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

1 Syrdarya River basin

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

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

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

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

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

The difference between the actual water supply and the water limit was from -39 % (2nd ten-day period of December) to 260 % (1st ten-day period of October) in the Toktogul-Bakhri Tochik reach and from -63% (1st ten-day period of December) to 22 % (2nd ten-day period of October) in the Bakhri Tochik-Sharadara reach (Table 1.4).

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

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

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

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

Table 1.1

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

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

Table 1.2

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

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

Table 1.3

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

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

№	Balance item	Water volume, km^3		Deviation (actual – plan)
		Forecast/ plan	Actual	
	Including % of inflow to the reservoir	0	2	2
4.6	Flow regulation: inflow (+) or diversion (-)	-1.31	-0.57	0.73
5	**Shardara reservoir**			
5.1	Inflow to the reservoir	12.34	11.52	-0.82
5.2	Lateral inflow	0.0	0.0	0.00
5.3	Water volume in the reservoir:			
	- beginning of the season (1 October 2018)	0.95	0.95	0.00
	- end of the season (1 April 2019)	5.20	5.18	-0.03
5.4	Water releases from the reservoir	8.41	8.01	-0.40
	of which:			
	- Discharge into Arnasay	0.40	0.13	-0.267
	- Water releases to the river	7.92	7.74	-0.18
	- water withdrawal from the reservoir	0.08	0.13	0.05
5.5	Unrecorded inflow (+) or losses (-)	0.31	0.70	0.39
	Including % of inflow to the reservoir	3	6	4
5.6	Flow regulation: inflow (+) or diversion(-)	-3.93	-3.78	0.15
	Total flow regulation by reservoirs: inflow (+) or diversion (-)	1.29	2.30	1.01
	Total unrecorded inflow (-) or losses (+)	0.29	0.30	0.01

Table 1.4

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

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

2 Amudarya River basin

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

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

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

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

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

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

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

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

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

Table 2.1

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

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

Table 2.2

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

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

* Minus upstream water withdrawals (Tajikistan and Surkhandarya province)

Table 2.3

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

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

Table 2.4

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

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