

# **Rational Water Resources Use in Market Economy Conditions**

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# Rational Water Resources Use in Market Economy Conditions

## Principles of Water Management

The principles of water resources management, protection, allocation and use in Uzbekistan and in the rest of Central Asia are implemented in accordance with the schemes of integrated water resources use and protection in the Syrdarya and Amudarya river basins where ultimate volumes of water intake from the interstate sources, inland rivers, groundwater, and collector-drainage flow have been determined. According to these schemes, the total maximum water intake volume for Uzbekistan during periods of full water resources depletion constitutes 72.7 km<sup>3</sup>, including 64.9 km<sup>3</sup> from surface sources, of which 29.6 km<sup>3</sup> comes from the Amudarya channel, 10.9 km<sup>3</sup> from the Syrdarya channel, 19.2 km<sup>3</sup> from inland rivers, 3.5 km<sup>3</sup> from groundwater sources, and 5.2 km<sup>3</sup> from collector-drainage flow.

These schemes serve to determine water intake for irrigation in the amount of 56.4 km<sup>3</sup> (at which the maximum area of irrigated lands is 4.8 million ha with a systems efficiency factor of 0.75), public utilities – 6 km<sup>3</sup>, power sector – 4 km<sup>3</sup>, industry – 1.6 km<sup>3</sup>, fishery – 2.6 km<sup>3</sup>, and for other needs 2.5 km<sup>3</sup>.

Of the total water supply, 87% is used by agriculture, 3.8% by the power sector (taking into account return flows), 3% by industries, 4.2% by public utilities, and 2% by others.

Water resources management, allocation and use are under control of the Ministry of Agriculture and Water Resources (MAWR), which oversees national specialized associations, provincial and district departments of agriculture and water resources, and interprovincial and interdistrict canals management authorities. These functions are executed according to administrative-territorial approaches as well as basin and systematic principles.

All issues related to water resources management, allocation and use within Uzbekistan, are regulated by the following documents:

- Constitution of the Republic of Uzbekistan, 1992;
- Law of the Republic of Uzbekistan “On water and water use,” 1993;
- Land Code of the Republic of Uzbekistan, 1998;
- Law of the Republic of Uzbekistan “On shirkat (cooperative) farm,” 1998;
- Law of the Republic of Uzbekistan “On private farm,” 1998;
- Law of the Republic of Uzbekistan “On dehqan (individual) farm,” 1998;
- Law of the Republic of Uzbekistan “On nature conservation,” 1992;
- Decree No.385 of the Cabinet of Ministers, Republic of Uzbekistan, 3 August 1993 “On limited water use in the Republic of Uzbekistan”;
- Decree No.174 of the Cabinet of Ministers, Republic of Uzbekistan, 7 April 1992 “On confirming the Provision on protection zones of water reservoirs and other water bodies, rivers, main canals and collectors as well as sources of

drinking and municipal water supply and recreation meaning in the Republic of Uzbekistan”;

- Provision on the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, 2001; and
- Other legal documents.

According to Article 55 of the Constitution of the Republic of Uzbekistan,

“Land, depths, water, flora and fauna and other natural resources are national wealth, should be rationally used and are under state protection.”

According to Article 1 of the Law “On water and water use,” the objectives of water legislation of Uzbekistan are as follows:

“Regulation of water relations; effective use of water for population and economic needs; protection of water from pollution, mineralization and exhaustion; prevention and liquidation of a harmful impact of water resources; improvement of state water objects; and protection of the rights of enterprises, organizations, dehqan farms and citizens in field of water relations.”

Article 3 stipulates that “water resources are the state property and wealth of the Republic of Uzbekistan, should be rationally used and are protected by the state”.

Article 4 establishes “a single state water fund of the Republic of Uzbekistan, which includes rivers, lakes, water reservoirs, other surface water bodies and sources, canals and ponds, groundwater and glaciers.”

