Interstate **C**ommission for **W**ater **C**oordination in **C**entral Asia	**BULLETIN № 1 (72)**	April 2017

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JOINT STATEMENT BY THE PRESIDENT OF THE REPUBLIC OF UZBEKISTAN SHAVKAT MIRZIYOYEV AND THE PRESIDENT OF TURKMENISTAN GURBANGULY BERDYMUKHAMEDOV

Upon the invitation of the President of Turkmenistan Mr. Gurbanguly Berdimukhamedov, the President of the Republic of Uzbekistan paid the state visit to Turkmenistan on March 6-7, 2017.

In the course of negotiations held in the friendly and trusted atmosphere, the leaders have exchanged opinions on bilateral and multidisciplinary cooperation and interaction on the international arena. The parties have acknowledged the similarity of positions on the matters discussed.

The Uzbek side sincerely expressed its gratitude to the President of Turkmenistan for the measures taken to perpetuate the memory of the First President of the Republic of Uzbekistan I.A. Karimov in Turkmenistan. The leaders took part in the opening ceremony of the monument to the First President of the Republic of Uzbekistan in Turkmenabad city.

The presidents, having discussed the implementation of the agreements reached earlier and signed bilateral documents, have underscored dynamics of interstate relations in the political, trade-economic, scientific-technical, cultural-humanitarian and other areas. In an effort to bring Uzbek-Turkmen relations to a new level, the leaders have signed the Strategic Partnership Agreement between the Republic of Uzbekistan and Turkmenistan that would further strengthen historically friendly and good-neighborly relations between fraternal nations.

Based on mutual interests in the active development and strengthening of multifaceted cooperation on the principles of equality, good-neighborliness, mutual benefit, mutual respect, and consideration of each other's interests, the parties have noted the importance of further improvement of the legal framework of bilateral relations, political consultations and interaction at various levels.

Recognizing that cooperation on the international arena meets the interests of both states, the parties have expressed interest in strengthening interaction and mutual support within the framework of international organizations, primarily the United Nations.

The parties have expressed readiness to increase the role of UN and its agencies in ensuring sustainable development, security and stability in the world, and addressing global and regional problems in compliance with the aims and principles of the UN Charter and generally recognized norms of international law.

The Republic of Uzbekistan and Turkmenistan have expressed readiness to cooperate under the Nuclear-Free Zone Agreement in the Central Asia to facilitate the

UN efforts in ensuring the nuclear non-proliferation regime in all aspects.

The leaders have discussed the issues related to restoration of ecosystem in the Aral Sea basin, improvement of socio-economic and environmental conditions in Prearalie, rational use of water resources and better environment protection in the region and expressed readiness to further cooperate in this direction under the chairmanship of Turkmenistan in the International Fund for the Aral Sea Saving (IFAS).

The parties consider the International Fund for the Aral Sea Saving as a universal platform for the implementation of environmental and research projects and programs aimed at environmental rehabilitation in the area of Aral catastrophe and socio-economic problems in the region.

The Presidents have underlined that transboundary rivers in Central Asia are the common heritage; the regional stability and prosperity, in many ways, depend on reasonable and equitable use of these water resources.

The parties believe that construction of new hydraulic structures along transboundary rivers should be based on constructive approach and compromise solutions, without infringement of the interests of other concerned states, as well as according to generally recognized norms of the international water law enshrined in the UN Conventions saying that all projects having potential transboundary impact should undergo independent international expertise and be approved by downstream countries.

The parties have stated the need for further cooperation to fight against international terrorism, extremism, illegal migration, drug and psychotropic substance trafficking, transnational organized crime and other challenges and threats to international security at both bilateral and international levels.

The parties have expressed readiness to continue supporting attainment of peace and stability in Afghanistan and turn the country into peaceful and prosperous one, at the same time respecting the way of political and socio-economic development chosen by the Afghan people for their country.

The Presidents have underlined a strategic character of further and mutually beneficial trade and economic cooperation between the Republic of Uzbekistan and Turkmenistan.

In this context, the parties have confirmed the importance to increase further bilateral trade and expand its stock-list by adding higher value added goods, including through implementation of the Agreement on mutual supplies of October 2, 2012.

The Presidents have noted with delight the continuous and successful cooperation in supplying the wide range of modern agricultural equipment to Turkmenistan.

In this context, the parties have supported agreements on establishing specialized service centers on maintenance of this equipment and provision with spare parts in Turkmenistan.

The parties, within the signed Agreement on economic cooperation between the Republic of Uzbekistan and Turkmenistan for 2018-2020, would further promote trade and economic cooperation, develop mutually beneficial partnerships between economic entities and regions of both states, and facilitate their participation in fairs and exhibitions organized in the Republic of Uzbekistan and Turkmenistan.

The parties have positively assessed the results of the 13th meeting of the Joint Intergovernmental Commission on the trade-economic, scientific-technical and cultural cooperation. It was organized in January 2017 in Ashgabat. The need to increase the role of the Commission as an efficient mechanism was underlined for timely and obligate implementation of agreements at the highest level, as well as coordinated measures on further development of mutually beneficial cooperation, first of all, in trade and economic and transport communication areas.

Big prospects were noted for expanding tourism cooperation. The parties have agreed that the approved "Road map" in tourism would increase mutual flows of tourists, as well as ensure long-term partnerships among leading tour operators in both states.

The Presidents have underlined a priority of bilateral cooperation in the area of transport and transit corridor development that would provide the shortest and most efficient access to external markets.

The leaders have highly commended launching of the road and railway bridges "Turkmenabad-Farab", which would allow increasing transit capacities of the states and creating favorable conditions for multiple increases in goods transit via Turkmenistan and trans-Caucasus transport corridor to Southern and Central Europe, Middle East, South and South-East Asia.

The importance of implementation of the agreements on international transport corridor "Uzbekistan-Turkmenistan-Iran-Oman" was underlined. This corridor equally meets the economic interests of all member-states.

The parties have underscored the importance of the first Working Committee meeting on implementation of the Agreement for establishment of transport-transit corridor. The meeting was organized in Tashkent on March 1-2, 2017.

It was highlighted that favorable conditions and mutual preferences for transit of foreign trade goods on the territory of two states would allow providing efficient loading of transport communications and infrastructure, as well as enhancing clear and accurate prospects for enterprises in further increase of transportation and attraction of additional goods in 2017.

In order to increase the competitiveness and attractiveness of the international transport routes running through the territories of both states, the parties have agreed to continue consistent and mutually beneficial cooperation aimed at further optimizing tariffs and providing preferential conditions for transit of foreign trade goods.

The Republic of Uzbekistan and Turkmenistan, realizing their historical responsibility for preserving and strengthening century-old ties of friendship, brotherhood and cooperation between two nations, have reaffirmed their commitment

to further deepening and consolidating bilateral ties in culture, science, art, sports, etc.

In this context, the results of the implementation of the Program of Cooperation between the Government of the Republic of Uzbekistan and the Government of Turkmenistan in the cultural and humanitarian area for 2014-2016 have been positively assessed, and it is also entrusted to sign the corresponding program for 2017-2019.

The parties would further create favorable conditions for Uzbek and Turkmen diasporas on both territories to preserve and develop national languages, culture, traditions, and customs, and would take appropriate measures to ensure the rights and legitimate interests of citizens in both states.

The leaders express their confidence that fruitful negotiations and bilateral documents signed during the visit would contribute to enhancement of traditionally friendly and good-neighborly relations between the Republic of Uzbekistan and Turkmenistan on the basis of equality and mutual benefit.

The President of Uzbekistan Mr. Shavkat Mirziyoyev has expressed gratitude to the President of Turkmenistan and the people of Turkmenistan for warm welcome and hospitality demonstrated during the visit of the Uzbek delegation, and invited the leader of Turkmenistan to Uzbekistan at the time of his convenience. The dates of the visit would be approved through diplomatic channels.

President of the Republic of Uzbekistan	**President of Turkmenistan**
Shavkat Mirziyoyev	**Gurbanguly Berdymukhamedov**

Ashgabat, March 6, 2017

JOINT DECLARATION ON DEEPENING OF STRATEGIC PARTNERSHIP BETWEEN THE REPUBLIC OF UZBEKISTAN AND THE REPUBLIC OF KAZAKHSTAN

President of the Republic of Uzbekistan Mr. Shavkat Mirziyoyev and President of the Republic of Kazakhstan Mr. Nursultan Nazarbayev, based on the results of bilateral negotiations within the framework of the state visit of Mr. Shavkat Mirziyoyev to the Republic of Kazakhstan on March 22-23, 2017,

guided by provisions of the Agreement on eternal friendship between the Republic of Uzbekistan and the Republic of Kazakhstan as of October 31, 1998 and the Agreement on strategic partnership between the Republic of Uzbekistan and the Republic of Kazakhstan as of June 14, 2013,

relying on strong historical ties between Uzbekistan and Kazakhstan, century-old links of brotherhood and interaction between two nations based on principles of mutual respect, trust and openness,

noting with delight the dynamic and progressive development of good neighborhood, friendly and mutually beneficial relations between the Republic of Uzbekistan and Republic of Kazakhstan on the basis of strategic partnership and mutual support,

believing that bringing of bilateral and multi-faceted cooperation to a new level would serve to long-term interests of two fraternal nations, as well as to peace, stability, security, and sustainable development in Central Asia,

confirming mutual search for closer cooperation and coordination in the international arena,

remaining committed to supporting regular bilateral visits and political consultations at the high and highest levels, expanding coordination between governments, parliaments and local authorities to further develop bilateral relations,

declare the following:

1. The Presidents of the Republic of Uzbekistan and Republic of Kazakhstan highly evaluate cooperation results in various spheres over 25 years since the establishment of diplomatic relations and emphasize entrance of the strategic partnership between two states to a new historical period.

2. The Parties, confirming the similarity of opinions on peace, stability, security and sustainable development in Central Asia, underline that the coordination and approval of mutually acceptable decisions on all interregional problems should be accomplished by the states themselves on the principles of equality, mutual benefit and respect.

3. The parties have confirmed the closeness or similarity of positions on key

issues of international politics, underlined mutual striving for peace, security and stability promotion in the region, and acknowledged intention to intensify mutually beneficial cooperation on the international arena, particularly, under UN, SCO, CIS, OIC, as well as other international and regional organizations.

4. Uzbekistan welcomes the efforts by Kazakhstan to promote common priorities for Central Asian countries within the framework of its non-permanent membership in the UN Security Council in 2017-2018 and is interested in working closely with the Kazakh side on stability, security and sustainable development in the region, particularly, on pressing issues of international politics representing mutual interest.

The parties advocate for further enhancement of the status of nuclear-free zone in Central Asia.

5. The parties have expressed mutual interest in strengthening cooperation under CIS and more efficient use of its mechanisms to ensure mutually beneficial and equal cooperation on all issues representing mutual interest for CIS member states.

6. The Presidents have emphasized the closeness or similarity of positions on key issues of the SCO agenda as an organization designed to promote interaction among member states in order to address modern challenges and threats to security and stability, and develop cooperation in economic and other spheres. The parties confirm that SCO, in accordance with its Charter, would continue the policy that excludes block, ideological and confrontational approaches to solve urgent international and regional problems.

The Republic of Uzbekistan supports the efforts by the Republic of Kazakhstan under its chairmanship in SCO and in preparation for the meeting of the Council of Heads of State in Astana on June 8-9, 2017.

7. The leaders have noted the necessity to enhance bilateral cooperation through consultations on struggle against international terrorism, religious extremism, drug and ammunition trafficking, transnational organized crime and other challenges and threats to security on the basis of international agreements to which the Republic of Uzbekistan and Republic of Kazakhstan are parties.

In this context, all necessary measures would be taken to enhance cooperation of relative organizations from Uzbekistan and Kazakhstan in prevention and reaction to radicalism and extended extremism in the Central Asian region.

8. The Presidents support the efforts by the Afghan people in national reconciliation, peaceful reconstruction and country's revival. They advocate for strengthening UN on international arena in regulation of the situation in Afghanistan through a wide range of political and diplomatic means.

The parties have noted that early stabilization and peacemaking in Afghanistan are important for security and stability in the region.

9. The Presidents have underlined that transboundary rivers in Central Asia are the common heritage; the stability and prosperity, in many ways, in the region depend

on reasonable and equitable use of these water resources.

The parties consider that construction of new hydraulic structures along transboundary rivers should be based on constructive approach and compromise solutions, without infringement of interests of other concerned states, as well as on generally recognized norms of the International Water Law enshrined in the UN Conventions saying that all projects having potential transboundary impact should undergo independent international expertise and be approved by downstream countries.

10. The states prioritize ensuring environmental and water security, as well as managing disasters, facilitate development and implementation of special joint programs and projects and organization of working groups, take necessary measures on the environment and water resource protection, efficient nature management and would provide mutual aid in case of environmental catastrophes and disasters threatening population and territories.

The parties consider the International Fund for the Aral Sea Saving as a universal platform for the implementation of environmental and research projects and programs aimed at environmental rehabilitation in the area of Aral catastrophe and socio-economic problems in the region.

11. The parties have underlined the importance of partnership within the Organization of Islamic Cooperation (OIC) to strengthen its role as an authoritative forum of Muslim states facilitating their active cooperation, firstly, in scientific and educational, cultural and humanitarian, and social and economic spheres, thus contributing to international cooperation and security.

The Republic of Kazakhstan fully supports efforts by the Republic of Uzbekistan within the framework of its chairmanship of OIC Foreign Ministers Council, 43rd session of which was held in Tashkent on October 18-19,2016 under the theme “Education and Outreach: the Path to Peace and Creativity”.

The Uzbek part welcomes the first OIC Summit on science and technology to be held in Astana on September 10-11, 2017 and expresses its willingness to take part in this event.

12. The President of the Republic of Kazakhstan has expressed his gratitude to the President of the Republic of Uzbekistan for the interest demonstrated at the high level in participation of the Uzbek delegation in the EXPO-2017 International Specialized Exhibition.

The parties noted with delight the similarity of priorities of both states in protection of environment and application of environment-friendly technology, implementation of joint projects based on principles of the Sustainable Development Goals and expansion of high-tech and environment-friendly industries.

