Interstate **C**ommission for **W**ater **C**oordination of Central Asia	**BULLETIN № 2 (91)**	June 2022

CONTENT

MINUTES OF THE 82nd MEETING OF INTERSTATE COMMISSION FOR WATER COORDINATION (ICWC) OF THE REPUBLIC OF KAZAKHSTAN, KYRGYZ REPUBLIC, REPUBLIC OF TAJIKISTAN, TURKMENISTAN AND REPUBLIC OF UZBEKISTAN

April 27, 2022 Turkestan, Republic of Kazakhstan

Chairman of the meeting:

Kozhaniyazov Serik Salavatovich	Vice Minister of Ecology, Geology and Natural Resources, Republic of Kazakhstan

ICWC members:

Khamraev Shavkat Rakhimovich	Minister of Water Management, Republic of Uzbekistan
Shoimzoda Djamshed Shodi	First Deputy Minister of Energy and Water Resources, Republic of Tajikistan
Bayjanov Guizgeldi Nazargeldievich	Chairman of the State Committee for Water Management of Turkmenistan

ICWC executive bodies:

Nazarov Umar Abdusalomovich	Head, ICWC Secretariat
Makhramov Makhmud Yakhshibaevich	Head, BWO Amu Darya
Kholhujaev Odil Akhmedovich	Head, BWO Syr Darya
Ziganshina Dinara Ravilievna	Acting Director, Scientific Information Center (SIC) of ICWC

Kenzhabayev Shavkat Makhmudovich	Deputy Director, Scientific- Information Center (SIC) of ICWC

Invited:

EC IFAS

Sharofidinov Khusniddin Tursunovich	Deputy Chairman of the Executive Committee of the International Fund for Saving the Aral Sea

Republic of Kazakhstan

Zhakanbayev Arsen Armanovich	Director of Transboundary Rivers Department, Ministry of Ecology, Geology and Natural Resources, Republic of Kazakhstan
Zhumakanov Nikolay Bladimirovich	Director of the International Legal Department, Ministry of Foreign Affairs, Republic of Kazakhstan
Sharip Daniyar Yesenuli	Head of Transboundary Rivers Department, Ministry of Ecology, Geology and Natural Resources, Republic of Kazakhstan
Sadvakasov Erkesh Ergozhaevich	Advisor to the Chairman on Water Resources, Ministry of Ecology, Geology and Natural Resources, Republic of Kazakhstan
Duzbayeva Kalamkas Serikovna	Head of Transboundary Rivers Department of the International Legal Department, Ministry of Ecology, Geology and Natural Resources, Republic of Kazakhstan

Republic of Tajikistan

Abdurazokzoda Daler Abdukhalok	Head of Department of Water and Energy Policy, Science and Technology Development, Ministry of Energy and Water Resources, Republic of Tajikistan

Turkmenistan

Paschiev Yanov Durdievich	Head of Water Use Department of the State Committee for Water Management, Turkmenistan

Republic of Uzbekistan

Ishpulatov Zokir Eshkurbonovich	Head of Water Resources and Water Use Department, Ministry of Water Management, Republic of Uzbekistan

Agenda of the 82nd ICWC meeting

1. Results of the use of water withdrawal limits and operation of the reservoir cascades in the Syr Darya and Amu Darya River basins during the non-growing season 2021-2022.

2. Approval of the country water withdrawal limits and operation regimes of the reservoir cascades in the Syr Darya and Amu Darya River basins for the growing season 2022.

3. Follow up on proposals and initiatives raised at the Summit of the Heads of IFAS Founder States in the city of Turkmenbashi.

4. Appointment of the Director of SIC ICWC.

5. Awarding the title of honorary ICWC member.

6. Agenda and venue of the next 83rd ICWC meeting.

Decision on the first item:

1. Take into consideration the reports of BWO Amu Darya and BWO Syr Darya on the results of the use of water withdrawal limits and operation regimes of reservoir cascade during the non-growing season 2021-2022 in the Syr Darya and Amu Darya River basins.

2. The Kazakh side notes discrepancy in water discharge in the reach from the Toktogul to Shardara reservoirs. BWO Syr Darya justifies the existing discrepancy by river water losses and the difference between the data of the gauging stations of hydrometeorological services of the parties.

3. BWO Syr Darya jointly with SIC ICWC and hydrometeorological services shall conduct the analysis of data on gauging stations and submit information when available.

Decision on the second item:

1. Approve water withdrawal limits for the growing season 2022 in the Syr Darya River basin (Appendix 2). Water withdrawal limits for the Amu Darya River basin are not approved.

2. Take into consideration the forecast operation regimes of the reservoir cascade for the growing season of 2022 in the Amu Darya (Appendix 3) and Syr Darya River (Appendix 4) basins, as proposed by BWO Amu Darya and BWO Syr Darya.

3. On the basis of the updated data on water availability, the members of ICWC decided to agree additionally, by the end of May, on operation regimes of reservoir cascade and the country water withdrawal limits of the in the Amu Darya and Syr Darya River basins for the growing season of 2022 .

4. BWO Syr Darya shall include the information on actual water withdrawals from the Karadarya and Chirchik rivers and in the reach from the Shardara reservoir to the Aral Sea in the report on the results of the growing season 2022.

5. Take into consideration the information of BWO Syr Darya regarding the measures taken by the parties to ensure additional discharges from the reservoirs during the growing season in the Syr Darya River basin.

6. On a permanent basis, BWO Syr Darya, shall inform the Tajik side about protocols signed and their implementation related to the operation regime of the Toktogul reservoir, since the operation regime of the Bakhri Tojik reservoir, among other things, will depend on the implementation of these protocol decisions.

Decision on the third item:

Take into consideration the work of ICWC executive bodies on implementation of proposals and initiatives of the Heads of the IFAS State- Founders, raised at the Summit in Turkmenbashi city.

Decision on the forth item:

Appoint Ms. Dinara Ziganshina as the Director of the Scientific-Information Center (SIC) of ICWC.

Decision on the fifth item:

Award the title " Honorary ICWC member" to the following persons:

1. Nisanbayev Erlan Nuralievich;
2. Bobokalonov Rakhmat;
3. Bayjanov Guizgeldi Nazargeldievich;
4. Giniyatullin Rim Abdullovich.

Decision on the sixth item:

1) Hold the next 83rd meeting of ICWC in Turkmenistan. The date of the next ICWC meeting should be agreed in working order.

2) Propose the following agenda for the 83rd regular meeting.

1. On the results of the use of water withdrawal limits and operation regimes of reservoirs for the growing season 2022 in the Syr Darya and Amu Darya River basins.

2. On approval of country water withdrawal limits and forecast operation regime of reservoir cascades in the Syr Darya and Amu Darya River basins for non-growing season of 2022-2023.

3. On progress in implementation of proposals and initiatives raised at the Summit of Heads of IFAS State-Founders in the city of Turkmenbashi.

4. On the agenda and venue of the next 84th ICWC meeting.

Republic of Kazakhstan	**S.S.Kozhaniyazov**
Kyrgyz Republic	
Republic of Tajikistan	**D. Sh. Shoimzoda**
Turkmenistan	**G. N. Bayjanov**
Republic of Uzbekistan	**Sh. R. Khamraev**

Appendix 1

Limits of water withdrawal from the Amu Darya River and water supply to the river delta and the Aral Sea for the growing season of 2022

River basin, state	Water withdrawals limit, mcm	
	Total annual (1.10.2021 - 1.10.2022)	Including growing season (1.04.2022 - 1.10.2022)
Total withdrawal from the Amu Darya river	55417	39683
of which:		
Republic of Tajikistan	9847	6963
Republic of Uzbekistan	1570	1200
From the Amu Darya River to the nominal Kerki gauging station	44000	31520
Turkmenistan	22000	15500
Republic of Uzbekistan	22000	16020
Plus:		
-water supply to the river delta and the Aral Sea, including irrigation water releases and CDW	4200	2100
- sanitary and environmental flow into irrigation systems:	800	
Dashoguz province	150	
Khorezm province	150	
Republic of Karakalpakstan	500	
Total:	60417	41783

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

Appendix 2

Limits of water withdrawal by riparian state in the Syr Darya River basin

Water-user state	**Suggested limits, mcm**
Republic of Kazakhstan (Dustlik canal)	903
Kyrgyz Republic	246
Republic of Tajikistan	1905
Republic of Uzbekistan	8800
Total:	**11854**

Appendix 3

Forecast operation regimes of Nurek and Tuyamuyun reservoirs
(April – September 2022)

Nurek reservoir	unit	*Forecast*						total
		April	May	June	July	August	September	
Volume: beginning of the season	mcm	6624	6921	7852	8947	9984	10431	6624
Inflow to the reservoir	m^3/s	539	893	1087	1355	1215	690	
	mcm	1397	2392	2817	3629	3253	1788	15276
Water releases from the reservoir	m^3/s	480	638	730	1040	1061	637	
	mcm	1245	1709	1892	2786	2843	1650	12125
Volume: end of the season	mcm	6921	7852	8947	9984	10431	10564	10564
Accumulation(+),drawdown (-)	mcm	297	931	1096	1037	447	133	3940

Tuyamuyun reservoir	unit	*Forecast*						total
		April	May	June	July	August	September	
Volume: beginning of the season	mcm	2461	2393	2713	3741	4908	4198	2461
Inflow to the reservoir	m^3/s	445	1119	1620	1797	1088	625	
	mcm	1153	2998	4199	4813	2914	1621	17699
Water releases from the reservoir	m^3/s	471	1000	1223	1361	1355	914	
	mcm	1221	2678	3171	3646	3628	2369	16714
Volume: end of the season	mcm	2393	2713	3741	4908	4198	3450	3450
Accumulation(+),drawdown(-)	mcm	-68	320	1028	1167	-710	-748	989

Appendix 4

Forecast operation schedule of Naryn-Syr Darya reservoir cascade
from April 1 to September 30, 2022
(including the actual data for 15 days in April)

		April	May	June	July	August	September	Total mcm
Toktogul reservoir								
Inflow to the reservoir	m3/s	505	579	887	768	524	306	
	mcm	1309	1549	2298	2056	1402	792	9406
Volume: beginning of the season	mcm	7851	8647	9356	10595	11481	11838	
end of the season	mcm	8647	9356	10595	11481	11838	12109	
Water releases from the reservoir	m3/s	200	314	409	437	390	201	
	mcm	518	840	1059	1170	1045	521	5153
Water discharge from the Uchkurgan HPP (by protocol)	m3/s	295	383	461	456	387	196	
	mcm	765	1027	1196	1221	1036	509	5753
including: 1. For domestic needs	m3/s	295	383	398	353	325	196	
Kyrgyz Republic	mcm	765	1027	1031	946	871	509	5148
2. supplementary releases - power reception								
Uzbekistan	m3/s			42	41	21		
	mcm			110	110	55		275
Kazakhstan	m3/s			21	62	41		
	mcm			55	165	110		330
Bakhri Tojik reservoir								
Inflow to the reservoir	m3/s	404	389	312	300	300	252	
(Akdjar GS)	mcm	1047	1043	809	804	804	654	5161
Volume: beginning of the season	mcm	3320	3514	3502	2976	2134	1581	

