JAPAN INTERNATIONAL COOPERATION AGENCY

MINISTRY OF PUBLIC UTILITIES
STATE COMMITTEE OF UZBEKISTAN FOR NATURE PROTECTION
REPUBLIC OF UZBEKISTAN

THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN

FINAL REPORT

(SUPPORTING REPORT)

DECEMBER 1996

TOKYO ENGINEERING CONSULTANTS CO., LTD.
IN ASSOCIATION WITH
KYOWA ENGINEERING CONSULTANTS CO., LTD.

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SUPPORTING REPORT

A : EXISTING WATER SUPPLY SYSTEM

B : WATER CONSUMPTION

C : WATER SOURCE AND WATER QUALITY

D : WATER SUPPLY IMPROVEMENT PLAN

E : ENGINEERING DESIGN

F : FINANCIAL AND ECONOMIC ANALYSIS

G : INITIAL ENVIRONMENTAL EXAMINATION BY UZBEK SIDE

H : ADDITIONAL REPORT FOR THE EMERGENCY PROJECT

A. EXISTING WATER SUPPLY SYSTEM

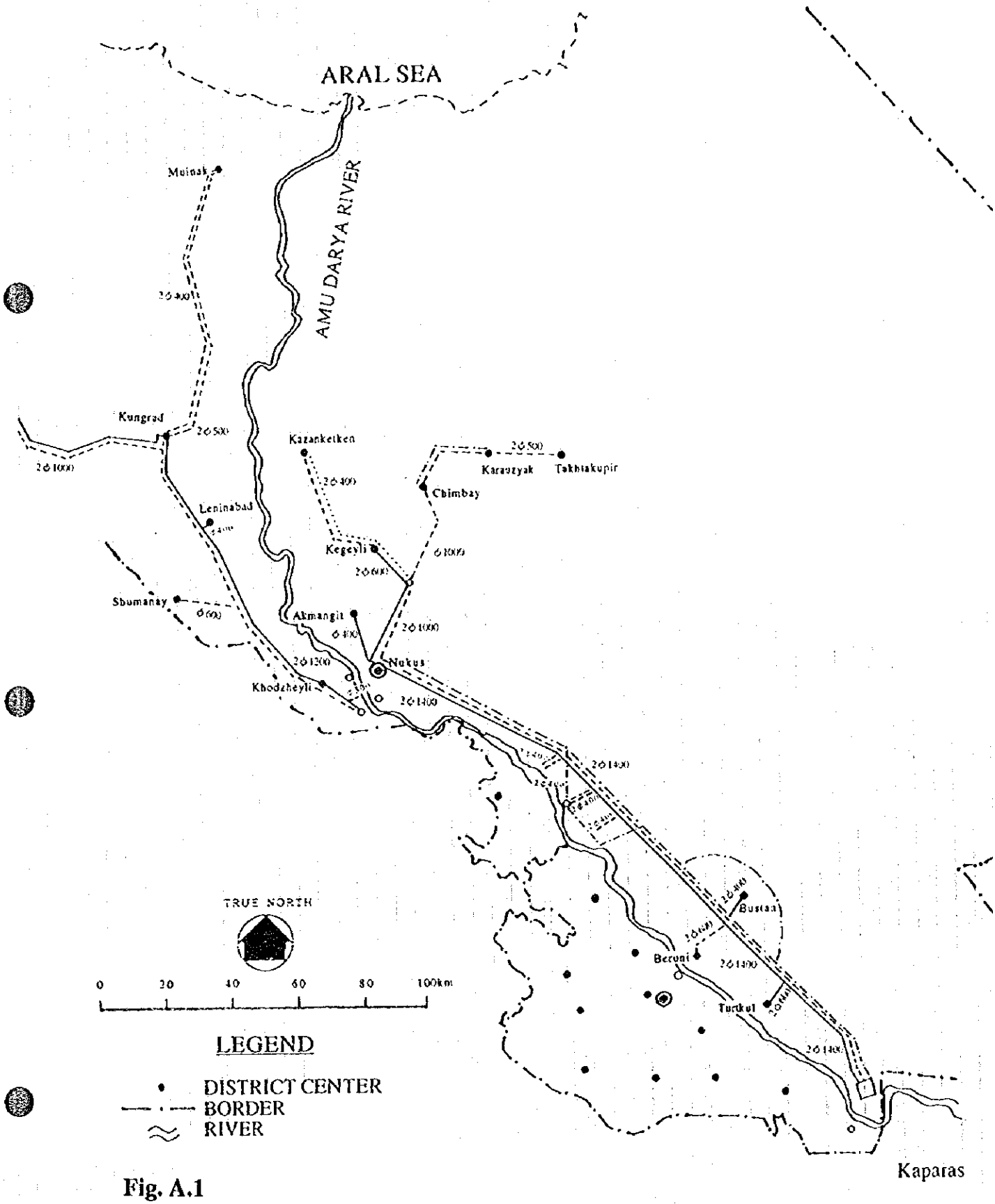


Fig. A.1

Tuyamuyun - Nukus Water Supply System Planned by Uzbekistan Side

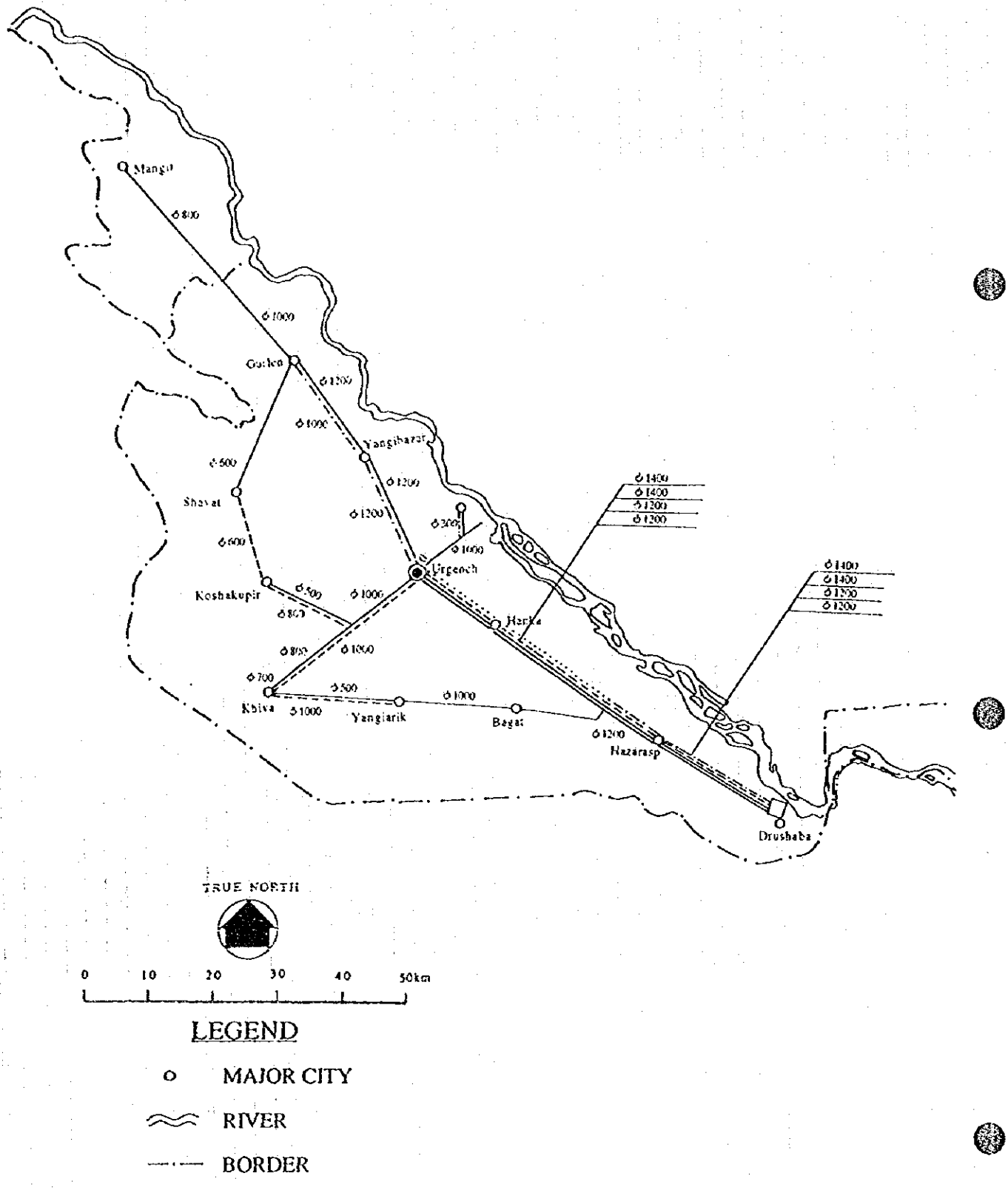


Fig. A.2

Tuyamuyun - Urgench Water Supply System Planned by Uzbekistan Side

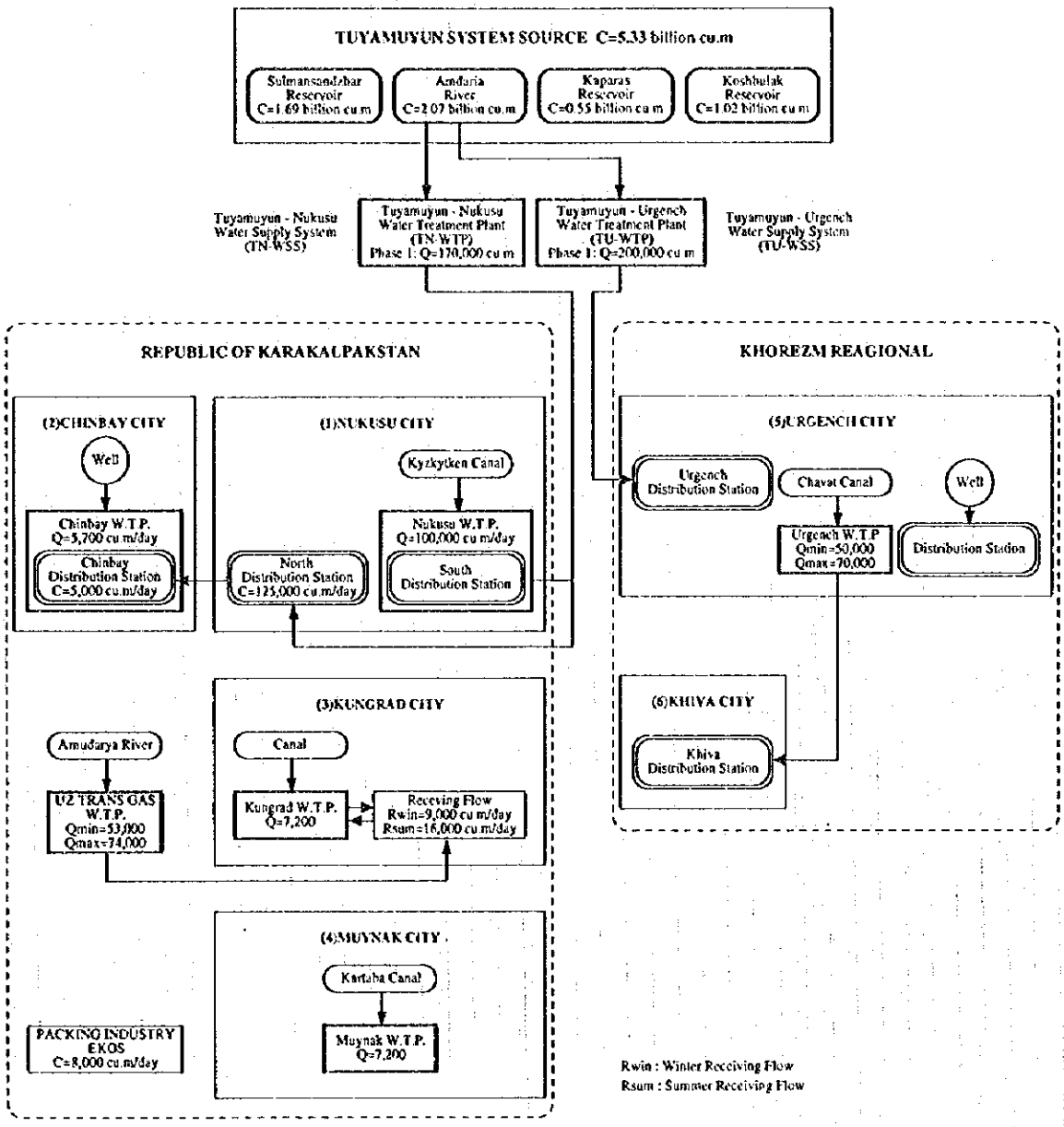
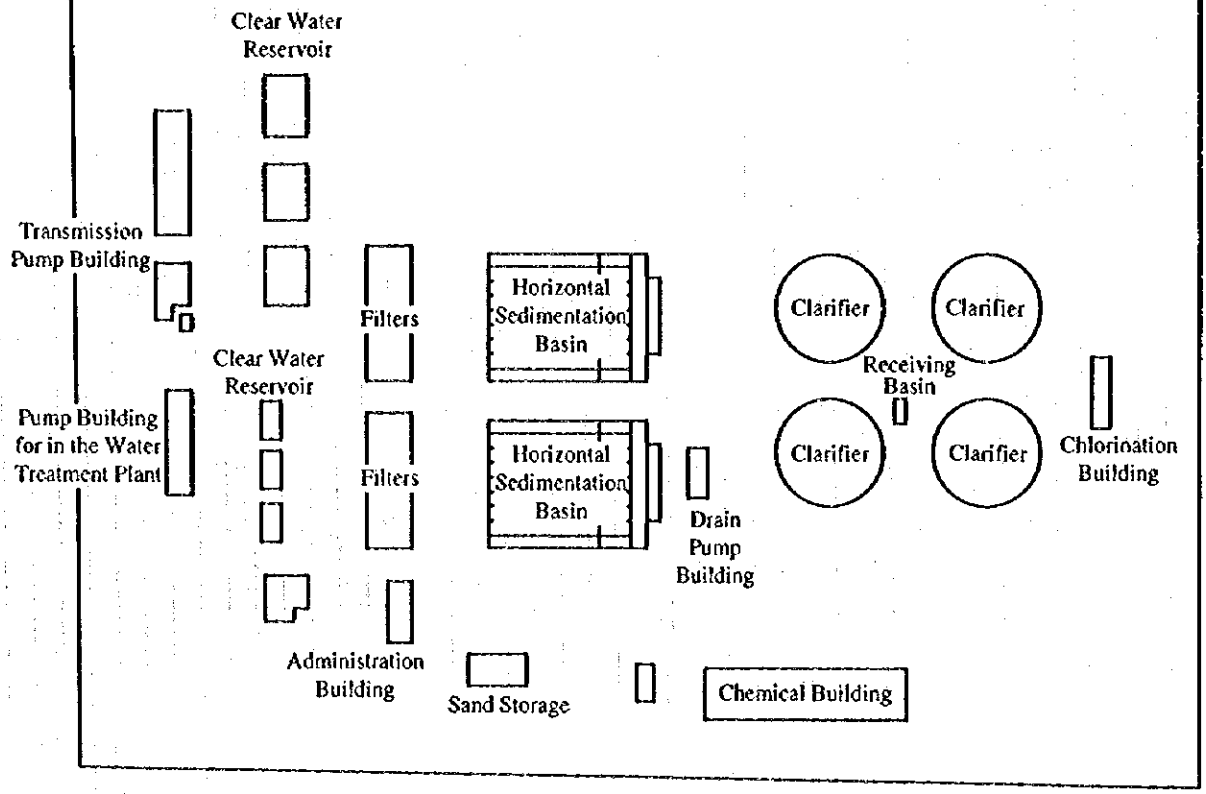


Fig. A.3 TUYAMUYUN AND 6 CITIES WATER SUPPLY SYSTEM



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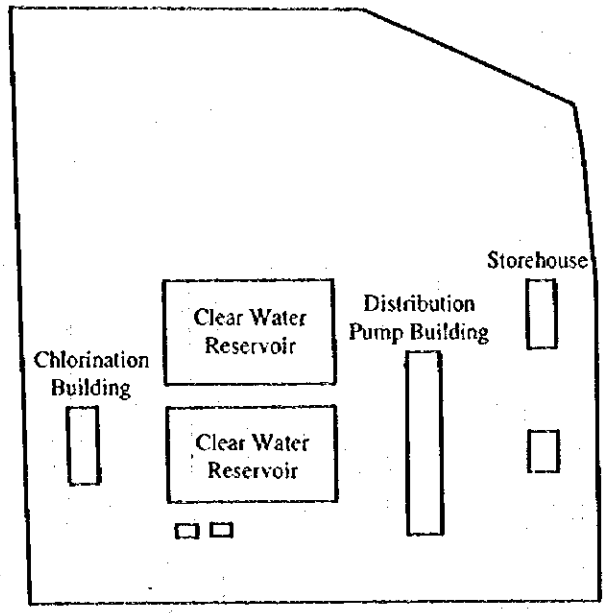
Unit : Meter

THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.4 Tuyamuyun-Nukus Water Treatment Plant



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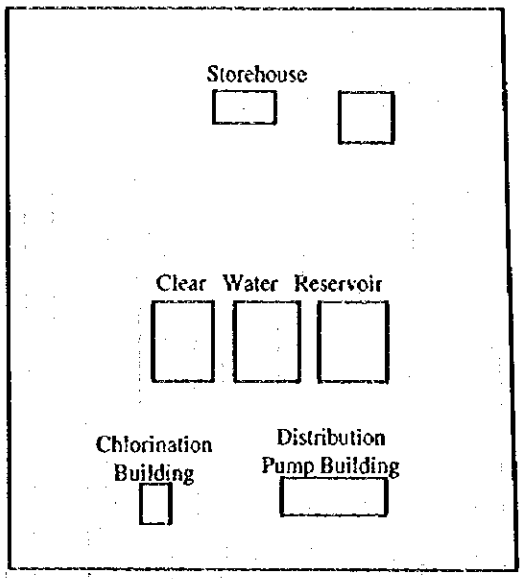
Unit : Meter

THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.5 Nukus North Distribution Station



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THE STUDY ON
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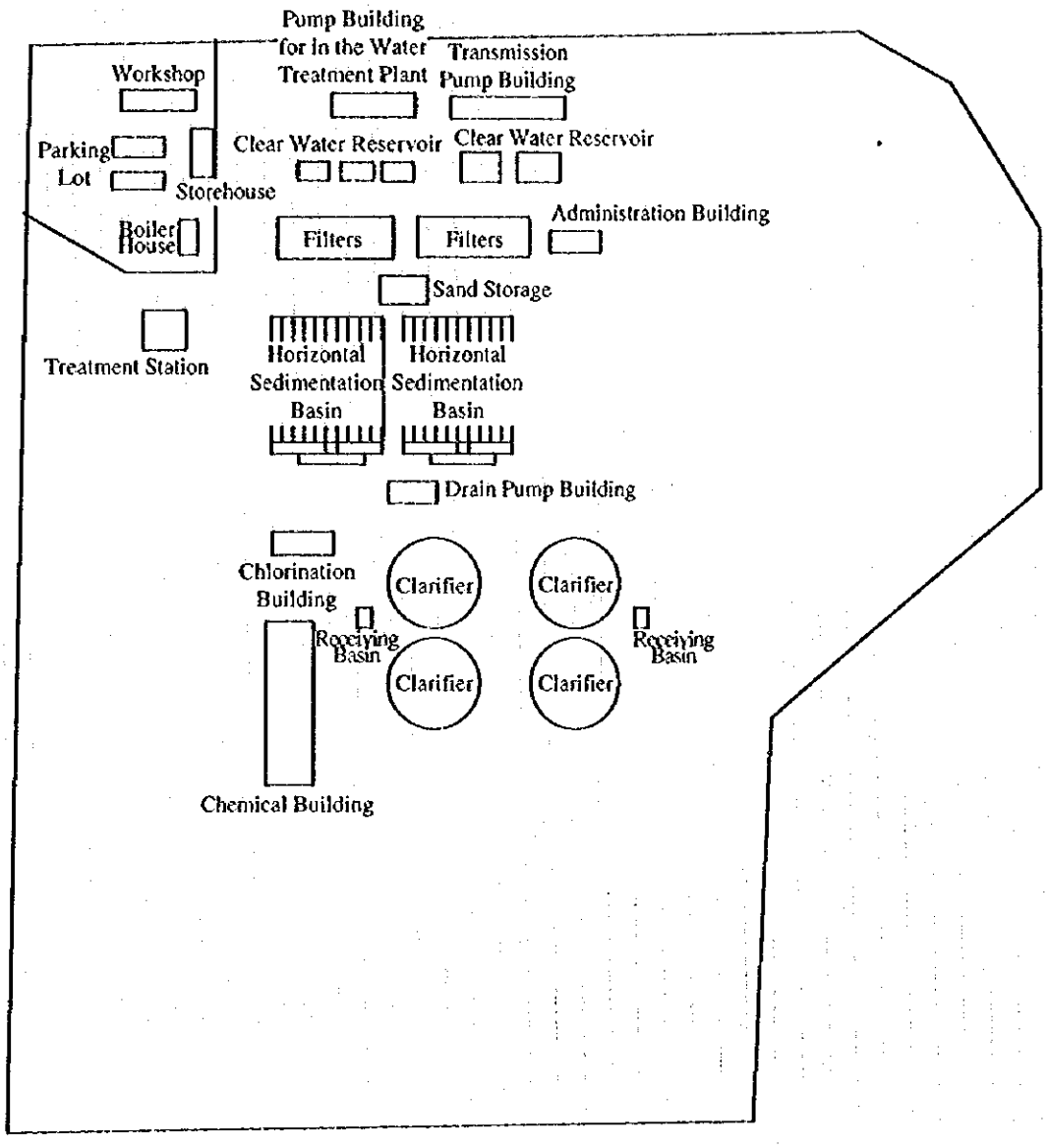
Fig. A.6
Chimbai
Distribution Station



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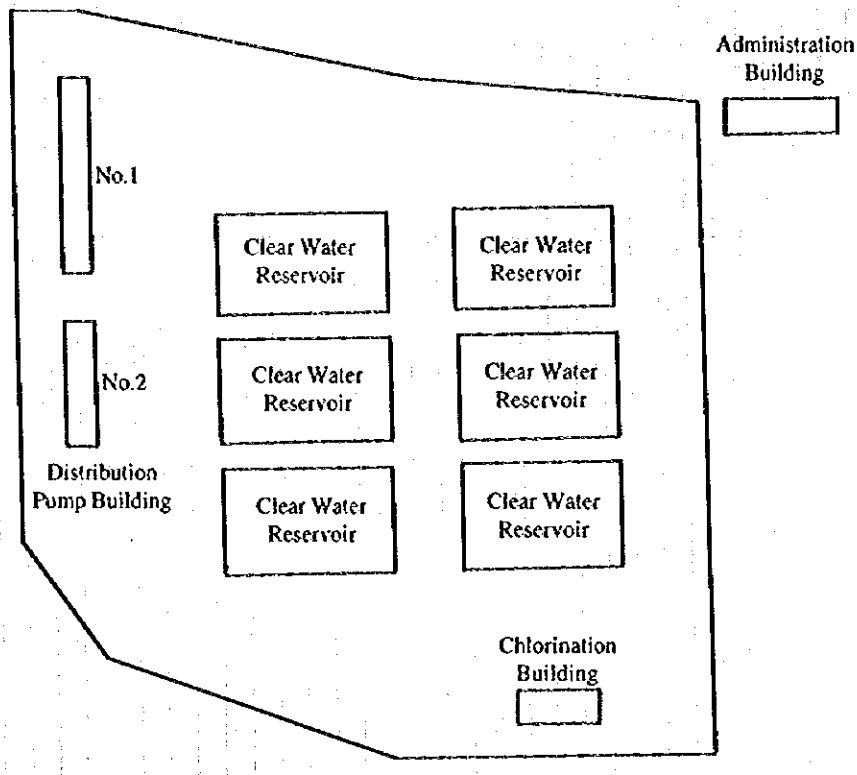
THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.7 Tuyamuyun-Urgench Water Treatment Plant



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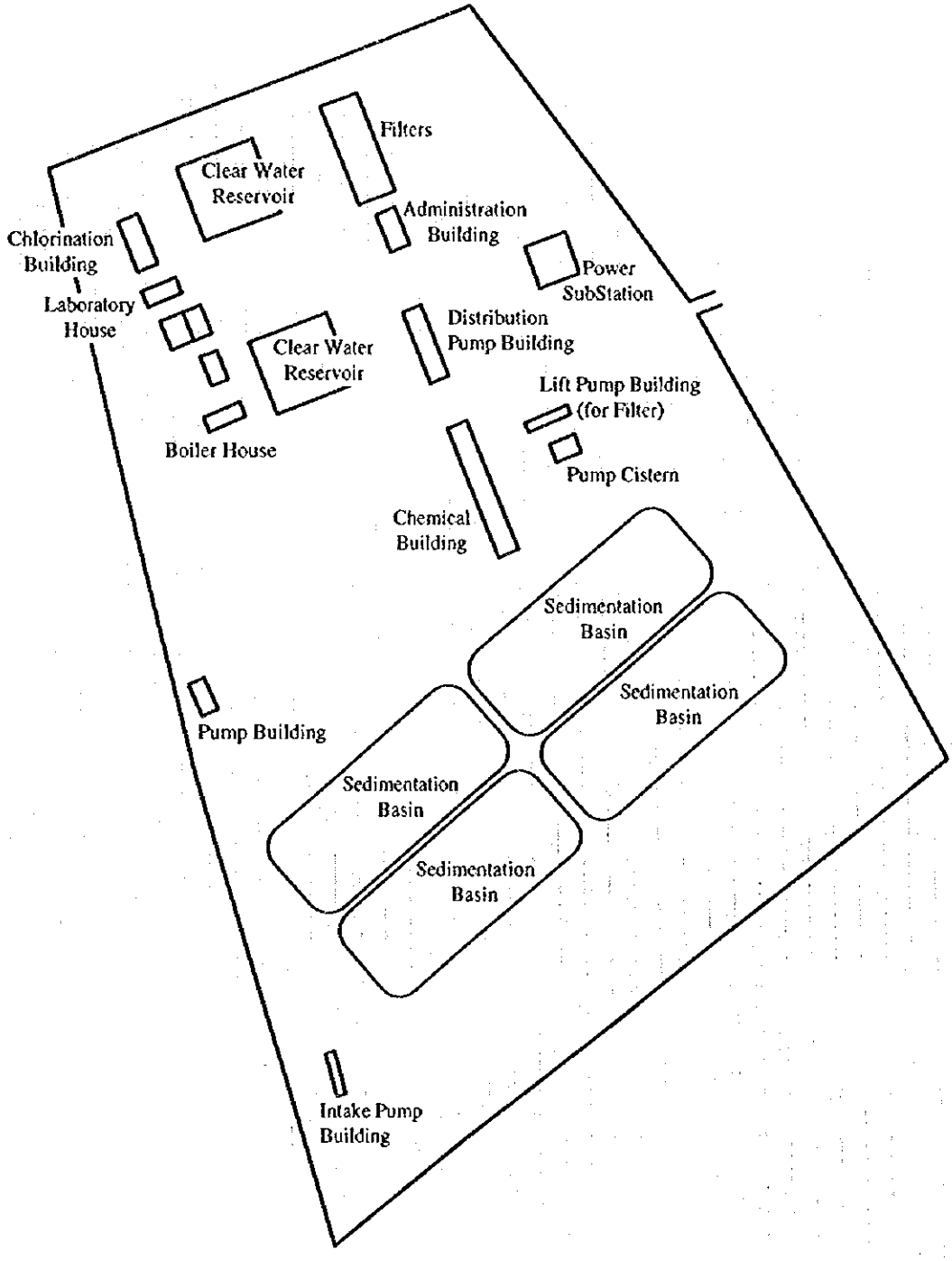
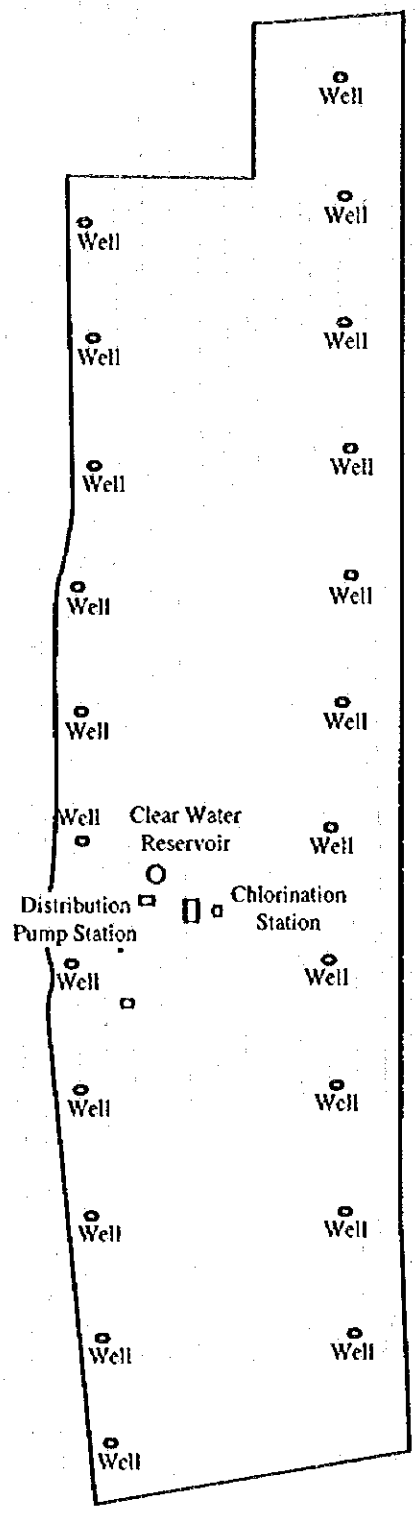
Unit : Meter

THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.8 Urgench Distribution Station



THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.9 Nukus Water Treatment Plant



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Unit : Meter

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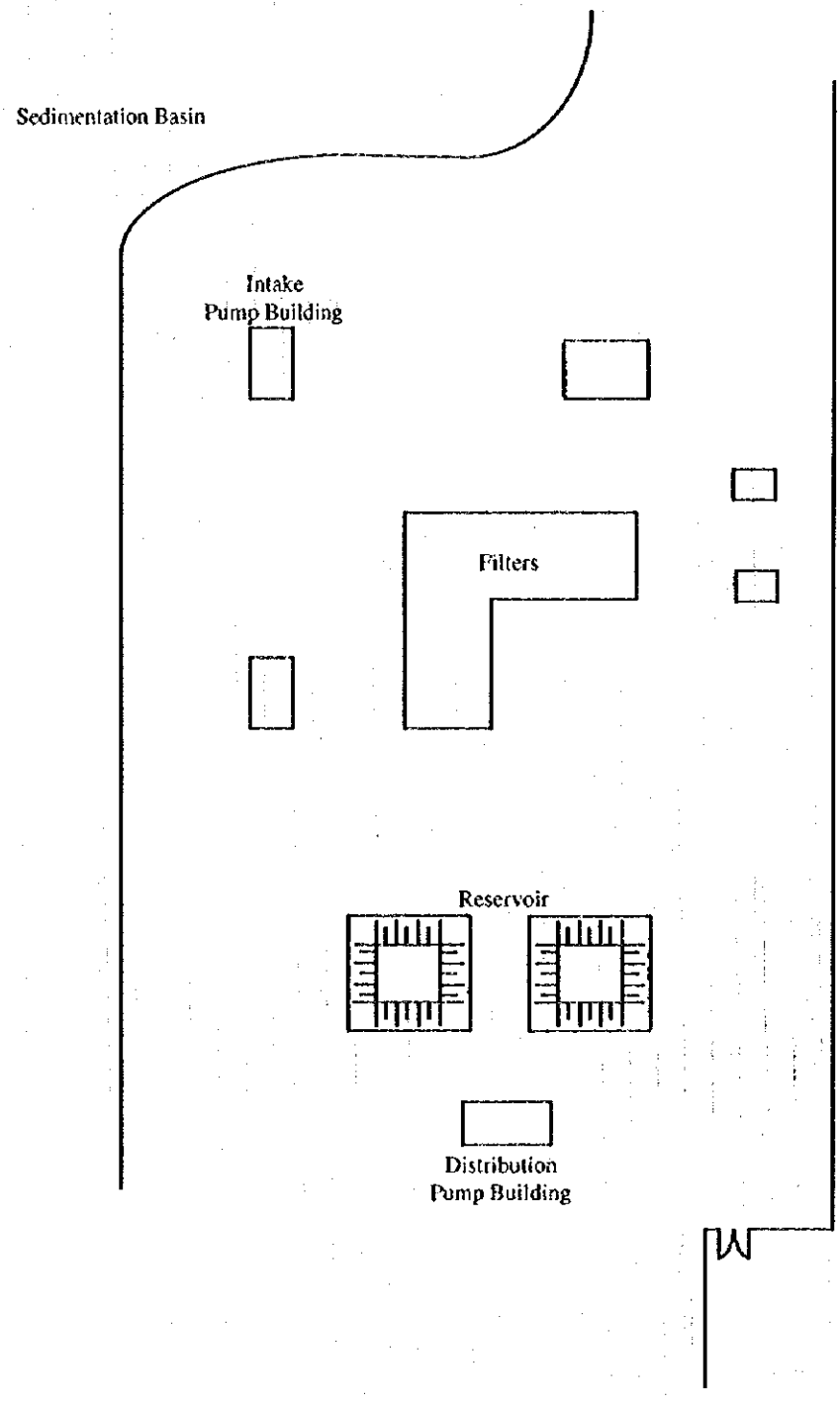
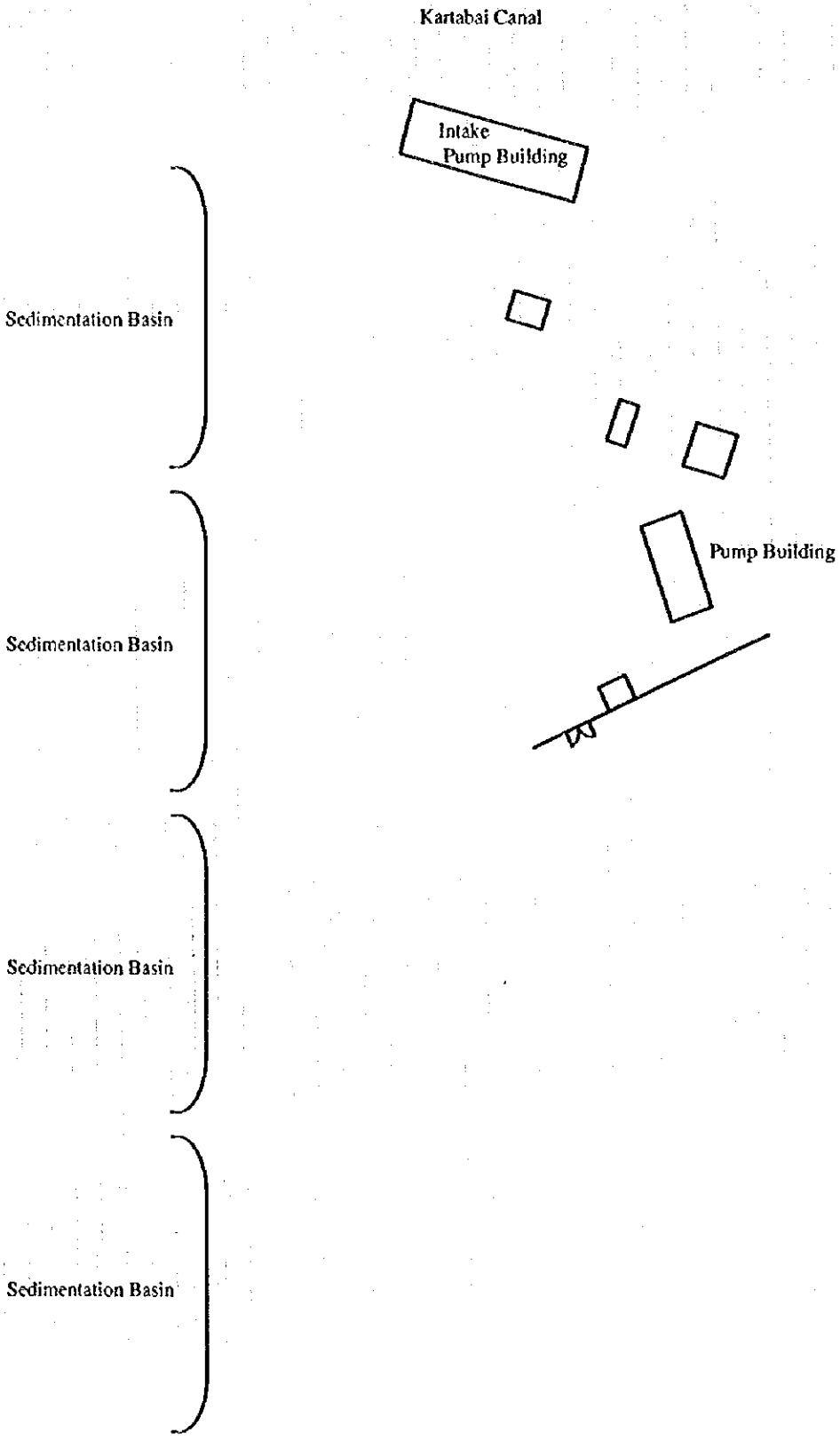
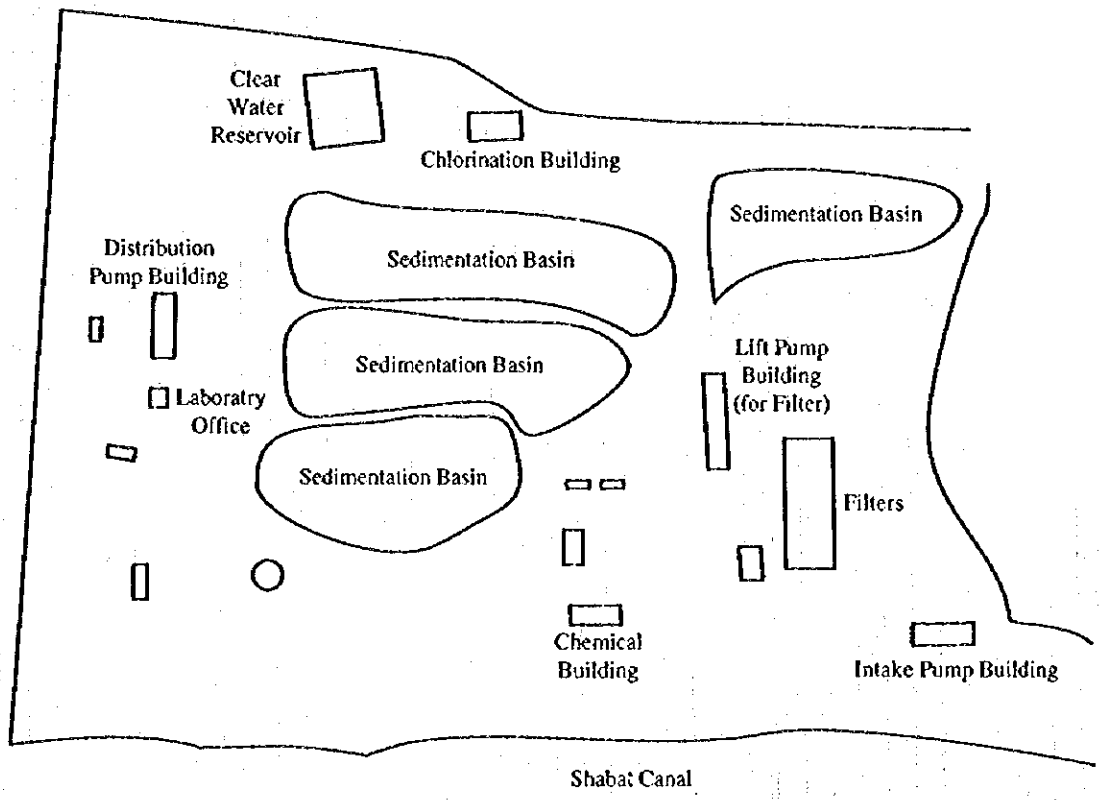
Fig. A.10
Chimbai
Water Treatment Plant



THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.11 Kungrad Water Treatment Plant



THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.12 Muynak Water Treatment Plant



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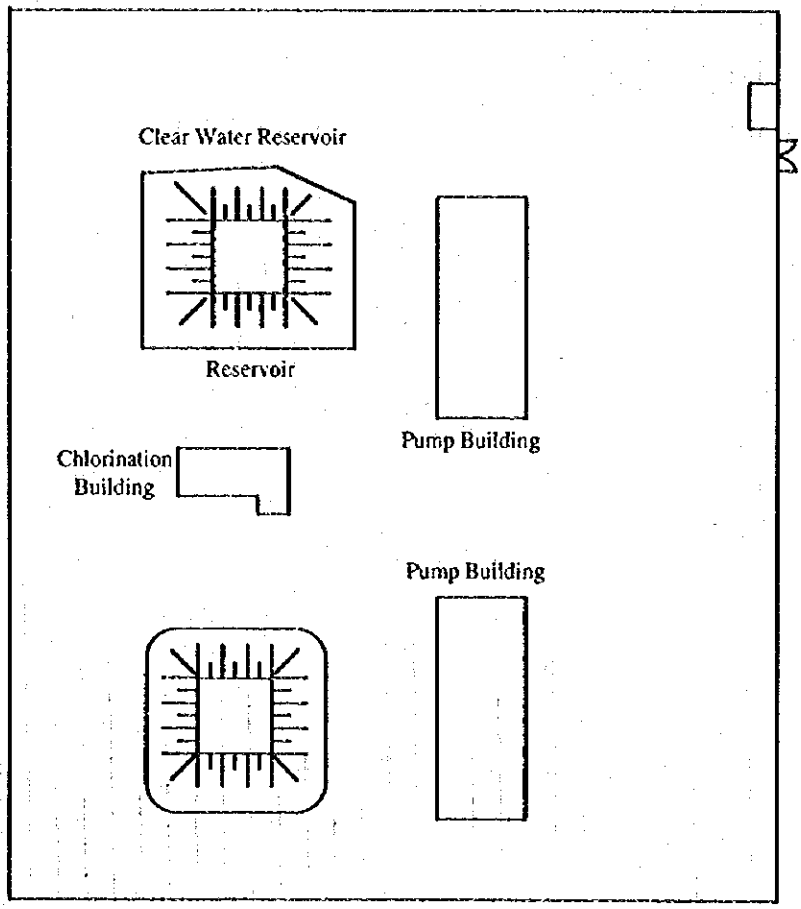
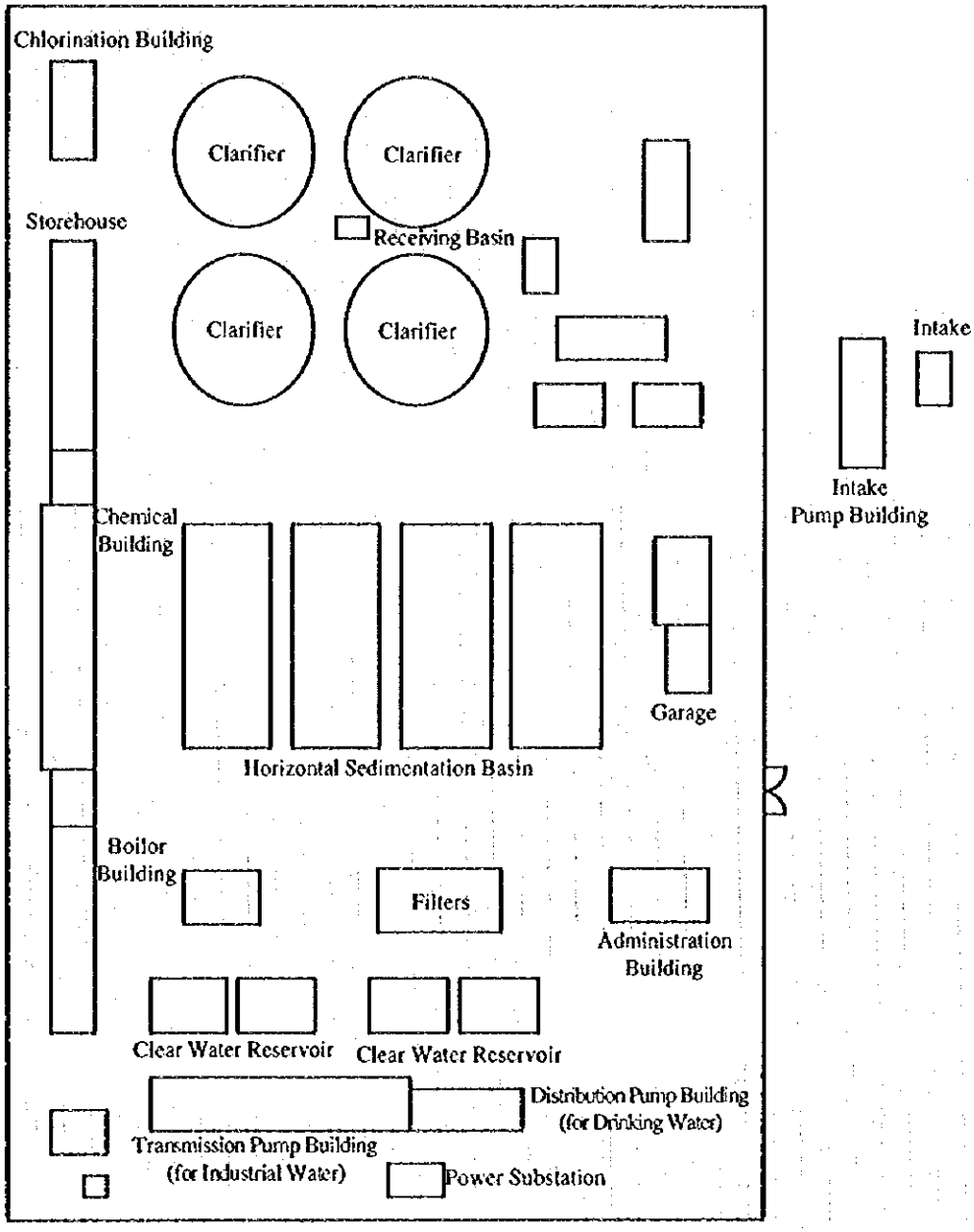
Unit : Meter

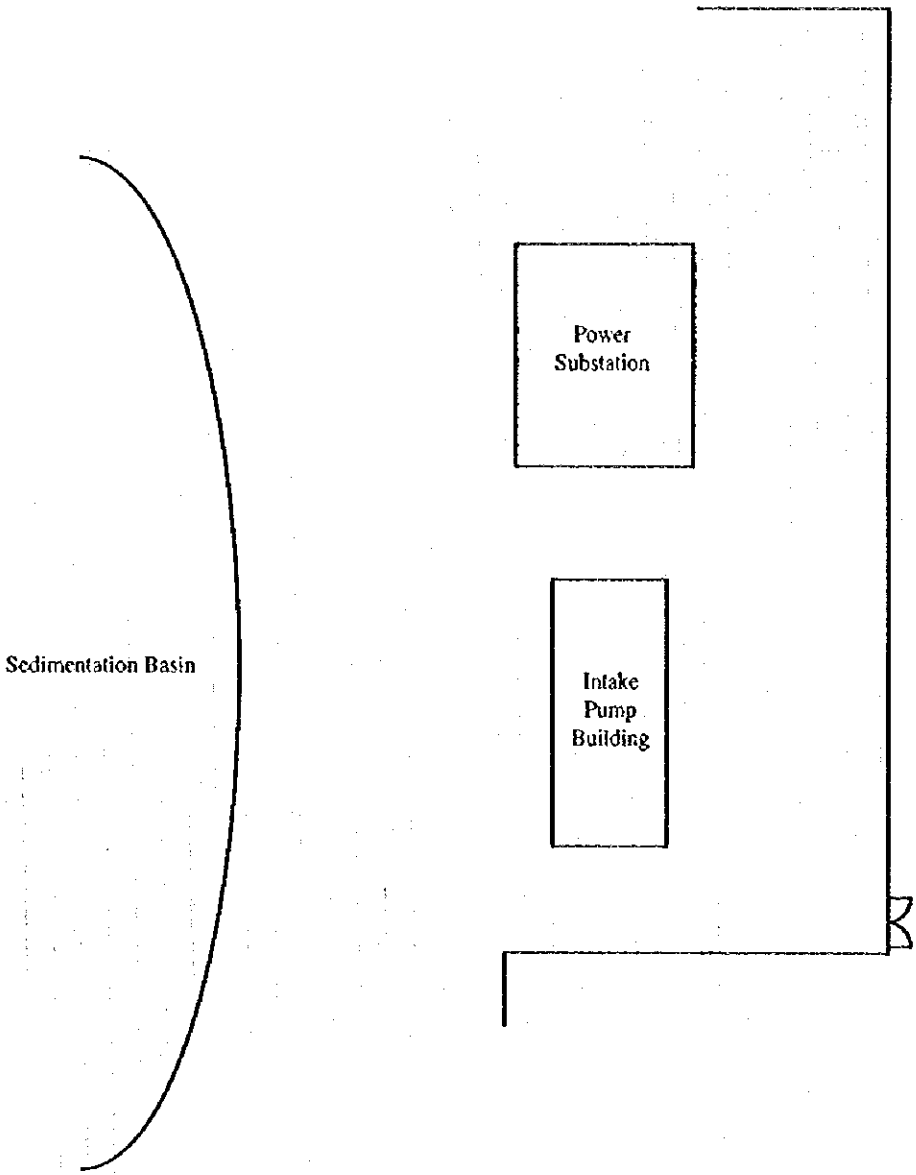
THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.13 Urgench Water Treatment Plant



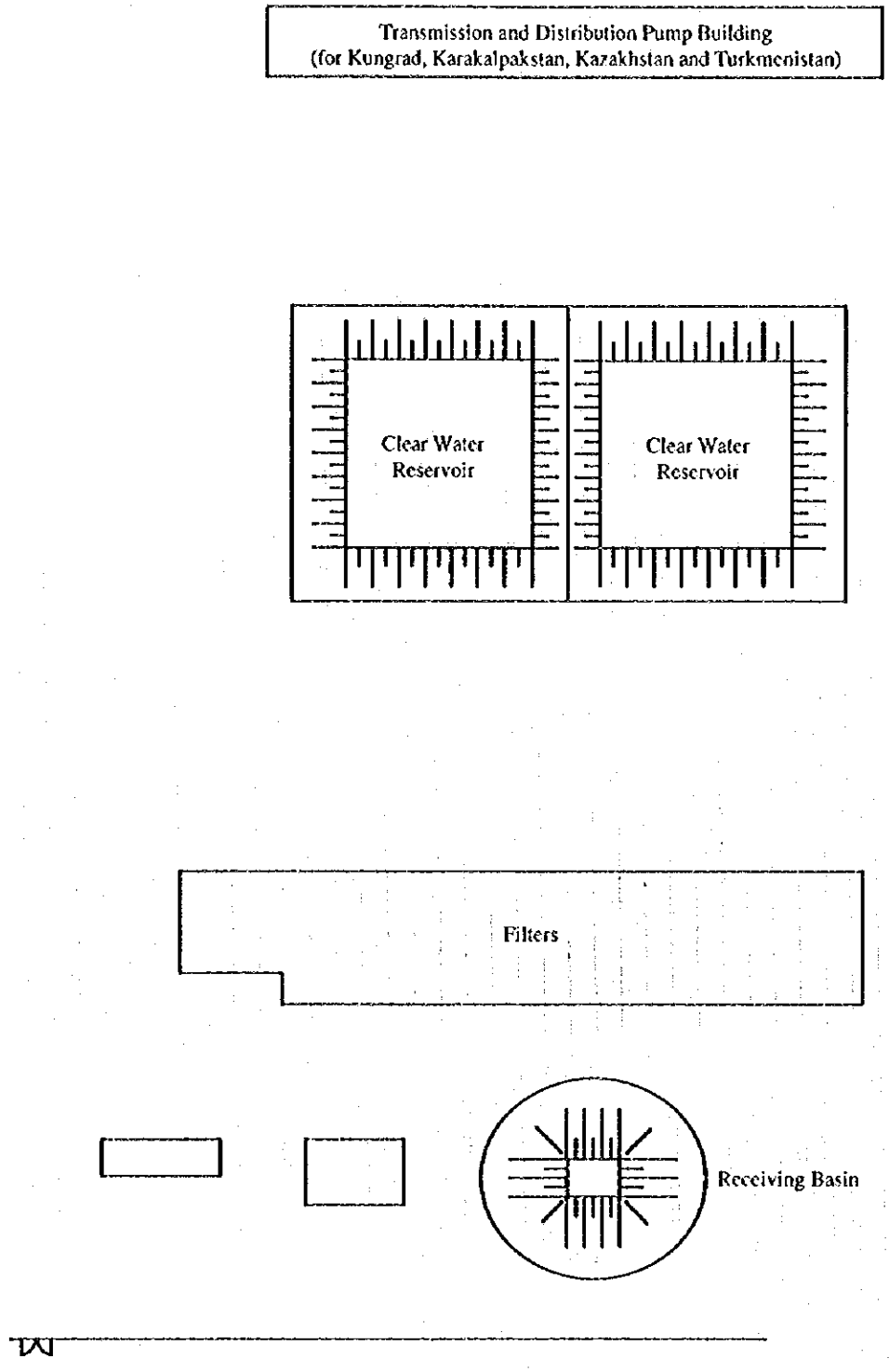
THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN	Fig. A.14 Chalish Water Treatment Plan
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.15 Takhiatash (Uztransgas) Water Treatment Plant



THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.16 Kungrad (Uztransgas) Intake Station



THE STUDY ON WATER SUPPLY SYSTEM IN SIX CITIES OF THE ARAL SEA REGION IN UZBEKISTAN JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. A.17 Kungrad (Uztransgas) Water Treatment Plant

B. WATER CONSUMPTION

APPENDIX TO THE CHAPTER 4 IN THE MAIN REPORT

CHAPTER 4 WATER CONSUMPTION AND DEMAND PROJECTION

1. Population Data and Population Estimation

Table B.1 Population and Annual Growth Rate in the Study Cities in Karakalpakstan

(Unit : Population in thousand persons, Growth rate : %/year)