13. The Parties have noted with delight active inter-parliamentary cooperation. In this context, potentials were defined, particularly, in establishing more active and multifaceted practical cooperation between the chairs of legislative bodies in both states.

14. The Presidents have noted with delight the positive trends in trade and economic development between two countries and expressed mutual search for growth of bilateral trade, its diversification through involvement of higher added value products being in demand in both states, and for development of long-term economic and investment cooperation.

The parties have noted that successive implementation of the Economic Cooperation Strategy for 2017-2019 signed during the visit would serve to intensify mutually beneficial trade and economic cooperation facilitating interaction in various economic sectors and increase commodity circulation up to 5 billion dollars by 2020.

15. The leaders have positively assessed the outcomes of the 16th meeting of the Joint Intergovernmental Commission on Bilateral Cooperation between the Republic of Uzbekistan and Republic of Kazakhstan held on February 22-23, 2017 in Tashkent and underscored the necessity to further enhance the Commission to achieve certain results in trade and economy, firstly, by implementing large-scale projects.

The parties intend to invoke mutually beneficial cooperation in such priority areas as transport and communications, extractive and manufacturing industries, construction, agriculture, automobile, chemical and light industries, health care, and tourism.

16. The parties have mentioned the signing of the intergovernmental agreement on interregional cooperation that would facilitate active trade and economic, investment and cultural and humanitarian cooperation between the regions of both states.

The parties would examine a mechanism for interaction between the regions of both states in a new form.

17. The Presidents, bearing in mind huge transit-transport potential of both states, have underlined the priority of cooperation in the transport area and transit corridor development that would provide the shortest and most efficient entrance to the market.

In this context, the parties have noted that establishment of mutual preferences and additional discounts by railway administrations of both countries to transit foreign trade goods along their territories would fundamentally expand cooperation in this area and substantially attract transit goods.

The parties have expressed mutual interest in the implementation of the project on the “Beyneu-Akjigit-Uzbekistan’s border” highway reconstruction as soon as possible, as well as other joint projects providing an alternative access of the countries to international sea routes and prospective markets.

18. The parties, being conscious of historical responsibility for preserving and strengthening centuries-old ties of friendship, brotherhood and cooperation between two nations, have reaffirmed their commitment to developing cooperation in education and science, culture and art, and tourism and sport.

The parties would continue creating favorable conditions for Uzbek and Kazakh

diasporas living in both states to preserve and develop national language, culture, traditions, and customs.

19. The parties welcome the outcomes of negotiations conducted in the climate of trust and mutual understanding. The parties have agreed to continue holding bilateral meetings at the highest level on a regular basis. These would serve as a major factor of multispectral cooperation between Uzbekistan and Kazakhstan and enhance deeper mutual understanding between two nations.

20. The President of Uzbekistan Mr. Shavkat Mirziyoyev has expressed gratitude to the President of Kazakhstan and the people of Kazakhstan for a warm welcome and hospitality demonstrated during the visit of the Uzbek delegation, and invited the leader of Kazakhstan to visit Uzbekistan at the time of his convenience. The dates of the visit would be approved through diplomatic channels.

President
of the Republic of Uzbekistan

Shavkat Mirziyoyev

President
of the Republic of Kazakhstan

Nursultan Nazarbayev

Astana, March 23, 2017

MINUTES OF THE 69TH MEETING OF THE INTERSTATE COMMISSION FOR WATER COORDINATION (ICWC) OF THE REPUBLIC OF KAZAKHSTAN, KYRGYZ REPUBLIC, REPUBLIC OF TAJIKISTAN, TURKMENISTAN AND REPUBLIC OF UZBEKISTAN

January 26, 2017 Ashgabat, Turkmenistan

Chariman:

Baydjanov Guyzgeldy	Deputy Minister of Agriculture and Water Resources, Turkmenistan

ICWC members:

Nysanbayev Yerlan Nuralievich	Vice Minister of Agriculture, Republic of Kazakhstan
Rakhimzoda Sulton Nurmakhmadpur	First Deputy Minister of Energy and Water Resources, Republic of Tajikistan (MEWR RT)
Khamraev Shavkat Rakhimovich	Deputy Minister of Agriculture and Water Resources of the Republic of Uzbekistan (MAWR RUz), Head of Central Water Administration

ICWC executive bodies:

Ziganshina Dinara Ravilyevna	Deputy Director, Scientific Information Center of ICWC
Babadjanova Malika Pulatovna	Head, ICWC Secretariat
Kholkhuzhaev Odil Akhmedovich	Acting Head, BWO Syrdarya
Makhramov Makhmud Yakhshibaevich	Acting Head, BWO Amudarya

Invited:

Zhienbaev Musilim Rysmakhanovich	Head of Transboundary Rivers Division of Water and Biological Resources Department, Ministry of Agriculture, Republic of Kazakhstan
Karlykhanov Adilkhan Karlykhanovich	Head of the Aral-Syrdarya Basin Inspection on Regulation of Use and Protection of Water Resources, Ministry of Agriculture, Republic of Kazakhstan
Imasheva Gulmira Saginbayevna	Head of the Management on Regulation of Use and Protection of Water Resources, the Committee on Water Resources of the Ministry of Agriculture, Republic of Kazakhstan
Kipshakbaev Nariman Kipshakbaevich	Director of Kazakh branch of SIC ICWC К
Kenshimov Amirkhan Kadyrbekovich	Deputy Director, Executive Direction of IFAS in the Republic of Kazakhstan
Khasanov Khomidjon Usmanovich	Deputy Director, Agency for Land Reclamation and Irrigation at the Government of the Republic of Tajikistan
Khushvakhtov Usmon	Director, State Agency “Basic construction and land reclamation”, Agency for Land Reclamation and Irrigation at the Government of the Republic of Tajikistan
Paschyev Yanov Durdyevich	Head of Water Use Administration, Ministry of Agriculture and Water Resources, Turkmenistan
Akmuradov Makhtumkuli Kuyasovich	Adviser to the Ministry of Foreign Affairs, Turkmenistan
Abaev Guych	Head of Water Use Department, Ministry of Agriculture and Water Resources, Turkmenistan
Ostanov Razzak Mirzaevich	Head of the Interprovincial Amu Bukhara Pumping Canal Operation Authority, Ministry of Agriculture and Water Resources, Republic of Uzbekistan
Artykov Kakhramon Ismailovich	Deputy Head, BWO Amudarya

Agenda of the 69th ICWC Meeting

1. The results of the growing season 2016 in the Syrdarya and Amudarya River basins;

2. Consideration and approval of the water withdrawal limits and operation regimes of reservoir cascade for the next non-growing season 2016-2017 in the Syrdarya and Amudarya River basins;

3. Commemorative activities for the 25th anniversary of ICWC; and

4. Agenda and venue of the next 70th ICWC meeting.

Supplementary item:

1. Approval of Messrs. O.A.Kholkhudjaev and M.Ya.Makhramov as the Heads of BWO Syrdarya and BWO Amudarya, respectively.

Decisions on the first item:

1. Take into account and approve the reports by BWO Amudarya and BWO Syrdarya on the results of the growing season 2016 in the Syrdarya and Amudarya River basins. Based on the comments from Kazakhstan, BWO Syrdarya should update the data related to the Shardara reservoir and others, as well as the inflow to Prearalie and the Aral Sea, and should improve the presented report;

2. Underline progress achieved by present in water accounting along the North Fergana Canal and Big Fergana Canal, as well as a need to make attempts to ensure water delivery to Tajikistan according to the approved limits;

3. BWO Syrdarya should improve forecasts in order to reduce differences between the forecast and actual data on water availability;

4. Mention the common interest in improving and enhancing operation of gauging stations throughout the Syrdarya River basin, particularly, by installing automated stations and attracting donors.

Decision on the second item:

1. Approve the forecast country water withdrawal limits and forecast operation regime of reservoir cascade for the non-growing season 2016-2017 in the Amudarya River basin (Annex 1).

2. Approve the forecast country water withdrawal limits and forecast operation regime of reservoir cascade for the non-growing season 2016-2017 in the Syrdarya

River basin (Annex 1).

3. Coordinate, on a routine basis, with the Kyrgyz party the proposed country water withdrawal limits and forecast operation regime of the reservoir cascades for the non-growing season 2016-2017 in the Syrdarya River basin.

Decisions on the third item:

1. Host the 25th anniversary of ICWC activities on maintaining interstate water cooperation in Central Asia.

2. Support the anniversary activities in the course of 2017. The venue and time should be approved on a routine basis.

3. Establish an Organization Committee represented by ICWC, SIC ICWC, ICWC Secretariat and one representative per member country to prepare the events.

4. The Committee should prepare a preliminary program of the events within a month and submit it to ICWC members for discussion in their respective countries, with following application to donors for financial and other support.

5. SIC ICWC and ICWC Secretariat should report on preparation for the events at the next ICWC Meeting.

Decisions on the forth item:

1. Host the next 70th ICWC meeting in Tashkent, Uzbekistan in the first half of April 2017.

2. The following agenda should be proposed for the meeting:

- The results of the non-growing season 2016-2017 in the Syrdarya and Amudarya River basins;
- Consideration and approval of the water withdrawal limits and operation regimes of reservoir cascade for the next growing season 2017 in the Syrdarya and Amudarya River basins;
- Progress on commemorative activities for the 25th anniversary of ICWC;
- Progress on the “Implementation Plan on strengthening ICWC activities in key directions”; and
- Agenda and venue of the next 71st ICWC meeting.

Decision on the supplementary item:

1. Approve Mr. Kholkhudjaev Odil Akhmedovich as the Head of BWO Syrdarya.

2. Approve Mr. Makhramov Makhmud Yakhshibayevich as the Head of BWO Amudarya.

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

Annex 1

Forecast operation regime of the Nurek and Tuyamuyun reservoirs
(from October 2016 to March 2017)

Nurek reservoir	Unit	Actual			Forecast			Total
		October	November	December	January	February	March	
Volume: beginning of the season	mcm	10,571	10,466	10,081	9,537	8,531	7,497	10,571
Inflow to reservoir	m^3/s	350	245	226	184	144	220	
	mcm	937	635	605	493	348	589	3,607
Water releases from the reservoir	m^3/s	395	393	428	560	650	600	
	mcm	1,058	1,019	1,146	1,500	1,572	1,607	7,902
Volume: end of the season	mcm	10,466	10,081	9,537	8,531	7,307	6,289	6,289
Accumulation (+), drawdown (-)	m^3/s	-105	-385	-544	-1,006	-1,224	-1,018	-4,295

Tuyamuyun reservoir	Unit	Actual			Forecast			Total
		October	November	December	January	February	March	
Volume: beginning of the season	mcm	2,751	2,909	3,110	2,876	3,238	3,292	2,751
Inflow to reservoir	m^3/s	426	271	327	306	435	574	
	mcm	1,141	702	876	820	1,052	1,537	6,128
Water releases from the reservoir	m^3/s	367	193	415	171	363	814	
	mcm	983	500	1,112	458	878	2,180	6,111
Volume: end of the season	mcm	2,909	3,110	2,876	3,238	3,412	2,769	2,769
Accumulation (+), drawdown (-)	mcm	158	201	-234	362	174	-643	17

Annex 2

SCHEDULE-FORECAST
of the Naryn-Syrdarya cascade reservoir from October 1, 2016 to March 31, 2017

		October	November	December	January	February	March	Total mcm
Toktogul reservoir								
Inflow to the reservoir	*m3/s*	***230.51***	***200.31***	***166.09***	***156.02***	***153.00***	***162.06***	
	mcm	617.40	519.20	444.86	417.88	370.14	434.06	**2,804**
Volume: beginning of the season	*mcm*	***17,487.00***	***17,189.19***	***16,408.50***	***15,243.16***	***14,053.63***	***13,092.92***	
end of the season	*mcm*	***17,189.19***	***16,408.50***	***15,243.16***	***14,053.63***	***13,092.92***	***12,508.86***	
Water releases from the reservoir	*m3/s*	***340.00***	***500.00***	***600.00***	***600.00***	***550.00***	***380.00***	
	mcm	910.66	1,296.00	1,607.04	1,607.04	1,330.56	1,017.79	**7,769**
Bakhri Tochik								
Inflow to the reservoir	*m3/s*	***504.09***	***841.27***	***976.70***	***877.55***	***831.57***	***575.93***	
	mcm	1,350.14	2,180.58	2,616.00	2,350.43	2,011.74	1542.58	**1,2051**
Volume: beginning of the season	*mcm*	***2,269.90***	***2,945.68***	***3,268.66***	***3,387.08***	***3,387.66***	***3,396.92***	
end of the season	*mcm*	***2,945.68***	***3,268.66***	***3,387.08***	***3,387.66***	***3,396.92***	***3,470.63***	
Water releases from the reservoir	*m3/s*	***250.00***	***730.00***	***950.00***	***900.00***	***850.00***	***560.00***	
	mcm	669.60	1,892.16	2,544.48	2,410.56	2,056.32	1,499.90	**1,1073**
Shardara reservoir								
Inflow to the reservoir	*m3/s*	***335.62***	***811.50***	***1,084.55***	***1,036.22***	***993.58***	***759.37***	
	mcm	898.92	2,103.40	2,904.87	2,775.42	2,403.67	2,033.89	**1,3120**
Volume: beginning of the season	*mcm*	***1,077.00***	***1,501.84***	***2,011.16***	***3,014.37***	***4301.94***	***4,595.89***	
end of the season	*mcm*	***1,501.84***	***2,011.16***	***3,014.37***	***4,301.94***	***4,595.89***	***5,125.13***	
Water releases from the reservoir	*m3/s*	***160.00***	***600.00***	***700.00***	***550.00***	***700.00***	***550.00***	
	mcm	428.54	1,555.20	1,874.88	1,473.12	1,693.44	1,473.12	**8,498**
Water releases to the Kzylkum canal	*m3/s*	***5.00***	***5.00***	***5.00***	***5.00***	***5.00***	***6.77***	
	mcm	13.39	12.96	13.39	13.39	12.10	18.14	**83**