		April	May	June	July	August	September	Total
end of the season	mcm	3514	3502	2976	2134	1581	1696	
Water releases from the reservoir	m3/s	344	350	440	530	435	160	
	mcm	893	937	1140	1420	1165	414	5969
Shardara reservoir								
Inflow to the reservoir	m3/s	454	350	215	160	150	155	
	mcm	1177	937	557	429	402	402	3904
Volume: beginning of the season	mcm	5002	4997	4662	3628	2125	1233	
end of the season	mcm	4997	4662	3628	2125	1233	1039	
Water releases from the reservoir	m3/s	380	420	520	570	400	200	
	mcm	985	1125	1348	1527	1071	518	6574
Inflow to Kyzylkum canal	m3/s	58	33	53	107	50	5	
	mcm	150	88	137	287	134	13	810
Water supply to the Aral Sea	m3/s	80	70	30	20	40	70	
	mcm	207	187	78	54	107	181	815
Charvak reservoir								
Inflow to the reservoir	m3/s	286	388	449	320	180	107	
(4 rivers in total)	mcm	740	1038	1163	856	481	278	4557
Volume: beginning of the season	mcm	643	1065	1544	1964	1919	1653	
end of the season	mcm	1065	1544	1964	1919	1653	1465	
Water releases from the reservoir	m3/s	150	209	287	336	279	180	
(Water discharge from Gazalkent HPP)	mcm	389	560	743	901	746	467	3806
Andijan reservoir								
Inflow to the reservoir	m3/s	246	225	170	89	42	40	
	mcm	637	602	441	238	111	104	2133
Volume: beginning of the season	mcm	1062	1394	1565	1522	1091	831	
end of the season	mcm	1394	1565	1522	1091	831	805	
Water releases from the reservoir	m3/s	119	161	187	250	139	50	
	mcm	307	431	484	670	372	130	2393

THE RESULTS OF THE USE OF WATER WITHDRAWAL LIMITS AND OPERATION REGIMES OF THE RESERVOIRS IN THE SYR DARYA AND AMU DARYA RIVER BASINS FOR THE 2021-2022 NON-GROWING SEASON[1]

1. Amu Darya River basin

The actual water availability in the Amu Darya River basin at the nominal Kerki gauging station (upstream of Garagumdarya) was 87.7 % of the norm over the non-growing season 2021-2022. The estimations were made by taking into account the natural flow in the Vakhsh River and the flow regulation by the Nurek reservoir.

Water availability during the growing season 2021-2022 was rather ambiguous: if at the beginning of the season it was within 113-79 %, then since November water availability decreased to 65-58 % of the norm, and in late March water availability increased due to rains in the upper reaches of the Amu Darya River basin.

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

In the current water management situation, in total, the approved water withdrawal limits for the basin were used by 85.8% of the total limit. While the limit was 15 734.0 mcm, the actually used volume was 13 497.1 mcm, of which:

Republic of Tajikistan: actually used 2488.8 mcm or 86.6 % of the total limit;

Turkmenistan: actually used 5788.3 mcm or 89.1 % of the total limit;

Republic of Uzbekistan: actually used 5220.3 or 82.2 % of the total limit;

[1] Information on the first item of the 82nd ICWC Meeting's agenda

Water-user state	Water withdrawal limits, non-growing season 2021-2022	Actual mcm	%% of use
Republic of Tajikistan	2884,0	2488,6	86,3
Turkmenistan	6500,0	5788,3	89,1
Republic of Uzbekistan	6350,0	5220,3	82,2
Total	15734,0	13497,1	85,8

The use of water limits downstream of the nominal Kerki gauging station (upstream of Garagumdarya) was 85.9% of the total limit over the non-growing season of 2021-2022, of which:

- Republic of Uzbekistan: actually used 4934.3 mcm or 82.5 % of the total limit.
- Turkmenistan: actually used 5788.3 mcm or 89.1 % of the total limit.

Water user state	Water withdrawal limits, growing season 2022	Actual mcm	%% of use
Downstream of the nominal Kerki GS	12480	10722.6	85.9
Turkmenistan	6500	5788.3	89.1
Republic of Uzbekistan	5980	4934.3	82.5

The actual use of the approved limits is as follows by river reach:

1. Upper reaches – 2774.5 mcm or 85.3 % of the total limit, including 2488.6 mcm or 86.3 % of the total limit in the Republic of Tajikistan and 285.9 mcm in the Republic of Uzbekistan.

2. Middle reaches – 8145.3 mcm or 96.5 % of the total limit, including 4845.1 mcm or 95.0 % of the total limit in Turkmenistan and 3300.2 mcm or 98 % of the total limit in the Republic of Uzbekistan.

3. Lower reaches – 2577.2 mcm or 63.9 % of the total limit, including 943.1 mcm or 67.4% of the total limit in Turkmenistan and 1634.1 mcm or 62.7 % of the total limit in the Republic of Uzbekistan.

Water user state	Water withdrawal limits, growing season 2021-2022	Actual mcm	%% of use
Upper reaches	**3254.0**	**2774.5**	**85.3**
Republic of Tajikistan	2884.0	2488.6	86.3
Republic of Uzbekistan	370.0	285.9	77.3
Middle reaches	**8445.0**	**8145.3**	**96.5**
Turkmenistan	5100.0	4845.1	95.0
Republic of Uzbekistan	3345.0	3300.2	98.7
Lower reaches	**4035.0**	**2577.2**	**63.9**
Turkmenistan	1400.0	943.1	67.4
Republic of Uzbekistan	2635.0	1634.1	62.0

Water supply to the river delta and the Aral Sea was planned to be 2100 mcm during the non-growing season. However, actual supply was 847 mcm or 40.3 %.

Forecast regimes of the Nurek and Tuyamuyun reservoirs were calculated based on normal water availability.

The inflow to the Nurek reservoir was expected to be 3334 mcm in the non-growing season; however, the actual flow was 4118 mcm or 113.3 %. Water releases from the reservoir were planned in the volume of 7390 mcm, and actually it was 7562 mcm or 102.3 %.

The volume of water in the reservoir was planned to be 6215 mcm and actually made up 6624 mcm or 106.6 % by the end of non-growing season 2021-2022.

The inflow to the Tuyamuyun reservoir was expected to be 6205 mcm in the non-growing season, and the actual inflow was 4839 mcm or 78.0 %. Water releases from the reservoir were planned in the volume of 5777 mcm, while the actual water releases were 4749 mcm or 82.1 %.

Volume of water in the reservoir was 2461 mcm or 88.0% by the end of non-growing season 2021-2022.

Item		Unit	Nurek reservoir	Tuyamuyun reservoir
Volume: beginning of the season		mcm	10570	2370
Inflow to the reservoir	forecast	mcm	3634	6205
	actual	mcm	4118	4839
		%%	113,3	78,0
Water releases from the reservoir	forecast	mcm	7390	5777
	actual	mcm	7562	4749
		%%	102,3	82,1
Volume: end of the season	forecast	mcm	6215	2798
	actual	mcm	6624	2461
		%%	106.6	88,0
Accumulation (+), drawdown (-)	forecast	mcm	-4355	428
	actual	mcm	-3946	91
		%%	90,6	21,3

More detailed information is provided in Tables below (Appendixes 1.1; 1.2; 1.3)

Analysis of the use of water withdrawal limits in the Amu Darya River basin over the non-growing season 2021-2022

Item	Water withdrawal limits, non-growing season 2021-2022, mcm	Actual mcm	%%
Upper Darya Division (upper reaches) of which:	3254.0	2774.5	85.3
Tajikistan	2884.0	2488.6	86.3
Uzbekistan	370.0	285.9	77.3
Water withdrawals from the Amu Darya at nominal Kerki GS	12480	10722.6	85.9
of which:			
Turkmenistan	6500.0	5788.3	89.1
Uzbekistan	5980.0	4934.3	82.5
Middle Darya Division (middle reaches) of which:	8445	8145.3	96.5
Turkmenistan	5100	4845.1	95.0
Uzbekistan	3345	3300.2	98.7
Lower reaches: of which:	4035	2577.2	63.9
Turkmenistan	1400.0	943.1	67.4
Uzbekistan:	2635.0	1634.1	62.0
In addition, sanitary flow, total including:	800	520.9	65.1
Karakalpakstan	500	309.3	61.9
Dashoguz province	150	140.8	93.9
Khorezm province	150	70.9	47.2
Total for the basin:	15734.0	13497.1	85.8
including			
Tajikistan	2884.0	2488.6	86.3
Turkmenistan	6500.0	5788.3	89.1
Uzbekistan	6350.0	5220.3	82.2

Water supply to the river delta and the Aral Sea for the non-growing season 2021-2022, mcm

	2021			2022			Water supply 01.10.21 - 31.03.22 Actual
	X	XI	XII	I	II	III	
From the Amu Darya River to Samanbay GS	114	63	44	27	74	78	400
Total water discharge from Dustlik and Suenli canal system	80	26	21	20	14		161
CDF	71	48	45	34	37	51	286
TOTAL:	265	137	110	81	125	129	847
Cumulative, mcm	265	402	512	593	718	847	

Actual operation regime of the Nurek and Tuyamuyun reservoirs (October 2021 – March 2022)

Nurek reservoir	unit	October	November	December	January	February	March	TOTAL
Volume: beginning of the season	mcm	10570	10469	9915	9041	7937	6808	10570
Inflow to the reservoir	m^3/s	339	248	218	208	177	372	
	mcm	909	644	585	556	429	996	4118
Water releases from the reservoir	m^3/s	381	436	506	582	565	423	
	mcm	1019	1130	1354	1560	1367	1132	7562
Volume: end of the season	mcm	10469	9915	9041	7937	6808	6624	6624
Accumulation (+), drawdown (-)	mcm	-101	-554	-874	-1104	-1128	-184	-3946

Tuyamuyun reservoir	unit	October	November	December	January	February	March	TOTAL
Volume: beginning of the season	mcm	2370	2351	2615	2846	3167	2664	2370
Inflow to the reservoir	m^3/s	477	250	203	234	233	441	
	mcm	1276	647	544	627	564	1181	4839
Water releases from the reservoir	m^3/s	483	148	117	114	441	517	
	mcm	1295	384	313	306	1067	1384	4749
Volume: end of the season	mcm	2351	2615	2846	3167	2664	2461	2461
Accumulation (+), drawdown (-)	mcm	-19	263	231	321	-503	-204	91

2. Syr Darya River basin

I. Forecast of inflows

On September 24, 2021, a forecast was received from Uzhydromet for the non-growing season 2021-2022.