	Population (thousans persons) and ggrowth rate (%)										growth rate	
	84	85	86	87	88	89	90	91	92	1993	84-93	89-93
Nukus	139.2	145.7	145.7	185.8	193.2	208.2	213.1	218.7	224.6	227.4		
		4.7	0.0	27.5	4.0	7.8	2.4	2.6	2.7	1.2	5.6	2.2
Chimbay	27.6	28.4	28.4	30.2	30.5	28.0	28.8	29.5	30.5	31.5		
		2.9	0.0	6.3	1.0	-8.2	2.9	2.4	3.4	3.3	1.5	3.0
Kungrad	27.6	28.6	28.6	30.2	30.6	30.0	30.6	31.4	32.1	32.8		
		3.6	0.0	5.6	1.3	-2.0	2.0	2.6	2.2	2.2	1.9	2.3
Muynak	12.7	12.7	12.8	13.2	13.5	12.3	12.9	13.2	13.5	13.6		
		0.0	0.8	3.1	2.3	-8.9	4.9	2.3	2.3	0.7	0.8	2.5
Total	207.1	215.4	215.5	259.4	267.8	278.5	285.4	292.8	300.7	305.3		
		4.0	0.0	20.4	3.2	4.0	2.5	2.6	2.7	1.5	4.4	2.3

Souce: VodoKanal of the Republic of Karakalpakstan

Table B.2 Trend of Population and Population Growth in Karakalpakstan (as of the end of each year)

Year	Population			Annual average growth rate		
	Total	Urban	Rural	Total	Urban	Rural
1984	1,089.6	500.3	589.3			
1985	1,122.9	527.2	595.7	3.1	5.4	1.1
1986	1,152.9	544.5	608.4	2.7	3.3	2.1
1987	1,185.2	568.5	616.7	2.8	4.4	1.4
1988	1,213.8	683.7	530.1	2.4	20.3	-14.0
1989	1,244.7	599.8	644.9	2.5	-12.3	21.7
1990	1,273.8	614.4	659.4	2.3	2.4	2.2
1991	1,310.6	634.6	676.0	2.9	3.3	2.5
1992	1,342.8	654.4	688.4	2.5	3.1	1.8
1993	1,371.6	667.7	703.9	2.1	2.0	2.3
1994	1,395.9	677.1	718.8	1.8	1.4	2.1
Annual ave. growth rate				2.5	3.1	2.0
Annual ave. growth rate for last 5 years				2.3	2.5	2.2

Source : SCFS-The Republic of Karakalpakstan

Table B.3 Urban and Rural Population of Khorezm

(Unit: population in ths. persons, annual average growth rate in %)

	Past Population (ths. persons)						Future Population estimated			
	1970	1975	1980	1985	1990	1994	1995	2000	2005	2010
Urgench	129.3	152.6	177.1	199.0	228.1	247.1	250.3	274.3	292.5	310.8
Urban	78.8	92.8	104.8	119.8	130.4	136.9	137.2	146.7	152.9	161.4
Rural	50.5	59.8	72.3	79.2	97.7	110.2	113.1	127.6	139.6	149.4
Khiva	68.9	80.1	97.0	111.7	129.8	145.9	149.6	166.6	183.2	198.6
Urban	24.5	27.9	32.7	37.0	41.3	45.6	46.2	51.2	55.7	60.2
Rural	44.4	52.2	64.3	74.7	88.5	100.3	103.4	115.4	127.5	138.4
Chalish stlmnt.	2.3	2.8	3.2	4.0	5.0	5.3	5.3	5.7	6.1	6.5
Totaal Province	569.0	673.0	788.5	919,3	1,068.5	1,198.4	1,229.3	1,350.9	1,484.5	1,631.5

	Annual Average Growt Rate (%)								
	70-75	75-80	80-85	85-90	90-94	94-95	95-2000	2000-05	2000-10
Urgench	3.4	3.0	2.4	2.8	2.0	1.3	1.8	1.3	1.2
Urban	3.3	2.5	2.7	1.7	1.2	0.2	1.3	0.8	1.1
Rural	3.4	3.9	1.8	4.3	3.1	2.6	2.4	1.8	1.4
Khiva	3.1	3.9	2.9	3.0	3.0	2.5	2.2	1.9	1.6
Urban	2.6	3.2	2.5	2.2	2.5	1.3	2.1	1.7	1.6
Rural	3.3	4.3	3.0	3.4	3.2	3.1	2.2	2.0	1.7
Chalish stlmnt.	4.0	2.7	4.6	4.6	1.5	0.0	1.5	1.4	1.3
Totaal Province	3.4	3.2	3.1	3.1	2.9	2.6	1.9	1.9	1.9

Source : Regional Statistic Department

Table B.4 Population and Population Growth Rate in Khorezm

	Population (ths. persons) and Population Growth Rate (%/year)										
	1986	87	88	89	90	91	92	93	94	95	annual average
Towns											
Urgench	119.8	122.7	126.3	126.4	128.9	130.4	132.2	134.5	135.6	136.9	
		2.4	2.9	0.1	2.0	1.2	1.4	1.7	0.8	1.0	1.5
Khiva	37.0	38.2	39.0	40.0	40.6	41.3	42.6	44.0	45.0	45.6	
		3.2	2.1	2.6	1.5	1.7	3.1	3.3	2.3	1.3	2.3
Drushba	11.0	11.7	12.6	12.4	12.9	13.4	13.7	34.7	35.9	36.6	
		6.4	7.7	-1.6	4.0	3.9	2.2	153.3	3.5	1.9	14.3
6 and 2 years average							4.0			2.7	
C-total	167.8	172.6	177.9	178.8	182.4	185.1	188.5	213.2	216.5	219.1	
		2.9	3.1	0.5	2.0	1.5	1.8	13.1	1.5	1.2	3.0
Region											
Bagat	71.1	73.3	74.6	80.3	82.4	85.1	88.1	91.6	94.8	97.6	
		3.1	1.8	7.6	2.6	3.3	3.5	4.0	3.5	3.0	3.6
Urgench	73.9	76.1	78.0	79.3	81.0	83.5	86.0	89.1	91.9	93.9	
		3.0	2.5	1.7	2.1	3.1	3.0	3.6	3.1	2.2	2.7
Kashkupir	79.6	82.2	84.6	88.5	90.5	93.5	96.6	100.2	104.1	107.2	
		3.3	2.9	4.6	2.3	3.3	3.3	3.7	3.9	3.0	3.4
Urgench	83.2	85.9	88.4	96.7	99.9	102.7	105.6	108.7	112.6	115.5	
		3.2	2.9	9.4	3.3	2.8	2.8	2.9	3.6	2.6	3.7
Khazarasp	108.3	111.2	114.6	119.9	122.6	126.2	130.3	113.7	117.2	120.7	
		2.7	3.1	4.6	2.3	2.9	3.2	-12.7	3.1	3.0	1.2
Khanki	86.1	89.0	92.4	96.2	98.5	101.5	104.6	107.8	111.3	114.3	
		3.4	3.8	4.1	2.4	3.0	3.1	3.1	3.2	2.7	3.2
Khiva	74.7	76.6	78.8	83.4	85.7	88.5	91.1	94.6	97.6	100.3	
		2.5	2.9	5.8	2.8	3.3	2.9	3.8	3.2	2.8	3.3
Shavat	79.2	81.5	83.8	87.9	90.5	93.6	96.4	99.8	103.2	106.1	
		2.9	2.8	4.9	3.0	3.4	3.0	3.5	3.4	2.8	3.3
Yangiark	54.2	55.5	56.9	58.6	60.0	62.0	64.0	66.2	68.4	70.3	
		2.4	2.5	3.0	2.4	3.3	3.2	3.4	3.3	2.8	2.9
Yangibazar	41.3	42.5	43.7	45.3	45.7	46.8	49.1	50.8	51.9	53.4	
		2.9	2.8	3.7	0.9	2.4	4.9	3.5	2.2	2.9	2.9
R-total	751.6	773.8	795.8	836.1	856.8	883.4	911.8	922.5	953.0	979.3	
		3.0	2.8	5.1	2.5	3.1	3.2	1.2	3.3	2.8	3.0
Total except for Khazarasp	643.3	662.6	681.2	716.2	734.2	757.2	781.5	808.8	835.8	858.6	
		3.0	2.8	5.1	2.5	3.1	3.2	3.5	3.3	2.7	3.3
G- total	919.4	946.4	973.7	1,014.9	1,039.2	1,068,5	1,100.3	1,135.7	1,169.5	1,198.4	
		2.9	2.9	4.2	2.4	2.8	3.0	3.2	3.0	2.5	3.0

Note: P: Population in 1000s as of 1st January

G: Population annual growth rate

Source: Khorezm Provincial Committee for Forecasting and Statistics(Jun. 1995)

Table B.5 Future Population in Karakalpakstan Estimated by JICA Study Team

City admini. and Region	urban/ rural	sub-district	Popul. gr. rate	Current Popul. in 1994	Population projection (ths. persons) 2000	2005	2010	2015
City and council								
Nukus city council				229,453	261.5	291.6	325.1	362.4
	urban	Nukus city	2.2	188,027	214.3	238.9	266.4	297.0
		Karatau town	2.2	2,726	3.1	3.5	3.9	4.3
		Kizketken	2.2	23,410	26.7	29.8	33.2	37.0
		Pristanski	2.2	15,290	17.4	19.4	21.6	24.1
Beruni city	urban		2.5	44,556	51.7	58.5	66.2	74.9
Kungrad city council				55,968	64.2	71.9	80.5	90.2
	urban	Kungrad city	2.3	33,222	38.1	42.7	47.8	53.6
		Altinkul town	2.3	22,746	26.1	29.2	32.7	36.6
Khodzheyli city council				70,542	81.8	92.6	104.8	118.6
	urban	Hodzheyli city	2.5	64,811	75.2	85.1	96.3	109.0
		Vodnik town	2.5	5,731	6.6	7.5	8.5	9.6
Takhiatash city	urban		2.5	49,264	57.1	64.6	73.1	82.7
Turtkul city	urban		2.5	44,761	51.9	58.7	66.4	75.1
Chimbay city	urban		3.0	31,847	38.0	44.1	51.1	59.2
City administration total				526,391	606	682	767	863
Region and Village								
Amudarya				125,541	143.7	160.8	180.0	201.4
	urban			30,461	35.4	40.1	45.4	51.3
		Mangit city	2.5	27,215	31.6	35.8	40.5	45.8
		Djumurtay town	2.5	3,246	3.8	4.3	4.9	5.5
	rural		2.2	95,080	108.3	120.7	134.6	150.1
Beruni village	rural		2.2	84,504	96.3	107.4	119.7	133.5
Bozatau region				18,771	21.5	24.1	26.9	30.1
	urban	Kazanketken tw.	2.5	3,626	4.2	4.8	5.4	6.1
	rural		2.2	15,145	17.3	19.3	21.5	24.0
Kanauzyak rejion				40,775	46.7	52.3	58.6	65.7
	urban	Kanauzyak town	2.5	12,587	14.6	16.5	18.7	21.2
	rural		2.2	28,188	32.1	35.8	39.9	44.5
Kegeyli region				55,592	60.0	64.2	68.9	74.1
	urban			23,729	23.7	23.7	23.7	23.7
		Halkabad city	2.5	10,880	12.6	14.3	16.2	18.3
		Kegeyli town	2.5	12,849	14.9	16.9	19.1	21.6
	rural		2.2	31,863	36.3	40.5	45.2	50.4
Kungrad region				45,310	50.4	55.2	60.5	66.4
	urban			8,854	8.9	8.9	8.9	8.9
		Komsomolsk	2.5	585	0.7	0.8	0.9	1.0
		Karakalpakiya	2.5	3,657	4.2	4.8	5.4	6.1
		Isaslik	2.5	3,496	4.1	4.6	5.2	5.9
		Aksholak	2.5	1,116	1.3	1.5	1.7	1.9
	rural		2.2	36,456	41.5	46.3	51.6	57.5
Kahlikul region				34,724	39.8	44.6	50.0	56.0

	urban Leninabad town	2.5	8,951	10.4	11.8	13.4	15.2
	rural	2.2	25,773	29.4	32.8	36.6	40.8
Muynak region			27,745	31.9	35.9	40.4	45.4
	urban Muynak city	2.5	13,646	15.8	17.9	20.3	23.0
	rural	2.2	14,099	16.1	18.0	20.1	22.4
Nukus region			44,105	50.4	56.3	62.9	70.4
	urban Akmangit	2.5	7,491	8.7	9.8	11.1	12.6
	rural	2.2	36,614	41.7	46.5	51.8	57.8
Takhtakupyr region			42,144	48.3	54.1	60.7	68.1
	urban Takhtakupyr tw.	2.5	16,764	19.4	21.9	24.8	28.1
	rural	2.2	25,380	28.9	32.2	35.9	40.0
Turtkul region (rural)		2.2	92,859	105.8	118.0	131.6	146.7
Khodzheyli region (rural)		2.2	61,995	70.6	78.7	87.7	97.8
Chimbay region(rural)		2.2	52,364	59.7	66.6	74.3	82.8
Shumanai region			40,444	46.4	52.0	58.3	65.3
	urban Shumanai city	2.5	12,471	14.5	16.4	18.6	21.0
	rural	2.2	27,973	31.9	35.6	39.7	44.3
Elikkalin region			99,291	113.3	126.6	141.4	157.9
	urban Bustan city	2.5	10,875	12.6	14.3	16.2	18.3
	rural	2.2	88,416	100.7	112.3	125.2	139.6
Region and Village total			866,164	984.8	1,096.8	1,221.9	1,361.6
	urban		149,455	168.2	186.1	206.5	229.4
	rural		716,709	816.6	910.7	1,015.4	1,132.2
total ROK			1,392,555	1,591.0	1,778.8	1,989.1	2,224.7

Table B.6 Summary of Future Population in Karakalpakstan Estimated by JICA Study Team

(Unit : thousand persons)

	1994	2000	2005	2010	2015
City council & big city	526.4	606.2	682.0	767.2	863.1
Urban in region	149.5	168.2	186.1	206.5	229.4
total urban	675.8	774.4	868.1	973.7	1,092.5
Rural in region	716.7	816.6	910.7	1,015.4	1,132.2
total ROK	1,392.6	1,591.0	1,778.8	1,989.1	2,224.7
Urban supplied by BodoKanal of ROK	645.4	739.0	828.0	928.3	1,041.2
Urban supplied by other BodoKanal	30.5	35.4	40.1	45.4	51.3

Note : Amudarya region is supplied by Tuyamuyun Urgench pipeline.

Table B.7 Future Population of Major Cities in Khorezm Estimated by JICA Study Team

Cities & regional center	Category	Current pop. ths. prsns	Annul ave. gr. rate %	Population projection (ths. persons) 2000	2005	2010	2015
Urgench	Town	136.8	1.5	147.4	158.8	171.1	184.3
Khiva	Town	45.2	2.3	50.6	56.7	63.5	71.1
Druzava	Town	14.6	2.5	16.5	18.7	21.2	24.0
Hanka	R/C	27.9	2.5	31.6	35.8	40.5	45.8
Hazarasp	R/C	14.0	2.5	15.8	17.9	20.3	23.0
Shavat	R/C	13.0	2.5	14.7	16.6	18.8	21.3
Gurlen	R/C	19.2	2.5	21.7	24.6	27.8	31.5
Urgench	R/C	9.4	2.5	10.6	12.0	13.6	15.4
Kashkupir	R/C	14.1	2.5	16.0	18.1	20.5	23.2
Bagat	R/C	7.6	2.5	8.6	9.7	11.0	12.4
Yaugiarik	R/C	9.3	2.5	10.5	11.9	13.5	15.3
Yangibazar	R/C	5.0	2.5	5.7	6.4	7.2	8.1
Chelish settle.		5.3	3.0	6.2	7.3	8.6	10.1
Total		321.4		355.9	394.5	437.6	485.5
Annual average growth rate (%)				2.0	2.1	2.1	2.1

Note : Current popultion is as of Jan 1, 1995
Source of current popultion is VodoKanal of Khorezm Province

Table B.8. Population Projection by the SCFS in Karakalpakstan

	City and District Name	Number as of Jan.01.94	Estimation in 2000[1)]
1	City of Nukus	222.6	252.0
2	City of Tahiatash	47.9	52.7
	sub-total	270.5	304.7
	Regions		
1	Amudarya	123.6	135.2
2	Beruni	126.6	138.2
3	Bozatau	18.4	22.8
4	Karauzyak	40.0	44.6
5	Kegeili	54.6	61.0
6	Kungrad	99.4	108.0
7	Kanlicul	34.0	38.8
8	Muynak	27.6	31.3
9	Nukus	43.3	49.2
10	Taktacupur	41.7	46.7
11	Turtuk	135.4	151.0
12	Khodzeili	130.2	140.6
13	Chimbay	82.6	94.0
14	Shumanai	39.8	44.8
15	Ellicalla	97.3	108.1
	sub-total	1,094.5	1,214.3
	Total Karakalpakstan	1,365.0	1,519.0

Source: SCFS- The Republic of Karakalpakstan
Note: 1) the estimation by SCFS

Table B.9 Population with Drinking Water Supply in Towns and Region in Khorezm

province as of Jan. 1st, 1995

	as of Jan.1, 94			as of Jan/ 1, 95		
	total population ths. inid.	Population using water suppply system ths. ind.	Coverage rate (%)	total population ths. ind.	Population using water suppply system ths. ind.	Coverage rate (%)
City (urban population)						
Urgench	135.6	131.9	96	137.1	135	98.5
Khiva	45	32.1	71	45.4	32.8	72.2
Drushaba	14.7	11.7	80	14.9	14.1	94.6
Bagat		4.2	55		4.9	62.8
Gurlen	19.1	11.6	60	19.4	13.4	69.1
Koshkupyr	14.3	10.4	73	14.7	11.2	76.2
Urgench(Karaul)		7.7	81		7.7	83
Khazarasp	14.1	9.9	70	14.5	11.8	81.4
Khanki	28	20.2	72	28.7	21.4	74.6
Shavat	13.2	12.5	96	13.5	12.5	92.5
Yongiarik		3	32		3.1	33
Yangibazar	5	2.3	46	5.2	2.4	46.2
s. Chalish	5.2	2.1	40	5.3	2.1	40
urban total	294.2	259.6	88.2	298.7	272.4	91.2
Region(rural populatin)						
Bagat	94.8	68.18	71.9	97.2	70.86	72.9
Gurlen	72.8	24.95	34.3	74.3	25.95	34.9
Koshkupyr	89.8	17.28	19.2	92.1	18.13	19.7
Urgench	107.4	26.53	24.7	109.8	31.47	28.7
Khazarasp	103.1	35.47	34.4	105.8	38.11	36
Khanki	83.3	55.07	66.1	85.2	56.52	66.3
Khiva	97.6	61.87	63.4	100	67.84	67.8
Shavat	90	27,08	30.1	92.2	29.94	32.5
Yaugiarik	68.4	20,14	29.4	70.1	22.11	31.5
Yaugibazar	46.9	8.39	17.9	47.9	11.64	24.3
Dustlik	21.2	5.51	26	21.7	5.5	25.3
Region total	875.3	350.47	40	896.3	378.07	42.2
Total	1169.5	610.07	52.2	1195	650.47	54.4

Source : Main Department of oblprognozstat (oblast prognostication & statistics)

Table B.10 Population with Drinking Water Supply in Khorezm (1994)

Towns and Regional Center		Source of Water Supply	No. of Pop.	No. of Population Using Centralized Water Supply	
Name	Ctgry		ths. person	thous. P	%
Urgench	C	O, UG, TM-U	137.1	135.0	98.5
Khiva	C	Open	45.4	44.0	96.9
Drushava	C	TM-U	14.9	14.1	94.6
Bagat	R/C	TM-U	7.8	4.9	62.8
Gurlen	R/C	TM-U	19.4	13.4	69.1
Koshkupir	R/C	Open	14.7	11.2	76.2
Urgench(Karaul)	R/C	O, UG, TM-U	14.5	12.8	88.3
Khazarasp	R/C	TM-U	14.5	11.8	81.4
Khanka	R/C	TM-U	28.7	21.4	74.6
Shabat	R/C	Open	13.5	12.5	92.6
Yaugiarik	R/C	TM-U	9.5	3.1	32.6
Yangibazar	R/C	TM-U	5.2	2.4	46.2
Chalish Sttlm.		Underground	5.3	1.5	28.3
Total			330.5	288.1	87.2

Source : VodoKanal of Khorezm Province

Note; C : City, R/C : Regional Center

Open(O) : surface water intake near the town, TM-U : Tuyamuyun-Urgench water, Undergrand(UG) : undergrand water intake

2. Water Consumption

Table B.11 Actual Water Distributed Quantity in Khorezm

Towns and Regional Center	Source of Water Supply	Actual Annual Water Distributed Quantity (thousand m3/year)					
		1990	1991	1992	1993	1994	1995(qua)
Urgench	S, UG, TM-U	40,517	39,782	42,209	36,525	37,010	8,816
Khiva	Surface water(S)	7,222	7,488	8,032	7,756	7,732	2,188
Dushava	TM-U	3,570	3,645	4,305	5,468	5,848	1,381
Bagat	TM-U	1,068	1,167	2,379	1,904	1,622	407
Gurlen	TM-U	1,225	1,417	1,836	1,560	1,629	391
Koshkupir	Surface water	1,630	1,755	2,284	2,040	2,308	526
Urgench(Karaul)	S, UG, TM-U	2,383	5,815	9,222	5,704	6,556	1,844
Khazarasp	TM-U	2,130	2,408	2,644	2,695	2,468	557
Khanka	TM-U	2,360	2,600	3,587	3,498	3,546	912
Shabat	Surface water	1,739	1,846	2,206	2,326	2,499	588
Yaugiarik	TM-U	685	699	885	972	1,017	243
Yangibazar	TM-U	289	483	585	601	1,037	255
Chalish Sttlm.	Underground(UG)	0	0	0	0	0	42
Total		64,818	69,105	80,174	71,049	73,272	18,153

Source : VodoKanal of Khorezm Province

Note: TM-U is Tuyamuyun-Urgench water. 1995 are the figures of first quater in the year.

Table B.12 Norm Consumption in Karakalpakstan

Unit : m3/month

Symbol	Water user type		Norm consumption (m3/month)			
			Human per person	Garden per m2	Cattle per head	Sheep per head
A	Non-sewerage	stand pipe outside	1.24			
B		yard tap	2.3			
C		water tap (in the house)	3.0			
D		water tap, toilet	4.5			
E		sink, bath/shower, water heater	5.3	1.5	40.1	90.0
F		sink, bath/shower, water heater, toilet	6.8			
G	Sewerage	sink	3.5			
H		sink, toilet	4.4			
I		sink, bath/shower, water heater	6.1			
J		sink, bath/shower, water heater, toilet	7.0			
K		hot water service	8.1			
K'		hot water service*1)	10.53			

Note: 1) for sewerage tariff

Table B.13 Norm Consumption in Khorezm

Unit : m3/month

Symbol in ROK norm consumption	Water user type		Norm consumption			
			per person	Garden per m2	Cars per 2 days	Animals per day
A	Non-sewerage	stand pipe outside	1.5			
B		yard tap	3.0			
C		water tap in the house	4.2	3.2	0.5	0.012
E		sink, bath/shower, water heater	6.9			
J	Sewerage	sink, bath/shower, water heater, toilet	7.5			
K		hot water service	10.5			

Table B.14 Estimation of Mothly Meter Consumption per capita by Consumer Type

City Name	Water Meter Dia. (mm)	Inventory Data: House-hold pop.	Garden area (m2)	Cattle heads	Sheep heads	Norm Consum (m3/mon) Type	per capita	Meter Consumpuon by month (m3/month): 1994 Nov.	Dec.	1995 Jan.	Feb.	Mar.	Apr.	May	New Date (Oct. 5) Jun.	Jul.	Aug.	Water consumption per capita (m3/ca/month): 1994 Nov.	Dec.	1995 Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.
(type B)																											
1 Nukus	15	5				B	2.3				8	7	11	12	10	9	11				1.6	1.4	2.2	2.4	2.0	1.8	2.2
2 Nukus	15	12		1		B	2.3				9	7	8	9	8	5	6				0.8	0.6	0.7	0.8	0.7	0.4	0.5
3 Nukus	15	4				B	2.3				5	4	10	12	11	16	9				1.3	1.0	2.5	3.0	2.8	4.0	2.3
4 Nukus	15	5				B	2.3	14	9	9	8	7	12	14	11	17	9	2.8	1.8	1.8	1.6	1.4	2.4	2.8	2.2	3.4	1.8
5 Kungrad	20	5				B	2.3		5	5	6	7	9	11	13	15	19		1.0	1.0	1.2	1.4	1.8	2.2	2.6	3.0	3.8
6 Kungrad	20	15		1		B	2.3			7	6	11	19	24	20	24	29			0.5	0.4	0.7	1.3	1.6	1.3	1.6	1.9
7 Kungrad	20	8		1		B	2.3			1	1	2	3	4	1	2	1			0.1	0.1	0.3	0.4	0.5	0.1	0.3	0.1
8 Kungrad	15	5		1		B	2.3			1	1	2	3	4	9	7	8			0.2	0.2	0.4	0.6	0.8	1.8	1.4	1.6
9 Kungrad	15	4		1		B	2.3			1	1	2	4	7	7	10	12			0.3	0.3	0.5	1.0	1.8	1.8	2.5	3.0
10 Kungrad	15	5		1		B	2.3			1	1	2	3	6	9	8	11			0.2	0.2	0.4	0.6	1.2	1.8	1.6	2.2
11 Kungrad	15	8		1		B	2.3			3	4	7	11	15	17	19	20			0.4	0.5	0.9	1.4	1.9	2.1	2.4	2.5
12 Chimbay	15	4				B	2.3			3	8	2	5	6	9	8	7			0.8	2.0	0.5	1.3	1.5	2.3	2.0	1.8
13 Chimbay	15	4			1	B	2.3			3	8	2	5	6	5	7	6			0.8	2.0	0.5	1.3	1.5	1.3	1.8	1.5
14 Chimbay	15	4		1		B	2.3			3	14	1	1	1	1	2	1			0.8	3.5	0.3	0.3	0.3	0.3	0.5	0.3
15 Chimbay	15	8		1		B	2.3			0.4	5	4	8	9	4	9	5			0.1	0.6	0.5	1.0	1.1	0.5	1.1	0.6
16 Chimbay	15	4		1		B	2.3			0.8	0.2	6	7	8	8	3	7			0.2	0.1	1.5	1.8	2.0	2.0	0.8	1.8
17 Muynak	15	6		2		B	2.3		5	9	11	5	4	5	21	28	31		0.8	1.5	1.8	0.8	0.7	0.8	3.5	4.7	5.2
18 Muynak	15	6				B	2.3			2	3.5	3.5	2	3	10	17	15		0.0	0.3	0.6	0.6	0.3	0.5	1.7	2.8	2.5
19 Muynak	15	5		1		B	2.3		2	1	1	3	1	2	10	18	20		0.4	0.2	0.2	0.6	0.2	0.4	2.0	3.6	4.0
20 Muynak	20	6		1		B	2.3							2	Out of Order									0.3	Out of Order		
21 Muynak	15	4				B	2.3								14	8	7								3.5	2.0	1.8
22 Muynak	15	8		2		B	2.3								29	35	33								3.6	4.4	4.1
23 Muynak	20	6				B	2.3								8	4	12								1.3	0.7	2.0
24 Muynak	15	8		1		B	2.3								40	32	50								5.0	4.0	6.3
25 Muynak	15	10		1		B	2.3								40	48	70								4.0	4.8	7.0
26 Muynak	15	4		1		B	2.3		80	70	45	32	100	62	50	55	82		20.0	17.5	11.3	8.0	25.0	15.5	12.5	13.8	20.5
total or average								14	101	120	146	117	226	222	365	406	481	2.80	4.04	1.20	1.20	0.96	1.87	1.75	2.24	2.59	3.06
total or average without the last one								14	21	50.2	101	84.5	126	160	315	351	399	2.80	1.00	0.52	0.86	0.72	1.08	1.30	1.98	2.29	2.61
total or average without Muynak data								14	14	38.2	85.2	73	119	148	143	161	161	2.80	1.40	0.48	0.85	0.73	1.19	1.48	1.43	1.61	1.61
(type C)																											
1 Kungrad	20	2				C	3.0	1	1	1	1	1	2	3	5	7	5		0.5	0.5	0.5	0.5	1.0	1.50	2.50	3.50	2.50
2 Kungrad	15	3				C	3.0			1	1	2	4	6	5	9	7			0.3	0.3	0.7	1.3	2.00	1.67	3.00	2.33
3 Kungrad	15	6				C	3.0		13	13.5	14.5	19	27	32	37	32	27		2.2	2.3	2.4	3.2	4.5	5.33	6.17	5.33	4.50
4 Kungrad	15	4				C	3.0			0.2	0.2	0.4	0.6	0.6	1	3	1			0.1	0.1	0.1	0.2	0.15	0.25	0.75	0.25
5 Kungrad	15	5				C	3.0		5	5	7	7	9	13	10	12	19		1.0	1.0	1.4	1.4	1.8	2.60	2.00	2.40	3.80
6 Kungrad	15	4				C	3.0			2	3	4.5	4.5	6	4	3	2			0.5	0.8	1.1	1.1	1.50	1.00	0.75	0.50