		October	November	December	January	February	March	Total mcm
Water releases to the Arnasay depression	*m3/s*	***0.00***	***0.00***	***0.00***	***0.00***	***166.07***	***0.00***	
	mcm	0.00	0.00	0.00	0.00	401.76	0.00	**402**
Supply to the Aral Sea	*m3/s*	102.22	128.30	224.10	289.20	273.00	252.20	
	mcm	273.79	332.55	600.23	774.59	660.44	675.49	**3,317**
Charvak reservoir								
Inflow to the reservoir	*m3/s*	***114.40***	***101.77***	***86.58***	***76.84***	***76.48***	***113.93***	
(4 rivers in total)	*mcm*	306.41	263.79	231.90	205.81	185.02	305.15	**1,498**
Volume: beginning of the season	*mcm*	***1,679.00***	***1,553.46***	***1,425.76***	***1,255.30***	***1,057.74***	***903.11***	
end of the season	*mcm*	***1,553.46***	***1,425.76***	***1,255.30***	***1,057.74***	***903.11***	***846.41***	
Water releases from the reservoir	*m3/s*	***160.00***	***150.00***	***150.00***	***150.00***	***140.00***	***135.00***	
(Release from the Gazalkent HEPS)	*mcm*	428.54	388.80	401.76	401.76	338.69	361.58	**2,321**
Andizhan								
Inflow to the reservoir	*m3/s*	***64.02***	***66.66***	***60.17***	***51.75***	***51.24***	***66.16***	
	mcm	171.47	172.78	161.16	1,38.61	123.96	177.20	**945**
Volume: beginning of the season	*mcm*	***730.57***	***669.93***	***751.45***	***890.61***	***1,007.71***	***1,112.25***	
end of the season	*mcm*	***669.93***	***751.45***	***890.61***	***1,007.71***	***1,112.25***	***1,120.89***	
Water releases from the reservoir	*m3/s*	***86.45***	***35.00***	***8.00***	***8.00***	***8.00***	***62.90***	
	mcm	231.55	90.72	21.43	21.43	19.35	168.48	**553**

OPERATION SCHEDULE
of the Naryn-Syrdarya reservoir cascade from October 1, 2016 to March 31, 2017

		October actual	*November actual*	*December actual*	*January*	*February*	*March*	***Total mcm***
Toktogul reservoir								
Inflow to the reservoir	*m3/s*	***308.71***	***240.67***	***235.55***	***179.00***	***153.00***	***162.06***	
	mcm	826.85	623.81	630.89	479.43	370.14	434.06	**3,365**
Volume: beginning of the season	*mcm*	***17,487.00***	***17,345.00***	***16,648.00***	***15,777.00***	***14,653.69***	***13,692.98***	
end of the season	*mcm*	***17,345.00***	***16,648.00***	***15,777.00***	***14,653.69***	***13,692.98***	***13,108.93***	
Water releases from the reservoir	*m3/s*	***361.68***	***508.10***	***558.45***	***597.74***	***550.00***	***380.00***	
	mcm	968.72	1,317.00	1,495.76	1,600.99	1,330.56	1,017.79	**7,731**
Bakhri Tochik reservoir								
Inflow to the reservoir	*m3/s*	***590.45***	***831.97***	***959.52***	***915.84***	***831.57***	***575.93***	
	mcm	1,581.46	2,156.46	2,569.97	2,453.00	2,011.74	1,542.58	**12,315**
Volume: beginning of the season	*mcm*	***2,269.90***	***2,932.90***	***2,967.20***	***3,300.70***	***3,405.69***	***3,414.96***	
end of the season	*mcm*	***2,932.90***	***2,967.20***	***3,300.70***	***3,405.69***	***3,414.96***	***3,488.66***	
Water releases from the reservoir	*m3/s*	***303.68***	***803.17***	***890.90***	***890.26***	***850.00***	***560.00***	
	mcm	813.37	2,081.81	2,386.20	2,384.47	2,056.32	1,499.90	**11,222**
Shardara reservoir								
Inflow to the reservoir	*m3/s*	***314.39***	***721.87***	***986.31***	***960.93***	***943.58***	***759.37***	
	mcm	842.05	1,871.10	2,641.74	2,573.77	2,282.71	2,033.89	**12,245**
Volume: beginning of the season	*mcm*	***1,077.00***	***1,492.00***	***1,850.00***	***2,490.00***	***3,405.85***	***3,941.72***	
end of the season	*mcm*	***1,492.00***	***1,850.00***	***2,490.00***	***3,405.85***	***3,941.72***	***4,884.29***	
Water releases from the reservoir	*m3/s*	***146.13***	***591.83***	***821.61***	***668.71***	***550.00***	***395.68***	
	mcm	391.39	1,534.03	2,200.61	1,791.07	1,330.56	1,059.78	**8,307**
Water releases to the Kzylkum canal	*m3/s*	***5.00***	***5.00***	***5.00***	***5.00***	***5.00***	***6.77***	
	mcm	13.39	12.96	13.39	13.39	12.10	18.14	**83**

		October actual	November actual	December actual	January	February	March	Total mcm
Water releases to the Arnasay depression	*m3/s*	***0.00***	***0.00***	***0.00***	***0.00***	***166.07***	***0.00***	
	mcm	0.00	0.00	0.00	0.00	401.76	0.00	**402**
Supply to the Aral Sea	*m3/s*	139.42	161.37	240.26	284.16	274.79	252.20	
	mcm	373.42	418.26	643.51	761.10	664.76	675.49	**3,537**
Charvak reservoir								
Inflow to the reservoir	*m3/s*	***137.84***	***110.65***	***113.42***	***88.63***	***76.48***	***113.93***	
(4 rivers in total)	*mcm*	369.20	286.81	303.79	237.38	185.02	305.15	**1,687**
Volume: beginning of the season	*mcm*	***1,679.00***	***1,489.00***	***1,265.00***	***1,138.00***	***868.90***	***714.26***	
end of the season	*mcm*	***1,489.00***	***1,265.00***	***1,138.00***	***868.90***	***714.26***	***657.56***	
Water releases from the reservoir	*m3/s*	***182.42***	***186.60***	***155.32***	***176.69***	***140.00***	***135.00***	
(Releases from the Gazalkent HEPS)	*mcm*	488.59	483.67	416.02	473.24	338.69	361.58	**2,562**
Andizhan reservoir								
Inflow to the reservoir	*m3/s*	***50.00***	***77.10***	***92.97***	***66.07***	***51.24***	***66.16***	
	mcm	133.92	199.84	249.01	176.97	123.96	177.20	**1,061**
Volume: beginning of the season	*mcm*	***730.57***	***625.50***	***681.12***	***883.02***	***1,034.10***	***1,138.64***	
end of the season	*mcm*	***625.50***	***681.12***	***883.02***	***1,034.10***	***1,138.64***	***1,147.28***	
Water releases from the reservoir	*m3/s*	***90.00***	***56.83***	***15.16***	***8.97***	***8.00***	***62.90***	
	mcm	241.06	147.31	40.60	24.02	19.35	168.48	**641**

THE RESULTS OF THE GROWING SEASON 2016 IN THE AMUDARYA AND SYRDARYA RIVER BASINS1

I. Amudarya River basin

The actual water availability in the Amudarya River basin at the conditional Atamurat gauging station upstream of Garagumdarya was 85.2 % of the norm in the growing season 2016. The calculations were made taking into account the natural flow in the Vakhsh River and the flow regulation by the Nurek reservoir. Given the norm 47,592 mcm, the actual water availability amounted to 40,542 mcm. In the past season, water availability was 108.5%.

The use of the approved water withdrawal limits during the period under consideration, with a breakdown by states is as follows:

Taking into account the current water situation, totally in the basin 89.2 % of the approved water withdrawal limits was used. While the quota was 39,696.3 mcm, actually used volume was 35, 404.6 mcm, of which:

Republic of Tajikistan actually used 5,839.8 mcm (83.7 % of the total limit);

Republic of Uzbekistan actually used 15,410.1 mcm (89.5 % of the total limit);

Turkmenistan actually used 14,154.7 mcm (91.3 % of the total limit).

Water user state	Limit, mcm	Actual, mcm	%% of the total limit
Republic of Tajikistan	6,976.3	5,839.8	83.7
Turkmenistan	15,500.0	14,154.7	91.3
Republic of Uzbekistan	1,7220.0	15,410.1	89.5
Total	39,693.3	35,404.6	89.2

During the growing season 2016, the use of water limits downstream of conditional Atamurat gauging station upstream of Garagumdarya was 91.3% of the total limit, of which:

Republic of Uzbekistan actually used 14,631.7 mcm (91.3 % of the total limit)

Turkmenistan actually used 14,154.7 mcm (91.3 % of the total limit)

[1] Information on the first item of the 69th ICWC Meeting Agenda

River reach Water user state	Limit, mcm	Actual, mcm	%% of the total limit
Downstream of conditional Atamurat GS	31,520.0	28,786.4	91.3
Turkmenistan	15,500.0	14,154.7	91.3
Republic of Uzbekistan	16,020.0	14,631.7	91.3

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

Upper reaches – 80.9 %, of which 83.7 % - Republic of Tajikistan, 64.9 % - Republic of Uzbekistan.

Middle reaches – 97.6 %, of which 96.0 % - Republic of Uzbekistan, 98.4 % - Turkmenistan.

Lower reaches – 84.7 %, of which 88.7 % - Republic of Uzbekistan, 76.6 % - Turkmenistan.

River reach Water user state	Limit, mcm	Actual, mcm	%% of the total limit
Upper reaches	8,176.3	6,618.2	80.9
Republic of Tajikistan	6,976.3	5,839.8	83.7
Republic of Uzbekistan	1,200.0	778.4	64.9

River reach Water user state	Limit, mcm	Actual, mcm	%% of the total limit
Middle reaches	16,207.0	15,810.7	97.6
Turkmenistan	10,472.0	10,304.3	98.4
Republic of Uzbekistan	5,735.0	5,506.4	96.0

River reach Water user state	Limit, mcm	Actual, mcm	%% of the total limit
Lower reaches	15,313.0	12,975.8	84.7
Turkmenistan	5,028.0	3,850.5	76.6
Republic of Uzbekistan	10,285.0	9,125.3	88.7

In Prearalie and the Aral Sea, water supply was planned to be 2,100 mcm. It actually was 1,404 mcm, which is 66.9% less than planned, owing to low water availability during this growing season.

The forecast inflow to the Nurek reservoir was expected to be 17,113 mcm; it actually was 17,202 mcm. Water releases from the reservoir were planned to be 13,353 mcm; actual releases were 13,388 mcm. By the end of the growing season 2016, water volume in the reservoir was planned to be 10,504 mcm; the actual volume was 10,571 mcm.

During the growing season, the forecast inflow to the Tuyamuyun reservoir was expected to be 19,083 mcm; actually it was 16,615 mcm. Water releases from the reservoir were planned to be 19,696 mcm, actual releases were 17,195 mcm.

By the end of the growing season 2016, water volume in the reservoir was planned to be 2,717 mcm; actually it was 2,751 mcm.

Parameter		Unit	Nurek reservoir	Tuyamuyun reservoir
Volume: beginning of the season		mcm	6,744	3,331
Inflow to the reservoir	forecast	mcm	17,113	19,083
	actual	mcm	17,202	16,615
		%%	100.5	87.1
Water releases from the reservoir	forecast	mcm	13,353	19,696
	actual	mcm	13,388	17,195
		%%	100.3	87.3
Volume: end of the season	forecast	mcm	10,504	2,717
	actual	mcm	10,571	2,751
		%%	100.6	101.2
Accumulation (+), drawdown (-)	forecast	mcm	3,760	-614
	actual	mcm	3,827	-580
		%%	101.8	94.5

Analysis of the use of withdrawal limits in the Amudarya River basin for the growing season 2016

mcm

Name	Limit	Actual	%%
Upper - Amudarya Administration	8,176.3	6,618.2	80.9
(upper reaches)			
of which:			
Tajikistan	6,976.3	5,839.8	83.7
Uzbekistan	1,200.0	778.4	64.9
Water withdrawals from the Amudarya River			
at conditional Atamurat gauging station (Kerki)	31,520.0	28,786.4	91.3
of which:			
Turkmenistan	15,500.0	14,154.7	91.3
Uzbekistan	16,020.0	14,631.7	91.3
Middle-Amudarya Administration	16,207.0	15,810.6	97.6
(middle reaches) of which			
Turkmenistan	10,472.0	10,304.2	98.4
Uzbekistan	5,735.0	5,506.4	96.0
Lower reaches:	15,313.0	12,975.8	84.7
of which:			
Turkmenistan	5,028.0	3,850.5	76.6
Uzbekistan	10,285.0	9,125.3	88.7
Total for the basin:	39,696.3	35,404.7	89.2
of which			
Tajikistan	6,976.3	5,839.8	83.7
Turkmenistan	15,500.0	14,154.7	91.3
Uzbekistan	17,220.0	15,410.2	89.5

Actual operation regime of the Nurek and Tuyamuyun reservoirs from April 2016 to September 2016

Nurek reservoir	Unit	Actual						Total
		IV	V	VI	VII	VIII	IX	
Inflow	m^3/s	416	1,150	1,438	1,553	1,188	762	17,202
Water losses	m^3/s							0
Volume: beginning of the season	mcm	6,744	6,368	7,821	9,253	10,389	10,552	6,744
end of the season	mcm	6,368	7,821	9,253	10,389	10,552	10,571	10,571
Accumulation(+), drawdown (-)	mcm	-376	1,453	1,432	1,136	163	20	3,827
Level: end of the season	m							
Water releases from reservoir	m^3/s	562	605	901	1,151	1,124	726	13,388

Tuyamuyun reservoir	Unit	Actual						Total
		IV	V	VI	VII	VIII	IX	
Inflow	m^3/s	374	1,024	1,704	1,575	1,005	606	16,615
Volume: beginning of the season	mcm	3,331	2,902	3,671	4,774	4,256	3,202	3,331
end of the season	mcm	2,902	3,671	4,774	4,256	3,202	2,751	2,751
Accumulation(+), drawdown (-)	mcm	-429	769	1103	-518	-1,053	-452	-580
Level: end of the season	m							
Water releases from reservoir	m^3/s	540	737	1,279	1,769	1,399	781	17,195
including to the river	m^3/s	309	503	955	1,340	1,014	524	12,287

Information on water supply to the Aral Sea and Amudarya River delta in the growing season 2016

mcm

Name	IV	V	VI	VII	VIII	IX	Actual water supply from 01.04.16 to 30.09.16
From the Amudarya River, at Samanbay GS	145	32	92	228	117	124	738
Total water discharge from system Kyzketken and Suenli canals	0	0	1	3	1	0	5
CDF	98	82	80	130	155	116	661
Total:	243	114	173	361	273	240	1,404
Cumulative, mcm	243	357	530	891	1,164	1,404	

Note: Data on water supply to Prearalie are agreed with the State Hydro meteorological Service (Hydromet) of the Republic of Uzbekistan

II. Syrdarya River basin

According to the Hydromet's forecast, during the growing season 2016 water availability in the Syrdarya River basin was expected to be 85-95% of the norm in the rivers of South Fergana Valley, Chirchik, Naryn, and Karadarya and 70-80% of the norm in the rivers of North Fergana Valley and Akhangaran.