On October 5, 2021 the expected operation regime of the Toktogul reservoir was provided by Coordination Dispatch Center (CDC) “Energy”.

The forecast operation schedule for the Andijan reservoir was also provided by the Ministry of Water Management of the Republic of Uzbekistan.

The forecast operation schedule for the Charvak reservoir was developed on the basis of forecast inflows to the reservoir as provided by Uzhydromet, including the expected water releases taken equal to those in the last non-growing season.

The forecast operation schedule of the Shardara reservoir was made on the proposal of specialists of the Transboundary Rivers Department, Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan, based on the average long-term data on inflow to the reservoir over the non-growing season 2021-2022.

According to the forecast data, inflows to upper reservoirs were expected to be as follows:

- Toktogul reservoir– 95% of the norm;
- Andijan reservoir – 92% of the norm;
- Charvak reservoir (4 rivers in total) – 81% of the norm;

The total lateral inflow was expected to be 84% of the norm.

Overall, the water availability was expected at the level of 86% of the norm in the Syr Darya River basin.

The forecast operation schedule of the Naryn-Syr Darya reservoir cascade for the non-growing season was taken into account at the 81st ICWC meeting and water withdrawal limits of riparian states in the Syr Darya river basin were approved.

The actual water situation from October 1, 2021 to March 31, 2022 is characterized as the following:

II. Total inflow (Table 2.1)

The norm of total inflow to the Syr Darya River basin is 16 426 mcm over the non-growing season.

According to Uzhydromet forecast, the total inflow (water availability) was expected to be 14 145 mcm or 86% of the norm.

Actually, the total inflow was 14 428 mcm, which is 283 mcm more or 102% of the forecast (88% of the norm).

III. Inflow to upstream reservoirs (Table. 2.1)

The norm of inflow to the upstream reservoirs of the Naryn-Syr Darya cascade is 5296 mcm over the non-growing season.

The inflow was expected to be 4808 mcm or 91% of the norm.

Actually, 4977 mcm was received; this is 169 mcm more or 103% of the forecast (94% of the norm):

- inflow to the Toktogul reservoir:

  norm – 2945 mcm;

  forecast – 2798 mcm;

  actual – 2824 mcm;

- inflow to the Andijan reservoir:

  norm – 929 mcm;

  forecast – 852 mcm;

  actual – 977 mcm.

- inflow to the Charvak reservoir *(4 rivers in total)*:

  norm – 1422 mcm;

  forecast – 1158 mcm;

  actual – 1176mcm.

IV. Lateral inflow (Table. 2.1)

The norm of lateral inflow to the Syr Darya River basin is 11 130 mcm.

According to Uzhydromet forecast, the lateral inflow was expected 9337 mcm or 84% of the norm.

The actual lateral inflow was 9451 mcm, which is 114 mcm more or 101% of the forecast (85% of the norm):

1. Toktogul – Uchkurgan reach:

   norm – 398 mcm;

   forecast – 382 mcm;

   actual – 348 mcm.

2. Andijan – Uchtepe reach:

   norm – 2533 mcm;

   forecast – 2045 mcm;

   actual – 2306 mcm.

3. Uchkurgan, Uchtepe – Bakhri Tojik reach:

   norm – 4397 mcm;

   forecast – 3611 mcm;

   actual – 3636 mcm.

4. Bakhri Tojik – Shardara reach:

   actual – 2969 mcm;

   forecast – 2513 mcm;

   actual – 2387 mcm.

5. Gazalkent – Chinaz reach (excluding Ugam):

   actual – 833 mcm;

   forecast – 786 mcm;

   actual – 774 mcm.

Table 2.1

Water object	Non-growing season, mcm												
	October 1, 2021 - March 31, 2022							October 1, 2020 – March 31, 2021					
	norm	forecast	forecast/ norm (%)	actual	norm/ forecast (%)	actual/ norm (%)		norm	forecast	forecast/ norm(%)	actual	actual/ forecast (%)	actual/ norm (%)
Inflow to upper reservoirs													
Toktogul	2945	2798	95	2824	101	96		2861	2861	100	2892	101	101
Andijan	929	852	92	977	115	105		934	822	88	783	95	84
Charvak (4 rivers in total)	1422	1158	81	1176	102	83		1408	1419	101	1129	80	80
including:													
- Charvak (3 rivers in total)	1256	1015	81	1010	99	80		1242	1261	102	1004	80	81
- Ugam river	166	143	86	166	116	100		166	158	95	125	79	76
Total	**5296**	**4808**	91	**4977**	**103**	**94**		**5203**	**5102**	98	**4804**	94	92
Lateral inflow													
Toktogul – Uchkurgan	398	382	96	348	91	87		398	398	100	351	88	88
Andijan – Uchtepe	2533	2045	81	2306	113	91		2518	2360	94	2343	99	93

Water object	Non-growing season, mcm												
	October 1, 2021 - March 31, 2022							October 1, 2020 – March 31, 2021					
	norm	forecast	forecast/ norm (%)	actual	norm/ forecast (%)	actual/ norm (%)		norm	forecast	forecast/ norm(%)	actual	actual/ forecast (%)	actual/ norm (%)
Uchkurgan, Uchtepe – Bakhri Tojik	4397	3611	82	3636	101	83		4365	4396	101	3475	79	80
Bakhri Tojik – Shardara	2969	2513	85	2387	95	80		2953	2985	101	2102	70	71
Gazalkent - Chinaz (excluding Ugam)	833	786	94	774	98	93		841	833	99	780	94	93
Total	**11130**	**9337**	84	**9451**	**101**	**85**		**11075**	**10973**	99	**9052**	82	82
Overall (total inflow)	**16426**	**14145**	86	**14428**	**102**	**88**		**16278**	**16075**	99	**13856**	86	85

Table 2.2

Water object	Non-growing season, mcm October 1, 2021- March 31, 2022			Non-growing season, mcm October 1, 2020 – March 31, 2021		
	schedule	actual	actual/ schedule (%)	schedule	actual	actual/ schedule (%)
Inflow to in-stream reservoirs						
Inflow to the Bakhri Tojik reservoir	11228	9812	87	12799	11707	91
Inflow to the Shardara reservoir	10341	8272	80	11594	9734	84
Supply to the Aral Sea						
Supply to the Aral Sea	1115	235	21	2402	1151	48

Table 2.3

Reservoir	Water releases, mcm					
	October 1, 2021 – March 31, 2022			October 1, 2020 – March 31, 2021		
	Operation schedule NSRC	Actual	Actual/ schedule %	Operation schedule NSRC	Actual	Actual/ schedule %
Upper reservoirs						
Toktogul	8745	7265	83	8679	9379	108
Andijan	383	399	104	480	378	79
Charvak (discharge of Gazalkent HPP)	1670	1773	106	1637	1748	107
TOTAL:	**10798**	**9437**	**87**	**10796**	**11505**	**107**
In-stream reservoirs						
Bakhri Tojik	9765	9693	99	11256	11090	99
Shardara	5653	3521	62	7195	5078	71
TOTAL:	**15418**	**13214**	86	**18451**	**16168**	88
OVERALL:	**26216**	**22651**	**86**	**29247**	**27673**	**95**

V. Inflow to in-stream reservoirs and water supply to the Aral Sea (Table. 2.2)

The inflow to the Bakhri Tojik reservoir was expected to be 11 228 mcm according to the forecast schedule over the non – growing season.

The actual inflow to the reservoir was 9812 mcm, which is 1416 mcm less or 87% of the forecast schedule.

The inflow to the Shardara reservoir was expected to be 10 341 mcm of the forecast schedule.

Actually, 8272 mcm were supplied to the reservoir; this is 2069 mcm less or 80% of the forecast schedule.

The inflow to the Aral Sea and the Aral Sea region was expected to be 1115 mcm, the actual inflow to Karateren gauging station is 235 mcm, which is 880 mcm less than the forecast or 21% of the forecast.

VI. Water releases from the reservoirs (Table. 2.3)

According to the forecast operation schedule of the Naryn – Syr Darya reservoir cascade, 26 216 mcm were to be released from reservoirs over the non-growing season.

The actual water releases were 22 651 mcm, which is 3565 mcm less or 86% of the forecast schedule (water releases from the reservoirs made up 27 673 mcm in 2021 – 2022).

- it was planned to release 8745 mcm from the Toktogul reservoir, in fact 7265 mcm were released; this is 1480 mcm less or 83% of the forecast schedule.

- it was planned to release 383 mcm from the Andijan reservoir, in fact, 399 mcm was released.

- it was planned to release 1670 mcm from the Charvak reservoir, in fact, 1773 mcm was released.

- it was planned to release 9765 mcm from the Bakhri Tojik reservoir, in fact, 9693 mcm was released.

- it was planned to release 5653 mcm from the Shardara reservoir, in fact, 3521mcm was released.

VII. Water storage in the reservoirs (Table 2.4)

The water storage in the Naryn – Syr Darya reservoir cascade actually was 16 307 mcm by the beginning of the non-growing season (as of October 1, 2021).

In the reservoirs, according to the forecast schedule, the water storage was 16 650 mcm by the end of the non-growing season; in fact it amounted to 17 878 mcm, which is 1228 mcm more than the forecast schedule.

In the upper reservoirs, according to the forecast schedule, the volume of water was 8021 mcm, while actually it was 9556 mcm, which is 1535 mcm more than the forecast schedule.

The upper reservoirs accumulated the following amounts of water:

Toktogul – 7851 mcm, which is 1509 mcm more than the forecast schedule (schedule - 6342 mcm);

Andijan – 1062 mcm, which is 97 mcm more than the forecast schedule (schedule - 965 mcm);

Charvak – 643 mcm, which is 71 mcm less than the forecast schedule (schedule - 714 mcm).

In the in-stream reservoirs, according to the forecast schedule the volume of water was 8629 mcm by the end of non-growing season, in fact, it amounted to 8322 mcm.

Water accumulation in the in-stream reservoirs was as follows:

Bakhri Tojik – 3320 mcm, which is 110 mcm less than the forecast schedule (schedule - 3430 mcm);

Shardara – 5002 mcm, which is 197 mcm less than forecast schedule (schedule - 5199 mcm).

