



Aral Sea Basin Transboundary Water Early Warning Bulletin

May – June 2023



UNRCCA



A need for drafting and issuing given periodical Bulletin as a product for timely dissemination of information on the state-of-affairs in water, environment, and climate in the Aral Sea basin was raised during a seminar on “Early Warning on Potential Transboundary Water Problem Situations in Central Asia” (Almaty, 26 September 2011). The idea behind was to prevent problems or disputes arising. In the course of discussions with the UN Regional Centre for Preventive Diplomacy for Central Asia the riparian states in the Aral Sea basin have expressed their support for such an initiative as they repeatedly showed their interest in enhanced regional capacities for early warning and preparedness to potential hazards. This was reflected in the Aral Sea Basin Programs (ASBP-3 and ASBP-4). Past Bulletins issued in 2014-2022 have met expectations of the countries regarding such information.

The Bulletin is a resource, which provides all the Central Asian states and their international partners with improved capacity to monitor regularly the status of transboundary rivers and warn early of potential issues that require attention.

Four early warning bulletins are to be issued as part of the Project in 2023. The format and content of the bulletins have been agreed with the client and with all organizations that provided source information. Given Bulletin contains the actual information on the Syr Darya and Amu Darya basins for May 2023 and the forecast for June. The Bulletin also contains the information on the status of aquatic ecosystems in the South Aral Region that was not published before.

The following data sources were used in the Bulletin:

- BWO Amu Darya and BWO Syr Darya – data on water resources, their distribution in time (daily) and by river reach, operation regimes of reservoirs, inflow (planned versus actual) to the Aral Sea,
- CDC “Energy” – data on operation regimes of hydroelectric power stations (HEPS), electricity generation (planned, actual),
- Aral-Syrdarya BWA – data on lower reaches of the Syr Darya River (components of the water balance from the tail-water of the Shardara reservoir to the Northern Aral Sea),
- Open Internet sources - climatic information.

Additionally, an Internet platform on [telegra.ph](#) is to be developed in September 2023 as part of the Project. The platform will contain all Bulletins issued since 2014 in both Russian and English.

Digest of CA news for May

Source: <http://cawater-info.net/news/index.htm>

Tajikistan and Kyrgyzstan agree on water sharing ([dialog.tj](#))

Representatives of energy sectors in Central Asia meet in Dushanbe ([uza.uz](#))

Reverting privatization. Kazakhstan returned two largest HEPS' to state property ([centrasia.org](#))

World Bank will grant \$200 million for updating the feasibility study of Kambarata-1 ([kabar.kg](#))

EU provides farmers with free access to water | Tajikistan News ASIA-Plus ([asiaplustj.info](#))

UNDP-supported eco-training for youth in Dashoguz ([orient.tm](#))

UN will help Uzbekistan to prevent accidental water pollution | UN News ([un.org](#))

Expert group of the Committee for the Aral Sea Region Development and Ecology holds meeting on 1 May 2023 – IFAS Agency ([aral.uz](#))

The Global Seismographic Network installs its station in Uzbekistan ([centrasia.org](#))

Central Asian young researchers learn about the impact of climate change in the Amu Darya River Basin | NIAT "Hovar" ([khovar.tj](#))

Global initiatives of Tajikistan on water and climate discussed during an international conference | NIAT "Hovar" ([khovar.tj](#))

Turkmenistan and United Nations discuss financing SDGs ([orient.tm](#))

Sudochie Lake becomes a Ramsar wetland of international importance - Uzbekistan Today ([nuz.uz](#))

UN highly values activities for environmental improvement in the Aral Sea Region ([yuz.uz](#))

National nature park "Aralkum" is created on the exposed seabed of the Aral Sea - Uzbekistan Today ([nuz.uz](#))

Largest party of the European Parliament rejects the law on nature restoration | IA "Krasnaya Vesna" ([rossaprimavera.ru](#))

International Climate Day - 15 May. History and features ([calend.ru](#))

Regular meeting of the Group of Friends of Water following the UN Water Conference | NIAT "Hovar" (khovar.tj)

10th meeting of the Joint Inter-Governmental Commission between Tajikistan and Uzbekistan held in Tashkent - Tajikistan News – (avesta.tj)

Kazakhstan discusses possible transit of Russian gas through Uzbekistan (yuz.uz)

Tokayev instructs to take measures for conservation of drinking water for future generations (zakon.kz)

Kyrgyz energy experts recognize that hydropower facilities critically worn-out (toptj.com)

Drought in Turkmenistan causes 50-70% shrinkage of reservoirs' surfaces – Turkmenistan News (hronikatm.com)

Uzbekistan imported record amounts of electricity from Tajikistan last years – Uzbekistan News – Газета.uz (qazeta.uz)

FAO raises the issues of the Aral Sea Region at the UN Forest Forum (uza.uz)

Zhaparov invites Chinese partners to implement Kambarata-1 Project (akchabar.kg)

Jubilee events of the International Fund for saving the Aral Sea discussed | NIAT "Hovar" (khovar.tj)

UNDP organizes a workshop on alternative energy in Turkmenistan | (arzuw.news)

Proposal to open the UN Office on Climate Change in Tashkent put forward (uza.uz)

RF will support holding the second UN Water Conference in Tajikistan | Eurasia | "Dialog: Tajikistan & mir" (dialog.tj)

Meeting as part of the Panj River Basin Management Project - Tajikistan News – (avesta.tj)

The Day of the Amu Darya celebrated in the north of Turkmenistan | Society (turkmenportal.com)

Meeting of the Committee for the Aral Sea Region Development and Ecology at the Uzbek Parliament held on 29 May — IFAS Agency (aral.uz)

The above materials are taken from news media or websites and therefore SIC ICWC shall not bear any responsibility for the content of these materials.

Amu Darya River Basin

Actual Situation in May and Forecast for June

The available usable river water resources estimated as natural, non-regulated river flow plus lateral inflow to the river and minus losses amounted to 4,622 million m³ in May. The actual river flow of the Amu Darya at Kerki station (upstream of intake to Garagumdarya) was 4,562 million m³ (only 64% of the forecast). The forecast of the available usable river water resources for June is 8,303 million m³.

Inflow to the Nurek reservoir was 1,987 million m³ in May. Water releases from the reservoir amounted to 1,831 million m³. The water volume in the reservoir amounted to 6,403 million m³ at the beginning of month and 6,625 million m³ at the end of month. Thus, the reservoir was filled by 222 million m³ of water. The unrecorded inflow estimated by the water balance method was 66 million m³ or 3% of inflow to the reservoir. It is expected that in June 2,981 million m³ of water will flow into the Nurek reservoir. The water volume will increase to 7,835 million m³, and water releases from the reservoir will be 1,771 million m³.

Inflow to Tuyamuyun waterworks facility (TMWF) was only 1,072 million m³ in May. The total water volume in the reservoirs of TMWF (Ruslovoye, Kaparas, Sultansanjar, and Koshbulak) decreased from 2,601 million m³ at the beginning of month to the minimum of 2,299 million m³ by the end of month. The reservoirs were drawn down by 302 million m³. Water releases from TMWF amounted to 995 million m³, while water diversion from TMWF into canals was 347 million m³ (53% of the plan). Water losses in TMWF reservoirs are estimated by the balance method at 32 million m³. This is 3% of inflow to TMWF or 1% of water volume in reservoirs. Inflow to TMWF is expected in the amount of 4,684 million m³ in June. TMWF reservoirs will accumulate water through the increased inflow and their water volume is to increase to 3,450 million m³ by the end of month. Water releases from TMWF into the river are planned in the amount of 2,592 million m³. Water diversion will also increase – up to 942 million m³.

Nurek HEPS generated 923 million kWh of electrical energy in May. The average flow through turbines was 683 m³/s, while the head at HEPS was 218 m. Sterile spills at Nurek HEPS were not observed.

In May, TMWF HEPS generated 6 million kWh only. The head at HEPS was 20 m. HEPS did not generate energy in 1-4 and 27-31 days of May.

In May, water along the Amu Darya River was distributed unevenly.

Inflow to the first reach (Kelif g/s – Birata g/s) was 4,562 million m³ (64% of the forecast), while outflow from the reach (inflow to TMWF) was 1,072 million m³ (only 29% of the forecast). Water withdrawal into canals amounted to 2,399 million m³ in the reach or 86% of the established water limit (quota).

At the head of the second reach (Tuyamuyun g/s) the flow of the Amu Darya River was 995 million m³ (61% of planned one) in May. Water withdrawal from the river amounted to 656 million m³ or 61% of the established water limit (quota).

Thus, water shortage was estimated at 14% of the established limit in the first reach and 39% in the second reach.

In June, inflow is expected to increase to 8,303 million m³ in the first reach (Kelif g/s – Birata g/s) and water withdrawal will increase to 2,958 million m³. Inflow to the second reach (water releases from TMWF into the river) is to increase to 4684 million m³; discharge from TMWF into the river will increase to 2,592 million m³. Water withdrawal in the second reach (Tuyamuyun g/s - Samanbay g/s) will increase to 1,814 million m³, and the river flow at Samanbay g/s is expected in the amount of 130 million m³.

In May, inflow from the Amu Darya River to the South Aral region (at Samanbay g/s) amounted to 35 million m³ or 33% of the forecast. The inflow from the river and collecting drains is estimated at 93 million m³. The water surface area of wetlands in the South Aral region was estimated at 580 km² on average, including:

Mezhdurechie reservoir – 22 km²; Sudochie lake – 214 km²; Rybachie lake – 8 km²; Dzhylyrbas wetland – 256 km²; and, Dumalak wetland – 12 km².

Source: data of the Regional Information-Analytical Division of SIC ICWC based on RS monitoring of the South Aral region, using Landsat 8-9 images and NDVI.

In May, inflow to Eastern basin of the Large Aral Sea from the Amu Darya River and collecting drains amounted to 93 million m³. Water was not discharged from the North Aral Sea (Syr Darya River basin). In June, inflow to the Large Aral Sea is expected to increase 5.3 times.

In Eastern basin of the Large Aral Sea the water volume varied within 0.12–0.14 km³, the water surface area of the basin was 0.29–0.3 thousand km², and the water level was 25.5–25.53 m. By the end of June, through the increased inflow to Eastern basin of the Aral Sea a slight increase is expected in water volume - 0.31 km³, water surface area –0.46 thousand km², and water level - 25.7 m.

In the Western basin of the Large Aral Sea, the water volume varied within 31.0–30.98 km³, the water surface area was 2.105–2.103 thousand km², and the water level was 21.33–21.32 m. By the end of June, a slight decrease is expected in water volume - 30.9 km³, water surface area –2.1 thousand km², and water level - 21.3 m.

