ANALYSIS OF HYDROLOGICAL CONDITIONS IN THE SYRDARYA AND AMUDARYA RIVER BASINS OVER THE NON-GROWING SEASON 2017-2018

1 Syrdarya River Basin

The actual inflow to the upstream reservoirs in the Syrdarya basin (Toktogul, Andizhan, and Charvak reservoirs) was 6.32 km³ during the non-growing season. The inflow to the Toktogul reservoir was 3.66 km³ or 123% of the forecast. The inflow to the Andizhan reservoir was 12% less than the forecast and to the Charvak reservoir – 3% more than the forecast. The total actual water releases from the upstream reservoirs were 12 km³, which were almost the same as planned releases by BWO Syrdarya (12.04 km³).

The total lateral inflow in the reach from the Toktogul reservoir to the Shardara reservoir, including discharges along the Karadarya and Chirchik rivers, was 11.53 km³. This is 1.8 times more than the total inflow to the upstream reservoirs.

By the end of the non-growing season, water volume in the upstream reservoirs was 16.35 km³, including 14.46 km³ in the Toktogul reservoir or 105 % of the BWO Syrdarya's scheduled amount. In the Andizhan and Charvak reservoirs, water volume was 1.22 km^3 (91 %) and 0.68 km^3 (65 %), respectively. The Toktogul reservoir was drawn down by 5.12 km³ and the Charvak reservoir – by 0.76 km³. The Andizhan reservoir was filled with water by 0.21 km³.

Over the non-growing season, the inflow to the Bakhri Tochik reservoir was 13.36 km³, which is 0.29 km³ more than planned by BWO; water releases from the reservoir were 13.25 km³, which is almost the same as scheduled by BWO Syrdarya (12.39 km^3 in 2016-2017). The reservoir was filled with water to 3.41 km^3. Water losses were 0.46 km³ in the reservoir.

During the non-growing season, the total water withdrawal from the Naryn and Syrdarya rivers in the reach up to the Shardarya reservoir was 2.92 km³, of which: 0.03 km³ for the Kyrgyz Republic, 0.06 km³ for the Republic of Tajikistan, 0.43 km³ for the Republic of Kazakhstan (along the Dustlik canal), and 2.4 km³ for the Republic of Uzbekistan. Water supply was uneven in the states, river reaches and time (Table 1.1).

Deviations of actual water supply from the limit ranged from -33% (first ten-day of February) to 215% (first ten-day of December) in the Toktogul-Bakhri Tochik reach and from -46% (second ten-day of October) to 90% (second ten-day of January) in the Bakhri Tochik-Shardara reach (Table 1.4).

Water losses amounted to 3.89 km³ in the reach Toktogul-Shardara. This is 20% of the regulated flow (estimated by the balance method). In comparison, these losses amounted to 2.05 km³ in the same reach during the non-growing season 2016-2017.

During the non-growing season 2017-2018, the inflow to the Shardara reservoir was 13.04 km³ or 1.41 km³ less than scheduled by BWO Syrdarya. By the end of the non-growing season, up to 4.27 km³ (93%) were accumulated in the reservoir. Unrecorded inflow in the amount of 0.78 km³ was observed. Water discharge from the Shardara reservoir amounted to 10.74 km^3 (110 %), including 10.23 km³ into the river, water withdrawal to the Kyzylkum canal in the amount of 0.23 km³, and water releases to Arnasay in the amount of 0.28 km³.

According to the Hydromet's data, the actual water supply to the Aral was 3.95 km^3.

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

Table 1.1

Water availability for the Syrdarya River basin countries for the non-growing season 2017-2018

