

LARGE IRRIGATION IN ZARAFSHON BASIN CHANNEL INDICATORS

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Annotation: *The article is devoted to the study of indicators of large irrigation canals in the Zaravshan basin. The large irrigation canals receiving water from the Zarafshan river serve to increase the hydrological importance of the irrigated lands.*

Keywords: *water consumption, river, river basin, water flow, hydrological regime, canal, canal length, canal permeability, irrigated lands.*

The waters of the Zarafshan River have been used for a wide range of purposes in all areas of human economic activity since ancient times. In order to develop the deserts of Uzbekistan, large irrigation canals fed by the waters of the Zarafshan River were built, and the river's waters have been effectively used for thousands of years. Examples of such large canals are New Dargom, Round Dargom, Old Dargom, Narpay, Old Anhor, Old Tuya-Tortar canals. Currently, when it is necessary to use water resources effectively and rationally, determining the morphometric and hydrological indicators of channels, studying the water regime, is one of the urgent issues. The main goal of this research work is to study the morphometric and hydrological parameters of the large irrigation canals in the Zarafshan basin, and the large irrigation canals in the Zarafshan basin were selected as the research object. The research subject of the work is to study the current main morphometric indicators and hydrological regime of large irrigation canals receiving water from the Zarafshan River. The large irrigation canals receiving water from the Zarafshan River are controlled by the Regional Department of the Ministry of Water Management of the Republic of Uzbekistan, the Department of the Use of the Zarafshan Main System of the Samarkand Region. The following table provides information on the main morphometric and hydrological parameters of the large irrigation canals receiving water from the Zarafshan River. The New Dargom canal is the largest of them, its water carrying capacity is 125 m³/s (Table 1.1).

Table 1.1

Large irrigation canals that receive water from the Zarafshon River

№	Channels	Location, district	Main indicators	
			L, km	Q_{\max} , m ³ /s
1	New Dargom	Urgut	5,2	125
2	New Dargom, filler	Urgut	3,5	40
3	Old Dargham	Urgut	3,7	60
4	New Dargom	Toyloq	5,1	60
5	Old Dargham	Toyloq	5	58
6	Right bank	Bulung'ir	2,2	125
7	Right bank, filler	Bulung'ir	0,8	10
8	Old Tuyatortar	Bulung'ir	1,5	45

Note: L is channel length; Q_{\max} is the water carrying capacity of the channel.

Dargom Irrigation Network Administration (ITB) supplies Zarafshan water to Urgut, Toyloq, Samarkand, Pastdargom, Nurabad, Kattakurgan districts and Samarkand city of Samarkand region. The length of the canals included in this system varies between 3.22 (Jaghalboyli) and 51.6 (New n/s) kilometers. The maximum water transfer varies between 15.48 m³/s (Urgutsoy) and 0.3 m³/s (Kavarzor).

Table 1.2

The main indicators of the channels under the control of Dargom ITB

№	Channels	Location, district	Main indicators		
			L, km	Q_{\max} , m ³ /s	F, 10 ³ ga
1	New Urgut	Urgut	36,4	25	18,396
2	New Urgut	Samarkand	27,6	15	7,747
3	Urgutsoy	Urgut	10	15,5	0.205
4	A new pump brings water to the station	Urgut	51,6	15.0	0.972
5	Shaudar	Тайлоқ	7	10	3,091
6	Anhor	Pastdargom	41.95	25.0	11.800
7	Anhor highway	Pastdargom	13	18	1,420
8	Progress	Pastdargom	30	8.0	4.680
9	Honchorbog highway	Pastdargom	10,75	24	1,439
10	KPC	Pastdargom	46.3	20	10,274
11	Videl-4	Pastdargom	2,83	3.5	1.362
12	MR-1	Pastdargom	17,5	5.0	0.198
13	MR-2	Pastdargom	2,61	3.0	0.269
14	Younger	Pastdargom	10,5	4.0	0.055

Note: L is channel length; Q_{\max} – channel water carrying capacity, F – irrigated area.

The old Anhor irrigation systems provide Zarafshan water to Pastdargom, Nurabad, Kashkadarya region of Samarkand region, Chirakchi district of Kashkadarya region, and partly to Qamashi and Shahrisabz districts.

This system includes the Old Anhor canal itself and the Sandal, Kumdarya, Dovur and Arabbandi canals that receive water from it.

Table 1.3

Indicators of old Ankhor ITB channels

№	Channels	Located place, district	Main indicators		
			L, km	Q_{\max} , m ³ /s	F, 10 ³ ga
1	Old Anhor	Pastdargom	15,1	60	2,199
2	Old Anhor	straight	16,0	57	3,123
3	Old Anhor	straight	17,6	60	-
4	Old Anhor	A lamp	48,3	50	8,868
5	Sandal	A lamp	5,1	30	3,190
6	Qumdaryo	A lamp	17,9	40	0,754
7	Dovur	A lamp	16	10	3,576
8	Arabbandi	A lamp	27,0	10	5,820

Note: L is channel length; Q_{\max} - channel water carrying capacity, F - irrigated area.

The main task of the Tuyatortar-Qiyli irrigation systems is to supply Zarafshan water to Jizzakh city, Jizzakh, Bakhmal, Gallaorol districts of Jizzakh region. The largest water flow that can be transferred by the canals under the jurisdiction of this ITB is 60 m³/s, and their length varies between values of 23.9 km.

Table 1.4

Indicators of Tuyatortar-Qiyli ITB channels

№	Channels	Location place, district	Main indicators		
			L, km	Q_{\max} , m ³ /s	F, 10 ³ ga
1	Right Bank	Jizzakh	3,4	60	2,076
2	Palace head	Jizzakh	1,8	15	2,680
3	Head of Iran	Jizzakh	19,2	10	2,380
4	Old Tuyatortar	Gallaorol	12,1	45	6,683
5	Sangzar, betonli	Gallaorol	23,9	30	0,715
6	O'ng qirg'oq	Jizzakh	2,0	60	0,004
7	JSO, chiqish	Jizzakh	12,8	15	4,984
8	JSO, chiqish	Jizzakh	8,4	50	0,910
9	QSO, chiqish	Gallaorol	4,7	50	1,520

Note: L is the length of the channel; Q_{\max} is the maximum water consumption that the channel can carry; F – irrigated area.

Right bank Narpai-Navoi irrigation systems supply Zarafshan river water to Narpai, Pakhtachi, Kattakurgan, Karmana districts and Navoi city of Samarkand region. The Narpay canal takes the main place in providing this system with Zarafshan water, and all irrigation water arteries receive water from this canal, and more than 50,000 hectares of cultivated land in Samarkand and Navoi regions are irrigated.

Table 1.5

Indicators of Narpay-Navoi ITB channels

№	Channels	Location place, district	Main indicators		
			L, km	Q_{\max} , m ³ /s	F, 10 ³ ga
1	Narpai-Navoi	Kattakurgan	20,6	90	3,086
2	Chig'anoq	Kattakurgan	9,0	20	0,903
3	Narpai	Narpai	33,2	70	16,811
4	Car	Narpai	15,19	12	4,213
5	Don't turn Hamza	Narpai	4,02	20	
6	Narpai	Pakhtachi	43,2	50	22,456
7	LB-1 (left bank)	Pakhtachi	33,5	20	1,495
8	Narpai	Karmana	9,7	10	4,970

Note: L-channel length; Q_{\max} – water permeability; F – irrigated area.

In short, at present, the water resources of the rivers are effectively used with the help of irrigation systems in the Zarafshan basin, Amudare waters also contribute to meeting the water requirements of the oasis, and the needs of the national economy are fully provided.

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