The forecast operation regime schedule of the Naryn-Syrdarya reservoir cascade for the growing season and state water withdrawal limits in the Syrdarya River basin were considered at the 68th ICWC Meeting.

The results of the reservoir cascade operation and the use of limits in the Syrdarya River basin for the growing season (from April 1, 2016 to September 30, 2016) are the following:

The normal inflow to the upstream Naryn-Syrdarya reservoir cascade is 18,229 mcm during the growing season.

According to the Hydromet's forecast, the inflow was expected to be 16,255 mcm.

According to the schedule-forecast prepared to the 68th ICWC Meeting (*hereinafter ICWC-68 schedule-forecast*), the inflow was expected to be 16,434 mcm (actual for April + forecast for May-September).

The actual inflow to the upstream reservoirs amounted to 20,518 mcm, i.e. 4,263 mcm more than the forecast and 4,084 mcm more than the ICWC-68 schedule-forecast (Table 2.1).

The inflow to the Toktogul reservoir was 12,095 mcm, i.e. 3,603 mcm more than the forecast (it was 8,492 mcm) and 3,454 mcm more than the ICWC-68 schedule-forecast (it was 8,641mcm).

The inflow to the Andizhan reservoir was 2,277 mcm, i.e. 255 mcm less than the forecast (it was 2,532mcm) and 212 mcm less than the ICWC-68 schedule-forecast (it was 2,489 mcm).

The inflow to the Charvak reservoir was 6,145mcm, i.e. 993 mcm more than the forecast (it was 5,152 mcm) and 841 mcm more than the ICWC-68 schedule-forecast (it was 5,304 mcm).

The lateral inflow to the Syrdarya River up to the Shardara reservoir is 11,010 mcm of the norm.

According to the Hydromet's forecast, the lateral inflow was expected to be 9,669 mcm.

According to the ICWC-68 schedule-forecast, the lateral inflow was expected to be 10,499 mcm (actual for April + forecast for May-September).

The actual lateral inflow was 11,853 mcm, i.e. 2,184 mcm more than the forecast and 1,354 mcm more than the ICWC-68 schedule-forecast.

During the growing season, the total lateral inflow to the Syrdarya River is 29,239 mcm of the norm.

According to the Hydromet's forecast, it was expected to be 25,832 mcm.

According to the ICWC-68 schedule-forecast, it was expected to be 26,933 mcm (actual for April + forecast for May-September).

The actual lateral inflow was 32,370 mcm, i.e. 6,538 mcm more than the forecast and 5,437 mcm more than the ICWC-68 schedule-forecast.

Table 2.1

Parameter	Inflow, mcm				actual/ forecast (%)	actual/ forecast (%)	actual/ ICWC-68 (%)
	norm	Hydromets's forecast	ICWC-68	actual			
Inflow to the upper reservoirs							
Toktogul	9,493	8,479	8,641	12,095	143	127	140
Andizhan	2,990	2,532	2,489	2,277	90	76	91
Charvak (4 rivers in total)	5,746	5,152	5,304	6,145	119	107	116
Total	**18,229**	**16,163**	**16,434**	**20,518**	**127**	**113**	**125**
Lateral inflow							
Toktogul – Uchkurgan	1,184	1,052	1,249	1,794	171	152	144
Andizhan – Uchtepe	2,529	2,134	2,134	2,379	111	94	111
Uchkurgan, Uchtepe-Bakhri Tochik	3,368	3,004	3,280	3,541	118	105	108
Bakhri Tochik – Shardara	3,020	2,688	3,079	3,141	117	104	102
Gazalkent- Chinaz (excluding Ugam)	909	791	757	998	126	110	132
Total	**11,010**	**9,669**	**10,499**	**11,853**	**123**	**108**	**113**
Overall	**29,239**	**25,832**	**26,933**	**32,370**	**125**	**111**	**120**

According to the operation schedule of the Naryn-Syrdarya reservoir cascade, 4,564 mcm of water were to be discharged from the Toktogul reservoir during the growing season 2016. The actual water discharge amounted to 3,573 mcm or 991 mcm

less than planned. According to the ICWC-68 schedule-forecast, 4,611 mcm of water were to be discharged or 1,038 mcm less than planned (Table 2.2).

Scheduled water releases from the Andizhan reservoir were to be 2,167 mcm. According to the ICWC-68 schedule-forecast, water releases from the reservoir were to be 2,146 mcm. However, the actual water releases were 2,651 mcm, i.e. 484 mcm more than the schedule and 505 mcm more than the ICWC-68 schedule-forecast.

According to the schedule, 4,428 mcm of water were to be discharged from the Charvak reservoir. According to the ICWC-68 schedule-forecast, 4,409 mcm of water were to be discharged from the reservoir. It actually discharged 5,180 mcm, i.e. 752mcm more than the schedule and 771 mcm more than the ICWC-68 schedule-forecast.

Table 2.2

Reservoir	Water releases, mcm (April 1 to September 30, 2016)			Actual/ schedule (%)	Actual/ ICWC-68 (%)
	Schedule	ICWC-68 (April-actual; May-September-forecast)	Actual		
Toktogul	4,564	4,611	3,573	78	77
Andizhan	2,167	2,146	2,651	122	124
Charvak(release from the Gazalkent HEPS)	4,428	4,409	51,80	117	117
Bakhri Tochik	6,035	6,091	6,112	101	100
Shardara	4,888	5,219	7,593	155	145
Total	**22,081**	**22,476**	**25,109**	**114**	**112**

According to the schedule, 6,035 mcm of water were to be discharged from the Bakhri Tochik reservoir. According to the ICWC-68 schedule-forecast, 6,091 mcm of water were to be discharged from the reservoir. Actually it discharged 6,112 mcm, i.e. 77 mcm more than the schedule and 21 mcm more than the ICWC-68 schedule-forecast.

According to the schedule, water releases from the Shardara reservoir were to be 4,888 mcm. According to the ICWC-68 schedule-forecast, the releases from the reservoir were to be 5,219 mcm. Actually it released 7,593 mcm, i.e. 2,705 mcm more than the schedule and 2,374 mcm more than the ICWC-68 schedule-forecast.

According to the schedule, in total 22,081 mcm of water were to be discharged from the reservoirs. According to the ICWC-68 schedule-forecast, 22,476 mcm of water were to be discharged in total from the reservoirs (actual for April + forecast for May-September). The actual discharge was 25,109 mcm, i.e. 3,028 mcm more than the schedule and 2,633 mcm more than the ICWC-68 schedule-forecast (Table 2.2).

Water was supplied to the user states, taking into account submitted water requests and actual water availability (Tables 2.3 and 2.4).

Given the limit of 702 mcm, 440 (63% of the limit) mcm were supplied to the Republic of Kazakhstan through the Dustlik canal during the growing season;

Given the limit of 247 mcm, 192 (78% of the limit) mcm were supplied to the Kyrgyz Republic;

Given the limit of 1,905 mcm, 1,548 (81% of the limit) mcm were supplied to the Republic of Tajikistan;

Given the limit of 8,800 mcm, 6,635 (75% of the limit) mcm were supplied to the Republic of Uzbekistan;

Table 2.3

Water user state	Water withdrawals, mcm from April 1 to September 30, 2016		
	By limits, as of request	Actual	%
Republic of Kazakhstan (Dostyk canal)	702	440	63
Kyrgyz Republic	247	192	78
Republic of Tajikistan	1,905	1,548	81
Republic of Uzbekistan	8,800	6,635	75
Total:	**11,654**	**8,815**	**76**

Upper reaches: given the limit of 162 mcm, 122 mcm (76% of the limit) were supplied to the Kyrgyz Republic; given the limit of 237 mcm, 74 mcm (31% of the limit) were supplied to the Republic of Tajikistan; given the limit of 3,584 mcm, 3,152 (89% of the limit) mcm were supplied to the Republic of Uzbekistan.

Middle reaches (downstream of the Bakhri Tochik reservoir): given the limit of 702 mcm, 440 mcm (63% of the limit) were supplied to the Republic of Kazakhstan; given the limit of 1,220 mcm, 959 mcm (79% of the limit) were supplied to the Republic of Tajikistan; given the limit of 4,708 bcm, 2,968 bcm (63% of the limit) were supplied to the Republic of Uzbekistan.

Table 2.4

Reach, water user state	Water withdrawals, mcm from April 1, 2016 to September 30, 2016		
	By limits, as of request	Actual	%
Toktogul – Uchkurgan hydroscheme, including:	**3,946**	**3,348**	**85**
Kyrgyz Republic	162	122	76
Tajikistan	237	74	31
Uzbekistan	3,548	3,152	89
Uchkurgan – Bakhri Tochik, including:	**1,078**	**1,100**	**102**
Kyrgyz Republic	85	70	82
Tajikistan	449	515	115
Uzbekistan	544	515	95
Bakhri Tochik hydroscheme – Shardara reservoir, including:	**6,629**	**4,367**	**66**
Kazakhstan	702	440	63
Tajikistan	1,220	959	79
Uzbekistan	4,708	2,968	63

According to the schedule, the inflow to the Shardara reservoir was to be 3,714 mcm during the growing season 2016. According to the ICWC-68 schedule-forecast, the inflow to the reservoir was to be 4,539 mcm (actual for April + forecast for May-September). Actually, it was 6,139 mcm, i.e. 2,425 mcm more than the schedule and 1,600 mcm more than the ICWC-68 schedule-forecast.

According to the schedule, the inflow to the Aral Sea and Prearalie was to be 1,804 mcm from April to September. According to the ICWC-68 schedule-forecast, the inflow was to be 1,569 mcm (actual for April + forecast for May-September). According to the Hydromet's forecast, the actual inflow at the Karateren GS was 1,199 bcm, i.e. 605 mcm less than the schedule and 370 mcm less than the ICWC-68 schedule-forecast (Table 2.5).

Table 2.5

Parameters	Scheduled, from April 1, 2016 to September 30, 2016, mcm	ICWC-68 (April-actual, May-September-forecast)	Actual, from April 1, 2016 to September 30, 2016, mcm	Actual, from April 1, 2016 to September 30, 2016, mcm
Inflow to the Shardara reservoir	3,714	4,539	6,139	3,734
Supply to the Aral Sea	1,804	1,569	1,199	1,232

According to the operation schedule of the Naryn-Syrdarya reservoir cascade, the total water volume was to be 19,329 mcm by the end of the growing season. According to the ICWC-68 schedule-forecast, the total volume was to be 19,695 mcm (actual for April + forecast for May-September). The actual volume was 23,244 mcm, i.e. 3,915 mcm more than the schedule and 3,549 mcm more than the ICWC-68 schedule-forecast (Table 2.6).

Table 2.6

Reservoir	Reservoir capacity, mcm			
	Actual by April 1, 2016	Scheduled by October 1, 2016 **(calculated by BWO)**	Scheduled by October 1, 2016 **(ICWC-68)**	Actual by October 1, 2016 .
Toktogul	8,934	12,795	12,883	17,487
Andizhan	1,013	1,368	1,344	731
Charvak	791	1,498	1,659	1,679
TOTAL:	**10,738**	**15,661**	**15,886**	**19,897**
Bakhri Tochik	3,380	1,664	1,718	2,270
Shardara	4,850	2,004	2,091	1,077
TOTAL:	**8,230**	**3,668**	**3,809**	**3,347**
OVERALL:	**18,968**	**19,329**	**19,695**	**23,244**

By October 1, 2016, water accumulation in the upstream reservoirs was as follows:

- In the Toktogul reservoir: actual - 17, 487 mcm, scheduled-12,795 mcm, i.e. 4,692 mcm more than scheduled and 4,604 mcm more than the ICWC-68 schedule-forecast (12,883 mcm);

- In the Andizhan reservoir: actual – 731 mcm, scheduled – 1,368 mcm, i.e. 637 mcm less than scheduled and 613 mcm less than the ICWC-68 schedule-forecast (1,344 mcm);
- In the Charvak reservoir: actual – 1,679 mcm, scheduled – 1,498 mcm, i.e. 181 mcm more than scheduled and 20 mcm more than the ICWC-68 schedule-forecast (1,659 mcm);

In the upstream reservoirs, the total water volume was 19,897 mcm against the scheduled volume of 15,661 mcm, i.e. 4,236 mcm more than the scheduled and 4,011 mcm more than the ICWC-68 schedule-forecast (15,886 mcm).

Water accumulation in in-stream reservoirs was as follows:

- In the Bakhri Tochik reservoir: actual – 2,270 mcm, scheduled – 1,664 mcm, i.e. 606 mcm more than scheduled and 552 mcm more than the ICWC-68 schedule-forecast (1,718 mcm).
- In the Shardara reservoir: actual - 1,077 mcm, scheduled – 2,004 mcm, i.e. 927 mcm more than scheduled and 1,014 mcm more than the ICWC-68 schedule-forecast (2,091 mcm).

The total water volume in the in-stream reservoirs was 3,347 mcm against the scheduled volume of 3,668 mcm, i.e. 321 mcm less than scheduled and 462 mcm less than the ICWC-68 schedule-forecast (3,809 mcm).

In June-July, BWO Syrdarya restricted water withdrawals in the upper reaches of the Fergana Valley to maintain inflow to the Bakhri Tochik reservoir. To reduce water deficit in the middle reaches and maintain inflow to the Bakhri Tochik reservoir, from June 14 the Republic of Uzbekistan additionally discharged 50 m³/s of water from the Andizhan reservoir to supply water to the Syrdarya River; from June 18 to August 1 additional releases were increased by 112 m³/s. In August, Uzbekistan continued additional releases at minimum values. The total additional releases amounted to 516 mcm.