Table B.14 (Continue)

7	Chimbay	15	7		C	3.0			4	21	10	19	18	19	22	22			0.6	3.0	1.4	2.7	2.57	2.71	3.14	3.14
8	Chimbay	15	3	1	C	3.0			11	9	7	2	5	2	4	7			3.7	3.0	2.3	0.7	1.67	0.67	1.33	2.33
9	Chimbay	15	7	1	C	3.0			1	5	16	18	20	22	29	21			0.1	0.7	2.3	2.6	2.86	3.14	4.14	3.00
10	Muynak	15	4		C	3.0				2	1	1	1	8	4	10				0.5	0.3	0.3	0.25	2.00	1.00	2.50
11	Muynak	15	3		C	3.0				2	2	1	1							0.7	0.7	0.3	0.33	0.00	0.00	0.00
12	Muynak	15	5		C	3.0		2	2	2	0.5	0.5	3	1	3	1		0.4	0.4	0.4	0.1	0.1	0.60	0.20	0.60	0.20
13	Chimbay	20	3	1	C	2.3			37	16	113	199	186	187	195	190			12.3	5.3	37.7	66.3	62.0	62.3	65.0	63.3
14	Muynak	15	2		C	3.0		180	201	174	250	130	46					90.0	100.5	87.0	125.0	65.0	23.0	0.0	0.0	0.0
15	Kungrad	15	5		C	3.0			18	26	34	48	56	60	51	59			3.6	5.2	6.8	9.6	11.20	12.00	10.20	11.80
	total or average						1	201	297	284	467	466	397	361	374	371		10.05	5.30	4.50	7.42	7.39	6.30	6.22	6.45	6.40
	total or average without abnormal figures						1	21	40.7	67.7	70.4	88.6	109	114	128	122		1.17	0.88	1.28	1.33	1.67	2.05	2.28	2.56	2.44
	total or average without abn. and Muynak						1	19	38.7	61.7	66.9	86.1	104	105	121	111		1.46	0.94	1.50	1.63	2.10	2.53	2.56	2.95	2.71
	(type E)																									
1	Kungrad	15	5		E	5.3			3	3	4	7	9	7	9	6			0.6	0.6	0.8	1.4	1.8	1.4	1.8	1.2
2	Kungrad	15	4		E	5.3			8	9	10	12	15	20	28	34			2.0	2.3	2.5	3.0	3.8	5.0	7.0	8.5
3	Kungrad	15	6		E	5.3				3	5	11	16	19	15	13				0.5	0.8	1.8	2.7	3.2	2.5	2.2
4	Kungrad	20	7		E	5.3				9	10	13	12	10	14	17				1.3	1.4	1.9	1.7	1.4	2.0	2.4
5	Kungrad	15	5		E	5.3				9	13	15	17	20	28	7				1.8	2.6	3.0	3.4	4.0	5.6	1.4
6	Kungrad	15	5		E	5.3				32	76	104	113	104	121	112				6.4	15.2	20.8	22.6	20.8	24.2	22.4
7	Kungrad	15	6		E	5.3				43	122	118	126	138	147	121				7.2	20.3	19.7	21.0	23.0	24.5	20.2
	total or average						0	0	11	108	240	280	308	318	362	310			1.22	2.84	6.32	7.37	8.11	8.37	9.53	8.16
	total or average without abnormal figures						0	0	11	33	42	58	69	76	94	77			1.22	1.22	1.56	2.15	2.56	2.81	3.48	2.85
	(type J)																									
1	Nukus	15	4		J	7.0	5	3	7	9	12	15	17	14	15	19	1.3	0.8	1.8	2.3	3.0	3.8	4.3	3.5	3.8	4.8
2	Nukus	15	5		J	7.0	7	5	5	7	8	8	10	10	14	11	1.4	1.0	1.0	1.4	1.6	1.6	2.0	2.0	2.8	2.2
3	Nukus	15	4		J	7.0	12	8	9	14	13	14	17	19	22	21	3.0	2.0	2.3	3.5	3.3	3.5	4.3	4.8	5.5	5.3
4	Nukus	15	7		J	7.0					10	16	15	7	9	12					1.4	2.3	2.1	1.0	1.3	1.7
5	Nukus	15	3		J	7.0	62	53	58	59	61	63	69	30	28	34	20.7	17.7	19.3	19.7	20.3	21.0	23.0	10.0	9.3	11.3
6	Nukus	15	7		J	7.0					3	4	5	8	14	11					0.4	0.6	0.7	1.1	2.0	1.6
	total or average						86	69	79	89	107	120	133	88	102	108	5.38	4.31	4.94	5.56	3.57	4.00	4.43	2.93	3.40	3.60
	total or average without abnormal figures						24	16	21	30	43	53	59	50	60	63	1.85	1.23	1.62	2.31	2.15	2.65	2.95	2.50	3.00	3.15
	(type K)																									
1	Nukus	20	4		K	8.1	17	7	8	10	14	15	19	21	20	18	4.3	1.8	2.0	2.5	3.5	3.8	4.8	5.3	5.0	4.5
	(Flat)																									
1	Nukus	50	158								510	636	662	694	709	686					3.2	4.0	4.2	4.4	4.5	4.3
2	Nukus	50	48	8	Flat						180	240	256	309	347	401					3.8	5.0	5.3	6.4	7.2	8.4
3	Nukus	50	532	88	Flat		4016	4689	4816	4946	5139	5492	5517	5201	5309	4946	7.5	8.8	9.1	9.3	9.7	10.3	10.4	9.8	10.0	9.3
4	Kungrad	50	75		Flat			666	810	940	984	1016	1135	1290	1392	1481		8.9	10.8	12.5	13.1	13.5	15.1	17.2	18.6	19.7
	total or average		813				4016	5355	5626	5886	6813	7384	7570	7494	7757	7514	7.5	8.8	9.3	9.7	8.4	9.1	9.3	9.2	9.5	9.2
	total or average w		206								690	876	918	1003	1056	1087					3.3	4.3	4.5	4.9	5.1	5.3

Table B.15 Estimation of Gardening Water Consumption per m2

City Name	Water Meter	House-hold pop.	Garden area (m2)	Domestic animals		User type	Norm consum per cap	(A)Meter Consumption by month (m3/month) New Date (Oct. 5)										(B) Water consumption by per capita for Indoor(m3/month)									
				Cattle	Sheep			Nov. 1994	Dec.	Jan. 1995	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Nov. 1994	Dec.	Jan. 1995	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.
1 Chimbay	20	6	20	1		B	2.3			1		1	1	1	1	1	1			2.9		4.4	7.1	8.9	8.6	9.7	9.7
2 Nukus	20	4	20			B	2.3				12	14	22	31	27	22	25	20				3.4	2.9	4.8	5.9	5.7	6.4	6.4
3 Nukus	15	5	20			B	2.3	14	9	24	58	41	19	21	20	19	23	20	14.0	7.0	2.4	4.3	3.7	6.0	7.4	7.2	8.1	8.1
4 Chimbay	20	3	25	1		B	2.3			2	7	15	48	46	45	52	57				1.4	2.6	2.2	3.6	4.4	4.3	4.8	4.8
5 Chimbay	20	7	30	1		B	2.3			1											3.4							
6 Chimbay	15	8	30	1		B	2.3			4	22	22	26	24	21	24	29				3.8	6.8	5.8	9.5	11.8	11.4	12.9	12.9
7 Kungrad	20	11	32			B	2.3		2	2	4	11	29	33	31	35	39			15.4	5.3	9.4	8.0	13.1	16.3	15.7	17.7	17.7
8 Chimbay	15	7	50			B	2.3			54	155	185	261	135	190	209	241				3.4	6.0	5.1	8.3	10.4	10.0	11.3	11.3
9 Chimbay	20	4	50			B	2.3			1											1.9							
10 Chimbay	15	5	50			B	2.3			4	2	14	21	22	19	24	21				2.4	4.3	3.7	6.0	7.4	7.2	8.1	8.1
11 Chimbay	15	4	100			B	2.3			1	1	89	114	121	124	121	142				1.9	3.4	2.9	4.8	5.9	5.7	6.4	6.4
12 Chimbay	20	5	100		1	B	2.3			3	14	74	170	72	120	91	61				2.4	4.3	3.7	6.0	7.4	7.2	8.1	8.1
total or average wthout minu			527					14	11	97	275	466	711	506	598	598	639		14.0	22.4	31.2	44.2	42.3	69.0	85.8	82.9	93.4	93.4
(nuusable data)																												
1 Muynak	15	7	30	1		B	2.3								40	42	60	40										
2 Muynak	15	6	30	1		B	2.3		17	20	9	15	20	14	201	270	290	275		8.4	2.9	5.1	4.4	7.1	8.9	8.6	9.7	9.7
Muynak	15	6	50	1		B	2.3		1	1	1	1	1	2	3	2	4	6		8.4	2.9	5.1	4.4	7.1	8.9	8.6	9.7	9.7
Muynak	20	10	50	2		B	2.3				2	1.5	1.5	7	Out of Order							8.5	7.3	11.9	14.8	14.3	0.0	0.0
Nukus	20	5	100			C	3.0																					
Nukus		8	100	2	1	C	3.0																					

Table B.15 Estimation of Gardening Water Consumption per m2 (Continue)

City Name	Gardening water consumption per square meter (m3/m2/month)										Gardening Area (m2)									
	Nov. 1994	Dec.	Jan. 1995	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Nov. 1994	Dec.	Jan. 1995	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.
1 Chimbay			-0.09		-0.17	-0.31	-0.39	-0.38	-0.43	-0.43			20	20	20	20	20	20	20	20
2 Nukus				0.43	0.55	0.86	1.25	1.06	0.78	0.93				20	20	20	20	20	20	20
3 Nukus	0.00	0.10	1.08	2.69	1.87	0.65	0.68	0.64	0.55	0.75	20	20	20	20	20	20	20	20	20	20
4 Chimbay			0.02	0.18	0.51	1.78	1.66	1.63	1.89	2.09			25	25	25	25	25	25	25	25
5 Chimbay			-0.08										30							
6 Chimbay			0.01	0.51	0.54	0.55	0.41	0.32	0.37	0.54			30	30	30	30	30	30	30	30
7 Kungrad		-0.42	-0.10	-0.17	0.09	0.50	0.52	0.48	0.54	0.67		32	32	32	32	32	32	32	32	32
8 Chimbay			1.01	2.98	3.60	5.05	2.49	3.60	3.95	4.59			50	50	50	50	50	50	50	50
9 Chimbay			-0.02										50							
10 Chimbay			0.03	-0.05	0.21	0.30	0.29	0.24	0.32	0.26			50	50	50	50	50	50	50	50
11 Chimbay			-0.01	-0.02	0.86	1.09	1.15	1.18	1.15	1.36			100	100	100	100	100	100	100	100
12 Chimbay			0.01	0.10	0.70	1.64	0.65	1.13	0.83	0.53			100	100	100	100	100	100	100	100
total or aver	0.00	0.10	0.27	0.98	1.00	1.52	1.00	1.22	1.20	1.30	20	20	275	245	427	427	427	427	427	427
(nuusable data)																				
1 Muynak																				
2 Muynak		0.29	0.57	0.13	0.35	0.43	0.17	6.41	8.68	9.34		30	30	30	30	30	30	30	30	30
Muynak		-0.15	-0.04	-0.08	-0.07	-0.12	-0.14	-0.11	-0.15	-0.11		50	50	50	50	50	50	50	50	50
Muynak				-0.13	-0.12	-0.21	-0.16							50	50	50	50	50	0	0
Nukus																				
Nukus																				

Table B.16 Summary of Monthly Meter Consumption by Consumer type

Consumer type	1994 Nov.	Dec.	1995 Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.
per month (m3/ca./month)										
B		1.40	0.48	0.85	0.73	1.19	1.48	1.43	1.61	1.61
C		1.46	0.94	1.50	1.63	2.10	2.53	2.56	2.95	2.71
E		0.00	1.22	1.22	1.56	2.15	2.56	2.81	3.48	2.85
J		1.23	1.62	2.31	2.15	2.65	2.95	2.50	3.00	3.15
K		1.8	2.0	2.5	3.5	3.8	4.8	5.3	5.0	4.5
Flat					3.3	4.3	4.5	4.9	5.1	5.3
Garedening water consumption per sq. m										
		0.10	0.27	0.98	1.00	1.52	1.00	1.22	1.20	1.30
per day (litter/ca./day)										
B		47	16	28	24	40	49	48	54	54
C		49	31	50	54	70	84	85	98	90
E			41	41	52	72	85	94	116	95
J		41	54	77	72	88	98	83	100	105
K		60	67	83	117	127	160	177	167	150
Flat					112	142	149	162	171	176
Garedening water consumption per sq. m										
Garden		3	9	33	33	51	33	41	40	43

Fig. B.1 Meter Consumption Per Capita by Consumer Type

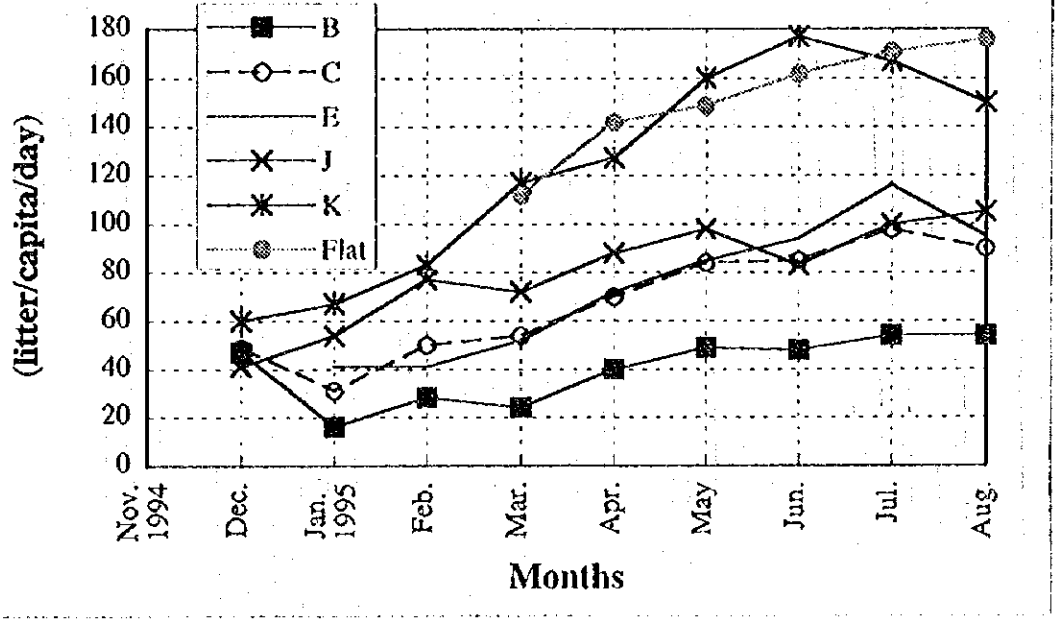


Fig. B.2 The Pattern of Daily Water Deliverd Quanity from Nukus Water Treatment Plant, and Table B.17 Deliverd Water Quantity

Table B.17 Delivered Water Quantity

Date	Measure Time	Total Volume (m3)	Section Vol. (m3)	Remark
1995/6/9	15:00~ Start	0	0	
	15:00~16:00	5,140	5,140	
	16:00~17:00	10,110	4,970	
	17:00~18:00	15,090	4,980	
	18:00~19:00	19,940	4,850	
	19:00~20:00	24,720	4,780	
	20:00~21:00	29,490	4,770	
	21:00~22:00	34,430	4,940	
	22:00~23:00	38,790	4,360	
	23:00~ 0:00	42,160	3,370	
1995/6/10	0:00~ 1:00	45,450	3,290	
	1:00~ 2:00	48,640	3,190	
	2:00~ 3:00	51,740	3,100	
	3:00~ 4:00	54,800	3,060	
	4:00~ 5:00	57,560	2,760	Min.
	5:00~ 6:00	60,400	2,840	
	6:00~ 7:00	64,660	4,260	
	7:00~ 8:00	69,620	4,960	
	8:00~ 9:00	75,040	5,420	
	9:00~10:00	80,460	5,420	
	10:00~11:00	85,880	5,420	
	11:00~12:00	91,310	5,430	
	12:00~13:00	96,730	5,420	
	13:00~14:00	102,150	5,420	
	14:00~15:00	107,570	5,420	

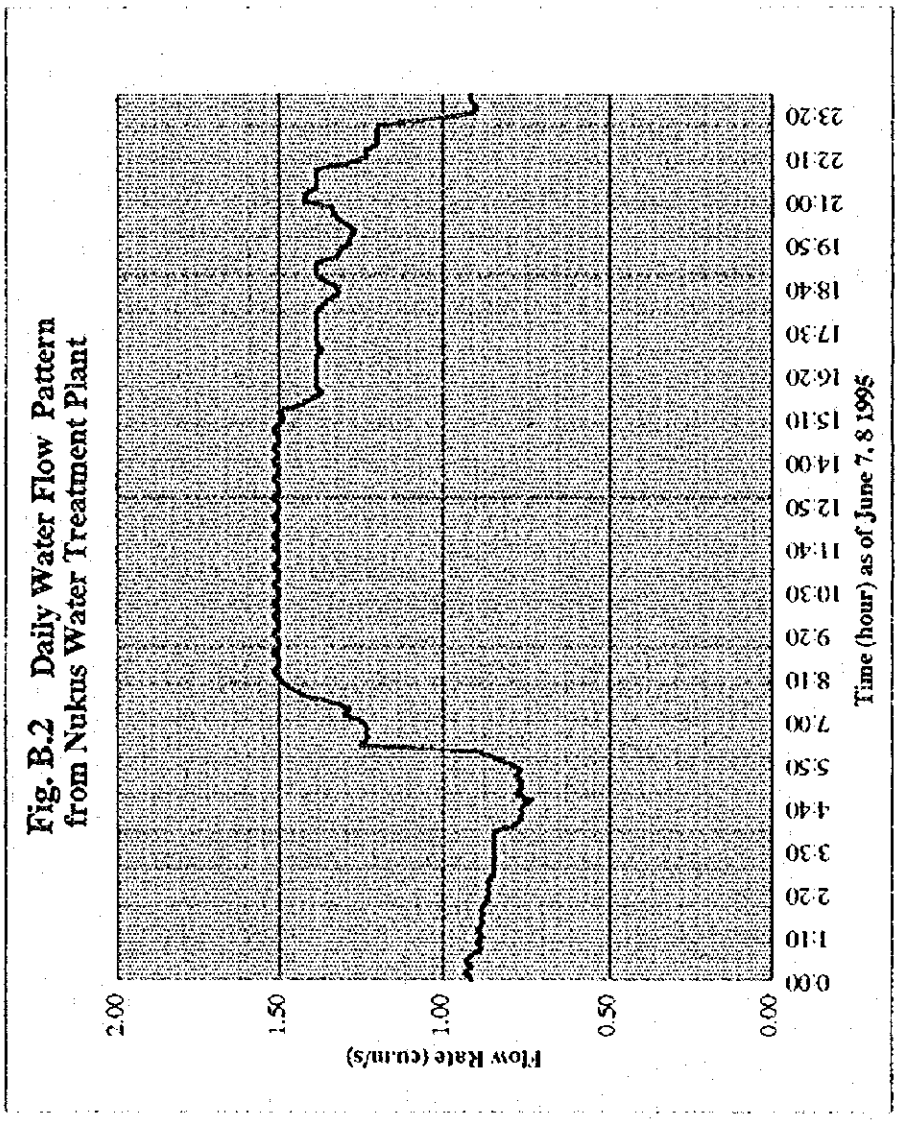


Table B.18

Inventory Data for KKP U.W.S. in 1995

	Non-Sewerage						Sewerage		Total Population	Garden	Domestic Animal		Car	Motor-cycle
	Stand pip	Yard Tap	Sink No bath	Bath, Sink Water hea	Sink,Bath Water heater Toilet	Sink, Bat	Sink, Bath Water hea Toilet	Sink, Bath, H water service toilet			Cattle	Sheep		
										(m1)	(num.)	(num.)	(num.)	(num.)
	A	B	C	D	E	D	J	K		(m2)	(num.)	(num.)	(num.)	(num.)
	41	49	85	90	90	85	91	168		39	111	25	17	
Nukus	2,107	71,195	24,376	4,674	2,327	20	40,905	10,300	155,904	562,561	2,817	411	1,931	31
Takhiatash	886	19,309	1,314	488					21,997	74,979	468	56	192	
Turtkul	1,004	24,647	5,525						31,174		627		116	
Muynak	4,663	5,393	189						10,245	17,760	771		13	
Khojeli	1,293	23,117	1,856						26,266	27,051	693	225	293	70
Beruni	2,870	14,708	508						18,086		382	85	152	
Chimbay	3,008	14,349	126						17,483	3,625	846		123	
Mangit	1,667	16,043	213	37					17,960	46,645	866	409	42	
Shumanai	667	7,776							8,443	66,235	651		27	
Kungrad	1,359	24,950	2,520	365	121				29,315	155,912	2,087		139	
Takhiakupyr	3,272	3,188							6,460	21,640	321		35	
Kegeili	7,165	3,208							10,373		107	367		
Akmangit	2,009	3,306							5,315	791	403	266	30	
Karauzyak		5,600							5,600	20,510	478	268	58	
Kanlykul	1,356	5,471							6,817	55,381	548	420	52	36
Kazanketken	1,056	883	340						2,279	7,487	39		85	
Elikalla	219	1,348							1,567	365	92		55	
Total	32,591	244,491	36,965	5,564	2,448	20	40,905	10,300	375,284	1,040,682	12,198	2,507	3,243	137

Source : VodoKanal of Nukus

Water Consumption for KKP U.W.S. Estimated from Meter Reading Survey

Unit: cu.m/day, l/ca/day, %

Use	Human									Garden	others					Total	Consumption Per capita (l/ca/day)		
	Stand pip	Yard Tap	Sink, no	Bath, Sink Water hea	Sink,Bath Water heater Toilet	Sink, Bat	Sink, Bath Water hea Toilet	Sink, Bath, Hot water service Toilet	Sub-total		Domestic Animals Cattle	Sheep	Car	Motor-cycle	Sub total		Indoor	Garden 7 month average	Others
							J	K											
	41	49	85	90	90	85	91	168	0	39	111	25	17	0					
Nukus	66.4	5,488.6	2,072.0	420.7	209.4	1.7	3,722.4	1,750.4	11,731.6	21,939.9	312.7	10.3	32.8	0.0	355.8	24,885.7	75	141	2
Takhiatash	36.3	946.1	111.7	43.9	0.0	0.0	0.0	0.0	1,138.0	2,924.2	51.9	1.4	3.3	0.0	56.6	2,900.4	52	133	3
Turtkul	41.2	1,207.7	469.5	0.0	0.0	0.0	0.0	0.0	1,718.4	0.0	69.6	0.0	2.0	0.0	71.6	1,790.0	55	0	2
Muynak	191.2	264.3	16.1	0.0	0.0	0.0	0.0	0.0	471.6	690.3	85.6	0.0	0.2	0.0	85.8	960.1	46	67	8
Khojeli	53.0	1,152.7	157.8	0.0	0.0	0.0	0.0	0.0	1,343.5	1,055.0	76.9	5.6	5.0	0.0	87.5	2,046.4	51	40	3
Beruni	117.7	720.7	43.2	0.0	0.0	0.0	0.0	0.0	881.6	0.0	42.4	2.1	2.6	0.0	47.1	928.7	49	0	3
Chimbay	123.3	703.1	10.7	0.0	0.0	0.0	0.0	0.0	837.1	141.4	93.9	0.0	2.1	0.0	96.0	1,015.6	48	8	5
Mangit	68.3	786.1	18.1	3.3	0.0	0.0	0.0	0.0	875.8	1,819.2	96.1	10.2	0.7	0.0	107.0	2,044.0	49	101	6
Shumanai	27.3	381.0	0.0	0.0	0.0	0.0	0.0	0.0	408.3	2,583.2	72.3	0.0	0.5	0.0	72.8	1,988.0	48	306	9
Kungrad	55.7	1,222.6	214.2	32.9	10.9	0.0	0.0	0.0	1,536.3	6,080.6	231.7	0.0	2.4	0.0	234.1	5,317.4	52	207	8
Takhiakupyr	134.2	156.2	0.0	0.0	0.0	0.0	0.0	0.0	290.4	844.0	35.6	0.0	0.6	0.0	36.2	818.9	45	131	6
Kegeili	293.8	157.2	0.0	0.0	0.0	0.0	0.0	0.0	451.0	0.0	11.9	9.2	0.0	0.0	21.1	472.1	43	0	2
Akmangit	82.0	162.0	0.0	0.0	0.0	0.0	0.0	0.0	244.4	30.8	44.7	6.7	0.5	0.0	51.9	314.3	46	6	10
Karauzyak	0.0	274.4	0.0	0.0	0.0	0.0	0.0	0.0	274.4	799.9	53.1	6.7	1.0	0.0	60.8	801.8	49	143	11
Kanlykul	55.2	268.1	0.0	0.0	0.0	0.0	0.0	0.0	323.3	1,379.9	60.8	10.5	0.9	0.0	72.2	1,200.4	47	202	11
Kazanketken	43.3	43.3	28.9	0.0	0.0	0.0	0.0	0.0	115.5	292.0	4.3	0.0	1.4	0.0	5.7	291.5	51	128	3
Elikalla	9.0	66.1	0.0	0.0	0.0	0.0	0.0	0.0	75.1	14.2	10.4	0.0	0.9	0.0	11.3	94.7	28	9	7
Total	1,418.3	11,980.2	3,142.2	500.8	220.3	1.7	3,722.4	1,750.4	22,716.3	40,594.6	1,353.9	62.7	56.9	0.0	1,473.5	47,870.0	61	108	4