At the same time, the Law stipulates, “the right to use water from the interstate Amudarya, Syrdarya, and Zerafshan rivers, Aral Sea and others is determined by interstate agreements”. The Law of Uzbekistan “On water and water use” recognizes relevant requirements to “transboundary watercourses.” which are given as “interstate” ones. This Law also authorizes the State (through authorized agencies) to carry out management and control of water use and protection.

Article 30 of the same Law introduces limited and fully or partially chargeable water use.

The conditions and orders relating to limited water use are determined by the Decree No. 385 of the Cabinet of Ministers of 3 August 3 1993, which has confirmed the “Provisional order of limited water use in the Republic of Uzbekistan.”

In accordance with Law of the Republic of Uzbekistan “On water and water use” (Article 8), the following special state agencies are authorized to regulate water use: water management authorities (surface water), State Committee for Geology (groundwater), and State Supervision Committee for security in industry and mining (thermal and mineral waters).

All interrelations in water resources within Uzbekistan are based on the above-mentioned documents and corresponding contracts on water delivery. Water is delivered on a contractual basis to all water consumers including provincial and

district water organizations and separate units. As a rule, the volume of water passing through the border of the neighboring states is specified in interstate agreements.

### **Accounting and accountability for water resources**

Accounting and accountability for water intake, supply and use is implemented in compliance with the confirmed regulations.

Daily water flow and discharge accounting is conducted on 18,150 gauging posts on inter-farm systems, including 17,703 water outlets through double measurement. The main large waterworks are under remote control.

In accordance with the “Provisional order on limited water use,” water acceptance and conveyance (two times a day) is conducted with all water users in registered water outlets when the appropriate certificate is available.

For control over execution of these duties, a water inspection board called “Uzsuvnazorat” has been established under MAWR. Dispatcher services that provide online water intake, supply and use accounting, are available at all water organizations.

The Central Dispatch Service in MAWR collects data on water intake, supply and use for provinces, water reservoirs, main pumping plants, large irrigation systems, and key waterworks two times a day. MAWR ensures implementation of Section III (Index C) of the State water cadastre of Uzbekistan’s “Water resources intake and use and quantitative and qualitative characteristics of wastewater” in accordance with the Provisional order on conducting State water cadastre of the Republic of Uzbekistan,” as agreed in July 1996 with the Hydromet Service and State Committee for Geology.

### **Relations with other Central Asian states on water-related issues**

All interstate water relations of Uzbekistan are based on the Constitution of the Republic of Uzbekistan, the Law “On water and water use,” and other legislative acts on water issues, and regulated by the respective interstate and intergovernmental treaties, agreements, and protocols.

Uzbekistan confirms all previous documents, taking into account the existing situation in the region. Some documents may not meet the new legislative acts of some states, but it is necessary to take into consideration that in the early 1990s, when these documents were signed, water resources depletion was already recognized. However, by this time water resources had been already allocated not only between states, but also between economic sectors, and all the present production and social infrastructure had been arranged taking into consideration available water resources and their allocation. Therefore, even a small deviation from previous decisions may lead to an imbalance not only in one country, but also in the whole region, requiring a well-considered approach to address the imbalance.

From our point of view, two documents are of basic importance:

1. the Basin schemes of integrated water resources use and protection, agreed by all states (before sovereignty was granted); and
2. the Agreement between Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan, on collaboration in joint management, use and protection of water resources from interstate sources, approved on 18 February 1992 (after sovereignty was granted).

The first document determines principles and physical volumes of water allocation in the region. These principles or volumes may not meet somebody's aspiration now for one reason or another, but they have been carefully grounded and tested by relevant research and design organizations in all the five republics.

In developing the above-mentioned "schemes," all the conditions and circumstances, related to water use were thoroughly tested, and various versions of the region's production allocation and improvement were developed. The demographic peculiarities of the whole region and the countries were also taken into account.

The second document, approved after the formation of the sovereign states as per the Agreement of 18 February 1992, confirms the need for all parties to follow the decisions reflected in all previously signed documents on water allocation and use.