Evaporation from 1 km² of water surface of the Large Aral Sea was 0.105 million m³ in May. Water losses in Western basin of the Large Aral Sea are partially compensated through influent seepage. Surface water did not flow to the Western basin.

The sections below show daily and ten-day data on climate and water management (reservoirs, HEPS, water distribution).

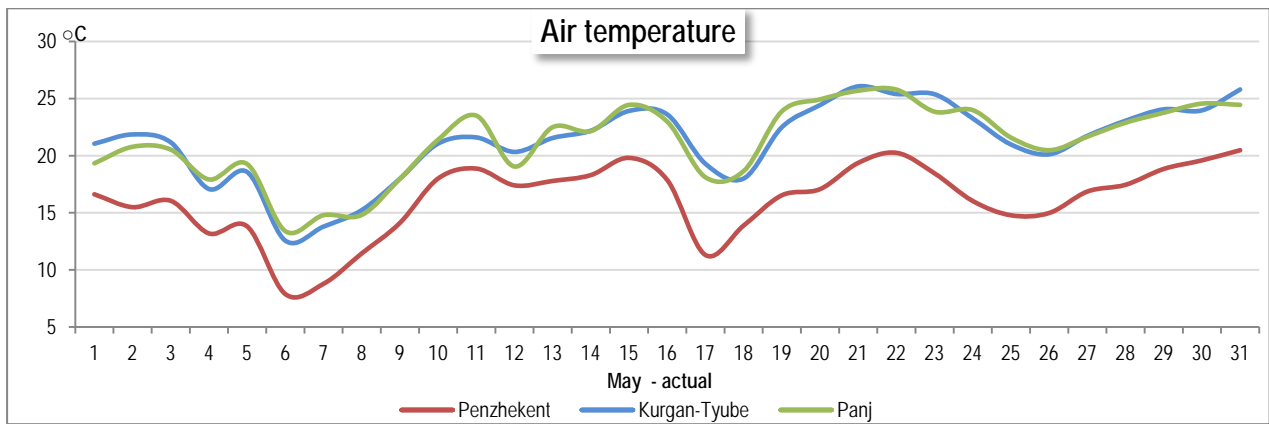


Climate

Weather station Riverhead	Location		
	Latitude	Longitude	Altitude above sea level, m
Kurgan-Tyube	37.82	68.78	429
Penzhekent	39.48	67.63	1015
Panj	37.23	69.08	363

Air temperature (T)

Station	Parameter	May			June		
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day
Panj	<i>Forecast</i>	18.00	23.00	24.00	27.00	31.00	31.00
	<i>Actual</i>	18.02	22.02	23.52			
Kurgan-Tyube	<i>Forecast</i>	18.00	22.00	24.00	27.00	31.00	31.00
	<i>Actual</i>	18.04	21.74	23.62			
Penzhekent	<i>Forecast</i>	14.00	17.00	18.00	23.00	26.00	23.00
	<i>Actual</i>	13.54	16.88	17.92			



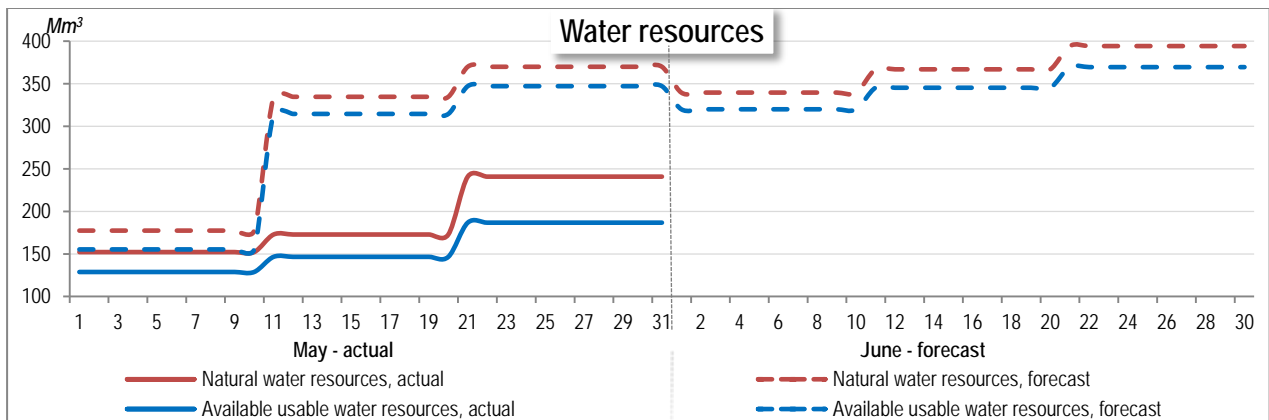


Water resources

Object
Amu Darya
Nurek reservoir
Atamurat gauging station

Water volume (W)

Object	Parameter		May			June		
			I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day
River runoff: Atamurat g/s	W, Mm ³	Forecast	864	1987	2246.4	1900.0	2073.0	2333.0
		Actual	688	765	1286			
Water withdrawal: upstream of Atamurat g/s	W, Mm ³	Forecast	863	1057	1107	1150.0	1164.0	1178.0
		Actual	909	909	960			
Nurek reservoir /filling (+) or draw down (-)	W, Mm ³	Forecast	48	302	346	345.0	432.0	432.0
		Actual	-76	55	161.91			
Natural water resources at Atamurat g/s	W, Mm ³	Forecast	1774.4	3346.6	3699.5	3396.0	3670.0	3943.0
		Actual	1522.0	1728.4	2408.5			
Lateral inflow: downstream of Atamurat g/s	W, Mm ³	Forecast	61.6	60.9	62	60.0	58.0	52.0
		Actual	61.6	60.9	62			
River water losses: downstream of Atamurat g/s	W, Mm ³	Forecast	282.5	261.9	290	257.0	274.0	300.0
		Actual	295.5	323.2	602			
Available usable water resources	W, Mm ³	Forecast	1553	3146	3472	3200.0	3453.0	3695.0
		Actual	1288	1466	1868			



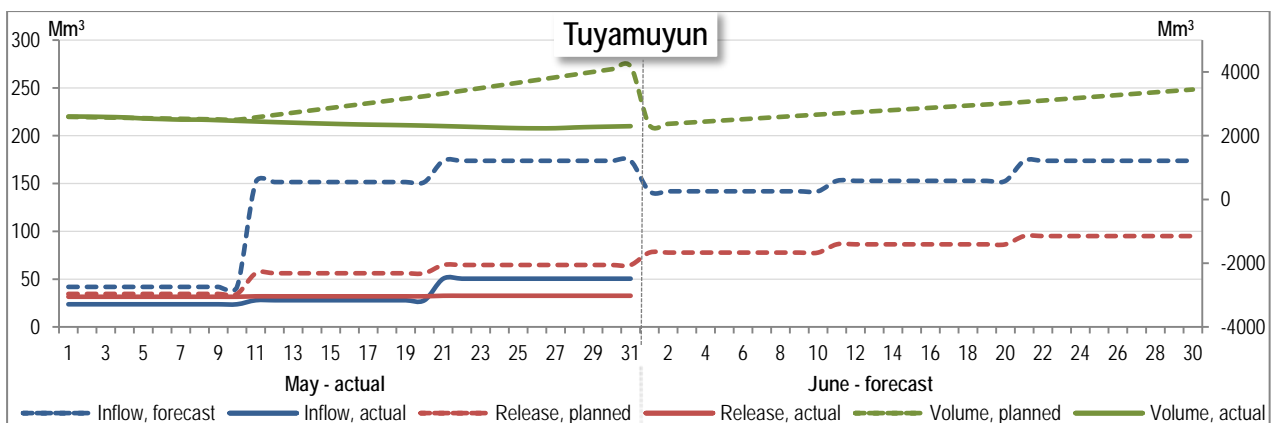
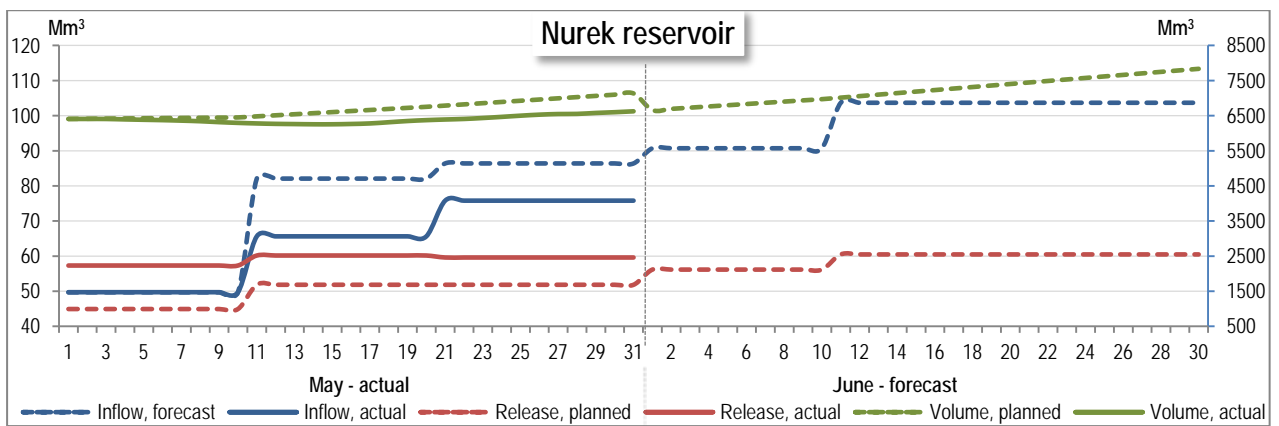


Reservoirs and HEPS

Reservoir	Location			Characteristics				
	Latitude	Longitude	Altitude above sea level, m	Length, km	Width, km	Water-surface area, km ²	Full volume, km ³	Full reservoir level, m
Nurek	38.40	69.47	864	70	1	98	10.50	910
Tuyamuyun	41.03	61.73	130	55	20	670	6.86	130