№	Water user	Water volume,km^3		Water availability, %	Deficit(-), surplus (+), km^3
		Limit/ schedule	Actual	Season	Season
1	Total water diversion	3.36	2.92	87	-0.44
2	Water diversion by state:				
	Kyrgyz Republic	0.04	0.03	89	0.00
	Republic of Uzbekistan	2.48	2.39	96	-0.09
	Republic of Tajikistan	0.37	0.06	18	-0.30
	Republic of Kazakhstan	0.47	0.43	91	-0.04
3	By river reach				
3.1	Toktogul reservoir – Uchkurgan hydroscheme	1.37	1.26	92	-0.10
	of which:				
	Kyrgyz Republic	0.030	0.032	107	0.002
	Republic of Tajikistan	0.084	0.058	69	-0.026
	Republic of Uzbekistan	1.252	1.172	94	-0.080
3.2	Uchkugran hydroscheme – Bakhri Tochik hydroscheme	0.25	0.17	70	-0.074
	of which:				
	Kyrgyz Republic	0.007	0.001	15	-0.006
	Republic of Tajikistan	0.069	0.003	4	-0.066
	Republic of Uzbekistan	0.171	0.169	99	-0.002
3.3	Bakhri Tochik hydroscheme – Shardara reservoir	1.75	1.48	85	-0.26
	of which:				
	Republic of Kazakhstan	0.475	0.431	91	-0.04
	Republic of Tajikistan	0.212	0.004	2	-0.21
	Republic of Uzbekistan	1.061	1.049	99	-0.01
4	Inflow to the Shardara reservoir	14.45	13.04	90	-1.41
	Discharge into Arnasay	0.40	0.28	70	-0.12
5	Water delivery to the Aral Sea (Karateren gauging station)	3.32	3.95	119	0.64

Table 1.2

Syrdarya River channel water balance for the non-growing season 2017-2018

№	Balance item	Water volume, km^3		Deviation (actual - plan)
		Forecast/plan	Actual	
1	Inflow to the Toktogul reservoir	2.98	3.66	0.67
2	Lateral inflow in the reach of Toktogul reservoir – Shardara reservoir (+)	9.59	11.54	1.95
	of which:			
2.1	*Discharge along Karadarya River*	1.27	1.39	0.12
2.2	*Discharge along Chirchik River*	1.35	1.34	-0.02
2.3	*Lateral inflow from CDF and small rivers*	6.97	8.81	1.84
3	Flow regulation in the reservoirs: inflow (+) or diversion (-)	5.90	4.66	-1.24
	of which:			
3.1	*Toktogul reservoir*	5.96	5.13	-0.83
3.2	*Bakhri Tochik reservoir*	-0.05	-0.46	-0.41
4	Regulated flow (1+2+3)	18.48	19.86	1.38
5	Water withdrawal at the Toktogul – Shardara reach (-)	-3.36	-2.92	0.44
6	Water losses (-) or unrecorded inflow to the channel (+) in the Toктogul-Shardara reach	-0.67	-3.89	-3.22
6.1	*Including % of the regulated flow*	4	20	
7	Inflow to the Shardara reservoir	14.45	13.05	-1.40
8	Flow regulation in the Shardara reservoir: inflow (+) or diversion (-)	-4.73	-2.30	2.43
9	Release from the Shardara reservoir to the river	9.72	10.74	1.02
10	Delivery to the Aral Sea (Karateren GS)	3.32	3.95	0.64

Table 1.3

Water balance of the Syrdarya River basin reservoirs for the non-growing season 2017-2018

№	Balance item	Water volume, km^3		Deviation (actual-plan)
		Forecast/plan	Actual	
1	**Toktogul reservoir**			
1.1	Inflow to the reservoir	2.98	3.66	0.67
1.2	Water volume in the reservoir:			
	- beginning of the season (October 1 2017)	19.59	19.586	0.00
	- end of the season (April 1 2018)	13.81	14.46	0.64
1.3	Water releases from the reservoir	8.94	8.78	-0.16
1.4	Unrecorded inflow (+) or losses (-)	0.19	0.00	-0.189
	Including % of inflow to the reservoir	6	0	6
1.5	Flow regulation: inflow (+) or diversion (-)	5.96	5.12	-0.84
2	**Andizhan reservoir**			
2.1	Inflow to the reservoir	0.98	0.86	-0.12
2.2	Water volume in the reservoir:			
	- beginning of the season (October 1 2017)	1.02	1.02	0.00
	- end of the season (April 1 2018)	1.34	1.22	-0.12
2.3	Water releases from the reservoir	0.66	0.66	0.00
2.4	Unrecorded inflow (+) or losses (-)	0.00	-0.01	-0.01
	Including % of inflow to the reservoir	0	1	1
2.5	Flow regulation: inflow (+) or diversion(-)	-0.32	-0.21	0.12
3	**Charvak reservoir**			
3.1	Inflow to the reservoir	1.73	1.80	0.06
3.2	Water volume in the reservoir:			
	- beginning of the season (October 1 2017)	1.77	1.77	0.00
	- end of the season (April 1 2018)	1.05	0.68	-0.38
3.3	Water releases from the reservoir	2.44	2.56	0.12
	Unrecorded inflow (+) or losses (-)	-0.01	-0.33	-0.32
	Including % of inflow to the reservoir	1	18	18
3.5	Flow regulation: inflow (+) or diversion(-)	0.71	0.76	0.06
4	**Bakhri Tochik reservoir**			
4.1	Water inflow to the reservoir from the river	13.06	13.36	0.29
4.2	Lateral inflow	0.300	0.36	0.06
4.3	Water volume in the reservoir:			
	- beginning of the season (October 1 2017)	3.40	3.40	0.00
	- end of the season (April 1 2018)	3.43	3.41	-0.02
4.4	Water releases from the reservoir	13.31	13.25	-0.06
	of which:			
	- releases to the river	13.24	13.25	0.01
	- water withdrawal from the reservoir	0.07	0.00	-0.07
4.5	Unrecorded inflow (+) or losses (-)	-0.03	-0.46	-0.43
	Including % of inflow to the reservoir	0	3	3