Table 2.4

Reservoir	Water volume in reservoir, mcm			
	Actual as of October 1, 2021	Schedule as of April 1, 2022	Actual as of April 1, 2022	Actual as of April 1, 2021
Upper reservoirs				
Toktogul	12304	6342	7851	8712
Andijan	500	965	1062	764
Charvak	1249	714	643	561
TOTAL:	14053	8021	9556	10037
In-stream reservoirs				
Bakhri Tojik	1587	3430	3320	3463
Shardara	667	5199	5002	5067
TOTAL:	2254	8629	8322	8530
OVERALL:	16307	16650	17878	18567

VIII. Water supply to the states (Table 2.5)

According to the approved limits and submitted operational requests of water consumers, water was supplied to the following countries in the following amounts during the non-growing season:

- Republic of Kazakhstan - 489 mcm;

- Kyrgyz Republic – 24 mcm;

- Republic of Tajikistan – 48 mcm;

- Republic of Uzbekistan – 3469 mcm.

The actual total volume of water withdrawal by water user states amounted to 4030 mcm.

Table 2.5

Water-user state	Water withdrawals, mcm October 1, 2021 – March 31, 2022	
	Limit	Actual
Republic of Kazakhstan (Dustlik canal)	454	489
Kyrgyz Republic	47	24
Republic of Tajikistan	365	48
Republic of Uzbekistan	3347	3469
Total	**4213**	**4030**

Table 2.6 shows the forecast operation schedule of the Naryn-Syr Darya reservoir cascade for the non – growing season 2021-2022 (taken into consideration at the 81st ICWC meeting).

Table 2.7 shows the actual operation regimes of the Naryn-Syr Darya reservoir cascade for the non – growing season of 2021-2022.

Table 2.6

Forecast operation schedule of the Naryn-Syr Darya reservoir cascade
October 1, 2021 – March 31, 2022

		October	November	December	January	February	March	Total, mcm
Toktogul reservoir								
Inflow to the reservoir	m3/s	234	181	168	159	158	166	
	mcm	628	468	450	426	382	445	2798
Volume: beginning of the season	mcm	12304	11936	11024	9837	8334	7226	
end of the season	mcm	11936	11024	9837	8334	7226	6342	
Water withdrawal from the reservoir	m3/s	369	532	611	720	616	493	
	mcm	988	1378	1637	1930	1491	1320	8745
For domestic needs of the Kyrgyz Republic (according to CDC Energy data)	m3/s	474	578	700	795	695	650	
	mcm	1270	1499	1875	2129	1681	1741	10195
Electric energy flow to the Kyrgyz Republic from the republics, in water equivalent:								
Uzbekistan	m3/s	29					82	
	mcm	78					220	298
Kazakhstan	m3/s	31	23	30	30	35	35	
	mcm	83	59	79	79	86	94	480
Turkmenistan	m3/s	45	24	59	45	43	40	
	mcm	120	61	159	121	105	107	672

		October	November	December	January	February	March	Total,
Bakhri Tojik reservoir								
Inflow to the reservoir	m3/s	421	621	899	928	828	595	
(Akdjar GS)	mcm	1129	1609	2409	2485	2004	1592	11228
Volume: beginning of the season	mcm	1587	2426	2943	3190	3421	3432	
end of the season	mcm	2426	2943	3190	3421	3432	3430	
Water releases from the reservoir	m3/s	136	487	820	860	840	600	
	mcm	364	1263	2196	2303	2032	1607	9765
Shardara reservoir								
Inflow to the reservoir	m3/s	145	332	937	943	923	681	
	mcm	388	861	2510	2527	2232	1824	10341
Volume: beginning of the season	mcm	667	881	1222	2175	3071	4127	
end of the season	mcm	881	1222	2175	3071	4127	5199	
Water releases from the reservoir	m3/s	44	192	576	600	481	270	
	mcm	118	498	1543	1607	1164	723	5653
Supply to the Aral Sea	m3/s	0,5	4	50	56	183	141	
	mcm	1	10	134	151	442	377	1115
Charvak reservoir								
Inflow to the reservoir	m3/s	76	67	74	65	65	94	
(4 rivers in total)	mcm	204	174	198	175	156	252	1158
Volume: beginning of the season	mcm	1249	1146	1011	887	792	730	
end of the season	mcm	1146	1011	887	792	730	714	
Water releases from the reservoir	m3/s	114	112	120	100	90	100	
(Releases from the Gazalkent HPP)	mcm	307	289	321	268	218	268	1670
Andijan reservoir								

		October	November	December	January	February	March	Total,
Inflow to the reservoir	m3/s	52	56	58	52	50	57	
	mcm	140	145	156	138	121	152	852
Volume: beginning of the season	mcm	500	450	510	650	772	878	
end of the season	mcm	450	510	650	772	878	965	
Water releases from the reservoir	m3/s	70	32	6	6	6	24	
	mcm	187	84	16	16	15	65	383

Table 2.7

Operation schedule of the Naryn-Syr Darya reservoirs cascade
October 1, 2021 – March 31, 2022

		October	November	December	January	February	March	Total mcm
Toktogul reservoir								
Inflow to the reservoir	m3/s	234	181	166	147	146	201	
	mcm	628	468	443	395	353	537	2824
Volume: beginning of the season	mcm	12304	11936	11024	10103	9013	8148	
end of the season	mcm	11936	11024	10103	9013	8148	7851	
Water releases from the reservoir	m3/s	369	532	506	554	505	312	
	mcm	988	1378	1356	1484	1222	837	7265
Bakhri Tojik reservoir								
Inflow to the reservoir	mcm	421	621	693	677	670	666	
(Akdjar GS)	mcm	1129	1609	1857	1813	1620	1783	9812
Volume: beginning of the season	mcm	1587	2426	2943	3339	3394	3315	
end of the season	mcm	2426	2943	3339	3394	3315	3320	
Water releases from the reservoir	m3/s	136	487	666	781	842	803	
	mcm	364	1263	1785	2092	2037	2151	9693
Shardara reservoir								
Inflow to the reservoir	m3/s	145	332	503	602	737	851	
	mcm	388	861	1347	1614	1783	2279	8272
Volume: beginning of the season	mcm	667	881	1222	2091	3409	4568	

		October	November	December	January	February	March	Total
end of the season	mcm	881	1222	2091	3409	4568	5002	
Water releases from the reservoir	m3/s	44	192	217	110	112	656	
	mcm	118	498	582	295	271	1757	3520
Water releases to the Kyzylkum canal	m3/s	5	5	5	4	5	77	
	mcm	13	13	13	12	12	206	269
Supply to the Aral Sea	m3/s	0,5	4	22	24	24	50	
	mcm	1,3	10	59	64	58	135	327
Charvak reservoir								
Inflow to the reservoir	m3/s	76	67	59	59	57	129	
(4 rivers in total)	mcm	204	174	158	157	137	346	1176
Volume: beginning of the season	mcm	1249	1146	1011	825	653	521	
end of the season	mcm	1146	1011	825	653	521	643	
Water releases from the reservoir	m3/s	114	112	124	117	100	109	
(Releases from the Gazalkent HPP)	mcm	307	289	332	312	241	292	1773
Andijan reservoir								
Inflow to the reservoir	m3/s	52	56	63	49	52	100	
	mcm	140	145	168	132	126	267	977
Volume: beginning of the season	mcm	500	450	510	655	751	857	
end of the season	mcm	450	510	655	751	857	1062	
Water withdrawals from the reservoir	m3/s	70	32	6	15	6	22	
	mcm	187	84	16	39	15	58	399

APPROVAL OF COUNTRY WATER WITHDRAWAL LIMITS AND FORECAST OPERATION REGIME OF RESERVOIR CASCADES FOR THE GROWING SEASON 2022 IN THE SYR DARYA AND AMU DARYA RIVER BASINS[2]

1. Amu Darya River basin

Limits of water withdrawal from the Amu Darya River and water supply to the river delta and the Aral Sea for the growing season 2022

River basin, state	Water withdrawal limits, mcm	
	Total annual (1.10.2021-1.10.2022)	including growing season (1.04.2022 - 1.10.2022)
Total withdrawal from the Amu Darya river:	55417	39683
of which:		
Republic of Tajikistan	9847	6963
Republic of Uzbekistan	1570	1200
From the Amu Darya River to the nominal Kerki gauging station	44000	31520
Turkmenistan	22000	15500
Republic of Uzbekistan	22000	16020
In addition:		
-water supply to the river delta and the Aral Sea, including irrigation water releases and CDW	4200	2100
- sanitary and environmental flow into irrigation systems	800	
Dashoguz province	150	
Khorezm province	150	
Republic of Karakalpakstan	500	
Total:	60417	41783

[2] Information on the second item of the 82nd ICWC meeting agenda

Forecast operation regime of the Nurek and Tuyamuyun reservoirs (April – September, 2022)

Nurek reservoir	Unit	Forecast						Total
		April	May	June	July	August	September	
Volume: beginning of the season	mcm	6624	6921	7852	8947	9984	10431	6624
Inflow to the reservoir	m^3/s	539	893	1087	1355	1215	690	
	mcm	1397	2392	2817	3629	3253	1788	15276
Water releases from the reservoir	m^3/s	480	638	730	1040	1061	637	
	mcm	1245	1709	1892	2786	2843	1650	12125
Volume: end of the season	mcm	6921	7852	8947	9984	10431	10564	10564
Accumulation (+), drawdown (-)	mcm	297	931	1096	1037	447	133	3940

Tuyamuyun reservoir	Unit	Forecast						Total
		April	May	June	July	August	September	
Volume: beginning of the season	mcm	2461	2393	2713	3741	4908	4198	2461
Inflow to the reservoir	m^3/s	445	1119	1620	1797	1088	625	
	mcm	1153	2998	4199	4813	2914	1621	17699
Water releases from the reservoir	m^3/s	471	1000	1223	1361	1355	914	
	mcm	1221	2678	3171	3646	3628	2369	16714
Volume: end of the season	mcm	2393	2713	3741	4908	4198	3450	3450
Accumulation(+),drawdown(-)	mcm	-68	320	1028	1167	-710	-748	989

2. Syr Darya River basin

I. Forecast of inflows

On April 6, 2022, Uzhydromet provided the forecast for the growing season 2022; according to which the water content is expected as follows: 90-100% (95%) of the norm in the basin of rivers in the sourthern part of the Fergana Valley ; 80-90% (85%) - Naryn ; 70-80% (75%) - Karadarya, Chirhik and Ahangaran , including 80-90% (85%) - rivers in the northern part of the Fergana Valley .