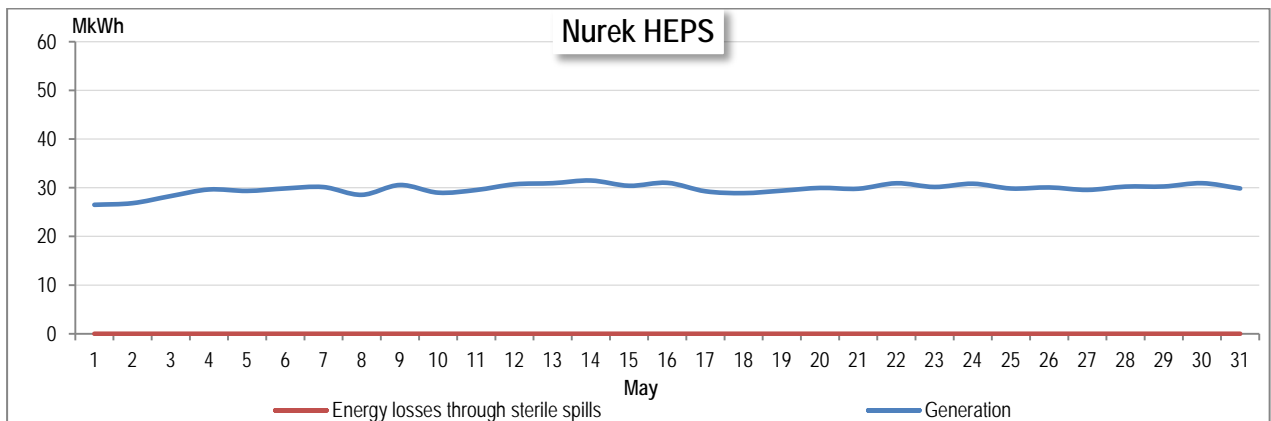
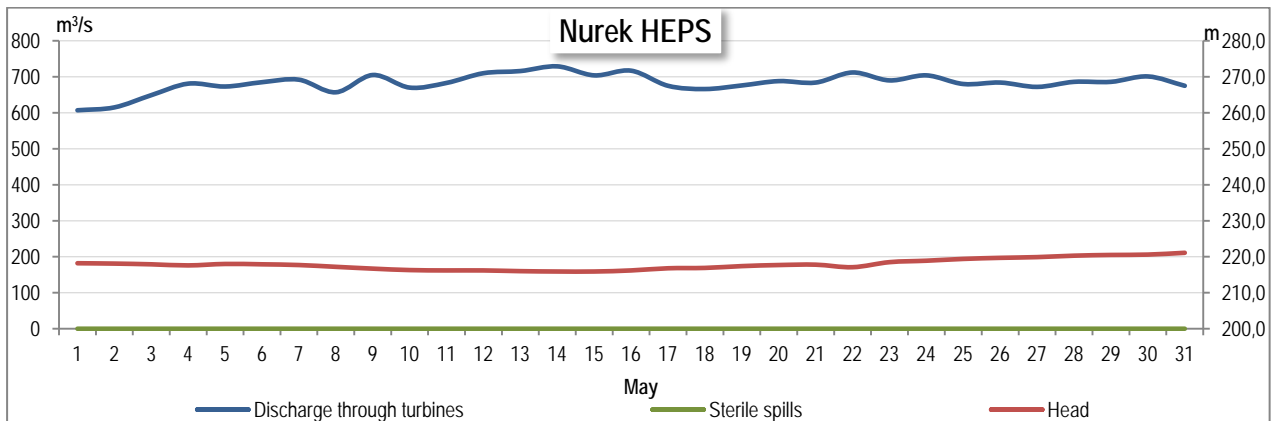
Inflow (I), Releases (R), Volume (W)

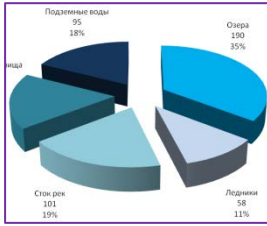
Reservoir	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Nurek reservoir	I, Mm ³	Forecast	497	821	950	907.0	1036.0	1037.0
		Actual	497.2	656.3	834			
	R, Mm ³	Planned	449	518	570	561.0	604.0	605.0
		Actual	573	602	656			
	W, Mm ³	Planned	6450.2	6752.6	7132.8	6970.0	7402.0	7835.0
		Actual	6295	6373	6625			
Reservoirs of Tuyamuyun waterworks facility	I, Mm ³	Forecast	418.8	1515.4	1911.4	1418.0	1528.0	1738.0
		Actual	237.1	279.2	555			
	R, Mm ³	Planned	345.6	561.6	712.8	777.0	864.0	950.0
		Actual	316	320	359			
	W, Mm ³	Planned	2502	3239	4172	2664.0	3017.0	3450.0
		Actual	2467	2317	2299			



Generation (G), Energy losses through sterile spills (L), Discharge through turbines (Q), Sterile spills (R), Head (H)

HEPS	Parameter		May		
			I ten-day	II ten-day	III ten-day
Nurek	G, M kWh	Actual	288.6	301.6	332.4
	L, M kWh	Actual	0.0	0.0	0.0
	Q, m ³ /s	Actual	663.4	696.4	688.5
	R, m ³ /s	Actual	0.0	0.0	0.0
	H, m	Actual	217.6	216.5	219.4



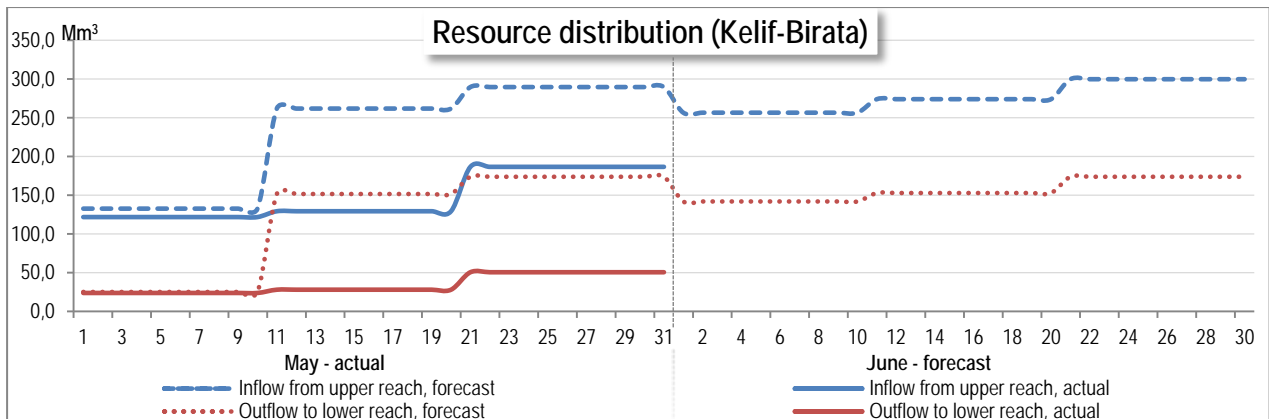


Water distribution

River reaches
Kelif gauging station (upstream of intake to Garagumdarya) – Birata gauging station (Darganata)
Tuyamuyun gauging station (tail water of Tuyamuyun waterworks facility) – Samanbay settlement
Large Aral Sea

Water volume (W)

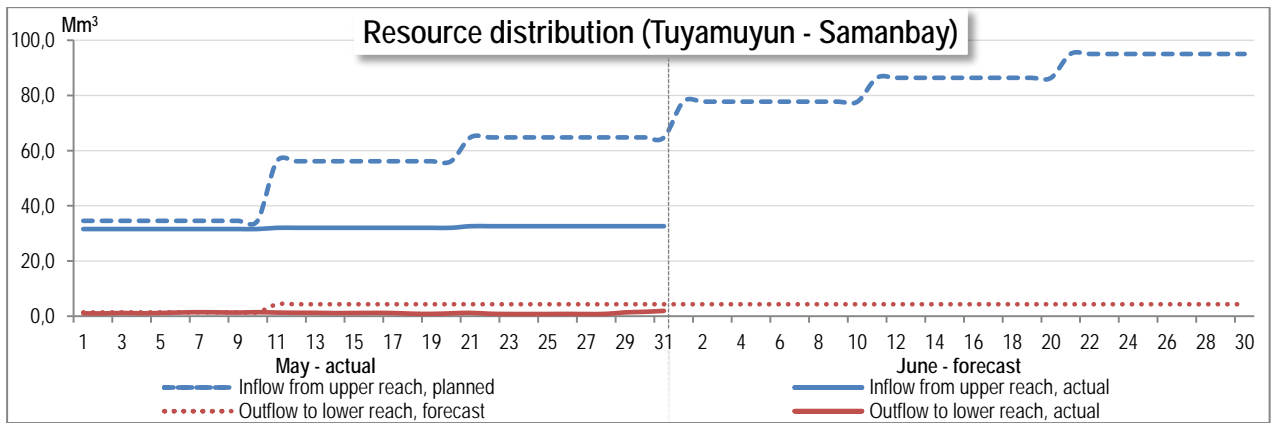
Kelif - Birata	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow from upper reach	W, Mm ³	Forecast	1326.2	2618	3186	2565.0	2740.0	2998.0
		Actual	1217	1292	2052			
Lateral inflow	W, Mm ³	Forecast	61.6	60.9	68	60.0	58.0	52.0
		Actual	62	61	68			
Water withdrawal	W, Mm ³	Planned	855	902	1024	950.0	995.0	1013.0
		Actual	746	751	902			
Losses	W, Mm ³	Forecast	282.5	261.9	319	257.0	274.0	300.0
		Actual	296	323	663			
Outflow to lower reach	W, Mm ³	Forecast	249.9	1515.3	1911	1418.0	1528.0	1738.0
		Actual	237.1	279.2	555			



Water volume (W)