Table B.19

Inventory Data for Khorezm U.W.S. in 1995

Consumer Type	Population Servrd by Centralized Water supply Sys.						Population by Dpartmental water Supply				Total	Garden Area (m2)	No. of Vihecles (pieces)	No. of Cattles
	Flat	Street Tap	Yard Tap	Bath Hou	Sewaregd	Sub-total	Departmen Houses	User of Depart. Water Non-Swrg	Sewerege	Sub-total				
Symbol	C	A	B	D	E		D	D	E			I	G	H
Per Capita	85	50	49	90	91		90	90	91			50	17	12
1 Urgench	46.206			19.032	53.537	118.775	945	13.734	2.393	17.072	135.847	436.846	3.034	1.313
2 Khiva	16.226	794	12.935	2.071	9.404	41.430	2.620			2.620	44.050	165.786	622	369
3 Duruzhba	5.157	655	1.418	1.730	5.211	14.171				0	14.171	580	403	1.181
4 r/c Hanka	11.096	863	8.770	707		21.436				0	21.436	145.925	379	2.937
5 r/c Hazarasp	8.950	284	2.101	528		11.863				0	11.863	22.250	381	836
6 r/c Shavat	9.216	7	23	1.288		10.534				0	10.534	19.500	585	573
7 r/c Gurlen	7.341	1.908	3.923	258		13.430				0	13.430	15.250	106	611
8 r/c Karaul	10.635			313	1.860	12.808				0	12.808	77.380	302	398
9 r/c K-Kupir	4.085	2.691	1.036	722		8.534	2.202			2.202	10.736	27.580	288	682
10 r/c Bagat	3.264	867	652	93		4.876				0	4.876		67	160
11 r/c Yangiarik	1.589	196		397		2.182	925			925	3.107	7.250	69	139
12 r/c Yangibazar	2.409			24		2.433				0	2.433	22.900	100	316
13 Chalish	1.463					1.463				0	1.463	11.595	10	206
Total	127.637	8.265	30.858	27.163	70.012	263.935	6.692	13.734	2.393	22.819	286.754	952.842	6.346	9.721

Source; Report from Vodocanal of Urgench Oblast

Water Consumption for Khorezm U.W.S. Estimated from Meter Reading Survey

Unit: cu.m/day, l/ca/day

Use	Human										Garden	others			Total	Per capita consump. (l/ca/day)		
	Flat	Street Tap	Yard Tap	Bath Houses	Sewaregd	Sub-total	Departmnt Houses	User of Depart. Water Non-Swrg	Sewerege	Sub-total	Sub-total		Vihcle	Cattle	Sub-total				
User Type	C	A	B	D	E		D	D	E			I	G	H			Human	Garden	Others
Per Capita(l/day)	85	50	49	90	91		90	90	91			50	17	12					
1 Urgench	3.928	0	0	1.713	4.872	10.512	85	1.236	218	1.539	12.051	21.842	52	16	67	33.961	89	161	0
2 Khiva	1.379	40	634	186	856	3.095	236	0	0	236	3.331	8.289	11	4	15	11.635	76	188	0
3 Duruzhba	438	33	69	156	474	1.170	0	0	0	0	1.170	29	7	14	21	1.221	83	2	1
4 r/c Hanka	943	43	430	64	0	1.480	0	0	0	0	1.480	7.296	6	35	42	8.818	69	340	2
5 r/c Hazarasp	761	14	103	48	0	925	0	0	0	0	925	1.113	6	10	17	2.054	78	94	1
6 r/c Shavat	783	0	1	116	0	901	0	0	0	0	901	975	10	7	17	1.893	86	93	2
7 r/c Gurlen	624	95	192	23	0	935	0	0	0	0	935	763	2	7	9	1.706	70	57	1
13 r/c Karaul	904	0	0	28	169	1.101	0	0	0	0	1.101	3.869	5	5	10	4.980	86	302	1
9 r/c K-Kupir	347	135	51	65	0	598	198	0	0	198	796	1.379	5	8	13	2.188	74	128	1
10 r/c Bagat	277	43	32	8	0	361	0	0	0	0	361	0	1	2	3	364	74	0	1
11 r/c Yangiarik	135	10	0	36	0	181	83	0	0	83	264	363	1	2	3	629	85	117	1
12 r/c Yangibazar	205	0	0	2	0	207	0	0	0	0	207	1.145	2	4	5	1.357	85	471	2
13 Chalish	124	0	0	0	0	124	0	0	0	0	124	580	0	2	3	707	85	396	2
Total or average	10.849	413	1.512	2.445	6.371	21.590	602	1.236	218	2.056	23.646	47.642	108	117	225	71.513	82	166	1

Table B.20

Inventory Data for KKP U.W.S. in 1995

	Non-Sewerage						Sewerage		Total Population	Garden	Domestic Animal		Car	Motor-cycle
	Stand pip	Yard Tap	Sink No bath	Bath, Sink Water hea	Sink,Bath Water heater Toilet	Sink, Bat	Sink, Bath Water hea Toilet	Sink, Bath, F water service toilet			Cattle (num.)	Sheep (num.)	(num.)	(num.)
	A	B	C	E	F	D	J	K		(m2)	(num.)	(num.)	(num.)	(num.)
	40	60	85	125	130	135	165	175		39	60	25	33	
Nukus	2,107	71,195	24,376	4,674	2,327	20	40,905	10,300	155,904	562,561	2,817	411	1,931	31
Takhiatash	886	19,309	1,514	468					21,997	74,979	468	56	192	
Turtkul	1,004	24,647	5,523						31,174		627		116	
Muynak	4,663	5,393	189						10,245	17,700	771		13	
Khojeli	1,293	23,117	1,856						26,266	27,051	693	225	293	70
Beruni	2,870	14,708	508						18,086		382	85	152	
Chimbay	3,608	14,349	126						17,483	3,625	646		123	
Mangit	1,667	16,083	213	37					17,960	46,645	866	409	42	
Shumanai	667	7,776							8,443	66,235	651		27	
Kungrad	1,359	24,950	2,520	365	121				29,315	155,912	2,087		139	
Takhtakupyr	6,272	3,188							6,460	21,640	321		35	
Kegeili	7,165	3,208							10,373		107	367		
Akmangit	2,009	3,306							5,315	791	403	266	30	
Karauzyak		5,600							5,600	20,510	478	268	58	
Kanlykul	1,346	5,471							6,817	35,381	548	420	52	36
Kazanketiken	1,056	883	340						2,279	7,487	39		85	
Elikalla	219	1,348							1,567	365	92		55	
Total	32,591	244,491	36,965	5,562	2,448	20	40,905	10,300	375,284	1,040,882	12,198	2,507	3,543	137

Source : VodoKanal of Nukus

Water Consumption for KKP U.W.S. Estimated from Per Capita Consumption by Water-Use Equipment in Japan

Use	Human									Garden	Others					Total	Consumption Per capita (l/ca/day)		
	Stand pip	Yard Tap	Sink, no	Bath, Sink Water hea	Sink,Bath Water heater Toilet	Sink, Bat	Sink, Bath Water hea Toilet	Sink, Bath, Hot water service Toilet	Sub-total		Domestic Animals Cattle	Sheep	Car	Motor-cycle	Sub total		Indoor	Garden 7 month average	Others
	40	60	85	125	130	135	J 165	K 175	0	39	60	25	33	0					
Nukus	86.3	4,271.7	2,972.0	584.3	302.5	2.7	6,749.3	1,802.5	15,869.3	21,939.9	169.0	10.3	63.7	0.0	243.0	28,910.6	102	141	2
Takhiatash	35.4	1,158.5	111.7	61.0	0.0	0.0	0.0	0.0	1,366.6	2,924.2	28.1	1.4	6.3	0.0	35.8	3,108.2	62	133	2
Turtkul	40.2	1,478.8	469.5	0.0	0.0	0.0	0.0	0.0	1,988.5	0.0	37.6	0.0	3.8	0.0	41.4	2,029.9	64	0	1
Muynak	186.5	323.6	16.1	0.0	0.0	0.0	0.0	0.0	526.2	690.3	46.3	0.0	0.4	0.0	46.7	975.6	511	67	5
Khojeli	51.7	1,387.0	157.8	0.0	0.0	0.0	0.0	0.0	1,596.5	1,055.0	41.6	5.6	9.7	0.0	56.9	2,268.6	61	40	2
Beruni	114.8	882.5	43.2	0.0	0.0	0.0	0.0	0.0	1,040.5	0.0	22.9	2.1	5.0	0.0	30.0	1,070.5	58	0	2
Chimbay	120.3	860.9	10.7	0.0	0.0	0.0	0.0	0.0	991.9	141.4	50.8	0.0	4.1	0.0	54.9	1,129.3	57	8	3
Mangit	66.7	962.6	18.1	4.6	0.0	0.0	0.0	0.0	1,052.0	1,819.2	52.0	10.2	1.4	0.0	63.6	2,176.8	59	101	4
Shumanai	26.7	466.6	0.0	0.0	0.0	0.0	0.0	0.0	493.3	2,583.2	39.1	0.0	0.9	0.0	40.0	2,040.2	58	306	5
Kungrad	54.4	1,497.0	214.2	45.6	15.7	0.0	0.0	0.0	1,826.9	6,080.6	125.2	0.0	4.6	0.0	129.8	5,503.7	62	207	4
Takhtakupyr	130.9	191.3	0.0	0.0	0.0	0.0	0.0	0.0	322.2	844.0	19.3	0.0	1.2	0.0	20.5	835.0	50	151	3
Kegeili	286.6	192.5	0.0	0.0	0.0	0.0	0.0	0.0	479.1	0.0	6.4	9.2	0.0	0.0	15.6	494.7	46	0	2
Akmangit	80.4	198.4	0.0	0.0	0.0	0.0	0.0	0.0	278.8	30.8	24.2	6.7	1.0	0.0	31.9	328.7	52	6	6
Karauzyak	0.0	336.0	0.0	0.0	0.0	0.0	0.0	0.0	336.0	799.9	28.7	6.7	1.9	0.0	37.3	839.9	60	143	7
Kanlykul	53.8	328.3	0.0	0.0	0.0	0.0	0.0	0.0	382.1	1,379.9	32.9	10.5	1.7	0.0	45.1	1,232.1	56	202	7
Kazanketiken	42.2	53.0	28.9	0.0	0.0	0.0	0.0	0.0	124.1	292.0	2.3	0.0	2.8	0.0	5.1	299.5	54	126	2
Elikalla	8.8	80.9	0.0	0.0	0.0	0.0	0.0	0.0	89.7	14.2	5.6	0.0	1.8	0.0	7.4	105.2	57	9	5
Total	1,383.7	14,669.6	3,142.2	695.5	318.2	2.7	6,749.3	1,802.5	28,763.7	40,594.6	732.0	62.7	110.3	0.0	905.0	53,348.9	77	108	2

Table B.21

Inventory Data for Khorezm U.W.S. in 1995

Consumer Type	Population Served by Centralized Water supply Sys.						Population by Dpartmental water Supply				Total	Garden Area (m2)	No. of Vihecles (pieces)	No. of Cattles
	Flat	Street Tap	Yard Tap	Bath Hou	Sewerege	Sub-total	Departmen Houses	User of Depart. Water Non-Swrg	Sewerege	Sub-total				
Symbol	C	A	B	D	E		C	F	E			I	G	H
Per Capita	85	40	60	125	165		85	130	165			39	33	60
1 Urgench	46,206			19,032	53,537	118,775	945	13,734	2,393	17,072	135,847	436,846	3,034	1,313
2 Khiva	16,226	794	12,935	2,071	9,404	41,430	2,620			2,620	44,050	165,786	622	369
3 Duruzhba	5,157	655	1,418	1,750	5,211	14,171				0	14,171	580	403	1,181
4 r/c Hanka	11,096	863	8,770	707		21,436				0	21,436	145,925	379	2,937
5 r/c Hazarasp	8,950	284	2,101	528		11,863				0	11,863	22,250	381	836
6 r/c Shavat	9,216	7	23	1,288		10,534				0	10,534	19,500	585	573
7 r/c Gurlen	7,341	1,908	3,923	258		13,430				0	13,430	15,250	106	611
8 r/c Karaul	10,635			313	1,860	12,808				0	12,808	77,580	302	398
9 r/c K-Kupir	4,085	2,691	1,036	722		8,534	2,202			2,202	10,736	27,580	288	682
10 r/c Bagat	3,264	867	652	93		4,876				0	4,876		67	160
11 r/c Yangiarik	1,589	196		397		2,182	925			925	3,107	7,250	69	139
12 r/c Yangibazar	2,409			24		2,433				0	2,433	22,900	100	316
13 Chalish	1,463					1,463				0	1,463	11,595	10	206
Total	127,657	8,265	30,858	27,163	70,012	263,935	6,692	13,734	2,393	22,819	286,754	952,842	6,346	9,721

Source; Report from Vodocanal of Urgench Oblast

Water Consumption for Khorezm U.W.S. Estimated from Per Capita Consumption by Water-Use Equipment in Japan

Unit: cu.m/day, l/ca/day

Use	Human											Garden	Others			Total	Per capita consump. (l/ca/day)		
	Flat	Street Tap	Yard Tap	Bath Houses	Sewerege	Sub-total	Departmnt Houses	User of Depart. Water Non-Swrg	Sewerege	Sub-total	Total		Vihcle	Cattle	Total				
User Type	C	A	B	D	E		C	F	E			I	G	H			Human	Garden	Others
Per Capita(l/day)	85	40	60	125	165		85	130	165			39	33	60					
1 Urgench	3,928	0	0	2,379	8,834	15,140	80	1,785	395	2,261	17,401	17,037	100	79	179	34,617	128	125	1
2 Khiva	1,379	32	776	259	1,552	3,998	223	0	0	223	4,220	6,466	21	22	43	10,729	96	147	1
3 Duruzhba	438	26	85	216	860	1,626	0	0	0	0	1,626	23	13	71	84	1,732	115	2	6
4 r/c Hanka	943	35	526	88	0	1,592	0	0	0	0	1,592	5,691	13	176	189	7,472	74	265	9
5 r/c Hazarasp	761	11	126	66	0	964	0	0	0	0	964	868	13	50	63	1,895	81	73	5
6 r/c Shavat	783	0	1	161	0	946	0	0	0	0	946	761	19	34	54	1,760	90	72	5
7 r/c Gurlen	624	76	235	32	0	968	0	0	0	0	968	595	3	37	40	1,603	72	44	3
13 r/c Karaul	904	0	0	39	307	1,250	0	0	0	0	1,250	3,018	10	24	34	4,302	98	246	3
9 r/c K-Kupir	347	108	62	90	0	607	187	0	0	187	794	1,076	10	41	50	1,920	74	100	5
10 r/c Bagat	277	35	39	12	0	363	0	0	0	0	363	0	2	10	12	375	74	0	2
11 r/c Yangiarik	135	8	0	50	0	193	79	0	0	79	271	283	2	8	11	565	87	91	3
12 r/c Yangibazar	205	0	0	3	0	208	0	0	0	0	208	893	3	19	22	1,123	85	367	9
13 Chalish	124	0	0	0	0	124	0	0	0	0	124	452	0	12	13	589	85	309	9
Total or average	10,849	351	1,851	3,395	11,552	27,979	569	1,785	395	2,749	30,728	37,161	209	583	793	68,681	107	130	3

Table B.22

Inventory Data for KKP U.W.S. in 1995

	Non-Sewarage						Sewerage		Total Population	Garden	Domestic Animal		Car	Motor-cycle
	Stand pipe	Yard Tap	Sink No bath	Bath, Sink Water heat	Sink,Bath Water heater Toilet	Sink, Bat	Sink, Bath Water hea Toilet	Sink, Bath, Ho water service toilet			Cattle	Sheep		
User Type	A	B	C	E	F	D	J	K						
Per Capita	41	77	100	177	227	150	233	270		50	111	25	19	
Nukus	2,107	71,195	24,376	4,674	2,327	20	40,905	10,300	155,904	562,561	2,817	411	1,931	31
Takhiatash	866	19,309	1,514	488					21,697	74,979	468	56	192	
Turtkul	1,004	26,647	5,523						31,174		627		116	
Muynak	4,663	5,393	189						10,245	17,700	791		13	
Khojeli	1,295	23,117	1,856						26,266	27,051	693	225	293	70
Beruni	2,870	14,708	508						18,086		382	85	152	
Chimbay	5,008	14,339	126						17,483	5,625	846		123	
Manyit	1,667	16,043	213	37					17,960	46,645	866	409	42	
Shumanai	667	7,776							8,443	66,235	651		27	
Kunyrat	1,559	24,950	2,520	365	121				29,515	155,912	2,087		139	
Takhtakupyr	3,272	3,188							6,460	21,640	321		35	
Kegeili	7,165	3,208							10,373		107	367		
Akmanit	2,089	3,366							5,515	791	403	266	39	
Kamuzyak		5,600							5,600	20,510	478	268	58	
Kanlykul	1,346	5,471							6,817	55,381	548	420	52	36
Kazanketken	1,056	883	340						2,279	7,487	391		85	
Elikalla	219	1,348							1,567	565	62		55	
Total	34,591	244,491	36,965	5,564	2,448	20	40,905	10,300	375,284	1,040,882	12,198	2,507	3,343	137
original total	34,591	244,491	36,965	5,564	2,448	20	40,905	10,300	375,284	1,040,882	12,198	2,507	3,343	137

Source : VodoKanal of Nukus

Water Consumption for KKP U.W.S. Estimated from the Norm Per Capita Consumption by User Type

Use	Human									Garden	others					Total	Consumption per capita l/cap/day		
	Stand pipe	Yard Tap	Sink, no	Bath, Sink Water heat	Sink,Bath Water heater Toilet	Sink, Bat	Sink, Bath Water hea Toilet	Sink, Bath, Hot water service Toilet	Sub-total		Domestic Animals Cattle (num.)	Sheep (num.)	Car (num.)	Motor-cycle (num.)	Sub total				
	A	B	C	E	F	D?	J	K		(m3)							human	garden	others
	41	77	100	177	227	150	233	270	0	50	111	25	19	0					
Nukus	86.4	5,482.0	2,437.6	827.3	528.2	3.0	9,530.9	2,781.0	21,676.4	28,128.1	312.7	10.3	36.7	0.0	359.7	50,164.2	139	180	2
Takhiatash	36.3	1,486.8	151.4	86.4	0.0	0.0	0.0	0.0	1,740.9	3,749.0	51.9	1.4	3.6	0.0	56.9	5,546.8	79	170	2
Turtkul	41.2	1,897.8	552.3	0.0	0.0	0.0	0.0	0.0	2,491.3	0.0	69.6	0.0	2.2	0.0	71.8	2,563.1	80	0	2
Muynak	191.2	415.3	18.9	0.0	0.0	0.0	0.0	0.0	625.4	885.0	85.6	0.0	0.2	0.0	85.8	1,596.2	61	86	8
Khojeli	53.0	1,780.0	185.6	0.0	0.0	0.0	0.0	0.0	2,018.6	1,352.6	76.9	5.6	5.6	0.0	88.1	3,459.3	77	51	3
Beruni	117.7	1,132.5	50.8	0.0	0.0	0.0	0.0	0.0	1,301.0	0.0	42.4	2.1	2.9	0.0	47.4	1,348.4	72	0	2
Chimbay	123.3	1,104.9	12.6	0.0	0.0	0.0	0.0	0.0	1,240.8	181.3	93.9	0.0	2.3	0.0	96.2	1,518.3	71	10	5
Manyit	68.3	1,235.3	21.3	6.5	0.0	0.0	0.0	0.0	1,331.4	2,332.3	96.1	10.2	0.8	0.0	107.1	3,770.8	74	130	6
Shumanai	27.3	598.8	0.0	0.0	0.0	0.0	0.0	0.0	626.1	3,311.8	72.3	0.0	0.5	0.0	72.8	4,010.7	74	392	9
Kunyrat	55.7	1,921.2	252.0	66.6	27.5	0.0	0.0	0.0	2,321.0	7,795.6	231.7	0.0	2.6	0.0	234.3	10,350.9	79	266	8
Takhtakupyr	134.2	245.5	0.0	0.0	0.0	0.0	0.0	0.0	379.7	1,082.0	35.6	0.0	0.7	0.0	36.3	1,498.0	59	167	6
Kegeili	293.8	247.0	0.0	0.0	0.0	0.0	0.0	0.0	540.8	0.0	11.9	9.2	0.0	0.0	21.1	561.9	52	0	2
Akmanit	82.4	254.6	0.0	0.0	0.0	0.0	0.0	0.0	337.0	39.6	44.7	6.7	0.6	0.0	52.0	428.6	63	7	10
Kamuzyak	0.0	431.2	0.0	0.0	0.0	0.0	0.0	0.0	431.2	1,025.5	58.1	6.7	1.1	0.0	60.9	1,517.6	77	183	11
Kanlykul	55.2	421.3	0.0	0.0	0.0	0.0	0.0	0.0	476.5	1,769.1	60.8	10.5	1.0	0.0	72.3	2,317.9	70	260	10
Kazanketken	43.3	68.0	34.0	0.0	0.0	0.0	0.0	0.0	145.3	374.4	4.3	0.0	1.6	0.0	5.9	525.6	64	164	3
Elikalla	9.0	103.8	0.0	0.0	0.0	0.0	0.0	0.0	112.8	18.3	10.4	0.0	1.0	0.0	11.4	142.5	72	12	7
Total	1,416.3	16,826.0	3,696.5	984.8	555.7	3.0	9,530.9	2,781.0	37,796.2	52,044.6	1,353.9	62.7	63.4	0.0	1,480.0	91,320.8	101	139	4

Table B.23

Inventory Data for Khorezm U.W.S. in 1995

Consumer Type	Population Servrd by Centralized Water supply Sys.						Population by Dpartmental water Supply				Total	Gardening Area (m2)	No. of Vihecles (pieces)	No. of Cattles
	Flat	Street Tap	Yard Tap	Bath Hou	Sewerege	Sub-total	Departmenta Houses	User of Depart. Water Non-Swrg	Sewerege	Sub-total				
Simbol	C	A	B	D	E		D	D	E			I	G	H
Per Capita	140	50	100	230	250		230	230	250			50	17	12
1 Urgench	46,206			19,032	53,537	118,775	945	13,734	2,393	17,072	135,847	436,846	3,034	1,313
2 Khiva	16,226	794	12,955	2,071	9,404	41,450	2,620			2,620	44,050	165,786	622	369
3 Duruzhba	5,157	655	1,418	1,730	5,211	14,171				0	14,171	580	403	1,181
4 r/c Hanka	11,096	863	8,770	707		21,436				0	21,436	145,925	379	2,937
5 r/c Hazarasp	8,950	284	2,101	528		11,863				0	11,863	22,250	381	836
6 r/c Shavat	9,216	7	23	1,288		10,534				0	10,534	19,500	585	575
7 r/c Gurlen	7,341	1,908	3,923	258		13,430				0	13,430	15,250	106	611
8 r/c Karaul	10,635			313	1,860	12,808				0	12,808	77,380	302	398
9 r/c K-Kupir	4,085	2,691	1,036	722		8,534	2,202			2,202	10,736	27,580	288	682
10 r/c Bagat	3,264	867	652	93		4,876				0	4,876		67	160
11 r/c Yangiarik	1,589	196		397		2,182	925			925	3,107	7,250	69	149
12 r/c Yangibazar	2,409			24		2,433				0	2,433	22,900	100	316
13 Chalish	1,463					1,463				0	1,463	11,595	10	206
Total	127,637	8,265	30,858	27,163	70,012	263,935	6,692	13,734	2,393	22,819	286,754	952,842	6,346	9,721

Source; Report from Vodocanal of Urgench

Water Consumption for Khorezm U.W.S. Estimated from Norm Per CapitaConsumption by User Type

Unit; cu.m/day

Use	Human											Garden	others			Total	Per capita consump.		
	Flat	Street Tap	Yard Tap	Bath Houses	Sewerege	Sub-total	Departmenta Houses	User of Depart. Water Non-Swrg	Sewerege	Sub-total	Sub-total		Vihecles	Cattles	Sub-total				
User Type	C	A	B	D	E		D	D	E			I	G	H			Indoor	Garden	Others
Per Capita(l/day)	140	50	100	230	250		230	230	250			50	17	12					
1 Urgench	6,469	0	0	4,377	13,384	24,230	217	3,159	598	3,974	28,205	21,842	52	16	67	50,115	208	161	0
2 Khiva	2,272	40	1,294	476	2,351	6,432	603	0	0	603	7,035	8,289	11	4	15	15,339	160	188	0
3 Duruzhba	722	33	142	398	1,303	2,597	0	0	0	0	2,597	29	7	14	21	2,647	183	2	1
4 r/c Hanka	1,553	43	877	163	0	2,636	0	0	0	0	2,636	7,296	6	35	42	9,974	123	340	2
5 r/c Hazarasp	1,253	14	210	121	0	1,599	0	0	0	0	1,599	1,113	6	10	17	2,728	135	94	1
6 r/c Shavat	1,290	0	2	296	0	1,589	0	0	0	0	1,589	975	10	7	17	2,581	151	93	2
7 r/c Gurlen	1,028	95	392	59	0	1,575	0	0	0	0	1,575	763	2	7	9	2,346	117	57	1
8 r/c Karaul	1,489	0	0	72	465	2,026	0	0	0	0	2,026	3,869	5	5	10	5,905	158	302	1
9 r/c K-Kupir	572	135	104	166	0	976	506	0	0	506	1,483	1,379	5	8	13	2,875	138	128	1
10 r/c Bagat	457	43	65	21	0	587	0	0	0	0	587	0	1	2	3	590	120	0	1
11 r/c Yangiarik	222	10	0	91	0	324	213	0	0	213	536	363	1	2	3	902	173	117	1
12 r/c Yangibazar	337	0	0	6	0	343	0	0	0	0	343	1,145	2	4	5	1,493	141	471	2
13 Chalish	205	0	0	0	0	205	0	0	0	0	205	580	0	2	3	787	140	396	2
Total	17,869	413	3,086	6,247	17,503	45,119	1,539	3,159	598	5,296	50,415	47,642	108	117	225	98,282	176	166	1