On March 31, 2022 the planned operation regime of the Toktogul reservoir was provided by Coordination Dispatch Center (CDC) “Energy”.

The forecast operation schedules of the Andijan and Charvak reservoirs were also provided by the Ministry of Water Management of the Republic of Uzbekistan, agreed with the Ministry of Energy of the Republic of Uzbekistan and JSC Uzbekhydroenergo.

The forecast operation schedule of the Shardara reservoir was provided by the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

According to the received forecast data and taking into account the actual data for 15 days of April of the current year, the inflow to upper reservoirs is expected as follows:

- 96% of the norm to the Toktogul reservoir;
- 73% to the Andijan reservoir;
- 79% to the Charvak reservoir (4 rivers in total);

The total lateral inflow is expected to be 84% of the norm.

In general, the water content in the Syrdarya rivers basin is expected to be at the level of 86% of the norm.

II. Total inflow (Table 2.1)

Over the growing season, the norm of total inflow in the Syr Darya basin accounted to 29 469 mcm.

By the forecast, the total inflow is expected to be 25 329 mcm (86% of the norm).

III. Inflow to upper reservoirs (Table 2.1)

The norm of inflow to upper reservoirs of the Naryn – Syr Darya cascade is 18 506 mcm over the growing season.

According to the forecast, the inflow is expected to be 16 096 mcm (87% of the norm).

The norm of inflow to the Toktogul reservoir is 9802 mcm.

According to the forecast, 9406 mcm is expected (96% of the norm).

The norm of inflow to the Andijan reservoir is 2927 mcm.

According to the forecast, 2133 mcm is expected (73% of the norm).

The norm of inflow to the Charvak reservoir (4 rivers in total) is 5777 mcm.

According to the forecast, 4557 mcm is expected (79% of the norm).

IV. Lateral inflow (Table 2.1)

According to the norm, the lateral inflow is 10,963 mcm of water.

According to the forecast, the lateral inflow is 9233 mcm (84% of the norm)

V. Water storage in the reservoirs (Table 2.2)

As of April 1, 2022, the total water storage is 17 878 mcm in the reservoirs (including 7963 mcm of dead storage). Water storage in the reservoirs excluding dead storage is 9915 mcm.

Available water resources of the Naryn-Syr Darya reservoir cascade are 35 244 mcm (total inflow plus water storage in reservoirs, excluding dead storage) for the growing season 2022.

(25 329 mcm + 9915 mcm = 35 244 mcm)

Table 2.1

Water object	Growing season, mcm									
	2022				**2021**					
	norm	forecast (incl. actual data for 15 days in April)	forecast/ norm (%)		norm	forecast	forecast/ norm (%)	actual	actual/ forecast (%)	actual /norm (%)
Inflow to upper reservoirs										
Toktogul	9802	9406	96		9620	8175	85	8762	107	91
Andijan	2927	2133	73		2927	1772	61	1719	97	59
Charvak (4 rivers in total)	5777	4557	79		5777	4428	77	3863	87	67
Total:	18506	16096	87		18324	14375	78	14344	100	78
Lateral inflow										
Toktogul – Uchkurgan	1216	1110	91		1216	1095	90	1040	95	86
Andijan – Uchtepe	2511	2063	82		2511	2053	82	2100	102	84
Uchkurgan, Uchtepe – Bakhri Tojik	3349	2907	87		3349	2685	80	2321	86	69
Bakhri Tojik – Shardara	2985	2412	81		2985	2211	74	1834	83	61
Gazalkent- Chinaz (excluding Ugam)	902	741	82		902	632	70	827	131	92
Total:	10963	9233	84		10963	8676	79	8122	94	74
Overall (total inflow):	29469	25329	86		29287	23051	79	22466	97	77

Table 2.2

Reservoir	Water volume in reservoirs, mcm					
	Actual as of April 1, 2022	Actual as of April 1, 2022 (excluding dead storage)	Actual as of April 1, 2021	Actual for April 1,2021 (excluding dead storage)	Dead storage	Difference (April 1, 2022 minus April 1, 2021)
Upper reservoirs						
Toktogul	7851	2351	8712	3212	5500	-861
Andijan	1062	912	764	614	150	298
Charvak	643	217	561	135	426	82
TOTAL:	9556	3480	10037	3961	6076	-481
In-stream reservoirs						
Bakhri Tojik	3320	2403	3463	2546	917	-142
Shardara	5002	4032	5067	4097	970	-65
TOTAL:	8322	6435	8530	6643	1887	-207
OVERALL:	17878	9915	18567	10604	7963	-688

VI. Water releases from reservoirs (Table 2.3)

According to the forecast operation schedule of the Naryn – Syr Darya reservoir cascade, the amount of 23 895 mcm is planned to be released from the reservoirs in the growing season 2022.

Table 2.3

Reservoirs	Water releases, mcm		
	Forecast schedule 2022 (incl.actual data for 15 days of April)	Forecast schedule 2021	Actual 2021
Upper reservoir			
Toktogul	5153	5107	5167
Andijan	2393	1832	1998
Charvak (discharge of the Gazalkent HPP)	3806	3437	3461
TOTAL:	11352	10376	10626
In-stream reservoir			
Bakhri Tojik	5969	6131	6383
Shardara	6574	6764	4255
TOTAL:	12543	12895	10638
OVERALL:	23895	23271	21264

VII. Water withdrawal limits (Table 2.4)

Based on applications of water user states, the following water withdrawal limits are proposed for the growing season.

The total volume of water withdrawal limit for water user states is 11 854 mcm during the growing season.

Table 2.4

Water user state	Proposed limits, mcm
Republic of Kazakhstan (Dustlik canal)	903
Kyrgyz Republic	246
Republic of Tajikistan	1905
Republic of Uzbekistan	8800
Total:	**11854**

Based on the data of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan the inflow to the Aral Sea and the Aral Sea region is expected to be 815 mcm during the growing season.

Considering the water storage in the reservoirs, the signed protocols on mutual power supply between ministries of energy, water management of the Republic of Uzbekistan, ministries of energy, ecology, geology and natural resources of the Republic of Kazakhstan and the ministry of energy and industry of the Kyrgyz Republic, and planned bilateral and trilateral protocols on supplementary water discharge from the Bakhri Tojik reservoir, the forecast operation schedule of the Naryn – Syr Darya reservoir cascade has been developed, with actual data for April 1-15, 2022, and forecast data from April 16 to September 30, 2022 (Table 2.5).

Table 2.5.

Forecast operation schedule of the Naryn-Syr Darya reservoir cascade (April 1- September 30, 2022) (incl. actual data for 15 days of April)

		April	May	June	July	August	September	Total, mcm
Toktogul reservoir								
Inflow to the reservoir	m3/s	505	579	887	768	524	306	
	mcm	1309	1549	2298	2056	1402	792	9406
Volume: beginning of the season	mcm	7851	8647	9356	10595	11481	11838	
end of the season	mcm	8647	9356	10595	11481	11838	12109	
Water releases from the reservoir	m3/s	200	314	409	437	390	201	
	mcm	518	840	1059	1170	1045	521	5153
(Discharge from Uchkurgan HPP) (by protocol)	m3/s	295	383	461	456	387	196	
	mcm	765	1027	1196	1221	1036	509	5753
including: 1. for domestic needs of the	m3/s	295	383	398	353	325	196	
Kyrgyz Republic	mcm	765	1027	1031	946	871	509	5148
Supplementary water releases - electric power reception								
Uzbekistan	m3/s			42	41	21		
	mcm			110	110	55		275
Kazakhstan	m3/s			21	62	41		
	mcm			55	165	110		330

		April	May	June	July	August	September	Total,
Bakhri Tojik reservoir								
Inflow to the reservoir	m3/s	404	389	312	300	300	252	
(Akdjar GS)	mcm	1047	1043	809	804	804	654	5161
Volume: beginning of the season	mcm	3320	3514	3502	2976	2134	1581	
end of the season	mcm	3514	3502	2976	2134	1581	1696	
Water releases from the reservoir	m3/s	344	350	440	530	435	160	
	mcm	893	937	1140	1420	1165	414	5969
Shardara reservoir								
Inflow to the reservoir	m3/s	454	350	215	160	150	155	
	mcm	1177	937	557	429	402	402	3904
Volume: beginning of the season	mcm	5002	4997	4662	3628	2125	1233	
end of the season	mcm	4997	4662	3628	2125	1233	1039	
Water releases from the reservoir	m3/s	380	420	520	570	400	200	
	mcm	985	1125	1348	1527	1071	518	6574
Water releases into the Kyzylkum canal	m3/s	58	33	53	107	50	5	
	mcm	150	88	137	287	134	13	810
Supply to the Aral Sea	m3/s	80	70	30	20	40	70	
	mcm	207	187	78	54	107	181	815
Charvak reservoir								
Inflow to the reservoir	m3/s	286	388	449	320	180	107	
(4 rivers in total)	mcm	740	1038	1163	856	481	278	4557
Volume: beginning of the season	mcm	643	1065	1544	1964	1919	1653	
end of the season	mcm	1065	1544	1964	1919	1653	1465	
Water releases from the reservoir	m3/s	150	209	287	336	279	180	
(Water releases from Gazalkent HPP)	mcm	389	560	743	901	746	467	3806

		April	May	June	July	August	September	Total,
Andijan reservoir								
Inflow to the reservoir	m3/s	246	225	170	89	42	40	
	mcm	637	602	441	238	111	104	2133
Volume: beginning of the season	mcm	1062	1394	1565	1522	1091	831	
end of the season	mcm	1394	1565	1522	1091	831	805	
Water releases from the reservoir	m3/s	119	161	187	250	139	50	
	mcm	307	431	484	670	372	130	2393

JOINT STATEMENT OF THE HEADS OF WATER AGENCIES OF THE REPUBLIC OF KAZAKHSTAN, THE REPUBLIC OF TAJIKISTAN, TURKMENISTAN AND REPUBLIC OF UZBEKISTAN

Turkistan, 27 April 2022

We, the Heads of water agencies of Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan, while recognizing the importance of regional water security challenges, express our willingness **to take further coordinated actions** in order to ensure comprehensive and rational use, and protection of transboundary water resources.

We believe it is important to continue cooperation based on the principles of **collegiality, solidarity and collective responsibility** as a foundation, on which the regional water cooperation was developed and the Interstate Commission for Water Coordination in Central Asia was established.

We acknowledge our strong commitment to transboundary water management **on a consensus basis**, to the benefit of all the riparian states and in line **with international agreements to which all countries in the region are signatories.**

We will continue implementing **integrated water resources management** at all levels as a key tool of green development, adaptation to climate change and water-food-energy-environment nexus.