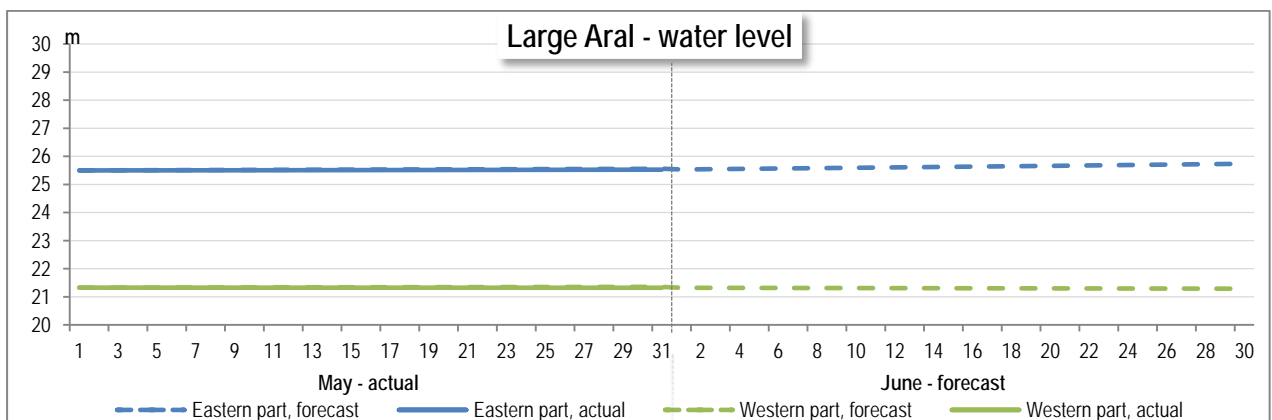
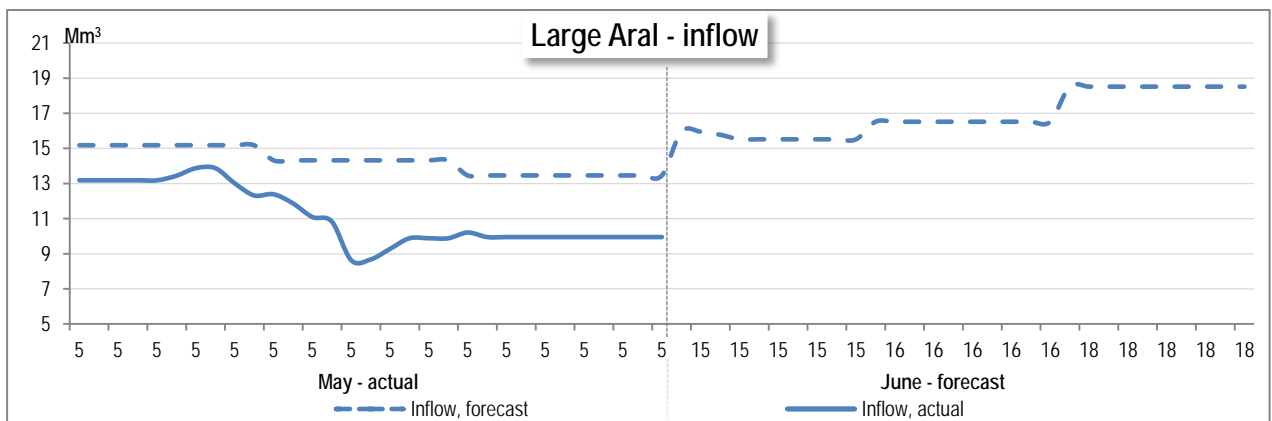
Tuyamuyun - Samanbay	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow from upper reach	W, Mm ³	Forecast	345.6	561.6	713	777.0	864.0	950.0
		Actual	316	320	359			
Lateral inflow	W, Mm ³	Forecast	0	0	0	0.0	0.0	0.0
		Actual	0	0	0			
Water withdrawal ¹	W, Mm ³	Planned	225	367	485	535.0	605.0	674.0
		Actual	220.9	217	219			
Losses	W, Mm ³	Forecast	107	151	181	198.0	216.0	233.0
		Actual	83	92	128			
Outflow to lower reach	W, Mm ³	Forecast	13.82	43.20	47.52	43.0	43.0	43.0
		Actual	12.3	11.10	11.73			

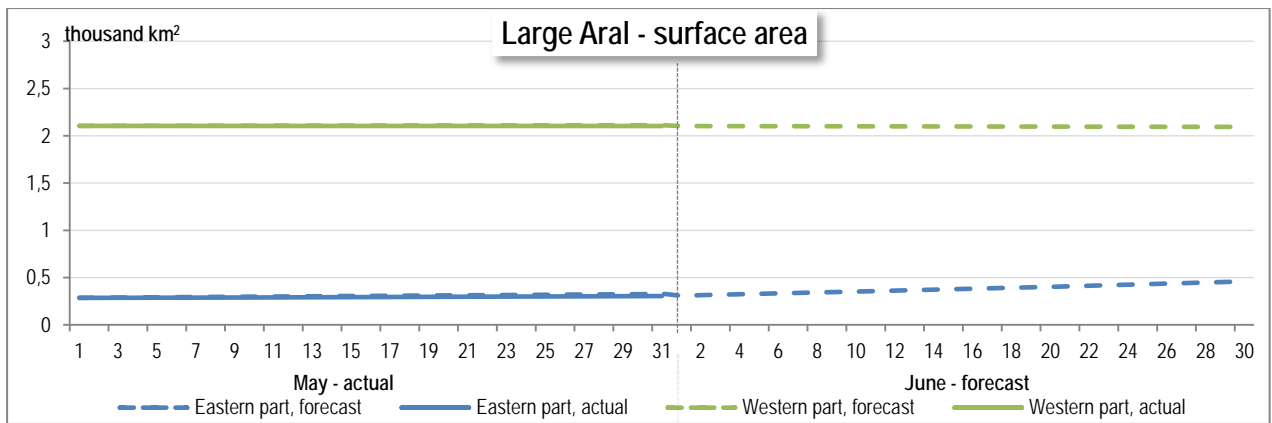
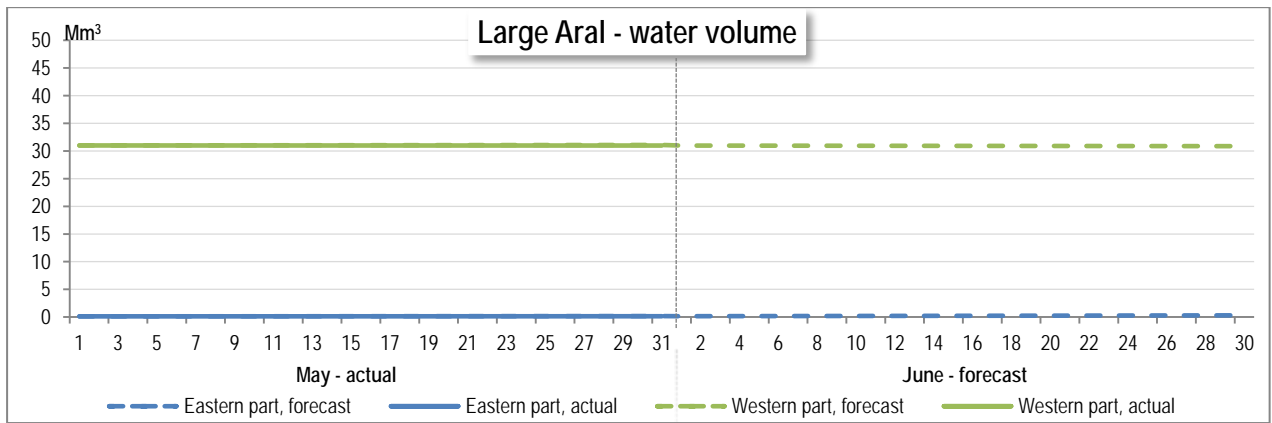
¹ Note: Including supply to the system of lakes and environmental flow to canals



Water volume (W), Level (H), Surface area (S)

Large Aral Sea	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow	W, Mm ³	Planned	50.00	50.00	55.00	150.0	160.0	180.0
		Actual	30.00	30.00	33.00			
Eastern part, water volume	W, Mm ³	Forecast	0.13	0.14	0.16	0.0	0.0	0.0
		Actual	0.12	0.13	0.14			
Eastern part, level	H, m	Forecast	25.51	25.53	25.55	25.0	25.0	25.0
		Actual	25.50	25.51	25.52			
Eastern part, area	S, th.km ²	Forecast	0.29	0.31	0.32	0.0	0.0	0.0
		Actual	0.29	0.29	0.30			
Western part, water volume	W, Mm ³	Forecast	31.02	31.04	31.07	30.0	30.0	30.0
		Actual	31.00	30.99	30.99			
Western part, level	H, m	Forecast	21.33	21.34	21.35	21.0	21.0	21.0
		Actual	21.33	21.33	21.32			
Western part, area	S, th.km ²	Forecast	2.106	2.108	2.11	2.0	2.0	2.0
		Actual	2.104	2.104	2.10			





Syr Darya River Basin

Actual Situation in May and Forecast for June

In May, the available usable water resources in the Syr Darya River that were estimated as the sum of rivers' flow based on inflow to Toktogul, Andizhan, and Charvak reservoirs plus lateral inflow to the rivers and minus losses amounted to 3,834 million m³, of which the inflow to the three reservoirs was 2,684 million m³ (93% of the forecast). The forecast of available usable water resources for June is 5,428 million m³, including the inflow to the three reservoirs of 4,331 million m³.

In May, inflow to the Toktogul reservoir amounted to 1,372 million m³ (96% of the forecast), and 899 million m³ of water was discharged from the reservoir (97% of the plan). The water volume in the Toktogul reservoir increased from 8,130 million m³ to 8,577 million m³ in May. Thus, the reservoir was filled by 447 million m³ of water. Water losses in the reservoir are estimated at 25 million m³, that is 0.3% of reservoir's water volume. It is expected that in June the water volume will increase to 9,768 million m³ in the Toktogul reservoir; the inflow to the reservoir is expected in the amount of 2,294 million m³, and water releases are planned at 1,104 million m³.

Inflow to the Andizhan reservoir amounted to 440 million m³ (96% of the forecast), and 376 million m³ of water (95% of the plan) was discharged from the reservoir in May. The water volume was 952 million m³ at the beginning of month and 1,010 million m³ at the end of month. Water losses were insignificant (0.6% of reservoir's water volume). In June, inflow to the Andizhan reservoir is expected to increase 1.8 times to 755 million m³. Water releases are to increase also – to 715 million m³. The reservoir's water volume will change slightly in June and will be 1,050 million m³ by the end of month.

In May, inflow to the Charvak reservoir was 872 million m³ (86% of expected inflow), and 496 million m³ was discharged (only 72% of planned schedule) from the reservoir. The water volume was 1,019 million m³ at the beginning of May and 1,600 million m³ at the end of month (accumulated 19% above the plan). In June, the inflow to the Charvak reservoir is expected to be 1,282 million m³, and water releases will increase to 926 million m³. The water volume is to be 1,956 million m³ by the end of month.

In May, the Bakhri Tojik reservoir was drawn down from 3,463 million m³ to 3,443 million m³. The inflow to the reservoir was 749 million m³ (100% of the forecast), while water releases from the reservoir were 675 million m³ (94% of the plan). Water losses in the reservoir were recorded in the amount of 94 million m³ (2.7% of reservoir's water volume). In June, inflow to the Bakhri Tojik reservoir is expected to decrease to 3,443 million m³, while water releases will increase to 1,193 million m³. The reservoir will be drawn down to 2,893 million m³.