Besides these two documents, there are many bilateral and multilateral treaties, agreements, and protocols on the Syrdarya basin, small rivers of the Ferghana Valley, the Amudarya basin, etc. All these documents were accepted as a result of long disputes, expert evaluations, and estimations.

It is necessary to note the positive role of the "Framework agreement between the governments of Kazakhstan, Kyrgyz Republic and Uzbekistan on the Syrdarya basin water and energy resources use," signed on 17 March 1998 to mitigate a very tense situation in the region, which was caused by the transfer of the Toktogul reservoir operation mode into a power generation regime.

Undoubtedly, this document is not ideal in view of international water laws, and perhaps it is in contradiction with some principles or items of internal legislative acts of the countries participating in this Agreement, but in the transition period, when the general rules meeting the requirements of everybody have not yet been developed, and national interests are not "above all," the Agreement assumes importance because it is the only "working" interstate document.

Due to this Agreement a certain balance has been achieved in the water relations of the three states in the Syrdarya basin, and all countries try to follow it, while accepting annual "working agreements" indicating concrete volumes, dates of overflows, releases, and deliveries.

One of the first main legal documents on the Amudarya river water resources allocation after the "Basin Scheme" is Protocol No.556 of the Scientific-Technical

Council of the Ministry of Reclamation and Water Resources of the former USSR dated 10 September 1987, in which maximum water withdrawals by the states were determined with the participation of the national representatives, and on the basis of which bilateral agreements on water-related issues were concluded between Uzbekistan and Turkmenistan.

### **Main issues on water use and proposals for solving them**

1. *At the lower level, there are issues of on-farm water resources management, allocation and rational use, their accounting and accountability.* The main reason for the problem is the absence of appropriate service and qualified personnel. If “collective farms” would be retained further as agricultural enterprises, then formation of relevant water service with limited staff on all farms will be required.
2. *The intensification of market reforms in rural areas has led to a sharp increase in the number of both agricultural producers and water users.* As a result, on restructured farms not only water resources management, but also water objects operation became quite difficult. It is necessary to speed up acceptance of a certain order to regulate water relations on the territories of the restructured farms.
3. *Accounting and accountability of intake and use of water from all sources by non-agricultural water users is not at the appropriate level.* This happens when enterprises have autonomous water intakes from various sources. In agreements with water bodies it is necessary to adjust points of water intake and appropriate water accounting and accountability in the established form. Installation of water measuring facilities should be required for all water users regardless of departmental subordination and form of ownership.
4. *All over the world water resources management is carried out by hydrographic basins and on irrigation channels.* Only in Uzbekistan and some neighboring countries of the Commonwealth of Independent States does the administrative-territorial principle still exist. It is necessary to speed up the solution to the issue of transfer of water resources management to a basin and systematic principle.
5. To implement Decree No. 385 of the Cabinet of Ministers dated 3 August 1993 “On limited water use in the Republic of Uzbekistan,” a water inspection board called “Uzsuvnazorat” to exercise departmental control over rational water use has been established in MAWR. It is necessary to pass the functions of state control over to it.
6. At present, the Department of Water Resources of MAWR executes simultaneously several functions as follows:
  - water resources management,
  - water facilities operation,
  - control over irrigated lands reclamation state,
  - design and construction of water objects,
  - scientific-research activity,
  - function of a customer on capital construction, and

- industry.

For coordination and management of these functions, 68 employees work at central MWAR (in 1996, there were 630 people), of which only 6 work in the field of water resources management. In this connection, certain issues on accounting and accountability and developing different versions of water resources balance are still not being considered.

Because of the intensification of market reforms and restructuring going on, it is necessary to review the existing system of vertical water resources management.