C. WATER SOURCE AND WATER QUALITY

Fig. C.1 Location map of Major Gauging Station (Hydro-post) in Amu Darya River

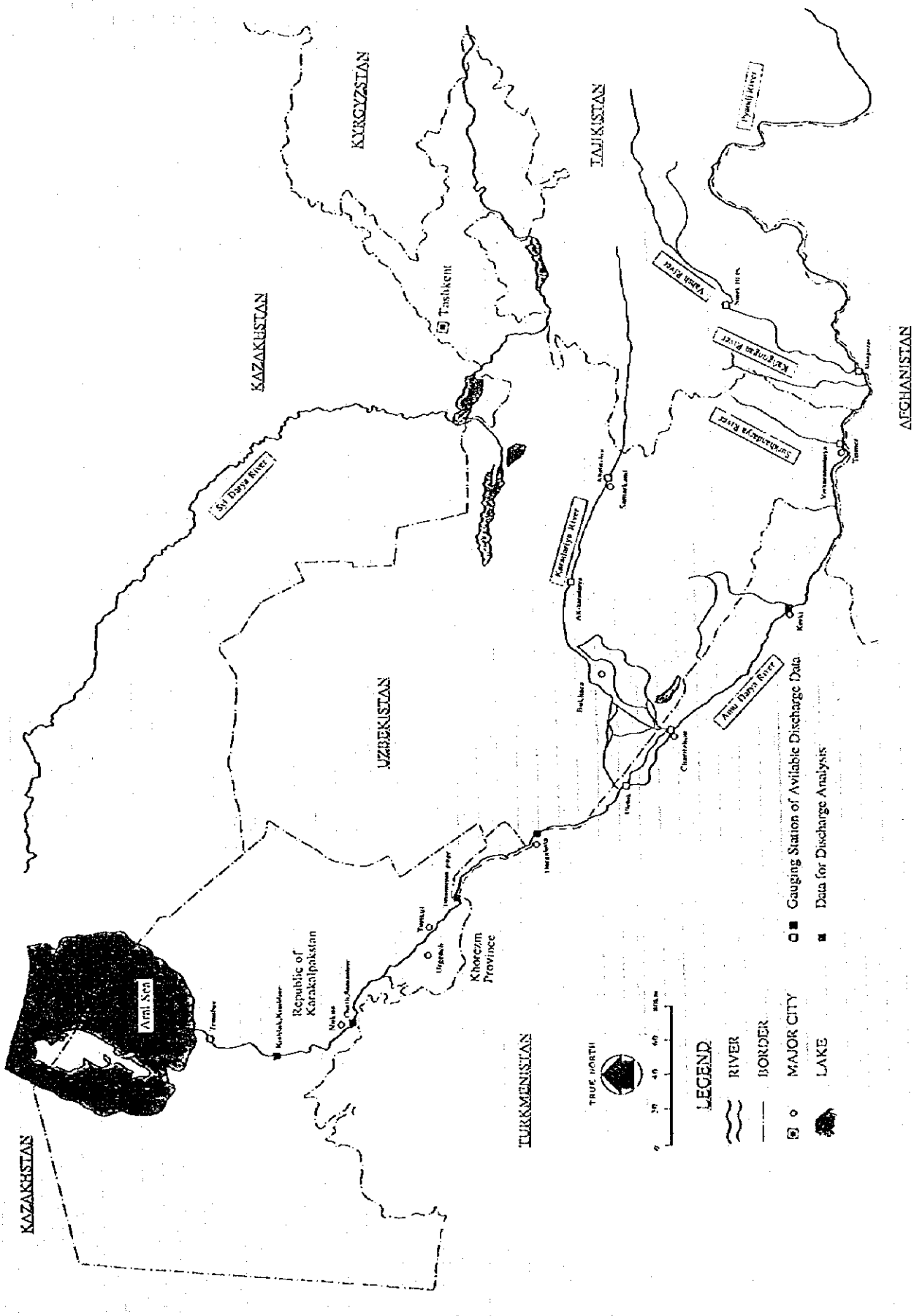


Fig. C.2 Amu Darya River System

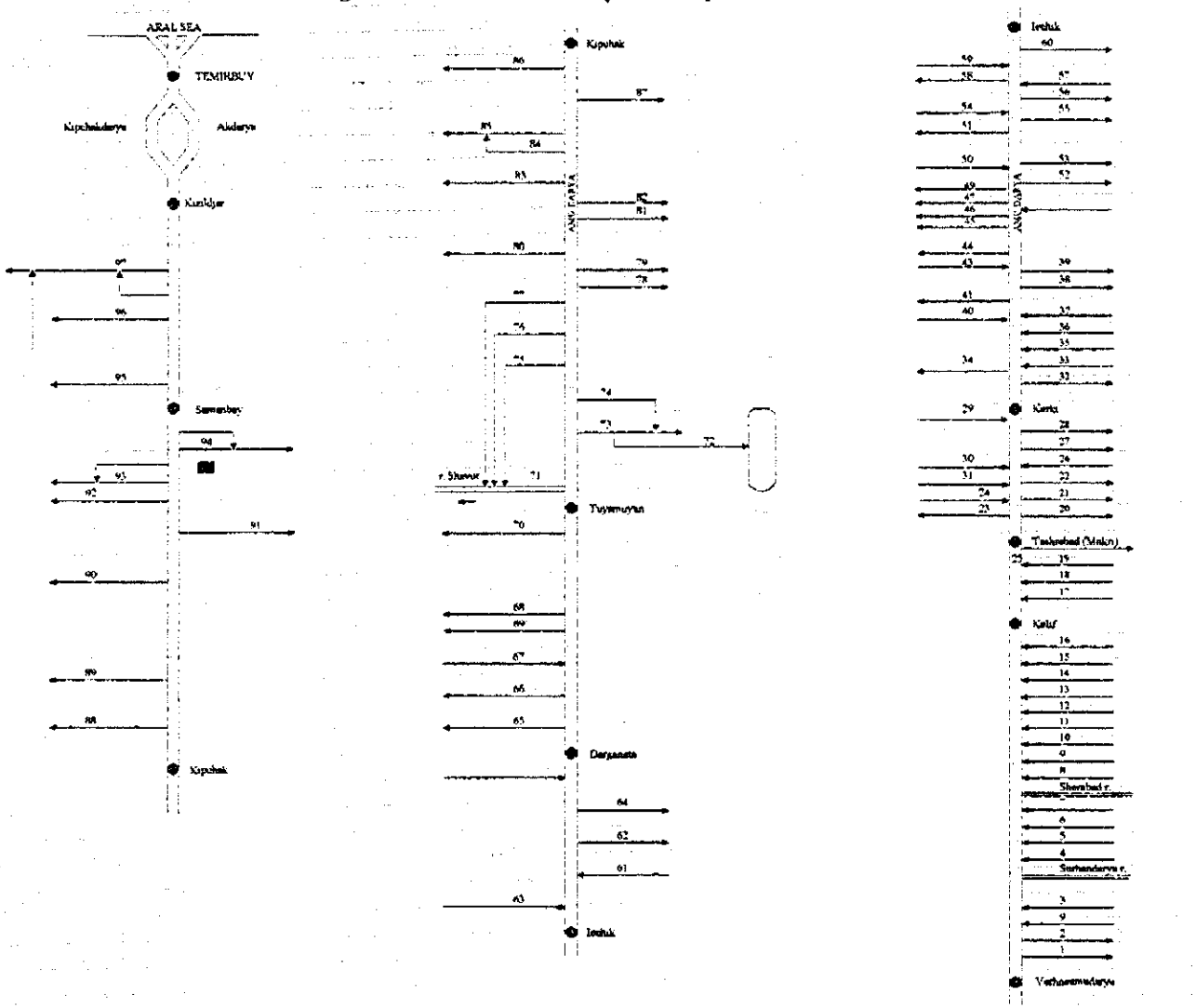


Table C.1 Flow Rate of Canal, Collector and Pump Station of Amudarya River System

-------- The Year of Abundant River Discharge (1978) --------

Unit m3/s

	Name of canals, collectors,discharge	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Vermnecamupskiy-Kelif												
1	canal amuzang	8.19	0.48	13.40	13.50	14.80	26.50	29.90	28.50	29.80	20.60	14.40	12.20
2	canal Gafabo	NB	NB	1.85	2.11	3.00	2.51	2.90	2.35	2.65	0.59	0.10	NB
3	collector K-5	0.03	NB	0.26	0.39	0.58	0.66	0.63	0.54	0.40	0.29	0.43	0.43
4	collector S-2-4	0.02	NB	0.06	0.07	0.13	0.07	0.05	0.05	0.07	0.05	0.06	0.08
5	collector S-2-2	0.03	0.06	0.14	0.13	0.14	0.20	0.16	0.13	0.16	0.13	0.14	0.14
6	collector S-2	0.02	0.02	0.10	0.16	0.09	0.23	0.20	0.15	0.16	0.16	0.19	0.18
7	collector Angorskiy	0.11	0.19	2.89	0.58	1.47	1.59	0.98	1.13	0.34	0.53	0.26	0.20
8	collector K-2	1.54	1.11	2.50	2.43	2.28	2.15	0.82	2.45	3.18	2.51	1.23	1.50
9	collector K-3	0.58	0.23	0.74	0.55	0.88	0.99	0.22	0.84	0.75	2.04	0.42	0.08
10	collector K-11												
11	collector zh-K	0.46	0.41	0.79	1.32	1.92	1.27	1.29	1.31	1.34	1.28	0.58	0.34
12	collector K-5	NB	NB	0.64	1.49	1.20	1.51	0.50	1.67	1.62	1.50	0.90	1.20
13	collector K-3A	NB	NB	NB	0.11	0.14	0.10	0.10	0.10	0.12	0.10	0.10	NB
14	collector K-6												
15	collector K-7	NB	NB	NB	1.13	0.86	0.62	1.15	1.56	NB	NB	NB	NB
16	collector K-8-K-14	NB	NB	NB	0.14	NB	NB	NB	NB	NB	NB	NB	NB
	st Kelif-Mukri												
17	canal verhnyaya charshanga	11.30	15.00	13.80	5.07	13.60	25.50	26.50	24.70	11.00	2.30	NB	NB
18	collector Chmk-1	1.61	2.72	3.52	4.05	4.02	3.74	3.61	3.59	3.23	2.06	1.29	1.29
19	discharge Accum-Ulam	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
	Mukri-Kerki												
20	canal Dlowstantsiya	1.96	5.16	4.55	NB	0.25	7.12	6.69	7.95	1.84	0.82	NB	1.63
21	canal Kavak-mukri	1.96	5.16	4.55	NB	0.25	7.12	6.69	7.95	1.84	0.82	NB	1.63
22	canal Burdarli	1.96	5.16	4.55	NB	0.25	7.12	6.69	7.95	1.84	0.82	NB	1.63
23	canal Karakum	265.00	296.00	378.00	346.00	333.00	459.00	488.00	476.00	357.00	254.00	201.00	199.00
24	collector KM-1	0.53	0.86	0.87	0.61	0.87	0.69	0.56	0.75	0.61	0.40	0.25	0.25
25	canal Tashrabad	3.06	6.60	4.47	0.22	0.42	7.59	6.80	5.02	3.75	0.75	NB	NB
26	collector KT-1	0.36	0.47	0.64	0.80	1.20	1.03	0.72	0.87	0.75	0.37	0.25	0.09
27	canal Karshi	66.60	78.50	150.00	109.00	85.90	37.00	192.00	129.00	75.50	49.00	44.80	49.30
28	canal Surhi	0.30	1.28	1.26	0.30	NB	1.30	2.07	2.43	0.63	NB	NB	NB
29	collector K-1	1.61	2.30	2.61	2.76	2.25	3.76	NB	4.07	4.44	1.57	0.85	0.37
30	discharge IT-Bash	2.50	1.38	0.33	NB	NB	0.69	1.42	2.11	2.18	0.57	NB	NB
31	collector Surhi	0.44	0.67	0.74	1.08	0.89	0.96	1.20	1.10	0.70	0.47	0.24	0.32
	kerki-Ilchik												
32	canal Hodjambas	8.56	12.90	7.98	3.33	12.70	21.70	24.50	16.80	9.11	0.06	NB	NB
33	discharge Hodjambas	0.85	NB	NB	0.03	3.65	1.18	NB	0.20	0.80	NB	NB	NB
34	canal Esenmegci	8.60	12.00	8.28	1.15	4.06	10.20	15.00	17.00	5.07	NB	NB	NB
35	collector Hodjambas	3.73	5.83	7.68	5.83	6.78	7.91	10.00	9.28	6.81	6.63	4.47	2.17
36	canal Mekan	0.82	1.77	2.11	0.31	1.41	3.08	4.08	3.53	1.70	0.04	NB	NB
37	collector Mekan	0.32	0.92	1.65	1.07	1.40	1.46	2.50	2.21	1.60	0.98	0.74	0.62
38	canal Eksudar	4.69	6.07	7.05	0.28	1.90	7.71	10.90	8.66	3.84	0.02	NB	NB
39	Pump st. Eksudar	0.79	0.95	1.49	1.40	0.25	1.48	1.22	1.85	1.55	0.02	NB	NB
40	collector Halach-pulvart	5.58	11.30	11.80	8.37	8.54	9.87	11.90	11.90	3.53	7.27	4.93	4.18
41	canal Karabekaul	8.70	10.60	10.80	5.54	12.00	20.10	26.50	27.30	11.70	3.22	NB	NB
42	collector Burdarli	1.51	2.72	3.86	2.51	2.79	3.40	4.30	4.06	3.17	2.16	1.26	0.90
43	discharge Karabekaul	1.65	0.21	0.23	1.36	2.98	NB	0.52	0.83	1.45	1.52	NB	NB
44	canal Cayatnauhana	15.10	18.60	17.90	10.50	18.70	33.00	42.30	41.80	18.30	4.21	NB	NB
45	canal Wimsovkhoz												
46	canal Svihsovkkoz	2.13	6.22	14.60	3.33	3.17	18.40	0.98	0.89	0.53	0.15	NB	NB
47	canal Svinsovkhoz												
49	canal Chekich												
50	discharge Sayathaybana	1.00	3.29	1.94	2.28	4.18	5.46	1.78	1.86	1.03	0.67	NB	NB
51	canal Kulank	24.60	30.90	30.80	17.10	26.80	45.10	55.70	56.40	28.50	10.60	NB	NB
52	Pump st Yapach	8.61	11.50	14.30	12.30	12.00	14.80	22.50	7.95	8.08	2.16	NB	NB
53	canal Ak-tabet	8.61	11.50	14.30	12.30	12.00	14.80	22.50	7.95	8.08	2.16	NB	NB
54	discharge Kulank	2.15	4.72	4.23	2.96	4.50	2.46	2.11	2.51	2.06	2.59	NB	NB
55	canal Amubukhara	149.00	135.00	84.20	95.50	72.40	232.00	291.00	286.00	184.00	53.20	7.15	40.00
56	canal Shakhbitik	4.00	6.77	13.30	5.70	12.29	18.90	27.70	15.30	13.50	2.47	NB	NB
57	discharge Shakbitik	0.06	0.07	0.30	0.15	1.49	3.02	1.28	0.20	NB	NB	NB	NB
58	canal Berayen	22.00	22.70	24.20	12.70	23.00	40.90	48.00	43.20	15.10	2.33	NB	NB
59	discharge Berayen	1.06	3.08	0.19	1.70	3.22	2.31	2.54	1.33	NB	NB	NB	NB
60	canal Knodjakanapsi	8.61	11.50	14.30	12.30	12.00	14.80	22.50	7.95	8.08	2.16	NB	NB
	Ilchik-Dargan-ata pump station												
61	collecor F-1	2.51	3.77	6.63	4.82	5.49	5.98	7.43	7.46	5.45	3.97	2.86	1.56
62	canal Ispas												
63	collector Glav. levoberehnish	26.20	34.40	53.50	51.90	41.10	48.70	56.20	52.20	50.10	36.10	25.50	18.50
64	canal Kabakli	0.63	0.27	3.14	1.54	2.27	7.57	6.05	6.26	1.31	NB	NB	NB
	Dargan-ata pump station-Tuyamuyun Gorge												
65	canal Kranchkhanyab	1.72	2.87	2.34	2.48	3.18	5.99	7.23	7.46	4.91	0.25	NB	NB
66	canal Mergan	1.81	3.65	3.36	3.49	3.86	7.40	9.06	1.86	0.69	0.03	NB	NB

Table C.1 Flow Rate of Canal, Collector and Pump Station of Amudarya River System

(continue) ------- The Year of Abundant River Discharge (1978) --------

Unit: m3/s

	Name of canals, collectors, discharge	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
67	collector Duranata	NB	NB	0.36	1.51	1.90	2.47	3.41	1.08	0.93	0.60	0.08	NB
68	canal Pithyakarsa	0.87	0.45	4.50	1.37	7.75	26.50	27.20	27.40	11.00	NB	NB	NB
69	other Pumps												
70	canal Tuyamuyan	21.10	35.80	64.20	27.80	21.10	51.80	81.10	71.90	36.90	NB	NB	24.70
	Tuyamuyum gorge-Kipchak												
71	canal Tashsaka davlan	122.00	111.00	169.00	82.30	144.00	244.00	285.00	277.00	140.00	NB	15.00	76.50
72	canal Cuyhagan	NB	NB	NB	6.80	7.87	7.40	7.07	6.93	0.37	NB	NB	NB
73	canal Pahtaarna	NB	8.14	49.00	25.20	26.00	56.90	82.50	83.10	22.40	2.40	25.50	20.10
74	pump st. Beayab												
75	canal Bayramsaka	NB	NB	13.30	NB	19.40	32.90	12.60	25.20	4.57	NB	NB	NB
76	canal Mashimy	NB	NB	NB	NB	NB	NB	14.40	8.73	NB	NB	NB	NB
77	canal Karamizisaka	NB	NB	16.60	NB	NB	31.80	65.40	55.50	20.80	NB	NB	NB
78	pump st. Ellikalinskaya	13.50	5.63	12.40	5.45	11.70	27.60	44.80	44.00	19.10	NB	6.67	30.40
79	pump st. Beruni	NB	NB	24.60	17.90	18.70	42.60	49.90	56.90	20.70	3.13	18.70	30.30
80	canal Urgenecharka	6.27	3.15	13.10	2.32	7.20	16.10	21.80	19.50	8.23	NB	3.68	6.99
81	pump st. Nayman	NB	NB	NB	NB	NB	NB	2.00	6.00	NB	NB	NB	NB
82	canal Nayman												
83	canal Dotyabrama	9.19	7.62	17.40	3.47	14.00	28.70	36.50	37.70	14.50	NB	8.93	10.60
84	canal Turangasaka	20.30	42.10	49.20	5.00	NB	NB	NB	NB	NB	NB	NB	NB
85	canal Klishbuy	24.40	NB	NB	19.90	65.30	104.00	145.00	142.00	57.40	NB	5.33	42.30
86	canal Kipchakbeasy	8.94	5.38	1.77	5.49	8.23	14.00	21.20	20.70	5.54	NB	4.96	11.80
87	pump st. Amudaryinskaya	2.13	1.47	9.00	0.58	0.17	NB	2.87	7.80	4.50	NB	5.57	2.33
	Kipchak-Samanbuy												
88	canal Djumanbuysaka	4.00	3.30	0.13	1.62	3.37	10.70	22.70	26.10	10.30	NB	NB	4.27
89	canal Sobetyab	40.00	25.60	4.87	40.20	45.40	100.00	183.00	183.00	65.70	NB	NB	15.70
90	pump st. Khodjeyli	NB	3.70	5.20	NB	4.20	5.60	10.00	8.80	3.70	4.10	5.50	7.00
91	canal Kizketken	NB	NB	9.27	108.00	148.00	231.00	318.00	313.00	76.80	17.80	191.00	150.00
92	canal named after Lenin	11.10	NB	4.57	35.70	32.90	63.80	165.80	192.60	54.20	7.13	151.80	75.50
93	canal n. Lenin feeding	NB	NB	14.50	46.10	69.50	86.70	113.00	102.00	7.47	NB	77.00	52.30
94	canal Kizketken feeding	23.70	24.00	4.03	22.10	46.40	54.50	62.90	55.40	17.40	19.40	27.20	9.57
	Samanbuy-Kiziljar												
95	pump st. Bekyab	NB	NB	NB	NB	13.30	11.00	10.60	1.10	NB	NB	NB	NB
96	pump st. Leninabad	NB	NB	NB	NB	1.50	2.10	1.97	2.17	0.73	NB	NB	NB
97	canal Raushan	NB	NB	NB	10.40	37.70	46.20	69.30	11.90	NB	NB	NB	NB

Note : N.B stands for absence of water intake and discharge

Table C.2 Flow Rate of Canal, Collector and Pump Station of Amudarya River System

-------- The Year of Ordinary River Discharge (1980) --------

Unit: m3/s

	Name of canals, collectors,discharge	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Vermneamupskiy-Kelif												
1	canal amuzang	8.91	0.95	5.72	7.77	7.43	11.80	12.30	17.90	14.50	9.76	4.61	NB
2	canal Galaba	NB	NB	0.73	6.79	5.96	7.91	7.17	4.27	2.59	1.73	0.09	NB
3	collector K-5	NB	NB	0.25	0.41	0.30	0.30	0.29	0.33	0.30	NB	NB	NB
4	collector S-2-4	0.23	0.73	0.30	0.45	0.23	0.08	0.04	0.05	0.25	0.20	0.02	0.02
5	collector S-2-2	0.31	0.24	0.28	0.22	0.22	0.07	0.04	0.06	0.10	0.60	0.05	0.08
6	collector S-2	0.37	0.19	0.33	0.25	0.48	0.51	0.22	0.04	0.20	0.25	0.02	0.04
7	collector Angorskiy	0.18	0.19	1.00	2.27	1.75	1.45	1.16	0.70	0.95	0.38	0.49	0.52
8	collector K-2	0.10	0.84	2.04	2.42	2.29	2.21	2.67	1.97	1.62	1.73	1.45	0.73
9	collector K-3	0.63	0.32	0.58	0.74	1.73	0.03	0.66	0.66	0.46	0.50	0.83	0.40
10	collector K-11	0.02	0.43	0.10	0.18	0.55	0.18	0.18	0.20	0.18	0.18	0.21	0.12
11	collector zh-K	0.60	0.26	0.25	1.03	0.80	1.12	1.07	1.06	1.14	1.10	1.14	0.24
12	collector K-5	NB	NB	NB	1.08	3.03	1.21	1.41	0.92	1.15	1.12	1.28	0.62
13	collector K-5A	NB	NB	NB	0.14	1.27	0.37	0.45	0.27	0.47	0.48	0.32	NB
14	collector K-6	0.16	0.49	0.14	0.36	0.50	0.38	0.41	0.17	0.16	0.14	0.18	0.14
15	collector K-7	NB	NB	NB	1.13	0.86	0.62	1.15	1.56	NB	NB	NB	NB
16	collector K-8-K-14	NB	NB	0.52	0.93	0.87	0.72	0.82	0.93	0.65	NB	NB	NB
	st Kelif-Mukri												
17	canal verhnyaya charshanga	7.98	8.60	12.20	15.50	19.40	24.90	28.90	23.90	15.90	11.30	9.52	11.10
18	collector Chmk-1	2.11	3.31	3.43	4.35	4.76	4.79	4.93	5.11	3.19	1.37	2.12	2.14
19	discharge Accum-Ulam	3.91	1.61	3.09	1.62	2.12	1.40	1.02	0.52	0.15	2.55	3.74	8.76
	Mukri-Kerki												
20	canal Dlowstantsiyo	0.54	1.91	3.76	2.27	2.00	3.15	3.92	3.91	2.10	0.75	NB	NB
21	canal Kavak-mukri	0.98	2.33	4.41	2.34	2.92	5.69	1.72	4.89	2.63	1.49	NB	0.13
22	canal Burdarli	1.71	2.11	2.76	2.12	1.07	2.20	2.99	3.07	4.07	1.13	NB	NB
23	canal Karakum	216.00	276.00	353.00	325.00	338.00	485.00	536.00	500.00	406.00	333.00	218.00	215.00
24	collector KM-1	0.43	0.94	0.87	0.87	0.90	0.82	0.80	0.84	0.75	0.83	0.82	0.70
25	canal Tashrabad	0.86	2.33	2.30	2.36	2.89	4.89	5.23	4.78	3.06	1.05	NB	0.39
26	collector KL-1	0.33	0.37	0.59	0.78	0.67	0.70	0.96	0.96	0.31	0.15	0.09	0.07
27	canal Karshi	62.30	51.20	120.00	131.00	147.00	201.00	200.00	190.00	111.00	71.80	71.30	70.90
28	canal Surhi	0.37	1.30	2.00	0.98	0.90	1.87	2.69	2.69	1.28	0.62	NB	0.48
29	collector K-1	0.72	2.46	4.10	5.22	2.18	1.50	1.83	1.50	2.39	0.90	NB	NB
30	discharge IT-Bash	1.95	0.65	2.16	2.68	1.82	1.86	7.11	2.26	2.51	0.70	NB	NB
31	collector Surhi	0.34	0.57	0.83	1.26	1.20	1.20	1.25	0.90	0.67	0.42	0.31	0.30
	kerki-Bchik												
32	canal Hodjambas	4.60	10.70	16.50	6.71	13.60	30.70	30.70	27.70	14.50	1.88	0.27	0.41
33	discharge Hodjambas	1.13	0.73	NB	NB	1.07	0.23	0.13	NB	NB	NB	NB	0.18
34	canal Eisenmegei	0.51	10.40	14.70	2.82	4.37	12.20	16.10	15.10	8.02	1.30	NB	0.23
35	collector Hodjambas												
36	canal Mekan	0.30	2.85	3.28	0.51	2.80	3.45	4.02	4.12	2.17	0.55	NB	0.20
37	collector Mekan	0.86	2.00	2.45	2.26	2.25	2.10	2.00	1.88	1.55	1.25	0.51	0.49
38	canal Fiksular	1.06	4.50	5.22	0.10	NB	4.67	7.81	7.24	3.94	0.23	NB	0.09
39	Pump st. Fiksular	0.76	1.61	1.95	0.26	0.63	1.27	1.45	1.82	1.41	NB	NB	NB
40	collector Hafach-pulvart	4.03	5.92	16.30	14.20	10.60	14.30	19.10	18.80	16.10	5.91	5.37	4.76
41	canal Karabekaul	5.68	10.90	14.30	6.11	11.80	19.10	26.80	22.40	6.38	1.35	NB	4.15
42	collector Burdarli	0.77	1.77	3.85	3.25	3.05	3.49	3.81	3.67	2.35	1.41	0.78	0.49
43	discharge Karabekaul	3.65	0.88	0.59	0.16	2.75	0.67	0.81	0.91	0.02	NB	NB	2.35
44	canal Cayatnauhana	6.18	13.70	30.30	22.70	21.80	38.30	47.50	43.60	28.00	9.15	NB	3.80
45	canal Wineso.hoz	0.19	0.03	0.17	0.26	0.40	0.75	1.05	0.95	0.58	0.58	NB	NB
46	canal Svihsovkkoz	NB	0.01	0.36	0.29	0.30	0.51	0.45	0.48	0.39	0.01	NB	NB
47	canal Svinsovkhoz	NB	0.02	0.28	0.21	0.24	0.47	0.44	0.59	0.56	0.08	NB	NB
48	canal Chekich	0.10	0.36	0.60	0.51	0.48	0.75	0.59	0.91	0.66	0.15	NB	0.24
50	discharge Sayathayhana	1.63	3.99	2.74	4.60	5.96	4.51	5.44	2.38	2.07	2.45	NB	1.55
51	canal Kularik	11.90	23.00	45.40	24.90	29.60	51.40	63.50	59.50	33.90	10.80	NB	2.90
52	Pump st Yapech	0.43	1.23	1.09	0.02	0.10	0.50	0.51	0.50	NB	NB	NB	NB
53	canal Ak-rabat	0.46	1.06	1.17	0.81	1.03	0.60	0.80	0.92	0.81	0.22	NB	NB
54	discharge Kularik	6.15	2.99	2.91	3.35	1.99	5.10	3.48	3.80	2.46	1.08	NB	2.75

Table C.2 Flow Rate of Canal, Collector and Pump Station of Amudarya River System