We will endeavor, within our mandates, to take feasible **measures, with particular emphasis on rational water use and water saving,** to build trust and enhance cooperation, transparency and stability among the Central Asia countries.

We will make efforts to ensure that **qualified personnel, reliable data, advanced knowledge, digitalization and innovation development** of the water sector become key factors of medium-and long-term economic growth and sustainable development of the region.

We will encourage development and mutual **exchange of scientific knowledge, forecasts and innovative technologies** to improve water management and planning.

Having experienced environmental and socio-economic consequences of unsound water management, we recognize the need for **sustainable use and ensuring a reasonable balance** between the needs of people, economies and ecosystems today and in the future.

In this regard, we will strengthen coordination of actions to improve **water-related ecosystems**, including glaciers, flow formation zones, river deltas and the dried bed of the Aral Sea, as well as mitigate climate change effects.

We attach particular importance to intensify the work with **youth** and **educate** the population to value and take care of water.

COMMEMORATIVE EVENTS DEDICATED TO 30th ANNIVERSARY OF ICWC

The commemorative events dedicated to the 30th anniversary of the Interstate Commission for Water Coordination of Central Asia were held on April 26-27, 2022 in Turkestan (Kazakhstan).

Including:

- Anniversary meeting of the ICWC;
- The International Central-Asian Science-to-Practice Conference "30th-years of Water Cooperation among the Central Asian States: Facing the Future".

The purpose of the conference:

- Summing up 30 years of ICWC activity in water management and maintenance and development of interstate cooperation in Central Asia;
- Popularization of ICWC as a regional mechanism of cooperation in the area of transboundary water regulation, use and protection;
- Formulation of future tasks for joint programs, based on mutual respect of interests;
- Demonstration of advanced knowledge, best practices and achievements, and innovative methods for sustainable water management.

The conference program included two plenary sessions and several parallel roundtables:

- Transboundary water cooperation among the Central Asian countries: lessons and next steps

- Water saving and sound water use in the context of climate change. Aquatic ecosystems: the current state and needs
- Science and innovations for water security (dedicated to the memory of Prof. V.A. Dukhovniy)
- Water future in Central Asia: Diversity of opinions. Youth for water and peace

As part of the events, the awards were given on the occasion of the 30th ICWC anniversary.

The EB IFAS in Kazakhstan Medal "For Contribution to Saving the Aral Sea" was awarded to:

Kazakhstan

1. Jienbayev Musilim Rismakhanovich – Deputy Director, Transboundary Rivers Department of the Ministry of Ecology, Geology and Natural Resources, Republic of Kazakhstan

2. Abuov Seytkasim Abuovich – Aral-Syrdarya Basin Inspection for Regulation of Water Use and Protection
3. Shamshieva Aziya Adilsheevna – veteran
4. Kistaubayev Otepbergen Askarovich – Deputy Director of RSE Kazvodkhoz, Turkestan branch
5. Nysanbayev Erlan Nuraliyevich – former member of ICWC

Tajikistan

1. Shoimzoda Jamshed Shodi – First Deputy Minister of Energy and Water Resources of the Republic of Tajikistan

2. Abdurazokzoda Daler Abdukhalok – Head, Water and Energy Policy, Science and Technology Development Department, Ministry of Energy and Water Resources of the Republic of Tajikistan

3. Kazakov Mavlon Khakimovich – Authorized Representative of Tajikistan to IFAS Executive Committee

4. Boyzoda Sanoi Shodi –Authorized Representative of Tajikistan to IFAS Executive Committee

5. Boboyev Abdunabi Kayumovich – Head, Syrdarya Basin Water Resources Department, Ministry of Energy and Water Resources of the Republic of Tajikistan

Turkmenistan

1. Baydjanov Guizgeldi Nazargeldiyevich – Chairman of the State Committee for Water Management of Turkmenistan

Uzbekistan

1. Jurabekov Ismoil Khakimovich – Advisor to the Minister of Water Management, Republic of Uzbekistan

2. Mukhamednazarov Lutfulla Khaknazarovich – Head of Division, Information-Analytical and Resource Center, Ministry of Water Management of the Republic of Uzbekistan

3. Babajanov Kurbanbay Saidovich – Chief of Operations, Tuyamuyn Hydroscheme

4. Marat Fakhrievich – General Director of JSC Uzsuvloyha

5. Tairov Odilbek Rakhimbergenovich – Head, Left Bank Amu Darya Basin Irrigation Systems Department, Ministry of Water Management, Republic of Uzbekistan

IFAS executive bodies

SIC ICWC

Stulina Galina Vladislavovna – Chief specialist

ICWC Secretariat

Nazarov Umar Abdusalomovich – Head of Secretariat

Radjabov Salakhiddin Shamsovich – Chief Specialist

Nadjibullohi Ruzi –Chief Specialist

BWO Syrdarya

Kholkhujaev Odil Akhmedovich – Director

Khamidov Makhmud Khamidovich – Ex-Head of BWO Syr Darya

Uktamov Avazdjon Rakhimberdievich – Head of Water Distribution and Water Resources Department

BWO Amu Darya

Uzakov Djalgas Uzakovich – Head of Lower Darya Division, BWO Amu Darya

Avezmuratov Mukhammad Yoshbayevich – Deputy Head of Lower Darya Division, BWO Amu Darya

ICWC Honorary Diploma was awarded to:

Republic of Kazakhstan

1. Bayalimov Dauletyar Aymagambetovich – Ex-Representative of the Republic of Kazakhstan to IFAS Executive Committee

2. Karlykhanov Karlykhan Adilkhanovich – Aral-Syrdarya Basin Inspection for Regulation of Water Use and Protection

3. Kystaubaev Askar Otepbergenuli – Deputy Director of RSE Kazvodkhoz, Turkestan branch

4. Mutaliev Abay Kenesovich – Head of the Field office of the Shardara

reservoir, RSE Kazvodkhoz, Turkestan branch

5. Kerimbayev Sattar Aldaniyazovich –Head of Sariagash Field office of RSE Kazvodkhoz, Turkistan branch

6. Alipbekov Bayjan Japarovich – Head of Jetisay Field office of RSE Kazvodkhoz, Turkestan branch

7. Bakashbayev Jandarbek Kenderbekovich – Head of Zakh-Keles Field office of RSE Kazvodkhoz, Turkestan branch

8. Aristanbayev Bolat Sabirovich – Chief of IDIP - 2 (Second Irrigation and Drainage Improvement Project)

9. Atantayev Aleksandr – IDIP – 2

10. Nurimbetov Seylbek Sergaziuli – Head of the Aral-Syrdarya Basin Inspection

Tajikistan

1. Izatzoda Idris Izat – Chief Specialist of Water and Energy Policy, Science and Technology Development Department, Ministry of Energy and Water Resources of the Republic of Tajikistan

2. Khodjaev Khalim Rifatovich – Deputy Head of the Syrdarya Basin Water Resources Department, Ministry of Energy and Water Resources of the Republic of Tajikistan

3. Nazarov Umar Abdusalomovich – Head of ICWC Secretariat

4. Ustoyev Yusufjon Ne'matulloevich – Head of Tajik branch of the Golodnostepsky Hydroscheme Administration and Dustlik canal

5. Ramazon Rakhmonovich – Head of Upper Darya Division, BWO Amu Darya

6. Tabarov Fayziddin Nuralievich – Director of Tajik branch of SIC ICWC

7. Gulomshoeva Kobilamoh – Honored Worker of Water Management Sector

8. Ikromov Islomkul Istamovich – Senior researcher of Tajik branch, SIC ICWC

9. Pulatov Yarash Ergashevich – Head of the Department of Innovative

Technologies and Scientific Educational Research, Institute of Water Problems, Hydropower and Ecology, National Academy of Sciences of Tajikistan

10. Kamoliddinov Anvar –Former employee of the Ministry of Land Reclamation and Water Resources, National Water Expert

Turkmenistan

1. Yanov Durdievich – Head of the Water Use Department, State Committee for Water Resources, Turkmenistan

2. Chariev Saparmurat Gurbandurdievich – Chief Specialist of the Digital Technology and Information Security, State Committee for Water Resources, Turkmenistan

3. Mommadov Begench Amanovich – Head of the "Garagumderyasuvkhodzhalyk" Association ,State Committee for Water Resources of Turkmenistan

Uzbekistan

1. Ashirbekov Ubbiniyaz – veteran of labor

2. Mamutov Ravshan Aminatdinovich – Head of the Committee on Agrarian and Water Management Issues of the Oliy Majlis of the Republic of Uzbekistan

3. Allabergenov Rashid Ismailovich – Director of Nukus branch of Executive Committee of EC IFAS

4. Karimkulov Arslankuk Ziyaevich – Head of the Zarafshan Main Canal Operation Department, Ministry of Water Management of the Republic of Uzbekistan

5. Kaypov Juginisbay Setnazarovich – veteran of labor

6. Kurbanov Ilkhom Uzakovich–Head of Karshi Main Canal Operation Department

7. Ernazarov Nozimjon Sheralievich – Head of the State Inspection “Gosvodkhoznadzor” under the Cabinet of Ministers of the Republic of Uzbekistan

8. Octonov Razzok Mirzaevich – Head of the Amu-Bukhara Machine Canal Operation Department

9. Kalandarov Iskandar Jumaniyazovich – Head of the Laboratory, Research Center of Water Problems

10. Turob Kholtoevich – veteran of labor

IFAS executive organizations

SIC ICWC

Ziganshina Dinara Ravilievna – Acting Director

Sorokin Anatoliy Georgievich – Chief Specialist

Ergashev Ikrom – Chief Specialist

Beglov Iskander Ferdinandovich – Head of Division

BWO Syr Darya

Zheleznova Elena Mikhaylovna – Lead Hydraulic Engineer, Water Distribution and Water Balance Division

Agabek Tajibaevich –Director of Kazakhstan branch of Dostik canal, BWO Syr Darya

BWO Amu Darya

Makhramov Makhmud Yakhshibaevich – Head of BWO Amu Darya

Saparbaev Marimbay – Head of Water Resources Division, BWO Amu Darya

Rakhimov Kadambay Rajapovich – Chief Engineer

Mukhammedov Ashirmurat Mukhammedovich – Head of the Upper Darya Division, BWO Amu Darya

Khudaybergenov Yuldash – Head of BWO Amu Darya, 2000-2008

The conference was ended with the adoption of a resolution

RESOLUTION OF THE CENTRAL ASIAN INTERNATIONAL SCIENCE-TO-PRACTICE CONFERENCE "30 YEARS OF WATER COOPERATION AMONG THE CENTRAL ASIAN STATES: LESSONS AND NEXT STEPS"

We, representatives of ministries, agencies, academia and the public of the Central Asian countries as well as representatives of regional and international organizations, who gathered together in Turkistan, Kazakhstan on April 26-27, 2022 on the occasion of the 30th anniversary of the Interstate Commission for Water Coordination (ICWC) in Central Asia,

noting with satisfaction the dynamic development of good-neighbourly relations between the states in the region,

following the spirit of agreements reached in the course of bilateral visits and consultations among the heads of Central Asian states,

taking into account the adoption by the Board of the International Fund for saving the Aral Sea (IFAS) of the Program of actions in support of riparian countries in the Aral Sea Basin or the Aral Sea Basin Program (ASBP-4) on the 29th of June 2021,

supporting priorities of water cooperation raised at the special session “Cooperation of the Central Asian countries to ensure Water Security in the context of climate change” during the 9th World Water Forum (March 23-31, 2022, Senegal),

pursuing the goal of promoting the regional water dialogue and ensuring sustainable development,

declare the following:

1. **Water** is central to sustainability of the society and the natural environment, being a key factor of water, food, energy, and environmental security and a catalyst of cooperation between the Central Asia states.