Inflow to the Shardara reservoir was only 285 million m³ in May. Water releases from the reservoir into the river amounted to 544 million m³ (41% of the plan). Water was not discharged into Arnasai. The reservoir was drawn down to 4,142 million m³. The water balance discrepancy is estimated at 339 million m³ (7% of reservoir's water volume) indicating to water losses in the reservoir. In June, inflow to the Shardara reservoir will be 550 million m³, and water releases from the reservoir will be 526 million m³. The reservoir's water volume will decrease to 4,020 million m³ by the end of June. Water discharge into Arnasai is not planned for June.

In May, the water volume in the Koksarai reservoir decreased from 1,463 million m³ to 533 million m³. There was no inflow to the reservoir. The discharge from the Koksarai reservoir into the Syr Darya exceeded that from the Shardara reservoir 1.7 times and amounted to 920 million m³ (99% of the plan). The reservoir's water surface area shrank from 389 km² to 318 km² in May. The water balance discrepancy explained by water losses was 10 million m³. In June, accumulation of water is not planned in the Koksarai reservoir. The water volume will decrease to 83 million m³ by the end of June. Water releases from the reservoir are planned in the amount of 450 million m³.

In May, 811 million kWh was generated by the cascade of Naryn HEPS (Kyrgyzstan). The plan of energy generation for June for the cascade of Naryn HEPS is set at 984 million kWh, that is 121% of generation in May.

Toktogul HEPS operating in energy-generation mode generated 279 million kWh (117% of the plan). The average discharge through turbines of the Toktogul HEPS was 333 m³/s, the average head of HEPS was small - 129 m, and no sterile spills were recorded. The plan of energy generation for June for the Toktogul HEPS is set at 354 million kWh (127% of generation in May).

In May, the total generation at large HEPS' of Uzbekistan amounted to 211 million kWh, of which: 155 million kWh at Charvak HEPS, 44 million kWh at Andizhan HEPS, and 12 million kWh at Farkhad HEPS. The discharge at Charvak HEPS was 185 m³/s, and the head was 129 m. The discharge at Andizhan HEPS was 83 m³/s, and the head was 95 m. For Farkhad HEPS, the discharge was 58 m³/s, and the head was 31 m.

Energy generation by HEPS of the Bakhri Tojik reservoir (Tajikistan) amounted to 28 million kWh. Shardara HEPS (Kazakhstan) generated 40 million kWh in May. Water discharge at HEPS of Bakhri Tojik was 247 m³/s, while the head was 21 m. Discharge through turbines of Shardara HEPS was 200 m³/s, and the head was 21 m.

In May, the water shortage was estimated at 4% of the set limit in upper reaches, in the Toktogul HEPS- Uchkurgan waterworks facility (tail-water). Further downstream, in the reach from Uchkurgan waterworks facility (tail-water) to Akjar g/s (inflow to the Bakhri Tojik reservoir) the water shortage was as high as 14% of the limit. The balance discrepancy was 14 million m³ (1.5% of river flow) and can be attributed to water losses. In the Akjar section the water volume was 749 million m³, virtually meeting the expected amount in water distribution planning. In the middle reaches, from the Bakhri Tojik reservoir (Kyzylkislak section) to Shardara reservoir, the actual water withdrawal was by 4% lower than planned one (established water limit).

In May, in the lower reaches of the Syr Darya River (downstream of the Shardara reservoir) the river flow at head-water section was 544 million m³ only (41% of the schedule). However, through discharge of 920 million m³ from the Koksarai reservoir, 1,117 million m³ were diverted for irrigation and other needs. The water shortage was estimated at 11% of planned water withdrawal. The water balance discrepancy was estimated at 359 million m³ (24% of river flow downstream of spillway of the Koksarai reservoir). Such discrepancy can be explained by losses in the river and in the Aral Sea region (river delta). Inflow to the Aral Sea from the Syr Darya was 39 million m³ only (20% of the plan).

In June, it is planned to increase discharge from the Toktogul waterworks facility and the Uchkurgan waterworks facility 1.2 times and 1.15 times, respectively, as compared to May. Inflow at Kyzylkislak section is expected 1.7 times higher than in May. Inflow to the Shardara reservoir will also increase, 1.9 times.

It is planned to increase river water withdrawal in June: to 755 million m³ (1.2 times) from the Naryn River in the Toktogul HEPS-Uchkurgan waterworks facility (tail-water) reach; and, to 1,241 million m³ (2 times) from the Syr Darya River in the Bakhri Tojik -Shardara reservoir reach. Water withdrawals will decrease to 850 million m³ (1.3 times) in the lower reaches. The Syr Darya River flow is expected in the amount of only 13 million m³ at the entry point to the North Aral Sea.

In May, inflow to the North Aral Sea from the Syr Darya River was about 0.04 million m³. Parameters of the North Aral changed insignificantly. The water level raised from 41.38 to 41.4 m, the water volume increased from 23.38 to 23.4 km³, and the water surface area changed from 2.976 to 2.98 thousand km². No changes in the parameters of the North Aral Sea are expected by the end of June. There was no discharge from the North Aral into the Large Aral in May, and it is not planned to discharge water from the Sea in June as well.

The sections below show daily and ten-day data on climate and water management (reservoirs, HEPS, water distribution).

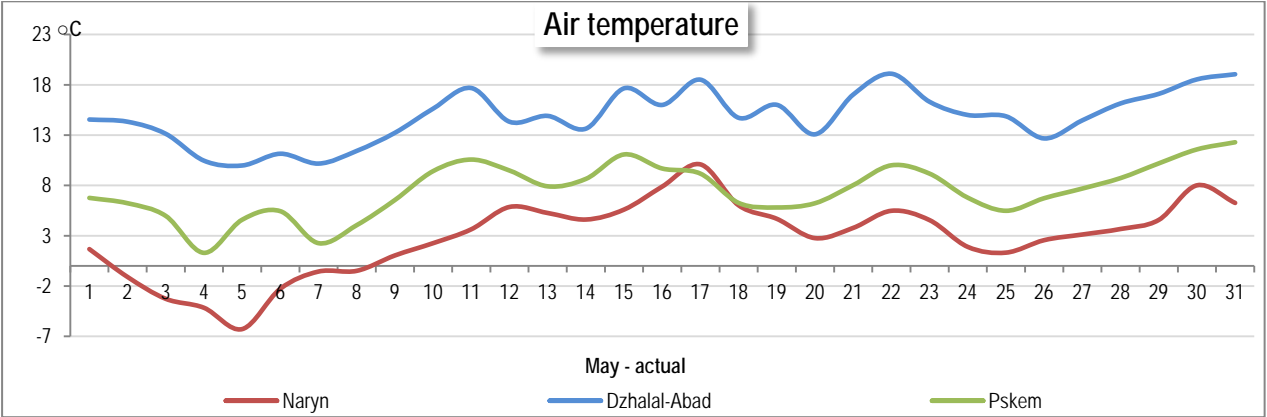


Climate

Weather station Riverhead	Location		
	Latitude	Longitude	Altitude above sea level, m
Naryn	41.43	76.00	2041
Dzhalal-Abad	40.92	72.95	765
Pskem	41.90	70.37	1258

Air temperature (T)

Station	Parameter	May			June		
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day
Naryn	Forecast	-2.00	5.00	5.00	7.0	9.0	9.0
	Actual	-1.32	5.64	4.11			
Dzhalal-Abad	Forecast	12.00	15.00	17.00	21.0	23.0	22.0
	Actual	12.41	15.65	16.39			
Pskem	Forecast	5.00	9.00	9.00	14.0	15.0	14.0
	Actual	5.16	8.48	8.79			



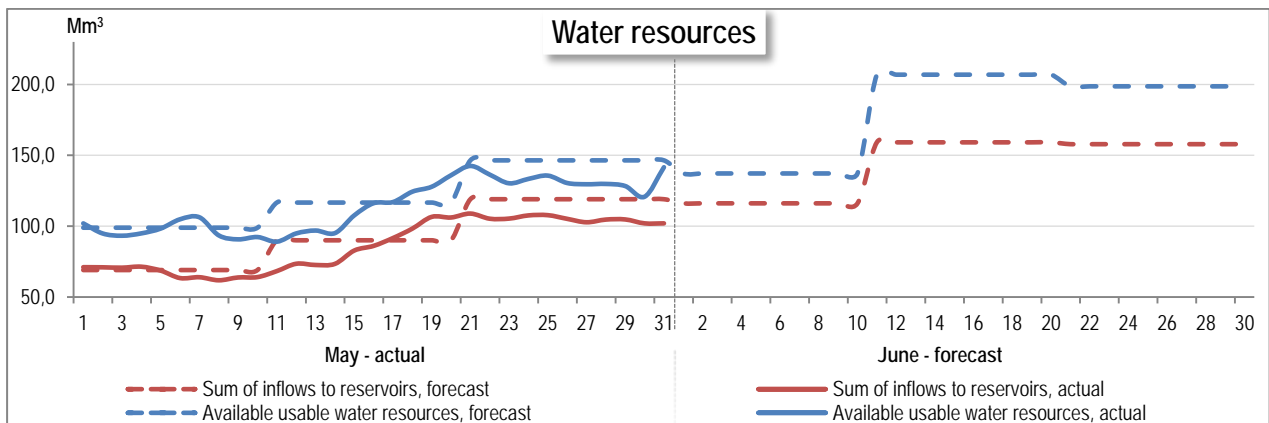


Water resources

Object
Naryn River (inflow to Toktogul)
Karadarya River (inflow to Andizhan)
Chirchik River (inflow to Charvak)
Syr Darya River (up to Shardara)

Water volume (W)

Object	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow to Toktogul reservoir	W, Mm ³	Forecast	320	430	682.0	592.0	851.0	851.0
		Actual	320	433	619.3			
Inflow to Andizhan reservoir	W, Mm ³	Forecast	110	130	220.0	168.0	294.0	293.0
		Actual	112	126	202.6			
Inflow to Charvak reservoir	W, Mm ³	Forecast	260	340	407.0	401.0	447.0	433.0
		Actual	238	300	333.9			
Sum of inflows to reservoirs	W, Mm ³	Forecast	690	900	1309.0	1161.0	1591.0	1578.0
		Actual	669	859	1155.9			
Lateral inflow up to Shardara	W, Mm ³	Forecast	352	319	365.3	290.0	556.0	487.0
		Actual	354	298	345.4			
Losses	W, Mm ³	Forecast	53	53	63.6	79.0	79.0	78.0
		Actual	53	53	63.6			
Available usable water resources	W, Mm ³	Forecast	989	1166	1610.7	1372.0	2069.0	1986.0
		Actual	971	1105	1437.7			