№	Balance item	Water volume, km^3		Deviation (actual-plan)
		Forecast/plan	Actual	
4.6	Flow regulation: inflow (+) or diversion (-)	-0.05	-0.46	-0.41
5	**Shardara reservoir**			
5.1	Inflow to the reservoir	14.45	13.04	-1.41
5.2	Lateral inflow	0.0	0.0	0.00
5.3	Water volume in the reservoir:			
	- beginning of the season (October 1 2017)	1.19	1.19	0.00
	- end of the season (April 1 2018)	4.61	4.265	-0.35
5.4	Water releases from the reservoir	9.72	10.74	1.02
	of which:			
	- Discharge into Arnasay	0.40	0.28	-0.119
	- Water releases to the river	9.23	10.23	1.00
	- water withdrawal from the reservoir	0.08	0.23	0.14
5.5	Unrecorded inflow (+) or losses (-)	-1.32	0.77	2.09
	Including % of inflow to the reservoir	9	6	3
5.6	Flow regulation: inflow (+) or diversion(-)	-4.73	-2.30	2.43
	Total flow regulation by reservoirs: inflow (+) or diversion (-)	1.55	2.92	1.36
	Total unrecorded inflow (-) or losses (+)	-1.17	-0.03	1.14

Table 1.4

Deviation of actual water supply from limit in the Syrdarya River basin over the non-growing season 2017-2018