(continue) -------- The Year of Ordinary River Discharge (1980) --------

Unit: m³/s

	Name of canals, collectors, discharge	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
55	canal Amubukhara	146.00	127.00	76.20	104.00	117.00	215.00	302.00	300.00	183.00	148.00	59.60	NB
56	canal Shakhbitak	1.88	10.10	11.90	1.78	3.16	8.75	12.20	8.53	4.87	1.37	NB	1.13
57	discharge Shakhbitak	0.60	0.79	NB	NB	NB	0.24	0.20	0.37	NB	NB	NB	0.92
58	canal Berayen	8.57	18.00	31.50	25.40	19.70	31.40	42.10	38.20	21.20	5.98	NB	9.73
59	discharge Beraen	6.22	3.71	1.69	3.28	0.67	0.17	0.50	1.05	NB	0.85	NB	NB
60	canal Knodjakanapsi	0.36	1.62	1.83	1.20	1.30	2.40	3.00	3.17	2.14	0.80	NB	NB
	Ichik-Dargan-ata pump station												
61	collector P-1	1.95	3.28	6.71	6.72	5.01	6.45	8.19	7.88	6.83	3.89	2.45	1.95
62	canal Ispas	0.55	1.11	1.64	1.26	0.54	1.40	1.59	1.72	1.41	NB	NB	NB
63	collector Glav. levoberchnish	19.90	22.50	39.00	65.20	47.50	50.90	51.10	43.70	38.60	25.80	16.30	12.90
64	canal Kabakli	0.65	0.47	0.77	0.99	0.67	1.54	2.52	2.41	1.21	0.02	NB	NB
	Dargan-ata pump station-Tuyamuyum Gorge												
65	canal Kranchkhanyab	1.56	1.84	4.33	1.49	2.66	4.96	5.83	4.98	2.24	0.49	NB	0.79
66	canal Mergan	0.51	0.97	1.27	0.29	0.97	1.23	1.69	0.92	1.04	0.14	NB	0.04
67	collector Daranata	NB	0.28	1.02	1.32	0.42	1.63	2.63	1.85	0.89	0.30	0.29	0.30
68	canal Pithyakarsa	NB	NB	1.47	2.20	10.90	13.80	13.80	13.90	3.43	NB	NB	0.20
69	other Pumps	NB	NB	NB	4.67	6.00	6.67	8.03	8.00	NB	NB	NB	NB
70	canal Tuyamuyan	18.70	42.30	84.80	44.60	43.40	77.90	98.30	99.60	13.90	NB	NB	NB
	Tuyamuyum gorge-Kipchak												
71	canal Tashsaka davlan	100.00	130.00	218.00	142.00	198.00	225.00	251.00	243.00	38.30	NB	52.90	110.00
72	canal Cuyhagan	2.70	2.90	NB	1.00	4.23	4.80	5.57	4.23	NB	NB	NB	NB
73	canal Pahtaarna	NB	2.07	56.10	48.80	50.40	64.30	95.00	76.00	14.90	7.80	43.70	48.10
74	pump st. Boayab	NB	NB	17.70	12.90	8.13	12.70	20.90	17.00	NB	NB	NB	NB
75	canal Bayramsaka	NB	NB	4.13	NB	35.10	40.70	43.80	37.80	0.87	NB	NB	NB
76	canal Mashiniy	NB	NB	NB	NB	NB	1.50	19.60	5.63	NB	NB	NB	NB
77	canal Karanizisaka	NB	NB	43.60	14.90	NB	35.60	61.50	60.20	4.07	NB	NB	NB
78	pump st. Ilikalinskaya	NB	NB	4.63	3.87	4.07	4.53	15.00	15.00	2.80	NB	NB	NB
79	pump st. Berumi	NB	NB	23.60	24.90	25.50	33.40	40.40	34.30	0.67	NB	19.00	44.30
80	canal Urgenocharka	11.10	9.24	11.10	10.20	9.83	15.40	20.20	19.80	4.20	NB	3.50	7.60
81	pump st. Nayman	NB	NB	9.50	4.13	5.10	8.67	17.90	10.80	NB	NB	NB	NB
82	canal Nayman	4.80	NB	NB	NB	2.87	6.77	6.00	NB	NB	NB	11.30	25.70
83	canal Detyabrarna	13.10	9.80	13.20	12.30	14.60	27.50	37.20	40.00	6.15	NB	4.10	16.60
84	canal Turangasaka	NB	4.92	43.20	21.30	NB	NB	NB	NB	NB	NB	NB	NB
85	canal Klishbuy	42.60	42.10	8.28	53.10	97.80	116.00	144.00	137.00	10.30	NB	11.80	44.20
86	canal Kipchakbuasy	6.18	3.22	0.94	4.58	10.30	9.54	18.30	18.10	2.03	NB	8.34	8.19
87	pump st. Amudaryinskaya	9.90	2.33	32.10	20.30	32.90	28.10	62.80	55.00	10.10	0.47	13.70	27.70
	Kipchak-Samanbuy												
88	canal Djumanbuysaka	7.40	10.60	9.87	10.60	5.73	12.80	27.50	29.00	1.33	NB	0.60	8.40
89	canal Sobetyab	57.40	51.70	9.57	63.60	62.70	117.00	214.00	189.00	4.60	NB	NB	32.40
90	pump st. Khodjeyli	NB	NB	NB	0.87	5.77	7.37	8.97	8.57	2.77	1.33	5.67	7.87
91	canal Kizketken	NB	NB	NB	20.70	186.00	244.00	358.00	318.00	26.80	26.60	129.00	112.00
92	canal named after Lenin	22.50	22.10	6.27	22.90	53.00	38.80	100.00	99.90	31.80	33.20	49.00	40.20
93	canal n. Lenin feeding	NB	NB	NB	27.10	91.50	130.00	144.00	110.00	NB	29.20	86.50	38.70
94	canal Kizketken feeding	23.70	24.00	4.03	22.10	46.40	54.50	62.90	55.40	17.40	19.40	27.20	9.57
	Samanbuy-Kizildjar												
95	pump st. Bekyab	NB	NB	NB	NB	10.80	5.23	6.13	5.80	NB	NB	NB	NB
96	pump st. Leninabad	NB	NB	NB	NB	0.63	0.90	0.90	1.07	0.33	NB	NB	NB
97	canal Raushan	NB	NB	NB	NB	NB	4.90	NB	NB	NB	NB	NB	NB

Note : NB stands for absence of water intake and discharge

can. - canal

coll. - collector

p.st. - pump station

- feeding

NB - absence of water intake or discharge

Table C.3 Flow Rate of Canal, Collector and Pump Station of Amudarya River System

-------- The Year of Drought River Discharge (1982) --------

Unit: m³/s

	Name of canals, collectors,discharge	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Vermneamnipskiy-Kelif												
1	canal amuzang	3.38	3.94	13.00	24.00	34.20	31.00	38.40	40.00	18.40	10.70	10.90	4.45
2	canal Galaba	NB	NB	0.30	0.80	1.26	2.00	2.40	2.00	0.80	0.66	0.56	NB
3	collector K-5	0.05	0.02	0.09	0.62	0.51	0.39	0.18	0.15	0.20	0.31	0.11	0.09
4	collector S-2-4	0.03	0.01	0.12	0.07	0.34	0.29	0.05	0.06	0.05	0.31	0.47	0.07
5	collector S-2-2	0.09	0.08	0.10	0.63	0.42	0.24	0.11	0.17	0.23	0.20	0.21	0.23
6	collector S-2	0.05	0.02	0.04	0.88	0.58	0.25	0.31	0.20	0.21	0.23	0.20	0.17
7	collector Angorskiy	0.25	0.46	2.64	2.60	1.19	1.94	0.36	0.11	0.18	0.19	0.25	0.41
8	collector K-2	0.53	0.86	1.11	1.31	1.31	1.38	1.52	0.67	0.27	0.85	0.35	1.63
9	collector K-3	0.16	0.17	0.18	0.31	0.52	0.19	0.38	0.27	0.28	0.30	0.35	0.26
10	collector K-11	0.08	0.08	0.04	0.28	0.10	0.10	NB	NB	NB	NB	NB	NB
11	collector zh-K	0.50	0.17	0.27	0.31	0.40	0.40	0.37	0.40	0.29	0.30	0.29	0.49
12	collector K-5	0.16	0.36	0.38	0.74	0.53	0.53	0.23	0.13	0.49	0.41	0.38	0.49
13	collector K-5A	NB	NB	NB	0.24	0.30	0.32	0.24	0.08	NB	NB	NB	0.18
14	collector K-6	0.02	NB	NB	0.33	0.51	0.51	0.25	0.17	NB	NB	NB	0.30
15	collector K-7	0.59	0.58	0.48	0.29	0.26	0.16	0.51	0.43	0.50	0.57	0.58	0.42
16	collector K-8-K-14	1.55	1.60	2.03	2.68	1.97	2.35	2.02	1.24	1.71	1.73	1.64	2.07
	st Kelif-Mukri												
17	canal verhnyaya charshangá												
18	collector Chmk-1												
19	discharge Accum-Ulam												
	Mukri-Kerki												
20	canal Dlowstantsiyo												
21	canal Kavak-mukri												
22	canal Burdurli												
23	canal Karakum												
24	collector KM-1												
25	canal Tashrabad												
26	collector KL-1												
27	canal Karshi												
28	canal Surhi												
29	collector K-1												
30	discharge II-Bash												
31	collector Surhi												
	kerki-Hchik												
32	canal Hodjambas												
33	discharge Hodjambas												
34	canal Esenmegci												
35	collector Hodjambas												
36	canal Mekan												
37	collector Mekan												
38	canal Eksular												
39	Pump st. Eksular												
40	collector Halach-polvart												
41	canal Karabekaul												
42	collector Burdurli												
43	discharge Karabekaul												
44	canal Cayatnauhana												
45	canal Winesovkoz												
46	canal Svihsovkkoz												
47	canal Svinsovkhoz												
49	canal Chekich												
50	discharge Sayathayhana												

Table C.3 Flow Rate of Canal, Collector and Pump Station of Amudarya River System

(continue) ------- The Year of Drought River Discharge (1982) --------

Unit: m3's

	Name of canals, collectors,discharge	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
51	canal Kulanik												
52	Pump st Yapach												
53	canal Ak-rabat												
54	discharge Kulanik												
55	canal Amubukhara												
56	canal Shakhbitik												
57	discharge Shakbitik												
58	canal Berayen												
59	dischorge Berayen												
60	canal Knodjakanapsi												
	Ichik-Dargan-ata pump station												
61	collecor F-1												
62	canal Ispas												
63	collector Glav. Iovoberehnish												
64	canal Kabakli												
	Dargan-ata pump station-Tuyamuyum Gorge												
65	canal Kranchikhanyab												
66	canal Morgan												
67	collector Daranata												
68	canal Pithyakarsa	0.10	NB	NB	NB	6.20	9.80	1.90	NB	NB	NB	NB	NB
69	other Pumps	NB	NB	NB	3.67	4.00	4.67	6.00	6.00	NB	NB	3.67	2.33
70	canal Tuyamuyan	NB	NB	92.30	64.60	43.00	79.60	20.70	19.50	11.40	NB	NB	NB
	Tuyamuyum gorge-Kipchak												
71	canal Tashsaka davlan	67.70	87.20	138.00	59.30	118.00	177.00	122.00	217.00	58.10	NB	NB	NB
72	canal Cuyhagan												
73	canal Pahtaama	NB	8.39	64.60	26.50	33.80	63.10	57.20	62.90	9.43	NB	20.50	51.20
74	pump st. Beayab	1.13	NB	17.50	8.20	5.10	14.80	14.80	15.70	7.53	NB	4.83	16.40
75	canal Bayramsaka	NB	NB	15.50	3.33	25.40	36.10	20.90	48.50	5.77	NB	NB	NB
76	canal Mashiniy												
77	canal Karamizisaka	14.70	35.60	51.90	8.27	NB	30.10	45.20	65.10	19.90	NB	NB	7.67
78	pump st. Ellikalinskaya	NB	NB	15.20	8.50	4.67	5.83	12.80	12.40	2.33	NB	NB	NB
79	pump st. Berumi												
80	canal Urgenecharka	4.21	8.27	15.40	3.90	5.24	9.37	3.94	7.32	2.30	NB	NB	NB
81	pump st. Nayman	1.57	NB	4.37	2.47	1.33	4.53	4.67	6.40	3.63	NB	6.13	15.10
82	canal Nayman												
83	canal Detyabarna	9.95	12.70	22.10	7.77	13.10	20.40	9.81	17.70	6.15	NB	NB	NB
84	canal Turangasaka	NB	6.00	58.50	37.20	36.10	91.10	56.50	80.60	24.70	NB	NB	3.10
85	canal Klishbuy	32.30	46.60	56.90	37.40	37.20	93.20	58.60	80.80	23.30	NB	NB	31.20
86	canal Kipchakboasy	6.50	3.30	0.67	3.37	4.53	10.10	5.80	7.33	2.27	NB	8.27	5.10
87	pump st. Amudaryinskaya	2.13	1.30	7.07	3.93	3.30	6.17	8.13	7.63	0.70	NB	2.12	3.27
	Kipchak-Samanbuy												
88	canal Djumanbuysaka	18.80	20.20	7.70	6.20	6.70	16.70	10.30	16.50	4.90	NB	NB	4.50
89	canal Sobetyab	96.40	50.00	35.30	61.40	57.50	114.00	66.30	97.40	22.30	NB	NB	19.10
90	pump st. Khodjeyli												
91	canal Kizketken	NB	NB	NB	81.50	152.00	240.00	125.00	251.00	36.40	NB	132.00	81.00
92	canal named after Lenin	NB	NB	NB	36.60	33.80	51.40	36.00	78.10	8.30	NB	88.50	49.50
93	canal n. Lenin feeding	NB	NB	NB	23.30	75.60	86.10	44.60	114.00	18.40	NB	50.90	62.00
94	canal Kizketken feeding	NB	NB	NB	24.20	19.90	33.30	16.60	46.20	50.90	8.59	18.00	17.40
	Samanbuy-Kizildjar												
95	pump st. Bekyab												
96	pump st. Leninabad												
97	canal Raushan												

Note : N.B stands for absence of water intake and discharge

Table C.4 Monthly Mineralisation data from 1974 to 1994 (mg/l)
Amudarya river - Tuyamuyun gorge (8 km below the dam)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1974	-	-	1530	-	1137	922	688	-	-	-	-	-
1975	-	-	1330	1120	678	713	442	462	664	672	864	859
1976	907	1062	1519	1605	899	565	665	575	616	859	910	876
1977	-	-	1205	1143	1127	-	551	572	-	713	758	1054
1978	-	-	1618	832	744	561	867	462	660	771	852	-
1979	-	-	1312	1116	794	761	552	556	-	1008	925	-
1980	-	-	-	1420	938	871	565	617	761	1274	1006	-
1981	1162	1373	1470	1249	920	662	543	734	-	578	-	-
1982	984	1030	1284	1639	1166	943	837	692	-	1469	1418	-
1983	1122	1158	1482	2147	1393	727	1042	701	-	803	1039	-
1984	-	-	1318	1151	1109	805	552	555	504	-	1079	-
1985	-	-	1076	1402	1330	1048	791	946	769	-	867	-
1986	-	-	1236	1569	1505	1129	609	622	685	-	1079	-
1987	-	-	1231	1028	862	601	605	574	666	743	738	-
1988	-	-	1117	1127	748	873	801	708	698	815	987	-
1989	-	-	1185	1247	1344	1030	1010	845	697	1409	1206	-
1990	-	-	1323	1100	839	688	533	526	723	690	795	-
1991	-	-	889	1288	849	842	597	701	786	960	890	-
1992	-	-	919	1133	962	749	618	494	628	-	-	-
1993	-	-	1159	-	895	674	-	805	980	-	1127	-
1994	-	-	1331	-	943	773	633	627	700	-	-	-
Max	1162	1373	1618	2147	1505	1129	1042	946	980	1469	1418	1054
Average	1044	1156	1277	1295	1009	797	675	639	702	912	973	930
Mini	907	1030	889	832	678	561	442	462	504	578	738	859

Table C.5 Monthly Mineralization data from 1974 to 1994 (mg/l)
Amudarya - Nukus (12 km lower from Nukus - Samambay)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1974	-	-	-	-	-	-	-	480	600	726	-	799
1975	-	795	518	726	654	557	483	528	748	-	-	793
1976	-	-	-	-	-	-	731	669	615	799	801	1276
1977	1237	1089	906	870	1438	951	564	526	547	737	821	1534
1978	1181	1288	1350	1266	766	605	660	526	623	711	824	756
1979	822	990	1108	1214	925	861	576	617	779	1185	1080	1146
1980	998	1397	1236	1546	1364	742	617	607	811	959	2111	1148
1981	899	1706	2170	1588	944	724	691	724	808	1187	1167	1249
1982	1218	1091	1463	2009	1653	1152	910	889	805	1187	1508	-
1983	1836	1342	1112	1326	1514	1024	1065	789	1568	911	955	1252
1984	1483	-	1345	1113	1310	975	638	-	622	640	-	1057
1985	1187	1117	1033	1510	1044	1280	772	738	802	973	1171	1243
1986	1300	1582	1340	2312	1691	1764	1176	760	1092	1339	1210	1177
1987	932	930	1019	1186	1212	757	743	800	676	717	866	930
1988	1027	1290	953	1286	928	837	447	596	736	897	1021	1037
1989	795	1134	1113	1409	1254	1326	810	400	838	257	1199	1090
1990	1065	1025	1110	1206	1539	573	618	610	1006	804	846	963
1991	878	727	810	-	941	955	648	688	630	856	862	877
1992	925	924	1037	1296	1312	802	669	526	679	845	931	966
1993	969	1068	1224	2011	1639	714	641	660	1021	846	1091	-
1994	1731	1102	1111	1540	1629	966	713	690	794	1111	1275	1119
Max	1836	1706	2170	2312	1691	1764	1176	889	1568	1339	2111	1534
Average	1138	1144	1156	1412	1250	924	709	641	800	884	1097	1074
Mini	795	727	518	726	654	557	447	400	547	257	801	756

Table C.6 Monthly Mineralisation data from 1974 to 1994 (mg/l)
Amudarya - Kijzildjar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1974	-	959	875	1130	929	735	-	-	-	-	930	-
1975	-	834	948	421	1130	691	768	772	-	-	-	-
1976	-	768	1116	988	-	-	-	704	-	-	-	-
1977	-	-	864	-	1113	-	765	499	-	700	877	941
1978	942	1109	1177	1184	-	481	432	-	659	722	779	-
1979	-	-	975	1793	-	851	701	-	691	1086	912	-
1980	-	-	986	1270	-	996	673	646	751	917	1149	-
1981	-	1642	1833	2344	-	754	1504	675	1014	1178	1296	-
1982	-	1548	1369	1706	-	1448	1863	-	931	1886	1646	-
1983	-	1440	1385	2110	-	1150	1480	-	981	808	969	-
1984	-	1539	1324	1314	-	1071	602	-	712	658	843	-
1985	-	1145	969	1454	-	1614	1116	1276	-	916	905	-
1986	-	1381	1675	1927	-	1917	2157	1477	-	1362	1302	-
1987	-	980	1162	1864	-	1162	559	983	-	773	775	-
1988	-	1143	883	1458	-	760	761	-	733	923	1007	-
1989	-	1054	1085	1386	-	1235	1104	1016	-	1342	-	1259
1990	-	1015	1056	1868	-	598	618	614	-	699	638	-
1991	-	699	800	1302	-	775	450	689	-	817	800	-
1992	-	908	907	1159	-	764	698	-	690	739	942	-
1993	-	1038	1154	1400	-	752	660	-	1047	1125	1112	-
1994	-	1164	1104	1362	-	956	530	-	-	1141	1127	-
Max	942	1642	1833	2344	1130	1917	2157	1477	1047	1886	1646	1259
Average	942	1131	1126	1472	1057	985	918	850	821	988	1001	1100
Mini	942	699	800	421	929	481	432	499	659	658	638	941

Fig. C.3 Flow and Mineralization in Amu Darya River
Amudarya - Nukus (12 km lower from Nukus - Samambay)

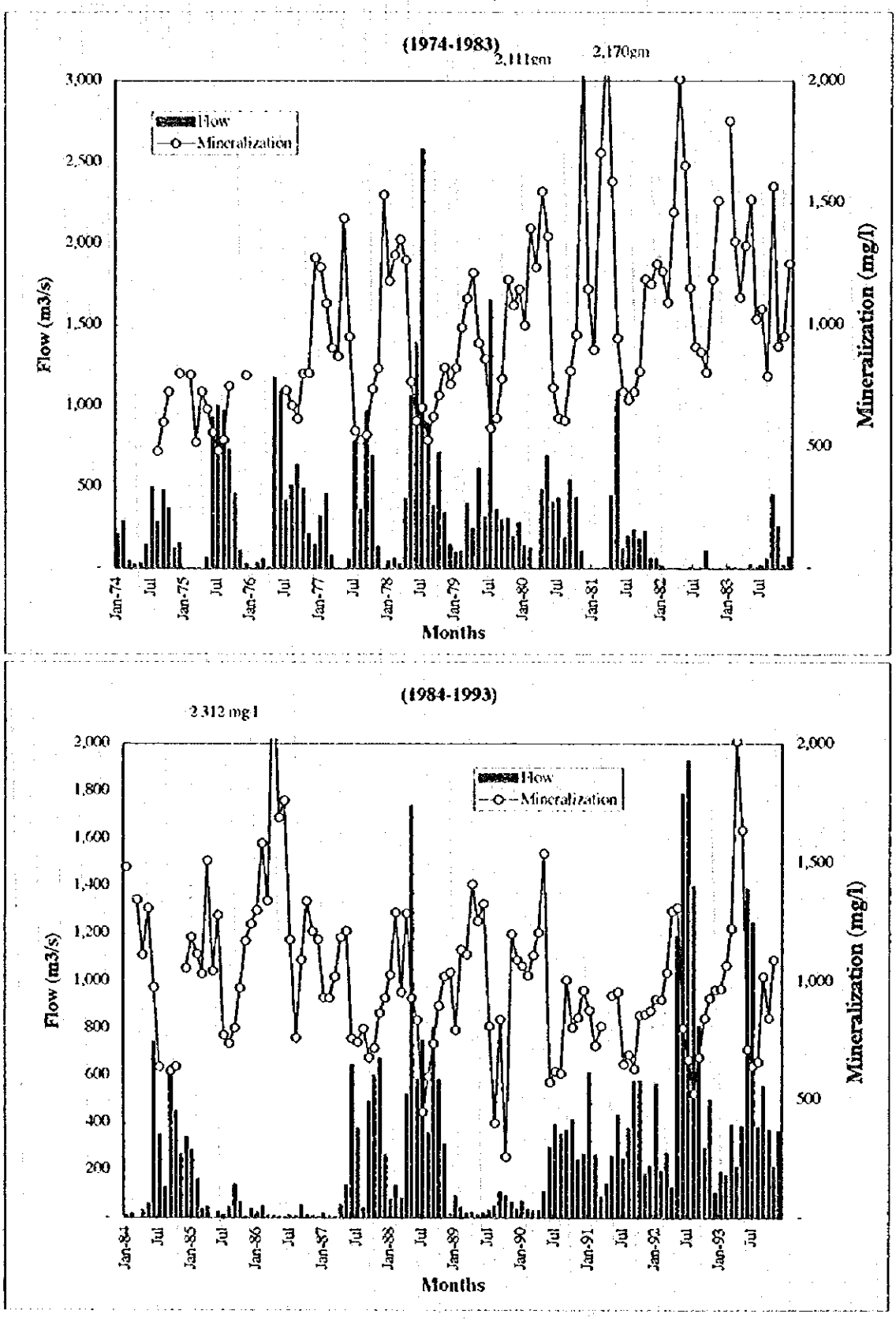


Fig. C.3 Flow and Mineralization in Amu Darya River
Amudarya - Kijildjar (1974 - 1993)

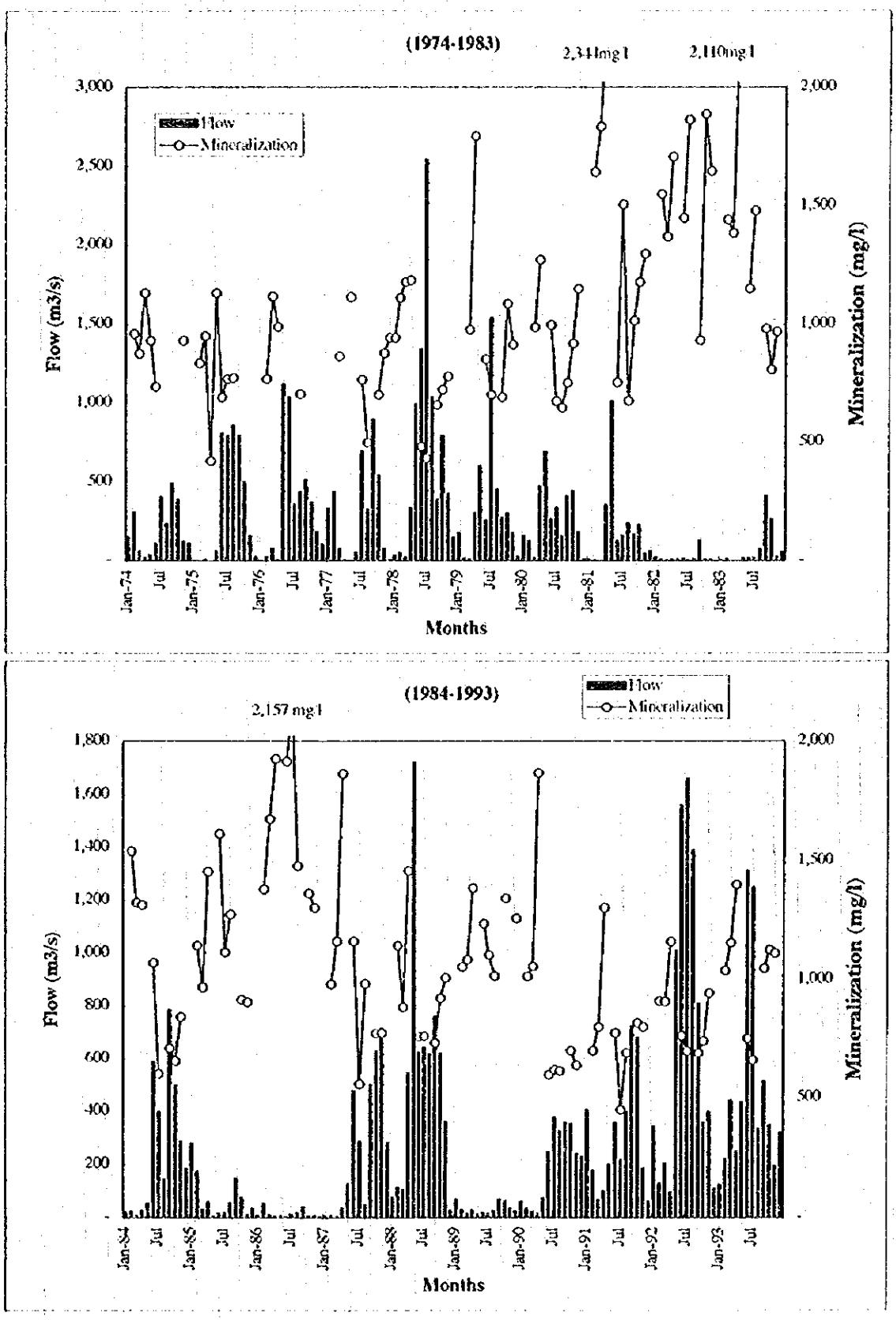


Table C.7 Water Quality Data in Amu Darya river in 1994

at Tuyamuyun gorge (8 km below dam)

	unit of measure	RW Standard	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mineralization	mg/l	1000			1331		943	773	633	627	700			
Total Hardness	mgeq/l	7			10.4		6.5	5.9	4.8	4.9	6.9			
BOD	mg/l				1.2		0.7	0.7	0.6	1.4	0.4			
Cr(6+)	mkg/l	0.5mg/l*			0.7		1.2	0.0	1.0	0.0	0.0			
Suspended Solid	mg/l				42.2		19.6	8.80	0.40	1.18	29.2			
O2d	mg/l				9.1		10.1	9.5	8.3	10.1	8.7			
COD	mg/l				5.4		9.2	6.0	7.9	3.2	6.3			
phenol	mg/l	0.001*					0.002		0.002	0.002				
Oil	mg/l	0.3			0.04		0.07	0.04	0.06	0.02	0.02			
Surfactant	mg/l	0.5*					0.01							
Hexachlorine	mkg/l				0.022		0.023	0.028	0.018	0.00	0.039			
Lindane	mkg/l				0.01		0.016	0.027	0.016		0.006			
DDD	mkg/l													
Ammonia	mg/l				0.15			0.03	0.04	0.08	0.05			
Nitrite	mg/l	3			0.055		0.034	0.154	0.60	0.04	0.00			
Nitrate	mg/l	10			1.76		0.55	0.39	1.61	0.29	0.46			
Fe	mg/l	0.1**			0.04		0.01	0.02	0.02	0.02	0.02			
Cu	mkg/l	1.0 mg/l			1.1		3.5	2	1.6	2	1.4			
Zn	mkg/l	1.0mg/l			7.8		12.7	20.6	12	8.7	37.1			
Mg	mkg/l													
As	mkg/l	0.05mg/l												
F	mg/l	1.5			0.34		0.25	0.23	0.22	0.23	0.02			