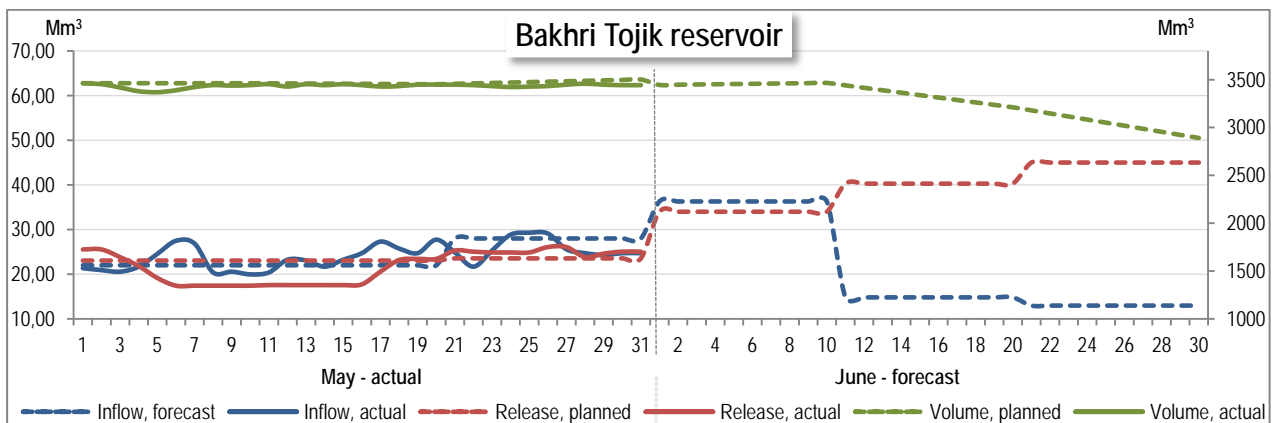
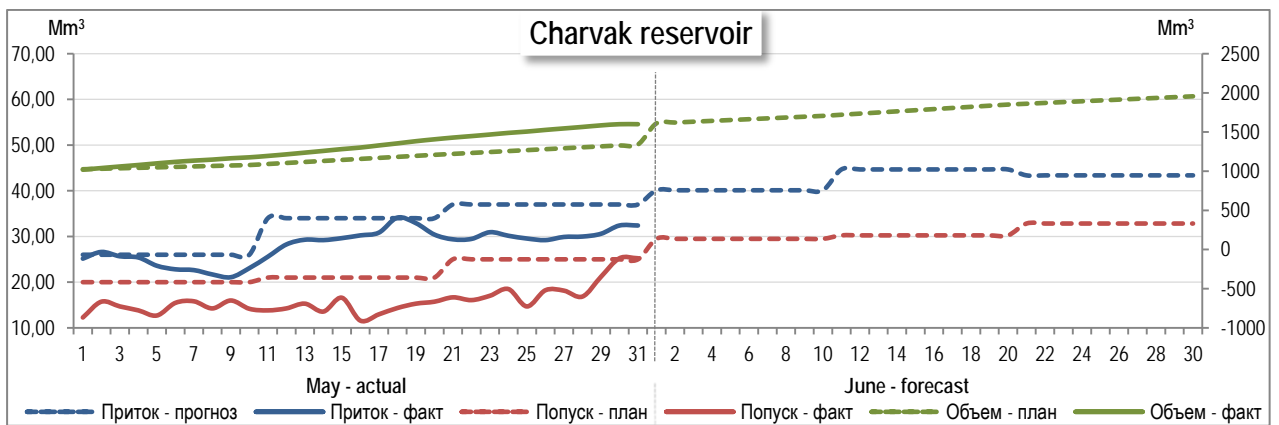
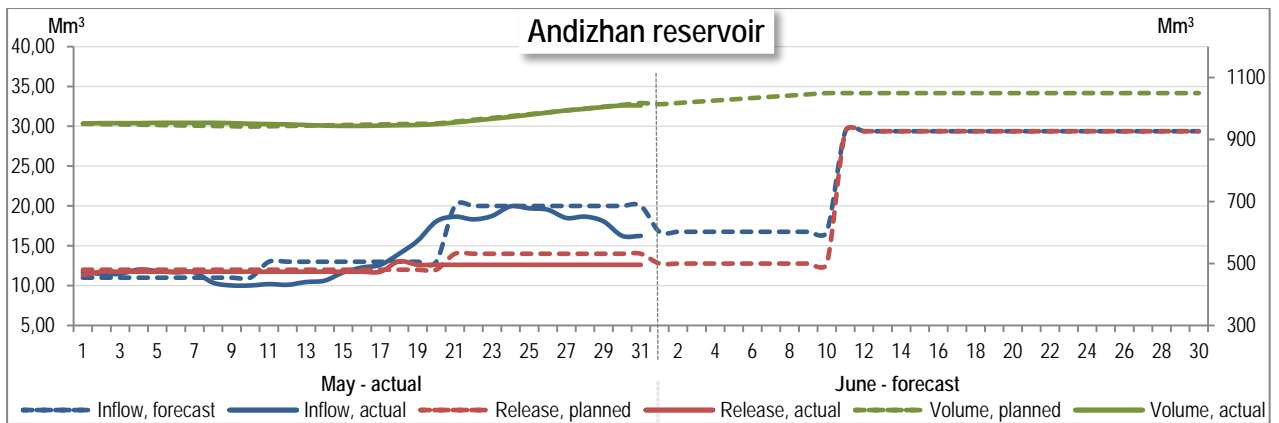
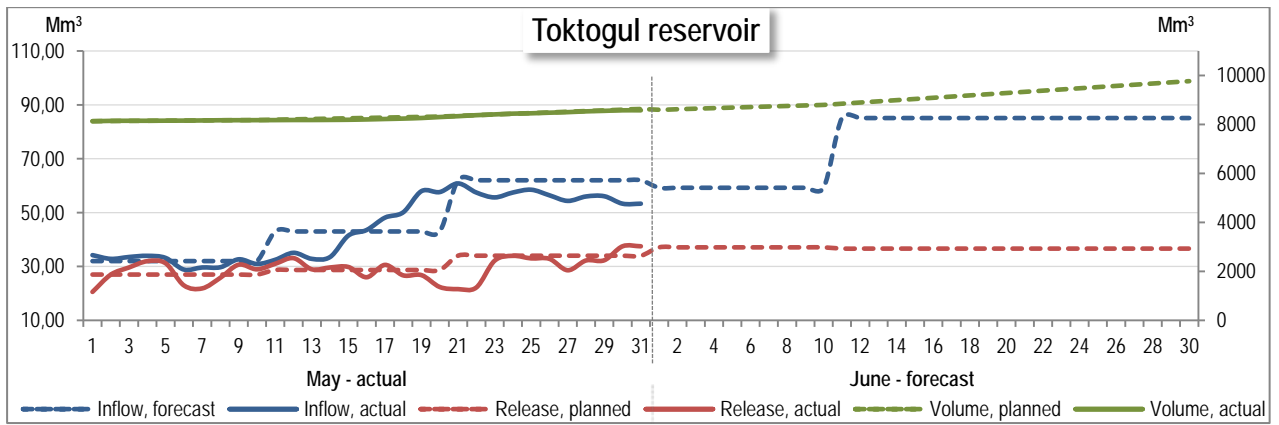


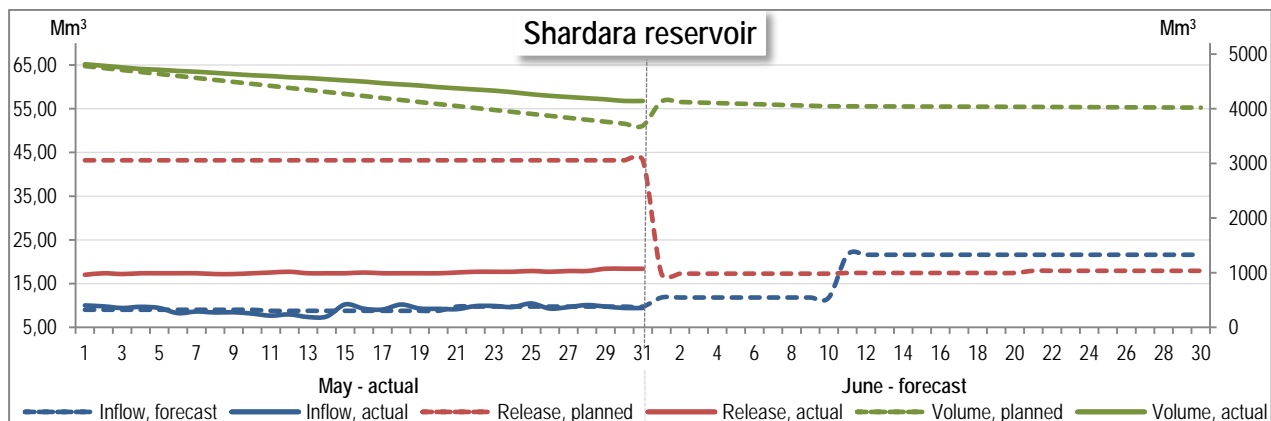
Reservoirs and HEPS

Reservoir	Location			Characteristics				
	Latitude	Longitude	Altitude above sea level, m	Length, km	Width, km	Water-surface area, km ²	Full volume, km ³	Full reservoir level, m
Toktogul	41.80	72.87	880	65	12	284	19.50	215
Andizhan	40.77	73.11	900	36	1.5-12	56	0.19	905
Bakhri Tojik	40.29	70.07	344	75	20	520	4.16	348
Charvak	41.63	70.03	869	15	3	37	1.90	906
Shardara	41.20	67.99	250	80	25	783	5.70	252

Inflow (I), Releases (R), Volume (W)