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-Bakhri Tochik reach																					
Total water withdrawal, of which:	Limit	m^3/s	189.2	182.9	163.2	81.4	39.0	20.2	4.6	11.4	30.5	67.8	74.9	75.4	88.1	76.5	104.9	191.5	211.8	224.3	**1,612**
	Actual	m^3/s	161.4	158.9	142.6	88.3	56.2	44.8	14.3	20.7	25.4	54.3	58.7	59.5	59.3	62.0	99.0	165.3	163.6	202.4	**1,434**
	Deviat.	**%**	**-14.7**	**-13.1**	**-12.6**	**8.4**	**44.3**	**121.8**	**214.5**	**81.1**	**-16.6**	**-20.0**	**-21.7**	**-21.2**	**-32.8**	**-19.0**	**-5.6**	**-13.7**	**-22.7**	**-9.7**	**-11**
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	5.9	4.5	4.5	4.4	3.7	4.0	1.1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.5	0.6	1.8	**33**
	Deviat.	**%**	**-30.1**	**-36.1**	**-34.5**	**194.6**	**376.9**	**570.0**										**-88.5**	**-87.0**	**-74.8**	**-11**
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	8.9	6.3	5.9	4.9	3.0	2.8	0.0	1.8	3.0	2.2	1.3	5.0	7.1	3.2	3.1	3.2	3.5	3.9	**61**
	Deviat.	**%**	**-61.1**	**-68.7**	**-70.7**	**-59.6**									**18.8**	**-60.0**	**-69.1**	**-85.3**	**-86.1**	**-86.0**	**-60**
Uzbekistan	Limit	m^3/s	157.7	155.8	136.4	67.9	38.2	19.6	4.6	11.4	30.5	67.8	74.9	75.4	82.1	68.5	94.9	165.5	182.1	189.2	**1,423**
	Actual	m^3/s	146.5	148.1	132.3	79.1	49.5	38.0	13.2	18.1	21.6	51.4	56.6	53.6	51.3	58.0	95.4	161.7	159.6	196.7	**1,341**
	Deviat.	**%**	**-7.1**	**-4.9**	**-3.0**	**16.4**	**29.5**	**94.0**	**189.9**	**58.3**	**-29.1**	**-24.3**	**-24.4**	**-28.9**	**-37.5**	**-15.4**	**0.6**	**-2.3**	**-12.4**	**4.0**	**-6**
Bakhri Tochik-Shardara reach																					
Total water withdrawal, of which:	Limit	m^3/s	128.2	124.6	122.6	81.7	70.5	63.5	92.0	96.5	102.1	93.8	88.0	112.7	130.8	119.0	113.7	154.4	150.4	152.4	**1,748**
	Actual	m^3/s	78.2	67.3	77.6	69.9	64.3	63.6	61.5	60.0	60.0	95.0	167.2	144.2	121.6	123.6	99.6	114.5	109.1	120.0	**1,484**
	Deviat.	**%**	**-39.0**	**-46.0**	**-36.7**	**-14.4**	**-8.7**	**0.2**	**-33.2**	**-37.8**	**-41.2**	**1.3**	**90.0**	**28.0**	**-7.0**	**3.9**	**-12.4**	**-25.8**	**-27.5**	**-21.3**	**-15**
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	23.2	76.7	71.9	73.1	80.0	62.5	49.1	35.0	29.6	**431**
	Deviat.	**%**							**-100**	**-100**	**-100**	**-33.7**	**70.4**	**-10.1**	**-23.1**	**6.7**	**38.9**	**40.3**	**40.0**	**47.8**	**-9**
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	4.4	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.	**%**	**-87.8**	**-100**	**-100**	**-100**	**-100**									**-100**	**-100**	**-100**	**-100**	**-100**	**-98**
Uzbekistan	Limit	m^3/s	92.2	94.6	95.6	65.7	64.5	63.5	67.0	66.5	67.1	58.8	43.0	32.7	35.8	36.0	46.7	87.4	93.4	97.4	**1,061**
	Actual	m^3/s	73.8	67.3	77.6	69.9	64.3	63.6	61.5	60.0	60.0	71.8	90.5	72.3	48.5	43.6	37.1	65.4	74.1	90.5	**1,049**
	Deviat.	**%**	**-20.0**	**-28.8**	**-18.9**	**6.5**	**-0.2**	**0.2**	**-8.2**	**-9.7**	**-10.5**	**22.1**	**110.5**	**121.3**	**35.7**	**21.3**	**-20.5**	**-25.2**	**-20.7**	**-7.1**	**-1**

2 Amudarya River Basin

The actual available water in the Amudarya River at the nominal Atamyrat gauging station (upstream of the intake to Garagumdarya) was 8.87 km³ or 29% less than scheduled by BWO Amudarya.

The inflow to the Nurek reservoir was 3.6 km³ (103% of the forecast); water releases were 7.56 km³ (107% of the BWO Amudarya schedule). Additional water to river flow due to drawdown of the Nurek reservoir was 3.91 km^3. By the end of the season, the reservoir was drawn down to 6.64 km^3.

In the TMHS reservoirs, the water accumulation plan has not been fulfilled – by the 1st of April the actual water volume was less than the scheduled one by 0.6 km³ and amounted to 2.78 km³. The failure to implement the water accumulation plan is explained by the limited inflow to the in-stream reservoir as it was expected. The flow in the Bir-Ata reach was 6.4 km³ (84% of the forecast). Water releases from TMHS were also less than scheduled by BWO – 6.76 km³ (91%). Water losses were 1.53 km³ in the Bir-Ata-Tuyamuyun GS reach (estimated by the balance method as balance discrepancy).

The established limit of water withdrawal in the basin was 98 % used; water withdrawal was 15.41 km^3, including 12.01 km^3 downstream of the Atamyrat gauging station (starting from the intake to Garagumdarya).

Water availability was uneven in the states and river reaches (Table 2.1). To compare, in the upper reaches (up to intake of Garagumdarya), it amounted to 105%, in the middle reaches (up to TMHS) – to 101%, and in the lower reaches it decreased to 87% (85% in Turkmenistan and 88% in the Republic of Uzbekistan). The total water deficit was 31 mcm (2%), including 5% in the Republic of Uzbekistan and 3% in Turkmenistan -3%, whereas in the Republic of Tajikistan water excess was 6%.