## ACTUAL WATER INTAKE BY SECTOR, 2000-2001

(million m<sup>3</sup>)

Province	Total		Including									
			Agri- culture		Public Utilities		Power Sector		Industry		Others	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
<b>Total for the Republic</b>	<b>48070</b>	<b>40960</b>	<b>44406</b>	<b>37984</b>	<b>2390.8</b>	<b>1894.7</b>	<b>3947</b>	<b>3740</b>	<b>735.41</b>	<b>704.7</b>	<b>461.63</b>	<b>300.34</b>
<i>Including</i>												
<b>I. Amudarya river basin</b>												
Karakalpakstan	4827	2455	4642	2250	157	185	221	220			9	2
Surkhandarya province	3505.3	3920.5	3443	3855	30.3	30.5			17	20	15	15
Kashkadarya province	5014.9	4523.8	4823	4383	140	95	35	35	44.4	42	0.2	0.2
Bukhara province	3507	3157.8	3351	3079	140	68.8					16	10
Navoi province	1831	1445	1610	1235	121	95	597	550	85	82		5
Samarkand province	2393.84	2201.2	2381	2188	10.2	10			0.11	1.1	2.53	2.1
Khorezm province	3315.7	2293.5	3224	2231	71	52.5					20.7	10
<b>Total for the basin</b>	<b>24394.7</b>	<b>19997</b>	<b>23474</b>	<b>19221</b>	<b>669.5</b>	<b>536.8</b>	<b>853</b>	<b>805</b>	<b>146.51</b>	<b>145.1</b>	<b>63.43</b>	<b>44.3</b>
<b>II. Syrdarya river basin</b>												
Andijan province	3284.2	3183.1	2966	2863	287	294			2.2	1.1	29	25
Namangan province	3063.3	3246.5	2941	3143	64.3	75			25	20.5	33	8
Ferghana province	4157.85	3870.7	4050	3796	50	50	25	25	15.7	12.5	39	9
Djizakh province	3234	2462	3128	2422	106	40						
Syrdarya province	3877.6	3044.9	3717	2974	112	48.9	1459	1320	33	12.5	7.2	4.04
Tashkent province	6058	5156	4130	3565	1102	850	1610	1590	513	513	290	210
<b>Total for the basin</b>	<b>23675</b>	<b>20963</b>	<b>20932</b>	<b>18763</b>	<b>1721.3</b>	<b>1357.9</b>	<b>3094</b>	<b>2935</b>	<b>558.9</b>	<b>559.6</b>	<b>398.2</b>	<b>256.04</b>

**Actual Water Intake by Sector, 2000-2001**  
(million m<sup>3</sup>)

Province	2000			2001		
	Total	Including		Total	including	
		Veget	Non-veget		Veget	Non-veget
<b>Total for the Republic</b>	<b>44406</b>	<b>31347</b>	<b>13059</b>	<b>37984</b>	<b>26761</b>	<b>11221</b>
<i>Including</i>						
<b>I. Amudarya river basin</b>						
Karakalpakstan	4642	3660	1983	2250	1463	787
Surkhandarya province	3443	2577	866	3855	2772	1083
Kashkadarya province	4823	3540	1283	4383	3039	1344
Bukhara province	3351	2073	1278	3079	2160	919
Navoi province	1610	1016	594	1235	825	410
Samarkand province	2381	1872	509	2188	1708	480
Khorezm province	3224	2071	1154	2231	1373	858
<b>Total for the basin</b>	<b>23474</b>	<b>15807</b>	<b>7667</b>	<b>19221</b>	<b>13340</b>	<b>5881</b>
<b>II. Syrdarya river basin</b>						
Andijan province	2966	2328	638	2863	2238	625
Namangan province	2941	2189	752	3143	2248	895
Ferghana province	4050	2966	1084	3796	2504	1292
Djizakh province	3128	1957	1171	2422	1422	1000
Syrdarya province	3717	2378	1339	2974	1781	1193
Tashkent province	4130	3722	408	3565	3228	337
<b>Total for the basin</b>	<b>20932</b>	<b>15540</b>	<b>5392</b>	<b>18763</b>	<b>13421</b>	<b>5341</b>