens, etc. He was a Chairman of the Scientific Committee of the 1st Afro-Asian ICID Conference in Tashkent in 1976. His articles were published in the first and second volumes of the ICID Proceedings in 1978 and 1982. He earned great respect of the entire ICID family for involving five Central Asian countries in this organization. V. Dukhovny is a Vice-Chairman of the ICID Working Group on the Aral Sea Basin and a member of the Working Group on Drainage. At the ICID Congress in Canada, he received the Award of Excellence.

At the 3rd General Assembly of the World Water Council (Marseille, France, September 2003), V. Dukhovniy was elected as a member of the Council's Board of Governors.

In 1990, V. Dukhovniy successfully defended his doctoral thesis. The same year, he was awarded the title of professor.

Since gaining independence by five countries of the region, SANIIRI headed by Prof. Dukhovniy has been actively involved in the development of interstate river cooperation, which contributed to establishment of the Interstate Commission for Water Coordination in Central Asia (ICWC) in 1992.

The Scientific Information Center (SIC) was established at ICWC as an executive body, which was initially at SANIIRI, and in 1996, by the decision of ICWC, it was transformed into an independent organization, and V. Dukhovniy was appointed as its director.

Under his leadership, SIC ICWC became an analytical and information body of ICWC in the development of principles and ways of long-term water development in Central Asia, improvement of management and environmental situation in the basin – the source of interstate transboundary water cooperation of the region's countries.

Under the leadership of V. Dukhovniy, work is undertaken to eliminate the consequences of the Aral Sea desiccation, ensure sustainable water supply to the Central Asian region and reduce ecological tension. He coordinated a number of joint international projects in the field of transboundary water resource management, development of a water and land information system, water conservation, etc.

Under his leadership, SIC ICWC achieved significant results in promoting regional water cooperation and improving water resources management, including:

- Development and maintenance of powerful information resources on water in Central Asia (a portal containing over 60 gigabytes of information with daily 8,000-10,000 visitors; the regional information system with a database containing the data from 1980 to 2019; an integrated Aral Sea Basin management model, ASBmm).
- Publication of analytical materials, including newsletters on water and status of the Aral Sea and Priaralie; analytical reports on water use; annual and future forecasts of water situation; recommendations for improvement in water management.
- Training, including development of a methodological base and training of lecturers on all key issues of water development and cooperation.
- International cooperation and membership in organizations, such as the World Water Council, International Water Resources Association, International Commission on Irrigation and Drainage, International Water Law Association, European and Asian Societies of International Law and many others.

Prof. Dukhovniy as the head of a number of regional projects – IWRM-Fergana, Central Asia Regional Water Information Base, Automation of structures in the Fergana Valley, as well as establishment of the ICWC Training Center – involved thousands of experts at different levels of water management in all Central Asian countries in promotion of advanced water management

methods of resource.

To ensure successful work of SIC ICWC, Viktor Dukhovniy has managed to collect a team of highly qualified experts on engineering, institutional, legal and other issues of water management and cooperation.

Prof. Dukhovniy is the author of more than 17 monographs, 300 publications, and 30 certificates of authorship. One of the most valuable works is the Water in Central Asia: Past, Present and Future, which is published in Russian and English and will be published in Chinese soon. In his book "Introduction to the Water Sector", Prof. Dukhovniy tries to convey to young people the value of water in human life and on our planet and the relevance of the water sector in context of climate change and growing water scarcity to. At present, Prof. Dukhovniy is working on a textbook for bachelor's and master's students on "Water Sector in Uzbekistan and the World".

V. Dukhovniy was awarded two Orders of the Red Banner of Labor, Order of Friendship of Peoples, and a number of medals for his service. He is the winner of the Beruni State Prize of Uzbek SSR (1973), Prize of the Council of Ministers of the USSR (1978), and was awarded with Diplomas of the Ministry of Water Resources of USSR and the Supreme Soviet of Uzbekistan. He is the first winner of the Award of Excellence established by the International Commission on Irrigation and Drainage.

We wish Viktor Dukhovniy strong health, long life and fruitful work.

NARIMAN KIPSHAKBAEV IS 85 YEARS OLD

On 27th of May, Nariman Kipshakbaev, one of the founders of the Interstate Commission for Water Coordination, celebrated his 85th birthday.

N. Kipshakbaev was born on 27 May 1934 in the village of Kyzbel, Zhangeldin district of the Kostanay province.

In 1953, he entered the Kazakh State Agricultural Institute (KazNAU now), Hydromelioration Faculty.