Deviations of actual water supply from the limit ranged from -14% (first ten-day of March) to 27% (first ten-day of December) in the Nurek-Tuyamuyun reach and from -90% (third ten-day of November) to 903% (first ten-day of January) in the Tuyamuyun-Samanbay reach (Table 2.4).

Water losses were not observed in the nominal Atamyrat GS – Bir-Ata reach; unrecorded inflow was observed in the amount of 0.47 km³ (4% of river flow). In the reach Tuyamuyun GS-Samanbay, water losses amounted to 1.76 km^3 (36% of flow in the Tuyamuyun GS). In the non-growing season 2016-2017, water losses were less – 1.32 km^3. The total channel losses were 1.29 km³ or 14% of flow in the middle and lower reaches.

The established limit for sanitary and environmental water releases to the Amudarya downstream canals was 96% used; water supply amounted to 0.77 km³. According to the Hydromet's data, 1.41 km³ were supplied to Prearalie and the Aral Sea.

Table 2.2 provides data on the river channel balance, and Table 2.3 gives the water balance of the reservoirs.

Table 2.1

Water availability in the Amudarya River basin countries for the non-growing season 2017-2018

№	Water user	Water volume, km3		Water availability, %	Deficit (-), surplus (+), km^3
		Limit/ schedule	Actual	Season	Season
1	Total water withdrawal	15.72	15.41	98	-0.31
2	Water withdrawal by state:				
	Kyrgyz Republic	-	-	-	-
	Republic of Tajikistan	2.87	3.03	106	0.16
	Turkmenistan	6.50	6.32	97	-0.18
	Republic of Uzbekistan	6.35	6.05	95	-0.30
3	Downstream of the Atamyrat reach	12.48	12.01	96	-0.47
	of which:				
	Turkmenistan	6.50	6.32	97	-0.18
	Republic of Uzbekistan	5.98	5.68	95	-0.30
4	By river reaches				
	Upper reaches	3.24	3.40	105	0.16
	of which:				
	Kyrgyz Republic	-	-	-	-
	Republic of Tajikistan	2.87	3.03	106	0.16
	Republic of Uzbekistan, Surkhandarya	0.37	0.37	100	0.00
	Middle reaches	8.35	8.40	101	0.05
	of which:				
	Turkmenistan	5.10	5.13	101	0.03
	Republic of Uzbekistan	3.25	3.27	101	0.03
	Lower reaches	4.13	3.61	87	-0.52
	of which:				
	Turkmenistan	1.40	1.20	85	-0.20
	Republic of Uzbekistan	2.73	2.41	88	-0.32
5	Sanitary and environmental releases to canals within lower reaches	0.80	0.77	96	-0.03
	Including:				
	Turkmenistan	0.15	0.14	93	-0.01
	Republic of Uzbekistan	0.65	0.63	97	-0.02
6	Supply to Prearalie and the Aral Sea	2.1	1.41	67	-0.69

Table 2.2

The Amudarya River channel water balance for the non-growing season 2017-2018

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 *	12.54	8.87	-3.67
2.Flow regulation in the Nurek reservoir: accumulation (+) or diversion (-)	3.55	3.91	0.36
3.Water withdrawal in the midstream (-)	-8.35	-8.40	-0.05
4.Midstream return CDF (+)	1.46	1.55	0.09
5.Water losses (-) or unrecorded inflow to the channel (+)	-1.62	0.47	2.09
% of flow at the nominal Atamyrat GS	10	4	-6
6.Flow at the Bir-Ata GS	7.58	6.40	-1.18
7.Flow regulation by TMHS: accumulation (+) or diversion (-)	-0.17	0.36	0.53
8.Water releases from TMHS (including water diversion from the reservoir)	7.41	6.76	-0.65
9.Downstream water diversion, including from TMHS (-)	-4.13	-3.61	0.52
10.Downstream return CDF (+)	0.00	0.00	0.00
11.Emergency and environmental water releases to canals (-)	-0.80	-0.77	0.03
12.Runoff losses (-) or unrecorded inflow to the channel (+)	-1.43	-1.76	-0.33
% of flow in the Tuyamuyun GS reach	27	36	9
13.Supply to Prearalie and the Aral Sea (Samanbay GS)	1.05	0.62	-0.42
TOTAL losses:	-3.05	-1.29	1.76
% of water content	24	14	-10