2. **30 years of ICWC operation** ensured coordinated transboundary water management. Thanks to cooperation under umbrella of ICWC, it was possible to create a system of interactions and decision support, which included annual planning, monitoring and operational management of river flow; information and data exchange; joint regional projects and scientific research; joint training; prompt interactions under drought and flood conditions; and, a system of analytical reports.

3. While recognizing ICWC's contribution to regional cooperation, it is important to **continue improving ICWC activity,** to the benefits and with the involvement of all states in Central Asia in order to ensure multipurpose and sound use and protection of transboundary water resources.

4. Expressing concerns about growing water shortage as a result of increased impacts of climate changes and mounting water demand, we consider it important to continue coordinated actions in the following **priority areas**:

- Achievement of goals and implementation of tasks set under the International Decade for Action on Water for Sustainable Development, 2018-2028;
- All-round implementation of *integrated water resources management* and *nexus* approaches for balanced and equitable meeting the needs of all economic sectors and ecosystems;
- *Water conservation and sound water use*, including through mobilization of investments, capacity building and incentives for adoption of advanced *water-saving technologies* (drip irrigation, sprinkling, etc.);
- Formulation and implementation of a *harmonized regional policy* and measures for adaptation to climate change;
- Reduction of water-related disaster risks;
- Supporting of regional dialogue and cooperation processes through collection and exchange of *reliable data and true information*, including via existing platforms and institutions and by improving accuracy of forecasts, introducing automated *water control and monitoring* systems and up-to-date systems of data collection and exchange, including RS;
- Improvement of *legal framework* for implementation of IWRM and adaptation to climate change, encouragement of active involvement of Central Asian countries in international treaties;
- Reconstruction, modernization and development of *water infrastructure* for more efficient water use at all levels;
- More active participation of the *public*, especially youth and women in water management;
- Strengthening of *education, scientific and expert base* of water management and regional cooperation, also by creating favorable conditions for professional development, enhancing partnerships between educational and research organizations, improving curricula and training methods, and integrating science into decision making;

- *Encouraging* population to value and take care of water;
- *Coordination of actions on conservation and restoration of disturbed ecosystems*, including glaciers, flow formation zones, river deltas and the exposed bed of the Aral Sea, and on mitigation of climate change.

Also, the participants:

- Welcome the initiative of the President of Tajikistan to declare the year 2025 an International Year of glacier preservation and to establish an International fund for glaciers;
- Recognize the significant contribution of **development partners** in supporting country actions to strengthen interstate water cooperation and emphasize the importance of expanding this cooperation;
- Call for **consolidation of efforts** at the regional and international levels to further solve the problems in the Aral Sea Basin;
- **Thank** the Government of the Republic of Kazakhstan, the organizers and development partners for organization of the anniversary conference that ensured its success.

Adopted on April 27, 2022 in the city of Turkistan, Kazakhstan

ANALYSIS OF HYDROLOGICAL CONDITIONS IN THE SYRDARYA AND AMUDARYA RIVER BASINS FOR THE NON-GROWING SEASON 2020-2021

1 Syr Darya River basin

The actual inflow to the upstream reservoirs in the Syr Darya basin (Toktogul, Andijan, Charvak) was 4.8 km³ during the non-growing season (October 2021-March 2022). Inflow to the Toktogul reservoir was 2.82 km3 or 101% of the forecast, and inflow to the Andijan reservoir was 15% higher than expected. The total water releases from the three upper reservoirs amounted to 9.44 km3, which is 13% less than that in the forecast schedule of BWO Syr Darya.

Total lateral inflow in the reach from the Toktogul reservoir to the Shardara reservoir, including discharges from the Karadarya and Chirchiq rivers, was 8.96 km³. This is 1.8 times more than the total inflow to the upstream reservoirs but less than the total water releases from these reservoirs by 5%.

By the end of the non-growing season, the volume of water in the upstream reservoirs amounted to 9.56 km³, of which: Toktogul reservoir 0 7.85 km3 or 124% of the BWO's schedule; Andijan reservoir - 1.06 km³ (110%); Charvak reservoir -0.64 km³ (90%). The Toktogul reservoir was drawn down for 4.45 km³; Charvak reservoir - for 0.61 km³. Andijan reservoir accumulated water in the amount of 0.56 km³.

Inflow to the Bakhri Tochik reservoir amounted to 9.81 km³, which is 1.42 km³ less than in the BWO Syr Darya schedule. Water releases from the reservoir into the river were 9.69 km³, which is 0.07 km³ less than in the BWO Syr Darya schedule. The reservoir was filled up to 3.32 km³, and an unrecorded inflow to the reservoir in the amount of 1.37 km³ was revealed by the balance method (underestimated inflow to the reservoir).

The total water withdrawal from the Naryn and the Syr Darya rivers amounted to 4.03 km³, including: 0.02 km³ - Kyrgyz Republic; 0.05 km³ - Republic of Tajikistan -; 0.49 km³ - Republic of Kazakhstan (through Dustlik canal) -; 3.47 km³ - Republic of Uzbekistan - (Table 1.1).

For the non-growing season 2021-2022, the inflow to the Shardara reservoir made up 8.27 km³, which is 2.07 km³ less than scheduled by BWO Syr

Darya. By the end of the season, the reservoir was filled up to 5.0 km³ (96%). Water losses (estimated from the negative discrepancy of the water balance) were insignificant - 0.15 km³. The discharge from the Shardara reservoir amounted to 3.79 km³ (62%), including: 3.52 km³ - discharge into the river; 0.27 km³ - water intake into Kizilkum canal. Water was not discharged into Arnasay.

The total discrepancy in the water balance of the Syr Darya basin up to Shardarya reservoir (rivers and reservoirs) is about - 2.5 km³ or 15% of regulated flow. The negative discrepancy can be partially attributed to river water losses (presumably about 1.5…1.6 km³) and partly on errors in flow recording at gauging stations. A positive discrepancy (see Table 1.3) indicates to the presence of an unaccounted inflow.

The amount of flow used in the lower reaches of the Syr Darya amounted to 3.29 km³ (Table 1.2) The water supply to the Aral Sea was 0.2 km³, according to Kazhydromet - and 0.24 km³ (21% of the expected amount), according to the Committee of Water Resources of Kazakhstan.

Table 1.2 shows the river water balance, and Table 1.3 shows the water balance of reservoirs.

Table 1.1

Water consumption of the countries in the Syr Darya river basin (reach up to the Shardara reservoir) for non-growing season 2021-2022

#	Water user	Water volume, km^3		Water availability, %
		Limit/ schedule	Actual	Season
1	Total water withdrawal	4.21	4.03	96
2	Water withdrawal by state:			
	Kyrgyz Republic	0.05	0.02	51
	Republic of Uzbekistan	3.35	3.47	104
	Republic of Tajikistan	0.37	0.05	13
	Republic of Kazakhstan	0.45	0.49	108
3	Water intake by river reaches			
3.1	Toktogul reservoir – Uchkurgan hydroscheme	1.38	1.35	98
	Including:			
	Kyrgyz Republic	0.04	0.02	51
	Republic of Tajikistan	0.08	0.04	52
	Republic of Uzbekistan	1.25	1.28	103
3.2	Uchkugran hydroscheme – Bakhri Tochik hydroscheme	0.25	0.18	72
	Including:			
	Kyrgyz Republic	0.01	0.003	46
	Republic of Tajikistan	0.07	0.00	
	Republic of Uzbekistan	0.17	0.17	101
3.3	Bakhri Tochik hydroscheme – Shardara reservoir	2.59	2.50	97
	Including:			
	Republic of Kazakhstan	0.45	0.49	108
	Republic of Tajikistan	0.212	0.004	0,208
	Republic of Uzbekistan	1.92	2.01	105

Table 1.2

Water balance of the Syr Darya River for the non-growing season 2021-2022

#	Balance item	Water volume, km^3		
		Forecast/ plan	Actual	Deviation (actual– plan)
1	Inflow to Toktogul reservoir	2.80	2.82	0.03
2	Lateral inflow in the reach Toktogul reservoir (+)- Shardara reservoir (+)	9.12	8.96	-0.16
	Including:			
2.1	*Discharge from the Karadarya River*	1.18	1.84	0.66
2.2	*Discharge from the Chirchik River*	1.43	0.75	-0.68
2.3	*Lateral inflow from CDN and small rivers*	6.51	6.37	-0.14
3	Flow regulation by reservoirs: recharge (+) or diversion (-) of flow	4.29	4.32	0.03
	Including:			
3.1	*Toktogul reservoir*	5.95	4.44	-1.51
3.2	*Bakhri Tochik reservoir*	-1.65	-0.12	1.53
4	Regulated inflow (1+2+3)	16.21	16.11	-0.11
5	Water intake in the Toktogul - Shardara reach (-)	-4.21	-4.03	0.18
6	Water balance discrepancy	-1.66	-3.80	-2.15
7	Inflow to the Shardara reservoir	10.34	8.27	-2.07
8	Flow regulation by the Shardara reservoir recharge (+) or diversion (-) of flow	-5.80	-4.99	0.82
9	Water releases from Shardara reservoir into the river	5.65	3.52	
10	Water use in the Shardara – Aral Sea reach *	4.54	3.29	-1.25
11	Supply to the Aral Sea (Karateren g/s)**	1.12	0.24	-0.88