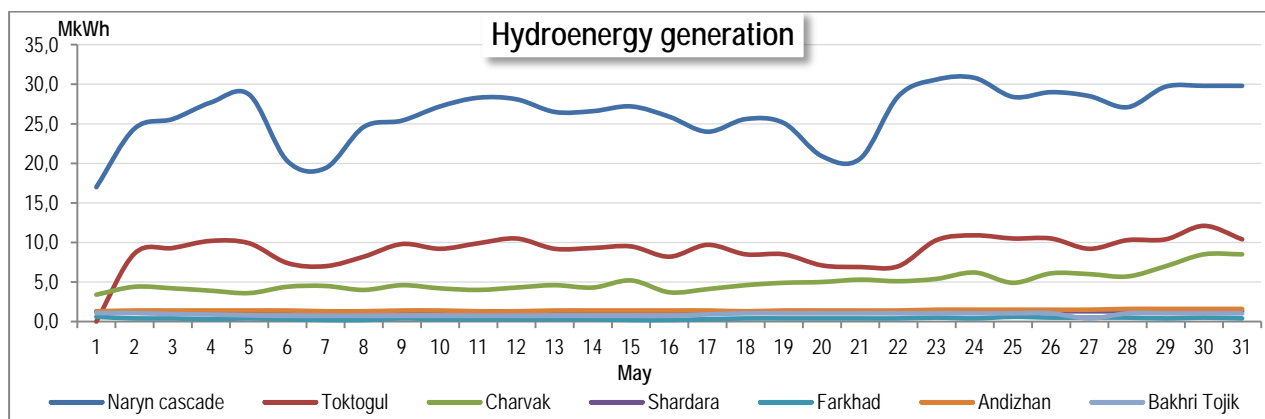
Reservoir	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Toktogul reservoir	I, Mm ³	Forecast	320.00	430.00	682.00	592.0	851.0	851.0
		Actual	319.51	432.78	619.32			
	R, Mm ³	Planned	270.00	287.00	374.00	371.0	366.0	366.0
		Actual	270.60	284.95	343.87			
	W, Mm ³	Planned	8180	8323	8631	8798.0	9283.0	9768.0
		Actual	8175	8302	8577			
Andizhan reservoir	I, Mm ³	Forecast	110.00	130.00	220.00	167.0	293.0	293.0
		Actual	112.23	125.63	202.61			
	R, Mm ³	Planned	120.00	120.00	154.00	127.0	293.0	293.0
		Actual	117.07	120.53	138.76			
	W, Mm ³	Planned	942	952	1018	1050.0	1050.0	1050.0
		Actual	951	950	1010			
Charvak reservoir	I, Mm ³	Forecast	260.00	340.00	407.00	401.0	446.0	433.0
		Actual	237.69	300.50	333.94			
	R, Mm ³	Planned	200.00	210.00	275.00	294.0	302.0	328.0
		Actual	144.89	143.42	207.79			
	W, Mm ³	Planned	1079	1209	1341	1706.0	1851.0	1956.0
		Actual	1177	1407	1600			
Bakhri Tojik reservoir	I, Mm ³	Forecast	220.00	220.00	308.00	362.0	148.0	129.0
		Actual	224.29	241.83	283.13			
	R, Mm ³	Planned	230.53	230.50	258.94	339.0	402.0	450.0
		Actual	203.04	196.13	275.62			
	W, Mm ³	Planned	3463	3453	3502	3466.0	3211.0	2891.0
		Actual	3443	3448	3443			
Shardara reservoir	I, Mm ³	Forecast	90.23	87.83	107.25	118.0	216.0	216.0
		Actual	90.23	87.83	106.65			
	R, Mm ³	Planned	432.00	432.00	475.20	172.0	174.0	179.0
		Actual	172.80	174.36	197.25			
	W, Mm ³	Planned	4454	4085	3690	4045.0	4035.0	4020.0
		Actual	4612	4395	4142			

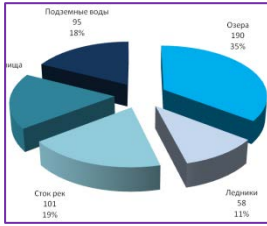




Generation (G), Energy losses through sterile spills (L), Discharge through turbines (Q), Sterile spills (R), Head (H)

HEPS	Parameter		May		
			I ten-day	II ten-day	III ten-day
Naryn cascade	G, M kWh	Actual	240.3	258.2	312.8
	G, M kWh	Actual	79.6	90.4	108.5
Toktogul	Q, m³/s	Actual	312.0	328.7	355.9
	H, m	Actual	127.9	128.1	130.4
	G, M kWh	Actual	13.7	13.7	11.0
Andizhan	Q, m³/s	Actual	78.8	81.0	87.8
	H, m	Actual	95.0	95.0	95.0
	G, M kWh	Actual	8.4	8.4	10.8
Bakhri Tojik	Q, m³/s	Actual	233.0	232.6	273.5
	H, m	Actual	21.2	21.2	21.1
	G, M kWh	Actual	3.5	3.1	5.1
Farkhad	Q, m³/s	Actual	54.5	47.9	70.2
	H, m	Actual	30.6	30.6	30.6
	G, M kWh	Actual	41.2	44.7	68.7
Charvak	Q, m³/s	Actual	167.7	166.0	219.0
	H, m	Actual	123.1	129.3	135.0
	G, M kWh	Actual	13.0	13.0	14.3
Shardara	Q, m³/s	Actual	200.0	200.0	200.0
	G, M kWh	Actual	21.2	20.9	20.5



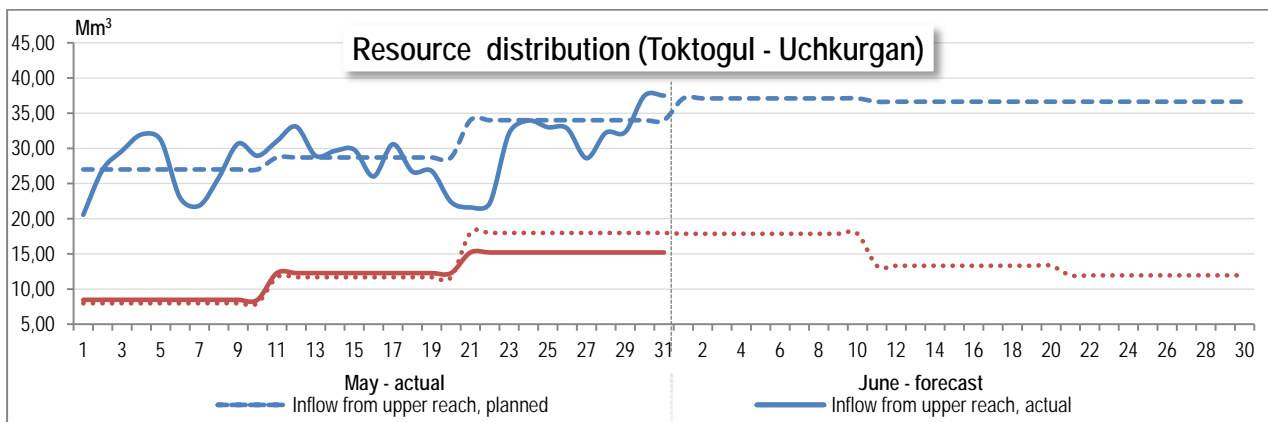


Water distribution

River reach
Naryn River: tail water of Toktogul reservoir– Uchkurgan waterworks facility
Naryn River: Uchkurgan waterworks facility - Syr Darya River: inflow to Bakhri Tojik reservoir
Syr Darya River: tail water of Bakhri Tojik reservoir – inflow to Shardara reservoir
Syr Darya River: tail water of Shardara reservoir – inflow to North Aral Sea (Karateren settlement)
North Aral Sea

Water volume (W)

Toktogul - Uchkurgan	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow from upper reach	W, Mm ³	Planned	270.00	287.00	374.00	371.0	366.0	366.0
		Actual	270.60	284.95	343.87			
Lateral inflow ²	W, Mm ³	Forecast	50.00	60.00	77.00	46.0	93.0	93.0
		Actual	55.04	69.03	91.50			
Water withdrawals	W, Mm ³	Planned	210.00	200.00	220.00	212.0	264.0	277.0
		Actual	201.30	188.59	217.06			
Losses	W, Mm ³	Forecast	30.24	30.24	33.26	25.0	62.0	62.0
		Actual	39.67	42.70	51.13			
Outflow to lower reach ³	W, Mm ³	Forecast	79.76	116.76	197.74	178.0	133.0	119.0
		Actual	84.67	122.69	167.18			



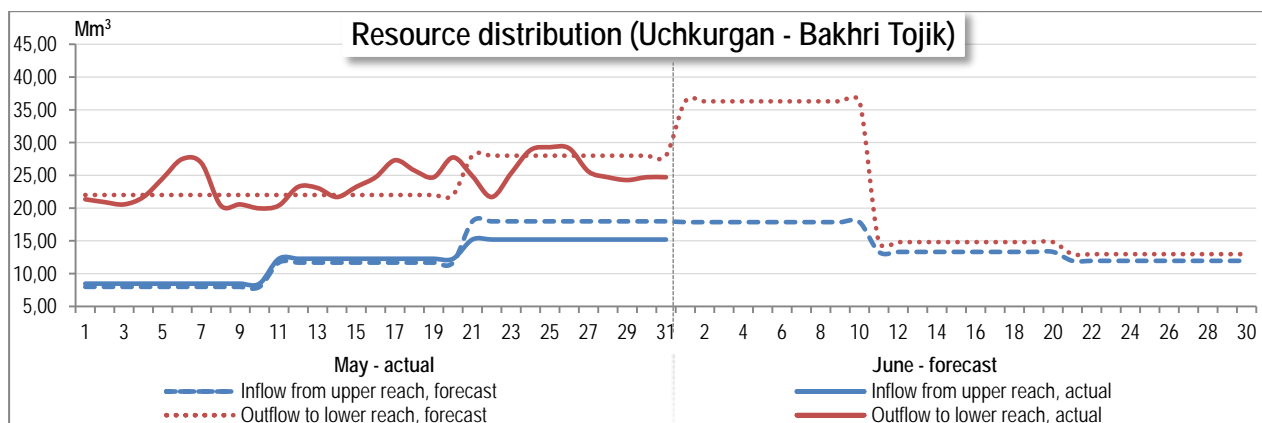
Water volume (W)

Uchkurgan – Bakhri Tojik	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow from upper reach	W, Mm ³	Forecast	79.76	116.76	197.74	178.0	133.0	119.0
		Actual	84.67	122.69	167.18			
Lateral inflow	W, Mm ³	Forecast	180.00	150.00	165.00	240.0	72.0	69.0
		Actual	171.83	128.44	168.32			
Water withdrawals	W, Mm ³	Planned	30.00	30.00	33.00	25.0	28.0	29.0
		Actual	27.08	23.88	29.19			
Losses	W, Mm ³	Forecast	9.76	16.76	21.74	30.0	30.0	30.0
		Actual	5.13	-14.59	23.17			
Outflow to lower reach ⁴	W, Mm ³	Forecast	220.00	220.00	308.00	362.0	148.0	129.0
		Actual	224.29	241.83	283.13			