* 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 2017-2018

Balance item	Water volume, km^3		Deviation (actual-plan)
	Forecast/plan	Actual	
1 Nurek reservoir			
2.1 Inflow to the reservoir	3.53	3.64	0.11
2.2 Water volume in the reservoir:			
– Beginning of the season (October 1 2017)	10.57	10.57	0.00
– End of the season (April12018)	7.02	6.64	-0.38
2.3 Water releases from the reservoir	7.08	7.56	0.48
2.4 Lateral inflow (+) or losses (-)	0.00	-0.02	-0.02
% of the inflow to the reservoir	0	1	0
2.5 Flow regulation: accumulation (+) or diversion (-)	3.55	3.91	0.36
2 Reservoirs of TMHS			
2.1 River flow at Bir-Ata GS	7.58	6.40	-1.18
2.2 Water volume in the reservoirs:			
– Beginning of the season (October 1 2017)	4.67	4.67	0.00
– End of the season (April12018)	3.39	2.78	-0.60
2.3 Water release from the hydroscheme	7.41	6.76	-0.65
of which:			
– release to the river	5.36	4.89	-0.47
– water diversion	2.05	1.87	-0.18
2.4 Unrecorded inflow (+) or water losses (-)	-1.46	-1.53	-0.08
including %of inflow to the reservoir	19	24	5
2.5 Flow regulation: accumulation (+) or diversion (-)	-0.17	0.36	0.53
TOTAL losses (-), unrecorded inflow (+)	-1.45	-1.55	-0.10

Table 2.4

Deviation of actual water supply from limit in the Amudarya River basin over the non-growing season 2017-2018

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	547	465	524	524	576	612	624	656	770	853	986	1055	1076	11,586
	Actual	m^3/s	993	873	808	730	692	658	589	544	555	574	659	723	716	750	775	844	955	1057	11,798
	Deviat.	**%**	11	0	-3	1	1	20	27	4	6	0	8	16	9	-3	-9	-14	-10	-2	2
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	266	230	207	189	183	178	142	115	112	113	190	252	215	204	169	183	229	279	3,030
	Deviat.	**%**	12	-1	-3	-9	-11	-6	-3	-17	-15	-12	48	88	50	26	-12	-18	-4	17	6
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	445	370	345	300	272	252	216	216	232	257	273	272	290	333	387	435	465	517	5,127
	Deviat.	**%**	13	-4	-4	2	4	9	-1	3	13	22	19	10	5	-7	-5	-10	-12	-6	1
Uzbekistan	Limit	m^3/s	259	259	259	220	217	127	100	175	187	238	254	244	238	249	254	281	289	286	3,615
	Actual	m^3/s	281	273	256	242	238	229	231	213	211	204	196	199	211	213	219	226	261	261	3,640
	Deviat.	**%**	8	5	-1	10	10	80	131	22	13	-14	-23	-18	-11	-15	-14	-19	-10	-9	1
Tuyamuyun-Samanbay reach																					
Total water withdrawal, of which:	Limit	m^3/s	353	278	208	125	125	125	167	144	100	30	37	51	188	385	520	657	677	623	4,135
	Actual	m^3/s	266	277	90	18	16	13	177	307	332	301	129	62	38	93	311	634	645	441	3,610
	Deviat.	**%**	-25	0	-57	-85	-87	-90	6	114	232	903	248	21	-80	-76	-40	-4	-5	-29	-13
Turkmenistan	Limit	m^3/s	140	70	0	0	0	0	0	0	0	30	37	51	108	206	210	253	263	263	1,400
	Actual	m^3/s	136	70	3	0	0	0	0	8	42	45	45	26	29	66	165	250	276	227	1,196
	Deviat.	**%**	-3	0								51	23	-50	-73	-68	-21	-1	5	-14	-15
Uzbekistan	Limit	m^3/s	213	208	208	125	125	125	167	144	100	0	0	0	80	179	310	404	414	360	2,735
	Actual	m^3/s	130	206	87	18	16	13	177	299	290	255	84	36	9	27	146	384	369	214	2,414
	Deviat.	**%**	-39	-1	-58	-85	-87	-90	6	108	190				-88	-85	-53	-5	-11	-41	-12