In 1958, he was appointed as a hydraulic engineer in the Turgen River basin of Yenbekshikazakh Irrigation System Administration, Almaty province.

In 1959, he was appointed as a Head of the Water Use Department of the Enbekshikazakh Irrigation System Administration.

In 1961, N. Kipshakbaev was awarded the Diploma of the Presidium of the Supreme Soviet of the Republic of Kazakhstan.

In 1969, he was appointed as a Head of the Land Reclamation and Water Sector Administration of the Semipalatinsk province.

In 1972-1974, he was the deputy of the Semipalatinsk Provincial Council (Ulgilimalshinsky constituency No58, Kokpekta district).

In 1972-1974, he was elected to the Semipalatinsk Provincial Committee of the Communist Party of Kazakhstan.

N. Kipshakbaev was awarded the Soviet Medal for Labor Valor in 1971 and the Order of the Badge of Honor in 1973.

In 1974, N. Kipshakbaev was the Deputy Minister of Land Reclamation and Water Management of the Republic of Kazakhstan and the chief state inspector for water use and protection of the Republic of Kazakhstan, Almaty.

In 1980, N. Kipshakbaev was awarded the title of Honored Hydraulic Engineer of the Republic of Kazakhstan.

By the Decree of the Presidium of the Supreme Soviet of the Kazakh SSR in 1981, N. Kipshakbaev was appointed as the Minister of Land Reclamantion and Water Sector of the Kazakh SSR and became a Member of the Government of the Kazakh SSR.

By the Decree of the President of Kazakhstan in 1990, N. Kipshakbaev was appointed as a Chairman of the State Committee for Water Resources and a Member of the Government of the Republic of Kazakhstan.

In 1991-1992, intensive work was begun on cooperation with neighboring

countries in the field of use and protection of interstate river waters, including on the Aral Sea basin (1992) with the Central Asian countries and transboundary rivers with the Russian Federation (1992) and China (2001).

In 1992, he participated in the development of a new Water Code for the Republic of Kazakhstan, which came into force in 1993.

In 1992-1995, he was a Member of the Interstate Commission for Water Coordination (ICWC) in the Aral Sea Basin.

N. Kipshakbaev was a co-chairman of the Interstate Commission on Joint Use and Protection of Transboundary Water Bodies between the Republic of Kazakhstan and the Russian Federation in 1992-1995.

In March 1993, the International Fund for Saving the Aral Sea (IFAS) and the Interstate Council of the Fund, which includes 5 people from each country, were established. In 1993-1995, N. Kipshakbaev was a member of the Interstate Council of the Fund.

In 1993-1995, he coordinated the development of the national water strategy of the Republic of Kazakhstan.

N. Kipshakbaev was a Member of the National Council of the Republic of Kazakhstan on the Caspian Sea problems in 1993-1995.

Since 1996, N. Kipshakbaev has been the Director of the Kazakh branch of SIC ICWC.

N. Kipshakbaev constantly pays attention to training of young water professionals:

He was appointed as a professor of the Water Supply and Hydraulics Department in 1996 and the Water Disposal and Water Protection Department of the Kazakh Architectural and Construction Academy (KazGASA) in 1997.

In 1998, he was awarded the academic title of Professor of KazGASA (Almaty).

By the decision of the Presidium of the Academy of Water Sciences of the Russian Federation in 2003, he was elected as a foreign member for scientific section “Hydraulic Facilities”.

Since 2006, he is the Professor of the Hydraulics and Rural Water Supply Department at the Kazakh National Agrarian University (KazNAU).

Since 2009, he has been an Associate Professor of the Civil and Engineering Systems Department at the K.Satpaev Kazakh National Technical University.

He developed a number of training and methodological materials on “Water Resources and Water Use”.

N. Kipshakbaev works hard to expand interstate contacts and exchange experience in improvement of water management and protection with many countries all over the world. Since 2004, he is the Chairman of the Global Water Partnership in Kazakhstan; he was the member of the Regional Council of the Global Water Partnership for Caucasus and Central Asia (GWP CACENA) for several years. The latter is aimed to develop cooperation and consolidate efforts of the state and public organizations and water users in the area of management, use, and protection of water resources.

N. Kipshakbaev is a member of 4 Basin Councils: Aralo-Syrdarya, Balkhash-Alakol, Esil, and Zhayik-Kaspiy.

Since 2017 till present, N. Kipshakbaev is a member of the Ad-hoc Working Group on the Use and Protection of Transboundary River Water Resources between the PRC, Central Asian Countries and the Russian Federation.

We wish Nariman Kipshakbaev strong health, welfare and happiness.

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