Thanks to the Republic of Tajikistan, in July water releases from the reservoir increased, i.e. instead of Akdjar+190 m^3/s, Akdjar+200 m^3/s were discharged. In August, drawdown of the Bakhri Tochik reservoir was continued to improve water availability in the middle reaches. Water releases through the Kyzylkishlak GS increased up to 470 m^3/s.

Thanks to the Republic of Kazakhstan, additional water releases were provided and energy was received from August 4 to August 31 from the Toktogul reservoir; consequently 212 mcm were discharged within 27 days (data by the Coordination Dispatch Center “Energy”). According to the Republic of Kazakhstan, 197 mcm were discharged.

From the second ten-day of August, the hydrological situation was improved; however, the lost time did not allow improving water availability in the middle reaches of the Syrdarya River.

In conclusion, one should mention that thanks to joint efforts water delivery to irrigated lands in the middle reaches was improved only by the end of the growing season.

The schedule-forecast of the Naryn-Syrdarya reservoir cascade taken into account at the 68th ICWC Meeting (Annex 2) is given in Table 2.7 for the period from April 1, 2016 to September 30, 2016 (actual for April + forecast for May-September).

The actual operation regime of the Naryn-Syrdarya reservoir cascade is given in Table 2.8 for the period from April 1, 2016 to September 30, 2016.

The schedule-forecast of the Naryn-Syrdarya reservoir cascade is given in Table 2.9 for the period from April 1, 2016 to September 30, 2016 (without actual data).

Table 2.7

SCHEDULE-FORECAST
of the Naryn-Syrdarya reservoir cascade with additional water releases from the upper reservoirs to overcome water deficit from April 1, 2016 to September 30, 2016
(Hydromet's forecast - 88%, limit - 100%)

		Apr-forecast	*Apr-actual*	*May*	*June*	*July*	*August*	*September*	*Total, mcm*
Toktogul reservoir									
Inflow to the reservoir	*m3/s*	*265.29*	322.73	553.30	840.08	751.65	530.58	274.13	
	mcm	687.63	836.52	1,481.96	2,177.49	2,013.22	1,421.11	710.54	8,640.84
Volume: beginning of the season	*mcm*	*8,934.00*	***8,934.00***	***9,110.00***	***9,972.09***	***11,316.87***	***12,012.11***	***12,631.28***	
end of the season	*mcm*	*8,970.55*	***9,110.00***	***9,972.09***	***11,316.87***	***12,012.11***	***12,631.28***	***12,883.30***	
Water releases from the reservoir	*m3/s*	*250.00*	268.10	206.57	320.00	488.00	293.39	170.00	
	mcm	648.00	694.92	553.29	829.44	1,307.06	785.81	440.64	4,611.15
Bakhri Tochik reservoir*									
Inflow to the reservoir	*m3/s*	*351.74*	445.27	525.23	295.97	312.68	180.49	217.52	
	mcm	911.71	1,154.13	1,406.77	767.16	837.48	483.43	563.82	5212.80
Volume: beginning of the season	*mcm*	*3,379.90*	***3,379.90***	***3,482.10***	***3,494.77***	***3,070.16***	***2,390.78***	***1,665.41***	
end of the season	*mcm*	*3,406.68*	***3,482.10***	***3,494.77***	***3,070.16***	***2,390.78***	***1665.41***	***1,717.86***	
Water releases from the reservoir	*m3/s*	*340.00*	361.54	478.94	400.00	500.00	396.77	166.67	
	mcm	881.28	937.10	1,282.79	1,036.80	1,339.20	1,062.72	432.00	6,090.61
Shardara reservoir									
Inflow to the reservoir	*m3/s*	*291.51*	609.60	411.30	197.99	169.26	133.72	205.46	
	mcm	755.59	1,580.07	1,101.62	513.19	453.35	358.14	532.54	4,538.92
Volume: beginning of the season	*mcm*	*4,850.00*	***4,850.00***	***4,919.00***	***4,957.99***	***4,141.48***	***,2934.23***	***1,926.39***	
end of the season	*mcm*	*4,737.27*	***4,919.00***	***4,957.99***	***4,141.48***	***2,934.23***	***1,926.39***	***2,090.87***	

		Apr-forecast	Apr-actual	May	June	July	August	September	Total, mcm
Water releases from the reservoir	*m3/s*	*300.00*	427.67	249.03	350.00	450.00	400.00	100.00	
	mcm	777.60	1,108.51	667.01	907.20	1,205.28	1,071.36	259.20	5,218.56
Water releases to the Kzylkum canal	*m3/s*	*20.00*	51.00	77.42	110.00	110.00	90.00	25.00	
	mcm	51.84	132.19	207.36	285.12	294.62	241.06	64.80	1,225.15
Water releases to the Arnasay depression	*m3/s*	*0.00*	0.00	0.00	0.00	0.00	0.00	0.00	
	mcm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Supply to the Aral Sea	*m3/s*	*117.50*	26.77	72.45	98.70	120.70	126.30	149.70	
	mcm	304.56	69.38	194.05	255.83	323.28	338.28	388.02	1,568.84
Charvak reservoir									
Inflow to the reservoir	*m3/s*	*231.87*	283.48	456.84	528.67	391.65	220.00	130.00	
(4 rivers in total)	*mcm*	601.01	734.77	1,223.61	1,370.30	1,048.98	589.25	336.96	5,303.87
Volume: beginning of the season	*mcm*	*791.00*	***791.00***	***1,139.00***	***1,632.32***	***2,010.00***	***1,980.91***	***1,809.34***	
end of the season	*mcm*	*976.77*	***1,139.00***	***1,632.32***	***2,010.00***	***1,980.91***	***1,809.34***	***1,659.09***	
Water releases from the reservoir	*m3/s*	*160.00*	152.83	264.84	381.76	400.90	282.26	186.67	
(release from the Gazalkent HEPS)	*mcm*	414.72	396.14	709.34	989.51	1,073.78	756.00	483.84	4,408.62
Andizhan reservoir									
Inflow to the reservoir	*m3/s*	*136.80*	96.83	305.48	276.67	132.58	82.90	48.33	
	mcm	354.59	250.99	818.21	717.12	355.10	222.05	125.28	2,488.75
Volume: beginning of the season	*mcm*	*1,013.47*	***1,013.47***	***1,023.46***	***1,501.15***	***1,663.51***	***1,511.74***	***1,394.10***	
end of the season	*mcm*	*1,107.92*	***1,023.46***	***1,501.15***	***1,663.51***	***1,511.74***	***1,394.10***	***1,343.93***	
Water releases from the reservoir	*m3/s*	*100.00*	92.05	126.77	213.67	188.23	125.81	66.67	
	mcm	259.20	238.58	339.55	553.82	504.14	336.96	172.80	2,145.86

Table 2.8

ACTUAL OPERATION REGIME
of the Naryn-Syrdarya reservoir cascade from April 1, 2016 to September 30, 2016

		Apr	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Total, mcm*
Toktogul reservoir								
Inflow to the reservoir	*m3/s*	323	785	1375	1,048	652	401	
	mcm	837	2,103	3,564	2,806	1,746	1,040	12,095
Volume: beginning of the season	*mcm*	***8,934***	***9,110***	***10,760***	***13,818***	***16,096***	***16,986***	
end of the season	*mcm*	***9,110***	***10,760***	***13,818***	***16,096***	***16,986***	***17,487***	
Water releases from the reservoir	*m3/s*	268	173	196	198	314	206	
	mcm	695	464	508	530	842	534	3,573
Bakhri Tochik reservoir								
Inflow to the reservoir	*m3/s*	445	576	309	217	311	317	
	mcm	1,154	1,542	801	582	832	821	5,732
Volume: beginning of the season	*mcm*	***3,380***	***3,482***	***3,541***	***3,320***	***2,638***	***2,166***	
end of the season	*mcm*	***3,482***	***3,541***	***3,320***	***2,638***	***2,166***	***2,270***	
Water releases from the reservoir	*m3/s*	362	544	322	423	437	224	
	mcm	937	1,456	836	1,134	1,170	580	6,112
Shardara reservoir								
Inflow to the reservoir	*m3/s*	610	707	474	202	155	186	
	mcm	1,580	1,893	1,228	541	416	481	6,139
Volume: beginning of the season	*mcm*	***4,850***	***4,919***	***5,182***	***4,676***	***2,576***	***1,254***	
end of the season	*mcm*	***4,919***	***5,182***	***4,676***	***2,576***	***1,254***	***1,077***	
Water releases from the reservoir	*m3/s*	428	415	474	821	515	220	
	mcm	1,109	1,110	1,228	2,199	1,378	569	7,593
Water releases to the Kzylkum canal	*m3/s*	51	40	42	93	49	8	
	mcm	132	106	108	250	132	21	749

		Apr	May	Jun	Jul	Aug	Sep	Total, mcm
Water releases to the Arnasay depression	*m3/s*	0	8	0	0	0	0	
	mcm	0	22	0	0	0	0	22
Supply to the Aral Sea	*m3/s*	27	19	17	79	70	246	
	mcm	69	50	43	212	187	637	1,199
Charvak reservoir								
Inflow to the reservoir	*m3/s*	283	554	660	422	246	165	
(4 rivers in total)	*mcm*	735	1,485	1,710	1,130	659	427	6,145
Volume: beginning of the season	*mcm*	***791***	***1,139***	***1,721***	***2,000***	***1,988***	***1,782***	
end of the season	*mcm*	***1,139***	***1,721***	***2,000***	***1,988***	***1,782***	***1,679***	
Water releases from the reservoir	*m3/s*	153	366	543	422	298	180	
(Releases from the Gazalkent HEPS)	*mcm*	396	980	1,407	1,129	799	468	5,180
Andizhan reservoir								
Inflow to the reservoir	*m3/s*	97	274	259	124	58	52	
	mcm	251	735	670	332	154	135	2,277
Volume: beginning of the season	*mcm*	***1,013***	***1,023***	***1,589***	***1,656***	***1,157***	***769***	
end of the season	*mcm*	***1,023***	***1,589***	***1,656***	***1,157***	***769***	***731***	
Water releases from the reservoir	*m3/s*	92	100	231	312	202	65	
	mcm	239	267	599	835	542	169	2,651

Table 2.9

SCHEDULE-FORECAST
of the Naryn-Syrdarya reservoir cascade with additional water releases from the upper reservoirs to overcome water deficit from April 1, 2016 to September 30, 2016

		April	*May*	*June*	*July*	*August*	*September*	*Total, mcm*
Toktogul reservoir								
Inflow to the reservoir	*m3/s*	*265*	548	840	752	531	274	
	mcm	688	1,468	2,177	2,013	1,421	711	8,479
Volume: beginning of the season	*mcm*	***8,934***	***8,971***	***9,883***	***11,228***	***11,923***	***12,543***	
end of the season	*mcm*	***8,971***	***9,883***	***11,228***	***11,923***	***12,543***	***12,795***	
Water releases from the reservoir	*m3/s*	*250*	207	320	488	293	170	
	mcm	648	553	829	1,307	786	441	4,564
Bakhri Tochik reservoir								
Inflow to the reservoir	*m3/s*	*351.74*	525.23	295.97	312.68	180.49	217.52	
	mcm	911.71	1,406.77	767.16	837.48	483.43	563.82	4,970
Volume: beginning of the season	*mcm*	***3,379.90***	***3,406.68***	***3,441.01***	***3,016.40***	***2,337.02***	***1,611.65***	
end of the season	*mcm*	***3,406.68***	***3,441.01***	***3,016.40***	***2,337.02***	***1,611.65***	***1,664.09***	
Water releases from the reservoir	*m3/s*	*340.00*	478.94	400.00	500.00	396.77	166.67	
	mcm	881.28	1,282.79	1,036.80	1,339.20	1,062.72	432.00	6,035
Shardara reservoir								
Inflow to the reservoir	*m3/s*	*291.51*	411.30	197.99	169.26	133.72	205.46	
	mcm	755.59	1,101.62	513.19	453.35	358.14	532.54	3,714
Volume: beginning of the season	*mcm*	***4,850.00***	***4,737.27***	***4,870.77***	***4,054.27***	***2,847.01***	***1,839.17***	
end of the season	*mcm*	***4,737.27***	***4,870.77***	***4,054.27***	***2,847.01***	***1,839.17***	***2,003.65***	
Water releases from the reservoir	*m3/s*	*300.00*	249.03	350.00	450.00	400.00	100.00	

		April	May	June	July	August	September	Total, mcm
	mcm	777.60	667.01	907.20	1,205.28	1,071.36	259.20	4,888
Water releases to the Kzylkum canal	*m3/s*	*20.00*	77.42	110.00	110.00	90.00	25.00	
	mcm	51.84	207.36	285.12	294.62	241.06	64.80	1,145
Water releases to the Arnasay depression	*m3/s*	*0.00*	0.00	0.00	0.00	0.00	0.00	
	mcm	0.00	0.00	0.00	0.00	0.00	0.00	0
Supply to the Aral Sea	*m3/s*	*117.50*	72.45	98.70	120.70	126.30	149.70	
	mcm	304.56	194.05	255.83	323.28	338.28	388.02	1,804
Charvak reservoir								
Inflow to the reservoir	*m3/s*	*231.87*	449.90	528.67	391.65	220.00	130.00	
(4 rivers in total)	*mcm*	601.01	1,205.02	1,370.30	1,048.98	589.25	336.96	5,152
Volume: beginning of the season	*mcm*	***791.00***	***976.77***	***1,470.84***	***1,848.52***	***1,819.44***	***1,647.86***	
end of the season	*mcm*	***976.77***	***1,470.84***	***1,848.52***	***1,819.44***	***1,647.86***	***1,497.62***	
Water releases from the reservoir	*m3/s*	*160.00*	264.84	381.76	400.90	282.26	186.67	
(Releases from the Gazalkent HEPS)	*mcm*	414.72	709.34	989.51	1,073.78	756.00	483.84	4,428
Andizhan reservoir								
Inflow to the reservoir	*m3/s*	*136.80*	283.11	276.67	132.58	82.90	48.33	
	mcm	354.59	758.28	717.12	355.10	222.05	125.28	2,532
Volume: beginning of the season	*mcm*	***1,013.47***	***1,107.92***	***1,525.68***	***1,688.05***	***1,536.28***	***1,418.63***	
end of the season	*mcm*	***1,107.92***	***1,525.68***	***1,688.05***	***1,536.28***	***1,418.63***	***1,368.47***	
Water releases from the reservoir	*m3/s*	*100.00*	126.77	213.67	188.23	125.81	66.67	
	mcm	259.20	339.55	553.82	504.14	336.96	172.80	2,167

LIMITS OF WATER WITHDRAWALS AND OPERATION REGIMES OF THE RESERVOIR CASCADE FOR THE NON-GROWING SEASON 2016-2017 IN THE AMUDARYA AND SYRDARYA RIVER BASINS[2]

I. Amudarya River basin

BWO Amudarya submits limits for the non-growing season 2016-2017 to ICWC for consideration. These limits, based on the 100% of water availability, are agreed in advance with the national water agencies.