*Water withdrawal plus river water losses and minus lateral inflow
**According to the Committee of Water Resources of the Republic of Kazakhstan

Table 1.3

Reservoir water balance in the Syr Darya river basin for the non-growing season 2021-2022

#	Balance item	Water volume, km^3		Deviation (actual–plan)
		Forecast/ plan	Actual	
1	**Toktogul reservoir**			
1.1	Water inflow to the reservoir	2.80	2.82	0.03
1.2	Water volume in reservoir:			
	- beginning of the season (October 1, 2021)	12.30	12.304	0.00
	- end of the season (April 1, 2022)	6.34	7.851	1.51
1.3	Water releases from the reservoir	8.75	7.26	-1.48
1.4	Water balance discrepancy	-0.02	-0.01	0.01
	Including % of inflow to the reservoir	1	0	0
1.5	Flow regulation: recharge (+) or diversion (-) of flow	5.95	4.44	-1.51
2	**Andijan reservoir**			
2.1	Water inflow to the reservoir	0.85	0.98	0.12
2.2	Water volume in the reservoir:			
	- beginning of the season (October 1, 2021)	0.50	0.50	0.00
	- end of the season (April 1, 2022)	0.97	1.06	0.10
2.3	Water releases from the reservoir	0.38	0.40	0.02
2.4	Water balance discrepancy	0.00	-0.02	-0.01
	Including % of inflow to the reservoir	0	2	1
2.5	Flow regulation: recharge (+) or diversion (-) of flow	-0.47	-0.58	-0.11
3	**Charvak reservoir**			
3.1	Water inflow to the reservoir	1.16	1.18	0.02
3.2	Water volume in reservoir:			
	- beginning of the season (October 1, 2021)	1.25	1.25	0.00
	- end of the season (April 1, 2022)	0.71	0.64	-0.07
3.3	Water releases from the reservoir	1.67	1.77	0.10
	Water balance discrepancy	-0.02	-0.01	0.01
	Including % of inflow to the reservoir	2	1	1
3.5	Flow regulation: recharge (+) or diversion (-) of flow	0.51	0.60	0.08
4	**Bakhri Tochik reservoir**			
4.1	Inflow to the reservoir from the river	11.23	9.81	-1.42
4.2	Lateral inflow	0.300	0.261	-0.04
4.3	Water volume in the reservoir:			
	- beginning of the season (October 1, 2021)	1.59	1.59	0.00

#	Balance item	Water volume, km^3		Deviation (actual–plan)
		Forecast/ plan	Actual	
	- end of the season (April 1, 2022)	3.43	3.32	-0.11
4.4	Water releases from the reservoir	9.88	9.71	-0.17
	Including:			
	- releases into the river	9.77	9.69	-0.07
	- water intake from the reservoir	0.11	0.016	-0.09
4.5	Water balance discrepancy	0.19	1.37	1.18
4.6	Flow regulation: recharge (+) or diversion (-) of flow	-1.65	-0.12	1.53
5	**Shardara reservoir**			
5.1	Inflow to the reservoir	10.34	8.27	-2.07
5.2	Lateral inflow	0.0	0.0	0.00
5.3	Water volume in reservoir:			
	- beginning of the season (October 1, 2021)	0.67	0.67	0.00
	- end of the season (April 1, 2022)	5.20	5.00	-0.20
5.4	Water releases from the reservoir	5.74	3.79	-1.95
	Including:			
	- discharge into Arnasay	0.00	0.00	0.000
	- water releases into the river	5.65	3.52	-2.13
	- water intake from the reservoir	0.08	0.27	0.19
5.5	Water balance discrepancy	-0.07	-0.15	-0.07
	Including % of inflow to the reservoir	1	2	1
5.6	Flow regulation: recharge (+) or diversion (-) of flow	-4.60	-4.75	-0.15
	Total volume of flow regulation by reservoirs: recharge (+) or diversion (-) of flow	-0.27	-0.41	-0.14
	Total discrepancy: (+) unrecorded inflow	0.08	1.19	1.11

2 Amu Darya River Basin

The actual water content in the Amu Darya River at "nominal Kerki" section (upstream of the water intake to Garagumdarya) amounted to 11.7 km³, which is 8% more than the forecast according to the schedule of BWO Amu Darya (Table 2.1).

Inflow to the Nurek reservoir was 4.12 km³ (113% of the forecast), while water releases were 7.56 km³ (102% of that scheduled by BWO Amu Darya). The river flow increased due to the drawdown of the Nurek reservoir by 3.44 km³. By the end of the season, the reservoir was drawn down to 6.62 km³. The reservoir water balance discrepancy, showing water losses and (or) overestimated inflow to the reservoir, is negative - 0.48 km³ (Table 2.3)

In the reservoirs of Tuyamuyun hydroscheme (TMHS), the plan for water accumulation during the non-growing season was not fulfilled. By April 1, the actual volume of water turned out to be 0.34 km³ less than the planned one and amounted to 2.46 km³. The non-fulfillment of the plan can be explained by lower than expected inflow to the run-of-river reservoir - the flow at the Darganata section was 6.37 km³ (92% of the forecast). Water releases from TMHS was also less than the BWO schedule – 4.75 km³ (82%).

The established water withdrawal limit in the Amu Darya river basin was 86% used; the actual water withdrawal amounted to 13.50 km³ of water, including 10.72 km³ downstream of Kerki gauging station (starting from the water intake to Garagumdarya). Water supply by state has changed from 82% (Uzbekistan) to 89% (Turkmenistan) - Table 2.1. The water availability was 85% in the upper reaches (up to Garagumdarya water intake), 98% in the middle reaches (from "nominal Kerki" to TMHS), and 62% in the lower reaches (67% in Turkmenistan and 60% in Uzbekistan).

The river balance discrepancy was 1.97 km³ in the "nominal Kerki" - Darganata g/s reach and 1.47 km³ in the Tuyamuyun g/s - Samanbay g/s reach - I total, this is 3.45 km³ or 23% of river flow at "nominal Kerki" g/s. The discrepancy is negative. This indicates to river water losses and, possibly, to inaccuracies in river flow accounting at gauging stations.

The established limit of sanitary-environmental flow for the canals in the Amu Darya lower reaches was 82% used, the water supply amounted to 0.52 km³. According to UzHydromet, 0.34 km3 reached in the Aral Sea region and the Aral Sea. This is 16% of the plan.

Table 2.2 gives the data on river water balance, while Table 2.3 shows the reservoir water balance.

Table 2.1

Indicators of water supply of the countries in the Amu Darya river basin for the non-growing season 2021-2022

#	Water user	Water volume, km^3		Water availability, %
		Limit/ schedule	Actual	Season
1	Total water withdrawal	15.73	13.50	86
2	Water intake by state:			
	Kyrgyz Republic	-	-	-
	Republic of Tajikistan	2.88	2.49	86
	Turkmenistan	6.50	5.79	89
	Republic of Uzbekistan	6.35	5.22	82
3	Downstream of “nominal Kerki” g/s	12.48	10.72	86
	Including:			
	Turkmenistan	6.50	5.79	89
	Republic of Uzbekistan	5.98	4.93	83
4	By river reach			
4.1	Upper reaches	3.25	2.77	85
	Including:			
	Kyrgyz Republic	-	-	-
	Republic of Tajikistan	2.88	2.49	86
	Republic of Uzbekistan, Syrkhandarya	0.37	0.29	77
4.2	Middle reaches	8.35	8.15	98
	Including:			
	Turkmenistan	5.10	4.85	95
	Republic of Uzbekistan	3.25	3.30	102
4.3	Lower reaches	4.14	2.58	62
	Including:			
	Turkmenistan	1.40	0.94	67
	Republic of Uzbekistan	2.74	1.63	60
5	Sanitary-environmental flow to canals in the lower reaches	0.80	0.52	65
	Including			
	Turkmenistan	0.15	0.14	94
	Republic of Uzbekistan	0.65	0.38	58
6	Supply to the Aral Sea region and the Aral Sea	2.1	0.34	16

Table 2.2

Water balance of the Amu Darya River for the non-growing season 2021-2022

Balance item	Water volume, km^3		Deviation (actual-plan)
	Forecast/ plan	Actual	
1.Water content in the Amu Darya River - unregulated flow at " nominal Kerki " section *	10.83	11.71	0.870
2.Flow regulation by Nurek reservoir: recharge(+), diversion (- of flow	3.76	3.44	-0.31
3. Water intake in the middle reaches (-)	-8.35	-8.15	0.20
4.Return flow in the middle reaches (+)	1.21	1.34	0.13
5. River balance discrepancy	-0.55	-1.97	-1.43
6. River flow at Darganata g/s	6.91	6.37	-0.54
7. Water releases from TMHS (including water intake from the reservoir)	5.78	4.75	-1.03
8. Water intake in the lower reaches, including water intake from TMHS (-)	-4.14	-2.58	1.56
9. Emergency-environmental water releases to canals (-)	-0.80	-0.52	0.28
10.River water balance discrepancy	-0.27	-1.47	-1.20
11.Flow of the Amu Darya River at Samanbay g/s	0.57	0.18	-0.39
TOTAL discrepancy	-0.82	-3.44	-2.62
% of flow at "nominal Kerki" g/s	6	23	17

* Excluding water intake in upper reaches (Tajikistan, Surkhandarya region)

Table 2.3

Reservoir water balance in the Amu Darya river basin for the non-growing season 2021-2022

Balance article	Water volume, km^3		Deviation (actual–plan)
	Forecast/ plan	Actual	
1 Nurek reservoir			
2.1 Water inflow to the reservoir	3.63	4.12	0.48
2.2 Water volume in the reservoir:			
- beginning of the season (October, 2021)	10.57	10.57	0.00
- end of the season (April, 2022)	6.21	6.62	0.41
2.3 Water releases from the reservoir	7.39	7.56	0.17
2.4 Water balance discrepancy	-0.60	-0.50	0.10
2.5 Flow regulation: recharge (+) or diversion (-) of flow	3.76	3.44	-0.31
2 Reservoirs of TMHS			
2.1 River flow Darganata g/s	6.91	6.37	-0.54
2.2 Water volume in the reservoirs:			
- beginning of the season (October, 2021)	2.37	2.37	0.00
- end of the season (April 1st 2022)	2.80	2.46	-0.34
2.3 Water releases from the hydroscheme	5.78	4.75	-1.03
Including:			
– water releases into the river	4.03	3.61	-0.42
– water intake	1.75	1.14	-0.61
2.4 Water balance discrepancy	-0.71	-1.53	-0.83
2.5 Flow regulation: recharge (+) or diversion (-) of flow	-1.13	-2.76	-1.63

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