² Incl. Karasu left and right

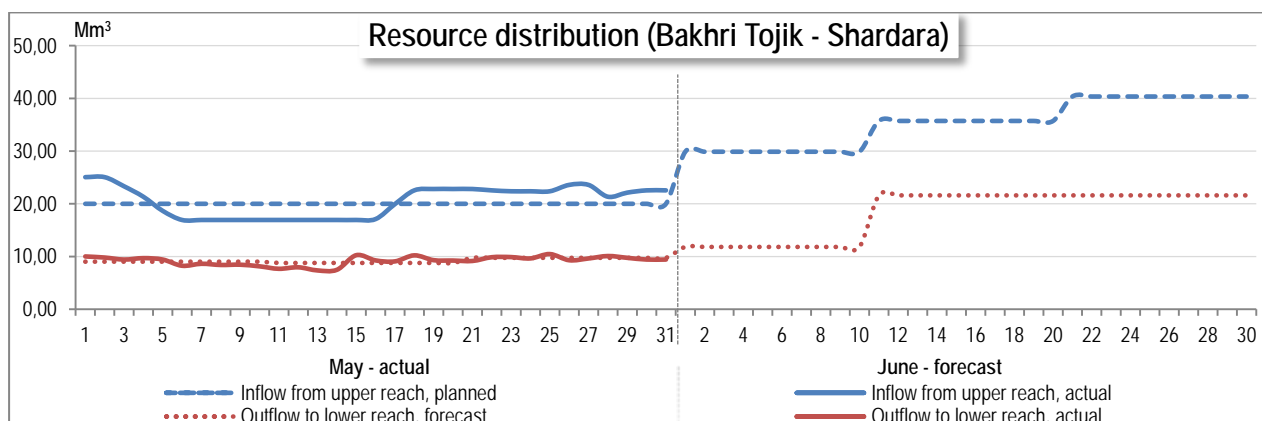
³ Uchkurgan waterworks facility

⁴ Akdzhar g/s



Water volume (W)

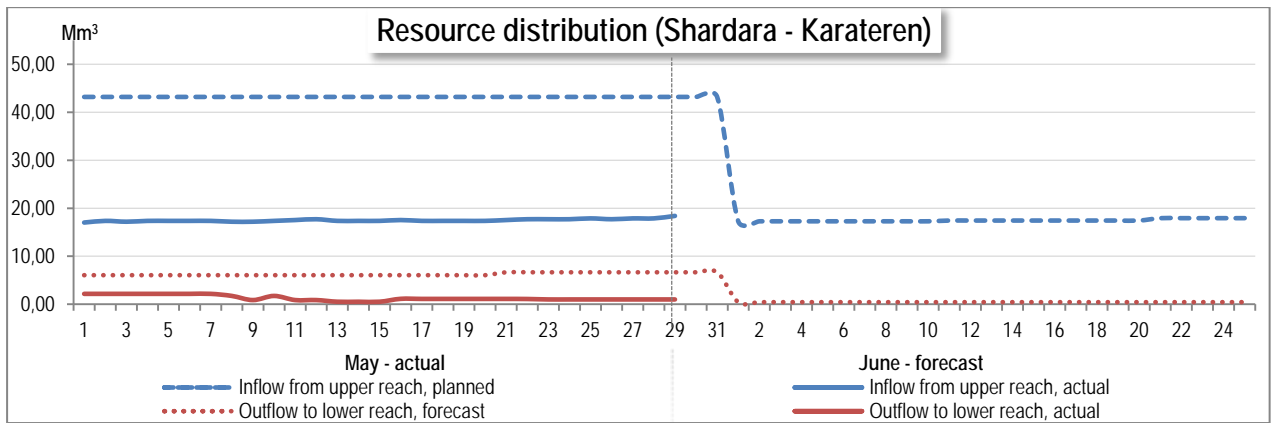
Bakhri Tojik - Shardara	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow from upper reach ⁵	W, Mm ³	Planned	200.00	200.00	220.00	298.0	357.0	403.0
		Actual	198.12	189.91	248.23			
Lateral inflow	W, Mm ³	Forecast	110.00	130.00	132.00	63.0	402.0	356.0
		Actual	110.94	146.44	126.78			
Water withdrawals	W, Mm ³	Planned	210.00	200.00	220.00	213.0	513.0	513.0
		Actual	203.59	170.50	230.43			
Losses	W, Mm ³	Forecast	9.77	42.17	24.75	30.0	30.0	30.0
		Actual	15.23	78.02	37.92			
Outflow to lower reach	W, Mm ³	Forecast	90.23	87.83	107.25	118.0	216.0	216.0
		Actual	90.23	87.83	106.65			



Water volume (W)

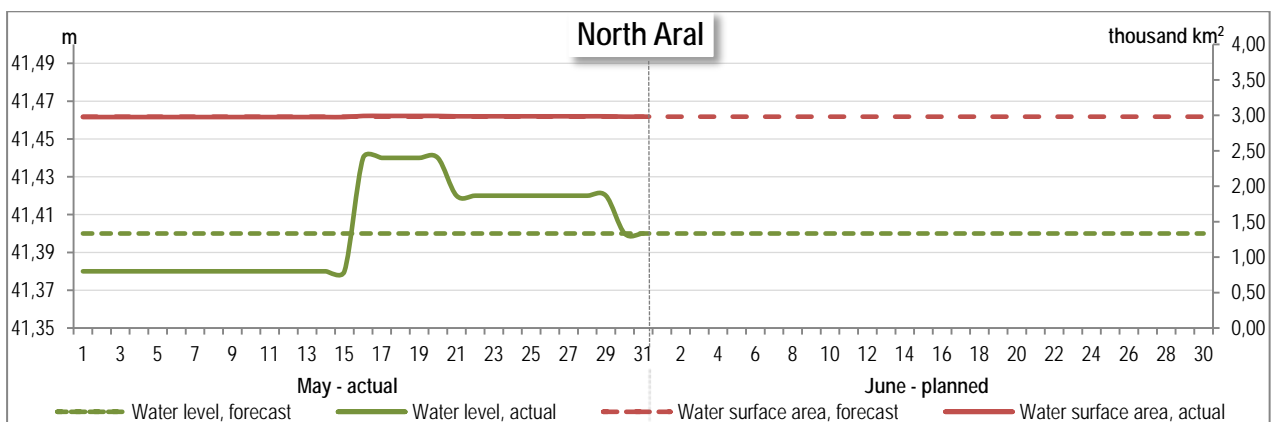
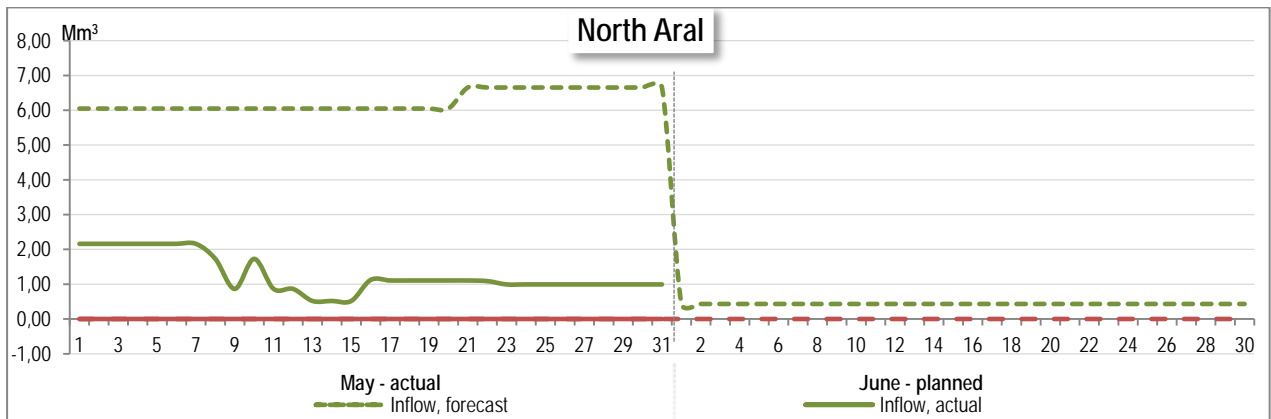
Shardara - Karateren	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow from upper reach	W, Mm ³	Planned	432.00	432.00	475	173.0	174.0	179.0
		Actual	172.80	174.36	197			
Lateral inflow	W, Mm ³	Forecast	15.00	20.00	22	5.0	5.0	5.0
		Actual	16.00	16.00	19			
Filling (+), draw down (-) of Koksarai reservoir	W, Mm ³	Planned	300.0	300.0	330	200.0	150.0	100.0
		Actual	285.1	302.4	333			
Water withdrawals	W, Mm ³	Planned	344.4	425.1	488	300.0	300.0	250.0
		Actual	288.5	382.1	447			
Losses	W, Mm ³	Forecast	342.1	266.4	266	74.0	25.0	30.0
		Actual	166.0	101.8	92			
Outflow to lower reach	W, Mm ³	Forecast	60.5	60.5	73	4.0	4.0	4.0
		Actual	19.4	8.8	11			

⁵ Kyzylkishlak g/s



Water volume (W), Level (H), Surface area (S)

North Aral	Parameter	May			June			
		I ten-day	II ten-day	III ten-day	I ten-day	II ten-day	III ten-day	
Inflow	W, Mm ³	Forecast	60.48	60.48	73.18	4.0	4.0	4.0
		Actual	19.44	8.83	11.14			
Water volume	W, Mm ³	Forecast	23.44	23.44	23.44	23.0	23.0	23.0
		Actual	23.38	23.47	23.48			
Water level	H, m	Forecast	41.40	41.40	41.40	41.0	41.0	41.0
		Actual	41.38	41.41	41.42			
Water surface area	S, th.km ²	Forecast	2.98	2.98	2.98	2.0	2.0	2.0
		Actual	2.98	2.98	2.99			
Water releases into the Large Aral Sea	W, Mm ³	Forecast	0.00	0.00	0.00	0.0	0.0	0.0
		Actual	0.00	0.00	0.00			



Information sources

Basin Water Organization "Amu Darya"
Basin Water Organization "Syr Darya"

Aral-Syrdarya Basin Water Authority
Coordination Dispatch Center "Energy"

Website of the Center of Hydrometeorological Service (Uzbekistan) <http://meteo.uz>
Central Asia Water and Ecological Knowledge Portal <http://cawater-info.net>
Website "Weather and Climate" <http://www.pogodaiklimat.ru>

For detailed analysis of water-related situation (SIC ICWC), please, visit the CAWATER-info portal
<http://cawater-info.net/analysis/index.htm>