The forecast operation regimes of the Nurek and Tuyamuyun reservoirs were developed, taking into account these limits and for average flow probability. At the same time, it should be mentioned that in comparison with previous years the time of drawdown of the Nurek reservoir was one month earlier.

It should be mentioned that the current hydrological situation is not favorable for the non-growing season 2016-2017.

According to the Hydromet's forecast and analysis of BWO Amudarya, the water availability is expected to be 90% of the norm in the Amudarya River basin, and about 85% of the annual average norm at the conditional Atamurat gauging station upstream of the Garagumdarya during the non-growing season 2016-2017.

Taking into account the above-mentioned information, one may suppose that this non-growing season will be under pressure. To provide a secure and timely water supply to the Amudarya River users, sanitary and environmental releases to Prearalie and the Aral Sea, BWO Amudarya proposes to take note of these factors while approving water withdrawal limits and forecast operation regimes of the Nurek and Tuyamuyun reservoirs.

BWO Amudarya and each water user state in the basin have agreed upon preliminary limits of water withdrawal at the annual average level for the non-growing season as follows:

Water withdrawal limit for the Republic of Tajikistan is 2,879.9 mcm.

Water withdrawal limit for the Republic of Uzbekistan is 5,980 mcm, for Surkhandarya province it is 370 mcm.

Water withdrawal limit for Turkmenistan is 6,500 mcm.

In conclusion, BWO Amudarya submits the following items to ICWC for consideration and approval for the non-growing season 2016-2017, taking into account current hydrological situation and forecast of water availability:

[2] Information on the second item of the 68th ICWC Meeting agenda

- operation regime of the Nurek and Tuyamuyun reservoirs
- limits of water withdrawals from the Amudarya River
- water supply to Prearalie and the Aral Sea

Limit of water withdrawals from the Amudarya River and water supply to the Aral Sea and Amudarya River delta for the non-growing season 2016-2017

River basin, state	Water withdrawal limits, mcm	
	total annual (from 1.10.16 to 1.10 .17)	including non-growing season (from 1.10.16 to 1.04.17)
Total withdrawal from the Amudarya River	55,424	15,729.9
Of which:		
Republic of Tajikistan	9,854	2,879.9
From the Amudarya River to Atamurat gauging station	44,000	12,480
Turkmenistan	22,000	6,500
Republic of Uzbekistan	22,000	5,980
Additionally:		
Surkhandarya province	1,570	370
Plus:		
- water supply to Prearalie, including irrigation water and CDW	4,200	2,100
- sanitary and environmental releases to irrigation systems in:	800	800
Dashoguz province	150	150
Khorezm province	150	150
Republic of Karakalpakstan	500	500

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

Forecast operation regime of the Nurek and Tuyamuyun reservoirs (from October 2016 to March 2017)

Nurek reservoir	unit	Actual			Forecast			Total
		X	XI	XII	I	II	III	
Volume: beginning of the season	mcm	10,571	10,466	10,081	9,537	8,531	7,497	10,571
Inflow to the reservoir	m^3/s	350	245	226	184	144	220	
	mcm	937	635	605	493	348	589	3,607
Water releases from the reservoir	m^3/s	395	393	428	560	571	450	
	mcm	1,058	1,019	1,146	1,500	1,381	1,205	7,309
Volume: end of the season	mcm	10,466	10,081	9,537	8,531	7,497	6,882	6,882
Accumulation(+),draw down(-)	mcm	-105	-385	-544	-1,006	-1,034	-615	-3,689

Tuyamuyun reservoir	unit	Actual			Forecast			Total
		X	XI	XII	I	II	III	
Volume: beginning of the season	mcm	2,751	2,909	3,110	2,876	3,238	3,292	2,751
Inflow to the reservoir	m^3/s	426	271	327	306	385	524	
	mcm	1,141	702	876	820	931	1,404	5,874
Water releases from the reservoir	m^3/s	367	193	415	171	363	814	
	mcm	983	500	1,112	458	878	2,180	6,111
Volume: end of the season	mcm	2,909	3,110	2,876	3,238	3,292	2,515	2,515
Accumulation(+),draw down(-)	mcm	158	201	-234	362	54	-777	-236

II. Syrdarya River basin

The forecast by Hydromet for the non-growing season 2016-2017 and adjusted forecasts for the 4th quarter of 2016 were received on September 27, 2016.

The forecast inflow to the Torkogul reservoir was to be 97%, to the Andizhan reservoir – 101%, and to the Charvak reservoir – 106 % of the norm; the total lateral inflow was to be 98% of the norm. In general, water contetnt of the Syrdarya River basin was to be 100% of the norm.

The normal inflow to the upstream reservoirs of the Naryn-Syrdarya cascade is 5,233 mcm for the non-growing season. According to the forecast, it is to be 5,247 mcm (Table 2.9).

According to the forecast, the inflow to the Toktogul reservoir is expected to be 2,804 mcm.

The normal inflow to the Andizhan reservoir is 934 mcm; according to the forecast, it is to be 945 mcm.

The normal inflow to the Charvak reservoir is 1,408 mcm; according to the forecast, it is to be 1,498 mcm.

The total normal lateral inflow is 11,075 mcm. According to the forecast, it is to be 10,836 mcm.

In general, the normal water content of the Syrdarya River basin for the non-growing season is 16,308 mcm. According to the forecast, it is expected to be 16,082 mcm, i.e. 226 mcm less than the norm.

If one compares the past non-growing season 2015-2016, the total scheduled inflow to the Syrdarya River basin was 16,005 mcm, whereas actually it was 18,526 mcm.

By the beginning of the non-growing season, the water storage in the reservoirs, excluding dead storage, is 15,731, i.e. 4,883 mcm more than the storage by the beginning of the past non-growing season 2015-2016 (Table 2.11).

To compare, the water storage, excluding dead storage, was 10,848 mcm by the beginning of the past non-growing season 2015-2016.

Table 2.10

Name	Non-growing, mcm				
	norm	forecast	% of the norm	2015-2016	
				forecast	actual
Inflow to upstream reservoirs					
Toktogul	2,891	2,804	97	2,798	3,381
Andizhan	934	945	101	950	909
Charvak (Ugam River)	1,408	1,498	106	1,426	1,960
Total	**5,233**	**5,247**	**100**	**5,174**	**6,250**
Lateral inflow					
Toktogul – Uchkurgan	398	386	97	400	559
Andizhan – Uchtepe	2,517	2,675	106	2,689	2,669
Uchkurgan, Uchtepe – Bakhri Tochik	4,365	4,317	99	4,265	5,301
Bakhri Tochik – Shardara	2,954	2,750	93	2,687	2,453
Gazalkent – Chinaz GS -Chirchik (excluding Ugan)	841	707	84	790	1,294
Total	**11,075**	**10,836**	**98**	**10,831**	**12,276**
OVERALL (total inflow)	**16,308**	**16,082**	**99**	**16,005**	**18,526**

Table 2.11

Reservoirs	Water storage in the reservoirs **by October 1** (mcm)				Dead storage (mcm)
	including dead storage		excluding dead storage		
	2016	2015	**2016**	2015	
Toktogul	17,487	13,010	11,987	7,510	5,500
Andizhan	731	791	581	641	150
Charvak	1,679	1,593	1,253	1,167	426
Bakhri Tochik	2,270	1,749	1,353	832	917
Shardara	1,077	1,218	557	698	520
Total	**23,244**	**18,361**	**15,731**	**10,848**	**7,513**

Water resoruces (water storage in the reservoirs, excluding dead storage plus total inflow) were estimated at 31,813 mcm.

According to the operation regime schedule of the Naryn-Syrdarya reservoir cascade, 30,214 mcm of water were planned to be discharged over the non-growing season 2016-2017.

In 2015-2016, the actual water releases from the reservoirs were 27,808 mcm (Table 2.12).

Table 2.12

Reservoir	Scheduled from October 1, 2016 to March 31, 2017	Actual from October 1, 2015 to March 31, 2016
Toktogul	7,769	7,442
Andizhan	553	667
Charvak (release from the Gazalkent HEPS)	2,321	2,702
Bakhri Tochik	11,073	9,801
Shardara	8,498	7,196
TOTAL:	**30,214**	**27,808**

The following limits for the non-growing season are proposed, taking into account water requests submitted by water user states.

The total water withdrawal of all countries is 3, 413 bcm for the non-growing season (Table 2.13).

Table 2.13

Water user state	As of request, mcm
Republic of Kazakhstan	527
Kyrgyz Republic	37
Republic of Tajikistan	365
Republic of Uzbekistan	2,484
Total from the Syrdarya River	**3,413**

For the non-growing season, the limit for the Republic of Kazakhstan along the Dustlik canal is 400 mcm.

For the non-growing season 2016-2017, the limit for the Republic of Kazakhstan along the Dostyk canal, based on the request by the Committee on Water Resources of the Ministry of Agriculture of the Republic of Kazakhstan, is 527 mcm.

Water supply is also planned to the Aral Sea and Prearalie in the amount of 3,317 mcm over the non-growing season.

In general, hydrological situation from October 1 to December 31, 2016 is as follows.

From October to December 2016, the forecast inflow to the upstream reservoir cascade is 2,889 mcm. Actual inflow was 3,624 mcm or 125 % of the forecast.

The forecast lateral inflow was 5,262 mcm. Actual inflow was 5,548 mcm, i.e. 105 % of the forecast.

From October 1 to December 31, 2016, the total forecast inflow to the Syrdarya River basin is 8,151 mcm for the non-growing season. Actual inflow was 9,172 mcm, i.e. 113 % of the forecast or 1,021 mcm more (Table 2.14).

According to the operation schedule of the Naryn-Syrdarya reservoir, 14,341 mcm of water were to be discharged from October 1 to December 31, 2016. Actually it discharged 15,006 mcm, i.e. 665 mcm more than planned (Table 2.15).

Table 2.14

Name	Non-growing (from October 1 to December 31, 2016), mcm				
	forecast	actual	% of the forecast	2015	
				forecast	actual
Inflow to the upstream reservoirs					
Toktogul	1,581	2,082	132	1,571	1,818
Andizhan	505	583	115	505	484
Charvak (Ugam river)	802	960	120	767	977
Total	**2,889**	**3,624**	**125**	**2,843**	**3,278.5**
Lateral inflow					
Toktogul – Uchkurgan	200	222	111	207	306
Andizhan – Uchtepe	1,385	1,427	103	1,385	1,408
Uchkugran, Uchtepe – Bakhri Tochik	2,060	2,525	123	2,022	2,629
Bakhri Tochik – Shardara	1,258	948	75	1,222	1,293
Gazalkent –Chinaz GS- Chirchik (excluding Ugam)	358	426	119	393	748
Total	**5,262**	**5,548**	**105**	**5,230**	**6,384**
OVERALL (total inflow)	**8,151**	**9,172**	**113**	**8,073**	**9,663**

Table 2.15

Reservoir	Water releases, mcm from October 1, 2016 to December 31, 2016		actual/ scheduled (%)	Actual from October 1, 2015 to December 31, 2015
	Operation scheduled of NSRC	Actual		
Toktogul	3,814	3,781	99	3,611
Andizhan	344	429	125	394
Charvak (release from the Gazalkent HEPS)	1,219	1,388	114	1,392
Bakhri Tochik	5,106	5,281	103	5,228
Shardara	3,859	4,126	107	4,123
TOTAL:	**14,341**	**15,006**	**105**	**14,749**

By January 1, 2017, the total water storage in the reservoirs, excluding dead stirage, is 16,076 mcm (Table 2.16).

To compare, last year (by January 1, 2016) water storage in the reservoirs, excluding dead storage, was 11,295 mcm.

Table 2.16

Reservoir	Water storage in the reservoirs **by January 1** (mcm)				Dead storage (mcm)
	including dead storage		excluding dead storage		
	2017	2016	**2017**	2016	
Toktogul	15,777	11,196	10,277	5,696	5,500
Andizhan	883	869	733	719	150
Charvak	1,138	1,158	712	732	426
Bakhri Tochik	3,301	2,501	2,384	1,584	917
Shardara	2,490	3,084	1,970	2,564	520
Total	**23,589**	**18,808**	**16,076**	**11,295**	**7,513**

From October 1 to December 31, 2016, water was supplied to the states, taking into account their requests.

The total actual water withdrawal of all states was 1,287 mcm (Table 2.17).

Table 2.17

Water user state	As of request, mcm	Actual, mcm
Republic of Kazakhstan	152	10
Kyrgyz Republic	23	20
Republic of Tajikistan	168	26
Republic of Uzbekistan	1,190	1,231
Total from the Syrdarya River	**1,533**	**1,287**

In addition, 1,409 mcm was supplied to the Aral Sea and Prearalie from October 1 to December 31, 2016 (Table 2.18).

Table 2.18

Parameter	Scheduled from October 1 to December 31, 2016	Actual from October 1 to December 31, 2016
Inflow to the Shardara reservoir	5,907	5,355
Supply to the Aral Sea	1,207	1,409

Based on the adjusted forecast by Hydromet and water storage in the reservoirs, BWO Syrdarya developed the forecast operation regime of the Naryn-Syrdarya reservoir cascade till April 2017 that is proposed to ICWC for consideration (Table 2.19).

Table 2.20 gives the operation regime of the Naryn-Syrdarya reservoir cascade with actual data from October 1 to December 31, 2016 and with forecast data from January 1 to March 31, 2017.

Table 2.19

SCHEDULE-FORECAST
of the Naryn-Syrdarya reservoir cascade from October 1, 2016 to March 31, 2017

		October	*November*	*December*	*January*	*February*	*March*	***Total, mcm***
Toktogul reservoir								
Inflow to the reservoir	*m3/s*	***230.51***	***200.31***	***166.09***	***156.02***	***153.00***	***162.06***	
	mcm	617.40	519.20	444.86	417.88	370.14	434.06	**2,804**
Volume: beginning of the season	*mcm*	***17,487.00***	***17,189.19***	***16,408.50***	***15,243.16***	***14,053.63***	***13,092.92***	
end of the season	*mcm*	***17,189.19***	***16,408.50***	***15,243.16***	***14,053.63***	***13,092.92***	***12,508.86***	
Water releases from the reservoir	*m3/s*	***340.00***	***500.00***	***600.00***	***600.00***	***550.00***	***380.00***	
	mcm	910.66	1,296.00	1,607.04	1,607.04	1,330.56	1,017.79	**7,769**
Bakhri Tochik reservoir								
Inflow to the reservoir	*m3/s*	***504.09***	***841.27***	***976.70***	***877.55***	***831.57***	***575.93***	
	mcm	1,350.14	2,180.58	2,616.00	2,350.43	2,011.74	1,542.58	**12,051**
Volume: beginning of the season	*mcm*	***2,269.90***	***2,945.68***	***3,268.66***	***3,387.08***	***3,387.66***	***3,396.92***	
end of the season	*mcm*	***2,945.68***	***3,268.66***	***3,387.08***	***3,387.66***	***3,396.92***	***3,470.63***	
Water releases from the reservoir	*m3/s*	***250.00***	***730.00***	***950.00***	***900.00***	***850.00***	***560.00***	
	mcm	669.60	1,892.16	2,544.48	2,410.56	2,056.32	1,499.90	**11,073**
Shardara reservoir								
Inflow to the reservoir	*m3/s*	***335.62***	***811.50***	***1,084.55***	***1,036.22***	***993.58***	***759.37***	
	mcm	898.92	2,103.40	2,904.87	2,775.42	2,403.67	2,033.89	**13,120**
Volume: beginning of the season	*mcm*	***1,077.00***	***1,501.84***	***2,011.16***	***3,014.37***	***4,301.94***	***4,595.89***	
end of the season	*mcm*	***1,501.84***	***2,011.16***	***3,014.37***	***4,301.94***	***4,595.89***	***5,125.13***	
Water releases from the reservoir	*m3/s*	***160.00***	***600.00***	***700.00***	***550.00***	***700.00***	***550.00***	
	mcm	428.54	1,555.20	1,874.88	1,473.12	1,693.44	1,473.12	**8,498**

		October	November	December	January	February	March	Total, mcm
Water releases to the Kzylkum canal	*m3/s*	***5.00***	***5.00***	***5.00***	***5.00***	***5.00***	***6.77***	
	mcm	13.39	12.96	13.39	13.39	12.10	18.14	**83**
Water releases to the Arnasay depression	*m3/s*	***0.00***	***0.00***	***0.00***	***0.00***	***166.07***	***0.00***	
	mcm	0.00	0.00	0.00	0.00	401.76	0.00	**402**
Supply to the Aral Sea	*m3/s*	102.22	128.30	224.10	289.20	273.00	252.20	
	mcm	273.79	332.55	600.23	774.59	660.44	675.49	**3,317**
Charvak reservoir								
Inflow to the reservoir	*m3/s*	***114.40***	***101.77***	***86.58***	***76.84***	***76.48***	***113.93***	
(4 rivers in total)	*mcm*	306.41	263.79	231.90	205.81	185.02	305.15	**1,498**
Volume: beginning of the season	*mcm*	***1,679.00***	***1,553.46***	***1,425.76***	***1,255.30***	***1,057.74***	***903.11***	
end of the season	*mcm*	***1,553.46***	***1,425.76***	***1,255.30***	***1,057.74***	***903.11***	***846.41***	
Rele Water releases ase from the reservoir	*m3/s*	***160.00***	***150.00***	***150.00***	***150.00***	***140.00***	***135.00***	
(Releases from the Gazalkent HEPS)	*mcm*	428.54	388.80	401.76	401.76	338.69	361.58	**2321**
Andizhan reservoir								
Inflow to the reservoir	*m3/s*	***64.02***	***66.66***	***60.17***	***51.75***	***51.24***	***66.16***	
	mcm	171.47	172.78	161.16	138.61	123.96	177.20	**945**
Volume: beginning of the season	*mcm*	***730.57***	***669.93***	***751.45***	***890.61***	***1,007.71***	***1,112.25***	
end of the season	*mcm*	***669.93***	***751.45***	***890.61***	***1,007.71***	***1,112.25***	***1,120.89***	
Water releases from the reservoir	*m3/s*	***86.45***	***35.00***	***8.00***	***8.00***	***8.00***	***62.90***	
	mcm	231.55	90.72	21.43	21.43	19.35	168.48	**553**

Table 2.20

OPEATION SCHEDULE
of the Naryn-Syrdarya reservoir cascade from October 1, 2016 to March 31, 2017

		October actual	*November actual*	*December actual*	*January*	*February*	*March*	***Total, mcm***
Toktogul reservoir								
Inflow to the reservoir	*m3/s*	***308.71***	***240.67***	***235.55***	***156.02***	***153.00***	***162.06***	
	mcm	826.85	623.81	630.89	417.88	370.14	434.06	**3,304**
Volume: beginning of the season	*mcm*	***17,487.00***	***17,345.00***	***16,648.00***	***15,777.00***	***14,587.47***	***13,692.98***	
end of the season	*mcm*	***17,345.00***	***16,648.00***	***15,777.00***	***14,587.47***	***13,626.16***	***13,108.93***	
Water releases from the reservoir	*m3/s*	***361.68***	***508.10***	***558.45***	***600.00***	***550.00***	***380.00***	
	mcm	968.72	1,317.00	1,495.76	1,607.04	1,330.56	1,017.79	**7,737**
Bakhri Tochik reservoir								
Inflow to the reservoir	*m3/s*	***590.45***	***831.97***	***959.52***	***877.55***	***831.57***	***575.93***	
	mcm	1,581.46	2,156.46	2,569.97	2,350.43	2,011.74	1,542.58	**12,315**
Volume: beginning of the season	*mcm*	***2,269.90***	***2,932.90***	***2,967.20***	***3,300.70***	***3,301.28***	***3,310.54***	
end of the season	*mcm*	***2,932.90***	***2,967.20***	***3,300.70***	***3,301.28***	***3,310.54***	***3,384.25***	
Water releases from the reservoir	*m3/s*	***303.68***	***803.17***	***890.90***	***900.00***	***850.00***	***560.00***	
	mcm	813.37	2,081.81	2,386.20	2,410.56	2,056.32	1,499.90	**11,248**
Shardara reservoir								
Inflow to the reservoir	*m3/s*	***314.39***	***721.87***	***986.31***	***1,036.22***	***993.58***	***759.37***	
	mcm	842.05	1,871.10	2,641.74	2,775.42	2,403.67	2,033.89	**12,568**
Volume: beginning of the season	*mcm*	***1,077.00***	***1,492.00***	***1,850.00***	***2,490.00***	***3,777.57***	***4,313.44***	
end of the season	*mcm*	***1,492.00***	***1,850.00***	***2,490.00***	***3,777.57***	***4,313.44***	***4,842.68***	
Water releases from the reservoir	*m3/s*	***146.13***	***591.83***	***821.61***	***550.00***	***600.00***	***550.00***	
	mcm	391.39	1,534.03	2,200.61	1,473.12	1,451.52	1,473.12	**8,524**

		October actual	November actual	December actual	January	February	March	Total, mcm
Water releases to the Kzylkum canal	*m3/s*	***5.00***	***5.00***	***5.00***	***5.00***	***5.00***	***6.77***	
	mcm	13.39	12.96	13.39	13.39	12.10	18.14	**83**
Water releases to the Arnasay depression	*m3/s*	***0.00***	***0.00***	***0.00***	***0.00***	***166.07***	***0.00***	
	mcm	0.00	0.00	0.00	0.00	401.76	0.00	**402**
Supply to the Aral Sea	*m3/s*	139.42	161.37	240.26	285.01	273.00	252.20	
	mcm	373.42	418.26	643.51	763.36	660.44	675.49	**3,509**
Charvak reservoir								
Inflow to the reservoir	*m3/s*	***137.84***	***110.65***	***113.42***	***76.84***	***76.48***	***113.93***	
(4 rivers in total)	*mcm*	369.20	286.81	303.79	205.81	185.02	305.15	**1,656**
Volume: beginning of the season	*mcm*	***1,679.00***	***1,489.00***	***1,265.00***	***1,138.00***	***940.44***	***785.81***	
end of the season	*mcm*	***1,489.00***	***1,265.00***	***1,138.00***	***940.44***	***785.81***	***729.10***	
Water releases from the reservoir	*m3/s*	***182.42***	***186.60***	***155.32***	***150.00***	***140.00***	***135.00***	
(Releases from the Gazalkent HEPS)	*mcm*	488.59	483.67	416.02	401.76	338.69	361.58	**2,490**
Andizhan reservoir								
Inflow to the reservoir	*m3/s*	***50.00***	***77.10***	***92.97***	***51.75***	***51.24***	***66.16***	
	mcm	133.92	199.84	249.01	138.61	123.96	177.20	**1,023**
Volume: beginning of the season	*mcm*	***730.57***	***625.50***	***681.12***	***883.02***	***1,000.12***	***1,104.65***	
end of the season	*mcm*	***625.50***	***681.12***	***883.02***	***1,000.12***	***1,104.65***	***1,113.30***	
Water releases from the reservoir	*m3/s*	***90.00***	***56.83***	***15.16***	***8.00***	***8.00***	***62.90***	
	mcm	241.06	147.31	40.60	21.43	19.35	168.48	**638**

ANALYSIS OF HYDROLOGICAL CONDITIONS IN THE SYRDARYA AND AMUDARYA BASINS OVER THE GROWING SEASON 2016

1. Syrdarya River Basin

The actual inflow to the upstream reservoirs in the Syrdarya basin (Toktogul, Andizhan, and Charvak reservoirs) was 20.52 km³ or 125% of the forecast for the growing season. The total lateral inflow to the Naryn and the Syrdarya (in the reaches up to the Shardara reservoir) was 11.96 km³. By the end of the growing season, the upstream reservoirs have accumulated 19.9 km^3, including 17.49 km^3 in the Toktogul reservoir, or 125% of the BWO Syrdarya scheduled amount. Water releases from the Toktogul reservoir were 3.57 km^3 or 77% of the BWO Syrdarya scheduled volume.

During the growing season 2016, the total water diversion from the Naryn and Syrdarya rivers in the reaches up to Shardara reservoir was 8.82 km³ or 76% of the water limit. As compared to the BWO Syrdarya schedule, 2.84 km^3 less water was withdrawn over the growing season 2016. The indicators of water shortage (against the water limit) were: for the Republic of Kazakhstan (along the Dustlik canal) – 262 km³; the Kyrgyz Republic – 54 km³; the Republic of Tajikistan – 357 km³; and, the Republic of Uzbekistan – 2,165 km³. Water supply was uneven among the states and river reaches (Table 1.1). The water shortage was highest in the middle reaches from the Bakhri Tochik hydroscheme to the Shardara reservoir – 34 % on the average during the growing season. Minimum water supply recorded in summer was as follows:

- Uzbekistan – 36 % in the Bakhri Tochik-Shardara reach, in the 2nd ten-day period of June
- Kazakhstan – 29 % in the Bakhri Tochik-Shardara reach in the 1st ten-day period of July
- Tajikistan – 28 % in the Toktogul-Bakhri Tochik reach in the 1st ten-day period of June
- Kyrgyzstan – 52 % in the Toktogul-Bakhri Tochik reach in the 1st ten-day period of August

The inflow to the Bakhri Tochik reservoir was 5.7 km^3 (5.2 km^3 – BWO schedule); and water releases from the reservoir were 6.11 km^3. The comparison of actual ten-day water releases from the reservoir with the BWO schedule demonstrates that the actual releases were lower than scheduled ones:

Month	April		May		June		July	
Ten-day period	**3**	**1**	**1**	**2**	**3**	**1**	**2**	**3**
Exceeding of BWO scheduled values over the actual data, %	35	50	15	35	8	19	14	13

The inflow to the Shardara reservoir was 6.14 km³, and water releases from the reservoir were 8.36 km^3, including 7.59 km^3 into the river. Shardara hydroscheme discharged 0.022 km^3 into the Arnasay reservoir. According to Aralo-Syrdarya Basin water administration, the Koksarai reservoir accumulated water in the amount of 794 mcm in April and May, while in other months it discharged the earlier accumulated flow in the amount of 2,476 mcm.

Analysis of water balance in basin's reservoirs (Table 1.3) has detected unrecorded inflow of 30 mcm to the Toktogul reservoir and 90 mcm to the Andizhan reservoir and losses in the Bakhri Tochik and Shardara reservoirs in the total amount of 2.24 km^3, including 1.55 km^3 in the Shardara reservoir.

Water delivery to the Aral Sea and Prearalie (by Karateren gauging station) equaled 1.2 km^3 during the growing season.

Table 1.1

Water availability in the Syrdarya River basin countries over the growing season 2016

Water user	Water volume, km^3		Water availability, %	Deficit (-), surplus (+), km^3
	BWO schedule/ Limit	Actual	Season	Season
1 Total water withdrawal up to Shardara reservoir	**11.65**	**8.82**	**76**	**-2.84**
2 By state:				
– Kyrgyz Republic	0.25	0.19	78	-0.05
– Uzbekistan	8.80	6.64	75	-2.16
– Tajikistan	1.91	1.55	81	-0.36
– Kazakhstan	0.70	0.44	63	-0.26
3 By river reach				
3.1 Toktogul reservoir – Uchkurgan hydroscheme	**3.95**	**3.35**	**85**	**-0.60**
including:				
– Kyrgyz Republic	0.16	0.12	76	-0.04
– Tajikistan	0.24	0.07	31	-0.16
– Uzbekistan	3.55	3.15	89	-0.40
3.2 Uchkugran hydroscheme – Bakhri	**1.08**	**1.10**	**102**	**0.02**

Water user	Water volume, km^3		Water availability, %	Deficit (-), surplus (+), km^3
	BWO schedule/ Limit	Actual	Season	Season
Tochik reservoir				
including:				
– Kyrgyz Republic	0.08	0.07	82	-0.01
– Tajikistan	0.45	0.52	115	0.07
– Uzbekistan	0.54	0.52	95	-0.03
3.3 Bakhri Tochik reservoir – Shardara reservoir	**6.63**	**4.37**	**66**	**-2.26**
including:				
– Kazakhstan	0.70	0.44	63	-0.26
– Tajikistan	1.22	0.96	79	-0.26
– Uzbekistan	4.71	2.97	63	-1.74
4 Additionally:				
– Inflow to Shardara reservoir	4.54	6.14	135	1.60
– Discharge into Arnasay	0.00	0.02		0.02
– Water supply to the Aral Sea and Prearalie	1.57	1.20	76	-0.37

Table 1.2

Syrdarya River channel water balance for the growing season 2016

Balance item	Water volume, km^3		Difference (actual - plan)
	Forecast/plan	Actual	
1 Inflow to the Toktogul reservoir	8.64	12.10	3.45
2 Lateral inflow in the river reach of Toktogul reservoir – Shardara reservoir (+)	10.75	11.96	1.20
including:			
– Discharge from the Karadarya river	1.70	1.76	0.05
– Discharge from the Chirchik river	2.05	1.73	-0.33
– Lateral inflow from CDF and small rivers	7.00	8.48	1.48
3 Flow regulation in the reservoirs: inflow (+) or withdrawal (-)	-2.97	-8.02	-5.05
including:			
– Toktogul reservoir	-4.03	-8.52	-4.49
– Bakhri Tochik reservoir	1.06	0.50	-0.56
4 Regulated flow (1+2+3)	16.43	16.03	-0.40
5 Water withdrawal in the Toktogul – Shardara reach (-)	-11.65	-8.82	2.84
6 Water losses (-) or unrecorded inflow to the channel (+) in the Toктogul-Shardara reach	-0.23	-1.07	-0.84
Including % of regulated flow	1	7	
7 Inflow to the Shardara reservoir	4.54	6.14	1.60
8 Flow regulation in the Shardara reservoir: inflow	1.88	2.18	0.30

Balance item	Water volume, km^3		Difference (actual - plan)
	Forecast/plan	Actual	
(+) or withdrawal (-)			
9 Water releases from the Shardara reservoir into the river	5.22	7.59	2.37
10 Water withdrawal into Kzylkum canal (-)	-1.21	-0.75	0.46
11 Discharge into Arnasay (-)	0.00	-0.02	-0.02
12 Water supply to the Aral Sea and Prearalie	1.57	1.20	-0.37

Table 1.3

Water balance of the Syrdarya River basin reservoirs for the growing season 2016

Balance item	Water volume, km³		Difference (actual - plan)
	Forecast/Plan	Actual	
1. Toktogul reservoir			
1.1 Inflow to the reservoir	8.64	12.10	3.45
1.2 Water volume in the reservoir:			
– beginning of the season (1 April 2016)	8.93	8.93	0.00
– end of the season (1 October 2016)	12.88	17.49	4.60
1.3 Water releases from the reservoir	4.61	3.57	-1.04
1.4 Unrecorded inflow (+) or losses (-)	-0.08	0.03	0.11
% of inflow to the reservoir	1	0	1
1.5 Flow regulation: inflow (+) or withdrawal (-	-4.03	-8.52	-4.49
2. Andizhan reservoir			
2.1 Inflow to the reservoir	2.49	2.28	-0.21
2.2 Water volume in the reservoir:			
– beginning of the season (1 April 2016)	1.01	1.01	0.00
– end of the season (1 October 2016)	1.34	0.73	-0.61
2.3 Water releases from the reservoir	2.15	2.65	0.51
2.4 Unrecorded inflow (+) or losses (-)	-0.01	0.09	0.10
% of inflow to the reservoir	0	4	3
2.5 Flow regulation: inflow (+) or withdrawal (-)	-0.34	0.37	0.72
3. Charvak reservoir			
3.1 Inflow to the reservoir	5.30	6.14	0.84
3.2 Water volume in the reservoir:			
– beginning of the season (1 April 2016)	0.79	0.79	0.00
– end of the season (1 October 2016)	1.66	1.68	0.02
3.3 Water releases from the reservoir	4.41	5.18	0.77
3.4 Unrecorded inflow (+) or losses (-)	-0.03	-0.08	-0.05
% of inflow to the reservoir	1	1	1
3.5 Flow regulation: inflow (+) or withdrawal (-)	-0.90	-0.97	-0.07
4 Bakhri Tochik reservoir			
4.1 Inflow to the reservoir	5.21	5.73	0.52

Balance item	Water volume, km³		Difference (actual - plan)
	Forecast/Plan	Actual	
4.2 Lateral inflow	0.30	0.22	-0.08
4.3 Water volume in the reservoir:			
– beginning of the season (1 April 2016)	3.38	3.38	0.00
– end of the season (1 October 2016)	1.72	2.27	0.55
4.4 Water releases from the reservoir	6.57	6.45	-0.12
including:			
– Water releases into river	6.09	6.11	0.02
– Water withdrawal from reservoir	0.48	0.34	-0.14
4.5 Unrecorded inflow (+) or losses (-)	-0.60	-0.61	-0.01
% of inflow to the reservoir	12	11	1
4.6 Flow regulation: inflow (+) or withdrawal (-)	1.06	0.50	-0.56
5 Shardara reservoir			
5.1 Inflow to the reservoir	4.54	6.14	1.60
5.2 Lateral inflow	0.00	0.00	0.00
5.3 Water volume in the reservoir:			
– beginning of the season (1 April 2016)	4.85	4.85	0.00
– end of the season (1 October 2016)	2.09	1.08	-1.01
5.4 Water releases from the reservoir	6.42	8.36	1.94
including:			
– Discharge into Arnasay	0.00	0.02	0.02
– Water releases into river	5.22	7.59	2.37
– Water withdrawal from reservoir	1.21	0.75	-0.46
5.5 Unrecorded inflow (+) or losses (-)	-0.87	-1.55	-0.67
% of inflow to the reservoir	19	25	6
5.6 Flow regulation: inflow (+) or withdrawal (-)	1.88	2.23	0.34
TOTAL Flow regulation: inflow (+) or withdrawal (-)	-2.32	-6.39	-4.07
TOTAL losses (-), unrecorded inflow (+)	-1.60	-2.12	-0.52

2. Amudarya River Basin

The actual water availability in the Amudarya River at the Atamurat gauging station (upstream of the intake to Garagumdarya) was 39.76 km³, which is 0.29 km^3 more than expected by the BWO Amudarya schedule (Table 2.2). The inflow to the Nurek HEPS was 17.21 km³ and was higher than the forecast by 2. 57 km3; the water releases were 13.39 km³ or 2.07 km^3 more than scheduled by BWO Amudarya. River runoff abstraction for accumulation of water in the Nurek reservoir amounted to 3.81 km^3 (Table 2.3)

Given such hydrological conditions, the established limit of water withdrawal to canals in the basin was 89 % used (Table 2.1); the total water withdrawal was 35.38 km^3, including 28.79 km^3 downstream of Atamurat gauging station (starting from the intake to Garagumdarya). During the growing season, the average water availability

was 83% for the Republic of Tajikistan, 91% for Turkmenistan, and 89% for the Republic of Uzbekistan. In the lower reaches, the water availability was 77% in Turkmenistan, 89% in the Republic of Uzbekistan, and 65% in Surkhandarya province (Table 2.1).

Minimum water availability was recorded in the following ten-day periods:

- Uzbekistan – 71 % in Tuyamuyun-Samanbay reach in the 2nd ten-day period of May
- Turkmenistan – 55 % in Tuyamuyun-Samanbay reach in the 2nd ten-day period of May.

The channel losses from the Amudarya River in the Atamurat g/s (conditional) to Bir-Ata g/s were calculated by the balance method and amounted to 2.64 km^3 or about 7 % of runoff at Atamurat g/s (conditional). Water losses in the Tuyamuyun-Samanbay reach were 3.48 km^3 or 28 % of water releases from the Tuyamuyun hydroscheme.

An amount of 1.4 km^3 (Amudarya runoff at Samanbay g/s plus collector-drainage flow) was supplied to Prearalie and the Aral Sea during the growing season.

Table 2.1

Water availability in the Amudarya River Basin countries for the growing season 2016

Water user	Water volume, km³		Water availability %	Deficit (-), surplus (+) km³
	Limit/ schedule	Actual	Season	Season
1. Total water withdrawal	**39.7**	**35.4**	**89**	**-4.3**
2. By state:				
Kyrgyz Republic	-	-	-	-
Republic of Tajikistan	7.0	5.8	83	-1.2
Turkmenistan	15.5	14.2	91	-1.3
Republic of Uzbekistan	17.2	15.4	89	-1.8
3. Downstream of Atamurat g/s *)	**31.5**	**28.8**	**91**	**-2.7**
of which:				
Turkmenistan	15.5	14.2	91	-1.3
Republic of Uzbekistan	16.0	14.6	91	-1.4
4. By river reach:				
Upper reaches	**8.2**	**6.6**	**81**	**-1.6**
of which:				
Kyrgyz Republic	-	-	-	-
Republic of Tajikistan	7.0	5.8	83	-1.2
Surkhandarya province, Uzbekistan	1.2	0.8	65	-0.4
Middle reaches	**16.2**	**15.8**	**98**	**-0.4**
of which:				
Turkmenistan	10.5	10.3	98	-0.2
Republic of Uzbekistan	5.7	5.5	96	-0.2
Lower reaches	**15.3**	**13.0**	**85**	**-2.3**
of which:				
Turkmenistan	5.0	3.9	77	-1.2
Republic of Uzbekistan	10.3	9.1	89	-1.2
5. Besides:				
Environmental water releases to canals in the lower reaches	0.0	0.0		
of which:				
Turkmenistan	0.0	0.0		
Republic of Uzbekistan	0.0	0.0		
Supply to the Aral Sea and Prearalie **	2.1	1.4	67	

***)** Atamurat g/s conditional – section of the Amudarya River upstream of water intake to Garagumdarya

**) include the discharged collector-drainage water

Table 2.2

The Amudarya River channel water balance for the growing season 2016

Balance item	Water volume, km^3		Difference (actual-plan)
	Forecast/Plan	Actual	
1. Water content in the Amudarya River - non-regulated flow at conditional Atamurat g/s	39.48	39.76	0.29
2. Flow regulation in the Nurek reservoir: accumulation (+) or withdrawal (-)	-3.31	-3.81	-0.50
3. Water withdrawal in the middle reaches (-)	-16.21	-15.81	0.40
4. Return flow (collector-drainage) in middle reaches (+)	1.98	1.75	-0.23
5. Water losses (-) or unrecorded inflow to the channel (+)	-1.96	-2.64	-0.68
% of flow at conditional Atamurat g/s	5	7	2
6. River flow at Bir-Atal g/s	19.99	19.25	-0.74
7. Losses in Bir-Ata g/s – Tuyamuyun g/s (-)	-2.35	-2.64	-0.29
% of flow at Bir-Ata g/s	12	14	1.96
8. Flow regulation in Tuyamuyun hydroscheme: accumulation (+) or withdrawal (-)	-2.74	-2.06	0.69
9. Releases from Tuyamuyun hydroscheme (including withdrawal from reservoir)	17.24	17.19	-0.05
10. Withdrawal in lower reaches, including withdrawal from Tuyamuyun hydroscheme (-)	-15.31	-12.98	2.34
11. Return flow (collector-drainage) in lower reaches (+)	0.00	0.00	0.00
12. Emergency and environmental water releases to canals (-)	0.00	0.00	0.00
13. Flow losses (-) or unrecorded inflow to the channel (+)	-1.46	-3.48	-2.02
% of flow at Tuyamuyun g/s	12	28	16.02
14. Supply to Prearalie and the Aral Sea (Samanbay g/s)	0.47	0.738	0.26
TOTAL losses:	-3.41	-6.12	-2.71
% of river water content	9	17	7.59

Table 2.3

Water balance of the Amudarya River basin reservoirs for the growing season 2016

Balance item	Water volume, km^3		Difference (actual-plan)
	Forecast / plan	Actual	
1 Nurek reservoir			
1.1 Inflow to the reservoir	14.631	17.21	2.57
1.2 Water volume in the reservoir:			
– beginning of the season (1 April 2016)	6.000	6.74	0.74
– end of the season (1 October 2016)	10.053	10.57	0.52
1.3 Water releases from the reservoir	11.322	13.39	2.07
1.4 Lateral inflow (+) or water losses (-)	0.74	0.01	-0.73
% of inflow to the reservoir	5	0	-5.01
1.5 Flow regulation: accumulation (+) or withdrawal (-)	-3.31	-3.81	-0.50
2 Tuyamuyun hydroscheme reservoirs			
2.1 Runoff at Bir-Ata g/s	19.99	19.25	-0.74
2.2 Water losses in Bir-Ata g/s – Tuyamuyun g/s reach (-)	-2.35	-2.64	-0.29
2.3 Water volume in the reservoirs:			
– beginning of the season (1 April 2016)	3.33	3.33	0.00
– end of the season (1 October 2016)	3.73	2.75	-0.98
2.4 Water releases from the hydroscheme	17.244	17.195	-0.05
of which:			
– releases to the river	11.83	12.29	0.46
– withdrawal	5.42	4.91	-0.51
2.5 Flow regulation: accumulation (+) or withdrawal (-)	-2.74	-2.06	0.69
TOTAL flow regulation by the reservoirs: accumulation (+) or withdrawal (-)	-6.05	-5.87	0.18
TOTAL losses (-),unrecorded inflow (+)	-1.60	-2.63	-1.02

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