RW standard - standard of river water for drinking in Uzbekistan

* - WHO water quality standard for drinking

** - standard of drinking water in Uzbekistan

mkg - micro gram

at Nukus (Samambay)

	unit of measure	RW Standard	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mineralization	mg/l	1000	1732	1102	1111	1530	1629	966	713	690	794	1111	1275	1119
Total Hardness	mgeq/l	7	10.2	8.7	9.4	10.5	12.1	7.3	5.5	6.0	6.1	7.7	10.5	7.8
BOD	mg/l		0.9	1.2	1.2	0.6	1.5	0.8	1.4	0.9	0.8	1.5	1.2	1.1
Cr(6+)	mkg/l	0.5mg/l*	0.4	0.4	0.4	1	1.5	1	1.3	1.2	0.5			
Suspended Solid	mg/l		8.2	1.19	733	681	89.6	64	37.8	223	385	130	28.8	34
O2d	mg/l		10.4	11.2	11.1	10.9	10.6	10.8	9.4	9.8	9.9	9.9	9.2	11.9
COD	mg/l		10.3	1.3	5.7	11.2	12.8	9.2	20	15	7.1	6.7	6.3	8.1
phenol	mg/l	0.001*	0.005	0.001		0.001	0.003			0.003	0.005		0.005	0.002
Oil	mg/l	0.3	0.03	0.01	0.04	0.08	0.01	0.14	0.04	0.03	0.09	0.10	0.01	0.05
Surfactant	mg/l	0.5*	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01				
Hexachlorine	mkg/l		0.031	0.118	0.027		0.026					0.04	0.014	
Lindane	mkg/l		0.062	0.104	0.018		0.018						0.008	
DDD	mkg/l													
Ammonia	mg/l		0.04	0.01		0.02	0.01	0.01		0.05	0.04	0.02	0.03	0.01
Nitrite	mg/l	3	0.013	0.035	0.031	0.037	0.002	0.004	0.056	0.012	0.001	0.004	0.011	0.008
Nitrate	mg/l	10	0.97	0.58	0.53	0.6	0.18	0.7	0.35	0.09	0.8	0.21	0.66	0.61
Fe	mg/l	0.1**	0.02	0.08	0.06	0.06	0.01	0.02	0.02	0.02	0.03	0.01	0.01	0.03
Cu	mkg/l	1.0 mg/l		2.1	2.7	1.7		4.1	0.6		4.2		1.5	2.6
Zn	mkg/l	1.0mg/l	3.3	6.4	4.3	11.8	9.4	8.9	16.1	10.4	37.1			12.5
Mg	mkg/l		0.01	0.05	0.01	0.02	0.07	0.13	0.02	0.12	0.12	0.09	0.07	0.08
As	mkg/l	0.05mg/l	8	2			1.6						1.6	
F	mg/l	1.5	0.29	0.16	0.31	0.15	0.35	0.29	0.3	0.21	0.07	0.04	0.04	0.04

at Kijildzar

	unit of measure	RW Standard	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mineralization	mg/l	1000		1154	1104	1362		956	530			1143	1127	
Total Hardness	mgeq/l	7		8.6	8.7	9.8		7.3	5.7			7.9	8.8	
BOD	mg/l			0.4	0.7	1.3		1.6	1.1			0.9	1.9	
Cr(6+)	mkg/l	0.5mg/l*		0.4	0.7	1.2		3	0.8					
Suspended Solid	mg/l			1.43	194	265		131	1813*			169	166	
O2d	mg/l			12.6	13.7	12.6		11.8	12.3			9.6	11.9	
COD	mg/l			9.2	1.8	9		10	12.7			3.1	14.5	
phenol	mg/l	0.001*		0.004	0.001	0.002		0.008	0.006				0.001	
Oil	mg/l	0.3		0.04	0.02	0.05		0.01	0.01			0.02	0.12	
Surfactant	mg/l	0.5*		0.01		0.01			0.01					
Hexachlorine	mkg/l			0.04	0.128	0.024		0.09	0.224			0.084	0.02	
Lindane	mkg/l			0.026	0.075			0.015	0.119			0.043	0.016	
DDD	mkg/l													
Ammonia	mg/l			0.07	0.04	0.02		0.01	0.07			0.02	0.03	
Nitrite	mg/l	3		0.01	0.011	0.021		0.028	0.023			0.019	0.099	
Nitrate	mg/l	10		1.3	1.14	0.66		0.23	0.85			0.46	0.55	
Fe	mg/l	0.1**		0.02	0.08	0.01		0.02	0.01			0.01	0.02	
Cu	mkg/l	1.0 mg/l			3.0	3.9		4.7	7.3				1.0	
Zn	mkg/l	1.0mg/l		4.0	19.6	10.5		30.1	8.6			11.7	17.0	
Mg	mkg/l													
As	mkg/l	0.05mg/l												
F	mg/l	1.5		0.24	0.26	0.23		0.22	0.29			0.14	0.33	

Table C.8 (1) Discharge rate and mineralization contens of Major Collector Drains in 1990

Section between Termez to Kerki													
No. Collector drain	unit of measures	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Discharge rate	mil. m3/day	0.29	0.24	0.37	0.52	0.48	0.52	0.43	0.56	0.49	0.54	0.47	0.29
Mineralization	g/l	2.58	3.23	1.52	2.36	2.43	1.50	1.56	1.76	1.72	1.72	2.07	2.07
2. Discharge rate	mil. m3/day	0.56	0.39	0.83	1.12	0.91	1.09	1.04	1.66	1.04	1.37	1.11	0.62
Mineralization	g/l	2.15	6.74	2.41	2.34	1.04	1.97	2.13	2.18	2.60	2.60	2.48	2.48
3. Discharge rate	mil. m3/day	0.78	0.87	0.94	2.09	1.39	1.42	1.42	1.88	1.37	1.12	1.29	0.94
Mineralization	g/l	2.62	3.20	2.45	2.22	2.41	2.38	2.43	2.23	2.75	2.75	2.65	2.65
4. Discharge rate	mil. m3/day	1.44	1.04	1.74	2.69	1.93	1.94	2.30	1.34	2.49	2.04	1.27	1.21
Mineralization	g/l	4.11	5.07	2.86	2.52	5.06	2.70	2.23	2.21	2.58	2.58	3.02	3.02
5. Discharge rate	mil. m3/day	0.67	0.80	3.59	5.59	4.69	5.67	5.57	4.50	3.55	2.46	2.23	2.61
Mineralization	g/l	3.74	4.00	1.89	2.66	1.43	1.77	1.48	1.82	1.53	1.78	2.83	2.83
6. Discharge rate	mil. m3/day	3.38	2.73	5.44	12.30	6.86	5.44	6.35	4.98	3.03	3.45	3.08	4.53
Mineralization	g/l	10.33	5.57	5.57	5.11	3.14	3.09	1.86	1.86	6.09	1.56	5.55	5.55
7. Discharge rate	mil. m3/day	1.07	0.92	1.98	5.98	4.31	2.59	1.74	1.29	0.83	1.61	1.92	2.17
Mineralization	g/l	6.99	8.28	8.78	5.12	5.12	4.79	7.07	7.09	6.55	6.67	7.28	7.28
8. Discharge rate	mil. m3/day	1.18	0.94	1.66	4.84	2.81	1.48	2.44	1.74	1.16	1.07	0.96	2.49
Mineralization	g/l	8.30	8.84	8.32	3.81	4.04	4.82	5.91	6.21	8.88	5.22	8.17	8.17
9. Discharge rate	mil. m3/day	0.43	0.34	0.96	4.82	3.35	1.84	1.23	1.10	0.83	0.62	0.78	1.77
Mineralization	g/l	10.76	9.56	8.60	5.48	4.67	4.00	7.75	7.27	4.90	4.45	8.59	8.59
Total Discharge	mil. m3/day	9.80	8.27	17.51	39.95	26.73	21.99	22.52	19.05	14.79	14.28	13.11	16.63
Ave. Mineralization	g/l	7.06	5.93	4.93	4.22	3.46	2.97	3.01	3.00	3.88	2.92	4.80	5.54
Total mineralization	thous.ton/day	69.2	49.0	86.4	168.5	92.5	65.3	67.8	57.2	57.4	41.7	62.9	92.2
Section between Kerki to Tuyamuyun													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10. Discharge rate	mil. m3/day	5.4	5.7	13.0	5.4	63.2	77.7	80.4	78.8	69.1	67.1	55.8	16.4
Mineralization	g/l	8.0	7.5	6.1	6.9	7.9	7.0	6.9	7.1	7.0	7.0	6.1	6.1
11. Discharge rate	mil. m3/day	38.5	120.0	165.0	72.0	46.5	28.1	19.6	21.4	22.5	20.7	19.1	16.4
Mineralization	g/l	5.3	5.3	5.2	5.4	7.1	6.4	6.6	7.6	7.2	5.5	4.6	3.9
Total Discharge	mil. m3/day	43.9	125.7	178.0	77.4	109.7	105.8	100.0	100.2	91.6	87.8	74.9	32.8
Ave. Mineralization	g/l	5.60	5.38	5.30	5.51	7.52	6.87	6.80	7.22	7.04	6.66	5.72	4.99
Total mineralization	thous.ton/day	245.8	676.6	944.0	426.8	824.6	726.9	680.5	723.6	645.0	585.0	428.4	163.7

Table C.8 (2) Discharge rate and mineralization contens of Major Collector Drains in 1991

No. Collector drain	unit of measures	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Section between Termez to Kerki													
1. Discharge rate	mil. m3/day	0.37	0.39	0.59	0.52	0.59	0.73	0.83	0.67	0.75	0.54	0.44	0.30
Mineralization	g/l	1.76	3.05	2.19	2.10	2.14	1.67	1.49	1.60	1.57	1.74	1.92	2.01
2. Discharge rate	mil. m3/day	0.75	0.48	1.12	1.03	1.26	1.19	1.89	1.13	1.46	1.28	1.14	0.64
Mineralization	g/l	2.61	2.49	1.68	1.68	2.08	1.57	1.30	2.43	1.64	1.73	1.73	2.96
3. Discharge rate	mil. m3/day	0.78	0.87	0.86	1.03	1.18	1.09	1.74	1.55	1.86	1.71	1.35	1.02
Mineralization	g/l	3.13	2.97	2.02	2.02	2.43	2.18	2.60	2.29	2.45	2.50	2.50	2.54
4. Discharge rate	mil. m3/day	1.05	0.80	1.98	2.52	2.89	2.85	3.59	1.97	1.97	1.53	1.42	1.12
Mineralization	g/l	3.90	4.17	2.71	2.71	2.08	1.81	1.90	1.51	1.88	1.84	1.84	2.32
5. Discharge rate	mil. m3/day	1.07	0.87	2.73	6.22	6.14	6.07	6.31	4.66	8.08	2.54	2.77	1.85
Mineralization	g/l	2.83	3.43	2.22	2.02	1.77	1.77	1.48	1.59	1.88	1.89	1.28	3.26
6. Discharge rate	mil. m3/day	3.21	2.15	4.63	4.72	8.17	3.01	1.49	2.54	2.15	1.90	2.25	4.63
Mineralization	g/l	4.46	4.68	4.88	5.27	4.62	4.27	5.07	6.26	5.28	3.18	4.27	4.50
7. Discharge rate	mil. m3/day	0.48	1.14	0.78	1.61	1.36	0.88	0.75	0.78	1.37	0.96	1.43	1.61
Mineralization	g/l	8.28	6.73	6.42	5.21	5.14	5.14	5.54	8.72	7.69	6.34	5.83	9.27
8. Discharge rate	mil. m3/day	1.34	1.34	1.34	1.50	4.98	3.78	1.29	1.45	1.09	0.99	1.84	3.78
Mineralization	g/l	9.51	6.96	6.62	6.53	4.61	4.90	5.18	7.96	8.60	6.06	6.12	4.80
9. Discharge rate	mil. m3/day	0.62	0.46	2.09	1.97	3.91	0.78	0.75	0.61	0.86	0.43	1.32	3.29
Mineralization	g/l	11.34	8.95	5.68	5.26	3.74	4.03	6.65	10.67	4.41	4.26	3.53	6.58
Total Discharge	mil. m3/day	9.67	8.50	16.12	21.12	30.48	20.38	18.64	15.36	19.59	11.88	13.96	18.24
Ave. Mineralization	g/l	5.20	5.00	4.01	3.68	3.48	2.96	2.56	3.81	3.17	2.95	3.31	4.89
Total mineralization	thous.ton/day	50.2	42.5	64.7	77.7	105.9	60.4	47.8	58.5	62.1	35.0	46.2	89.3
Section between Kerki to Tuyamuyun													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10. Discharge rate	mil. m3/day	7.2	7.0	27.2	24.5	31.2	47.8	48.6	48.2	43.5	38.5	33.0	15.6
Mineralization	g/l	7.4	8.0	6.6	5.5	7.8	7.3	7.1	7.7	7.1	9.1	9.1	9.2
11. Discharge rate	mil. m3/day	30.3	86.3	193.0	193.0	52.8	30.7	19.0	16.2	17.3	9.0	9.0	12.7
Mineralization	g/l	4.2	5.4	5.1	4.9	5.3	5.3	4.2	4.2	5.7	4.7	5.1	4.9
Total Discharge	mil. m3/day	37.5	93.3	220.2	217.5	84.0	78.5	67.6	64.4	60.8	47.6	42.0	28.3
Ave. Mineralization	g/l	4.78	5.62	5.32	5.00	6.21	6.50	6.29	6.84	6.68	8.28	8.27	7.26
Total mineralization	thous.ton/day	179.0	524.5	1172.3	1086.5	521.7	510.6	425.5	440.5	405.9	393.9	347.5	205.5

Table C.8 (3) Dischrage rate and mineralization contens of Major Collector Drains in 1992

Section between Termez to Kerki													
No. Collector drain	unit of measures	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Discharge rate	mil. m3/day	0.96	1.04	0.75	0.54	0.44	0.30	0.24	0.18	0.13	0.57	0.78	0.57
Mineralization	g/l	0.95	2.87	2.87	1.84	1.84	1.84	1.43	1.43	1.43	1.77	1.77	2.04
2. Discharge rate	mil. m3/day	0.54	0.42	0.51	0.34	1.55	1.22	1.31	1.61	1.36	1.28	1.14	0.64
Mineralization	g/l	1.35	2.60	2.60	1.68	1.68	1.68	1.59	1.59	1.59	2.52	2.52	2.15
3. Discharge rate	mil. m3/day	0.72	0.53	0.62	1.17	1.55	1.35	1.45	1.55	1.19	1.71	1.35	1.02
Mineralization	g/l	1.79	3.13	3.13	2.80	2.80	2.80	2.09	2.09	2.09	2.19	2.19	2.61
4. Discharge rate	mil. m3/day	0.91	0.73	0.75	2.33	2.41	2.20	1.56	1.34	0.88	1.53	1.42	1.12
Mineralization	g/l	0.77	1.66	1.66	1.81	1.81	1.81	2.12	2.12	2.12	2.28	2.28	1.89
5. Discharge rate	mil. m3/day	1.18	0.90	5.20	6.69	5.30	7.31	6.62	5.14	4.43	4.54	2.77	1.85
Mineralization	g/l	3.10	2.51	1.38	1.50	1.59	1.40	1.40	1.23	1.97	2.24	2.42	2.16
6. Discharge rate	mil. m3/day	3.66	3.25	6.42	7.44	7.23	7.67	8.03	6.27	4.33	4.50	4.45	6.07
Mineralization	g/l	6.38	14.16	3.06	5.16	2.88	2.88	1.71	6.48	3.17	4.08	4.08	5.47
7. Discharge rate	mil. m3/day	1.10	1.10	1.45	3.68	2.65	1.86	2.86	3.05	1.40	1.45	1.97	3.66
Mineralization	g/l	9.23	7.45	5.96	4.94	5.37	5.83	4.31	4.12	4.83	4.65	5.60	6.40
8. Discharge rate	mil. m3/day	1.84	1.28	4.80	5.91	4.28	6.28	5.95	5.30	3.60	1.39	2.10	4.10
Mineralization	g/l	8.97	9.52	9.38	4.14	3.43	5.20	3.06	3.16	6.35	5.34	6.10	6.30
9. Discharge rate	mil. m3/day	0.94	0.75	2.60	2.95	1.34	1.50	1.50	2.36	1.50	1.34	1.61	2.73
Mineralization	g/l	11.03	11.28	8.60	3.57	4.74	4.54	2.02	2.20	4.00	4.28	4.70	5.20
Total Discharge	mil. m3/day	11.85	10.00	23.10	31.05	26.75	29.69	29.52	26.80	18.82	18.31	17.59	21.76
Ave. Mineralization	g/l	5.71	8.41	4.74	3.57	2.86	3.13	2.21	3.37	3.44	3.27	3.79	4.96
Total mineralization	thous.ton/day	67.7	84.1	109.5	110.7	76.6	93.0	65.3	90.4	64.8	59.9	66.7	108.0
Section : from Kerki to Tuyamuyun													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10. Discharge rate	mil. m3/day	8.0	7.3	52.8	48.2	13.4	38.2	56.6	13.5	20.7	70.7	29.3	16.4
Mineralization	g/l	8.0	8.2	6.6	6.8	6.6	6.6	7.4	7.5	6.1	6.2	5.9	7.1
11. Discharge rate	mil. m3/day	51.6	145.5	227.1	138.3	125.9	74.3	45.2	44.5	36.9	29.3	19.6	19.3
Mineralization	g/l	4.3	4.8	4.6	4.2	4.7	5.0	4.2	4.9	4.3	3.9	3.9	10.4
Total Discharge	mil. m3/day	59.6	152.8	279.8	186.5	139.3	112.5	101.8	58.0	57.6	100.0	48.9	35.7
Ave. Mineralization	g/l	4.81	4.96	4.97	4.87	4.91	5.54	5.95	5.47	4.92	5.53	5.11	8.87
Total mineralization	thous.ton/day	286.8	758.0	1389.3	908.6	684.4	623.5	605.6	317.6	283.2	552.8	249.9	316.5

Table C.8 (4) Dischrage rate and mineralization contens of Major Collector Drains in 1993

Section between Termez to Kerki													
No. Collector drain	unit of measures	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Discharge rate	mil. m3/day	0.17	0.17	0.27	0.59	0.86	1.09	0.80	0.81	0.91	0.54	0.34	0.19
Mineralization	g/l	2.13	2.13	1.40	1.16	1.16	0.61	0.93	1.56	1.60	1.60	1.65	2.51
2. Discharge rate	mil. m3/day	0.43	0.43	0.64	2.36	2.01	1.58	1.28	2.01	1.70	1.04	0.78	0.56
Mineralization	g/l	3.27	3.27	1.48	1.42	1.42	1.51	1.46	1.53	1.80	1.80	2.48	2.21
3. Discharge rate	mil. m3/day	0.46	0.46	0.67	0.70	1.85	1.42	1.21	2.12	2.13	0.91	0.70	0.59
Mineralization	g/l	3.04	3.04	2.08	2.03	2.03	2.28	2.05	1.92	2.10	2.10	1.20	2.48
4. Discharge rate	mil. m3/day	0.53	0.53	0.73	2.10	2.54	2.23	1.02	0.88	0.47	1.02	0.80	0.64
Mineralization	g/l			2.21	1.59	1.59	1.04	1.11		1.90	1.91	1.91	1.91
5. Discharge rate	mil. m3/day	1.29	1.06	7.58	6.66	6.67	7.05	6.25	5.57	4.38	3.46	3.24	2.01
Mineralization	g/l	2.96	2.43	1.50	2.16	1.50	1.89	1.61	1.62	1.47	1.93	1.93	2.15
6. Discharge rate	mil. m3/day	5.04	3.92	3.91	5.86	5.60	7.02	6.06	4.99	2.67	3.51	6.07	4.71
Mineralization	g/l	5.47	5.47	3.54	3.38	2.30	1.16	2.02	2.02	4.29	4.29	4.29	4.29
7. Discharge rate	mil. m3/day	1.60	1.10	2.17	3.44	3.58	3.52	3.16	2.60	1.24	1.85	1.82	1.55
Mineralization	g/l	9.25	8.90	8.70	6.62	6.62	2.51	3.50	3.50	2.72	3.00	4.20	4.35
8. Discharge rate	mil. m3/day	2.01	1.60	2.28	3.08	2.25	7.57	5.89	5.35	1.84	1.90	1.73	1.48
Mineralization	g/l	8.60	8.82	9.00	6.33	6.33	3.07	3.16	3.16	9.18	9.30	7.52	7.30
9. Discharge rate	mil. m3/day	0.21	0.22	0.59	2.57	1.34	2.36	2.78	2.26	1.63	1.74	0.95	0.40
Mineralization	g/l	4.72	11.02	10.80	10.80	5.94	2.29	2.42	2.70	2.66	2.66	4.02	4.50
Total Discharge	mil. m3/day	11.74	9.49	18.84	27.36	26.70	33.84	28.45	26.59	16.97	15.97	16.43	12.13
Ave. Mineralization	g/l	5.76	5.64	4.00	4.13	3.01	2.00	2.28	2.24	3.09	3.52	3.75	3.98
Total mineralization	thous.ton/day	67.6	53.5	75.3	113.0	80.4	67.6	64.9	59.6	52.4	56.2	61.6	48.3
Section : from Kerki to Tuyamuyun													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10. Discharge rate	mil. m3/day	8.1	8.0	16.0	19.8	16.9	17.9	16.7	13.6	11.9	10.0	13.9	14.0
Mineralization	g/l	7.1	6.3	6.0	6.6	6.4	6.4	6.5	8.2	7.5	7.4	7.8	6.7
11. Discharge rate	mil. m3/day	26.4	133.7	210.6	136.2	44.4	34.9	13.6	44.7	21.1	17.7	16.8	16.8
Mineralization	g/l	3.8	3.8	4.4	4.4	4.6	4.8	3.7	4.8	4.9	4.6	4.6	8.8
Total Discharge	mil. m3/day	34.5	141.7	226.6	156.0	61.3	52.8	30.3	58.3	33.0	27.7	30.7	30.8
Ave. Mineralization	g/l	4.55	3.97	4.54	4.71	5.10	5.33	5.23	5.55	5.79	5.56	6.03	7.86
Total mineralization	thous.ton/day	156.9	562.3	1029.4	734.3	312.8	281.3	158.3	323.7	190.7	154.0	185.0	241.8

Table C.8 (5) Dischrage rate and mineratization contens of Major Collector Drains in 1994

Section between Termez to Kerki													
No. Collector drain	unit of measures	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Discharge rate	mil. m3/day	0.16	0.17	0.22	0.36	0.21	0.34	0.48	0.53	0.65	0.51	0.34	0.19
Mineralization	g/l	7.49	2.99	1.07	1.10	1.19	1.02	1.02	1.19	1.65	1.92	1.96	1.99
2. Discharge rate	mil. m3/day	0.59	0.41	0.59	0.75	0.62	0.82	0.88	1.26	2.33	1.04	1.67	0.58
Mineralization	g/l	3.32	3.12	1.35	1.05	1.40	1.61	1.61	0.04	1.29	2.10	2.30	2.10
3. Discharge rate	mil. m3/day	0.70	0.51	0.78	0.88	1.85	1.23	1.61	1.10	2.33	0.91	0.78	0.56
Mineralization	g/l	3.38	3.02	2.40	1.82	1.68	1.93	1.93	1.85	2.20	2.60	2.70	2.60
4. Discharge rate	mil. m3/day	0.48	0.41	0.72	0.82	0.97	0.98	1.10	1.02	1.42	1.02	0.52	0.64
Mineralization	g/l	3.59	3.67	3.12	2.60	2.53	2.53	2.15	2.10	1.83	2.10	3.37	3.17
5. Discharge rate	mil. m3/day	1.37	1.02	6.71	7.34	5.97	6.09	6.35	5.38	3.68	2.49	1.84	1.45
Mineralization	g/l	2.98	2.32	1.70	1.54	1.12	1.31	1.34	1.24	1.05	1.71	1.96	2.00
6. Discharge rate	mil. m3/day	0.16	0.51	0.96	1.05	1.12	1.04	1.20	1.08	0.98	0.75	0.80	0.83
Mineralization	g/l	2.11	8.72	2.04	3.88	2.08	2.16	2.16	2.40	2.40	1.61	2.04	2.04
7. Discharge rate	mil. m3/day	0.88	0.44	1.05	3.04	1.71	2.88	3.21	2.46	1.22	1.48	1.54	0.64
Mineralization	g/l	4.35	9.11	9.05	1.73	7.32	4.31	3.72	4.00	2.46	2.46	5.05	5.00
8. Discharge rate	mil. m3/day	0.16	0.10	0.63	2.22	1.07	2.10	2.35	1.96	1.17	1.04	0.30	0.43
Mineralization	g/l	7.30	8.62	8.60	8.60	7.22	3.50	3.20	3.64	2.18	2.18	5.79	6.10
9. Discharge rate	mil. m3/day	0.94	0.80	1.24	1.87	3.00	2.60	2.52	2.30	1.67	1.56	1.09	1.07
Mineralization	g/l	11.10	10.35	10.50	6.86	6.86	2.55	2.90	2.90	4.38	4.20	4.62	4.72
Total Discharge	mil. m3/day	5.44	4.37	12.90	18.33	16.52	18.08	19.70	17.09	15.45	10.80	8.88	6.39
Ave. Mineralization	g/l	4.98	5.68	3.60	3.14	3.42	2.38	2.29	2.21	2.00	2.37	3.18	3.21
Total mineralization	thous.ton/day	27.1	24.8	46.5	57.5	56.5	43.1	45.2	37.8	30.9	25.6	28.2	20.5
Section : from Kerki to Tuyamuyun													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10. Discharge rate	mil. m3/day	38.0	40.0	41.0	41.0	42.0	38.0	36.0	36.8	36.8	36.0	35.0	36.0
Mineralization	g/l	6.5	6.9	5.3	5.3	5.8	5.6	6.2	6.6	6.2	5.9	6.0	6.0
11. Discharge rate	mil. m3/day	51.6	145.5	227.1	138.3	125.9	77.3	45.2	44.5	36.9	29.3	19.6	19.3
Mineralization	g/l	3.4	4.1	4.1	3.8	4.2	4.0	3.4	3.4	3.7	3.6	3.0	3.3
Total Discharge	mil. m3/day	89.6	185.5	268.1	179.3	167.9	115.3	81.2	81.3	73.7	65.3	54.6	55.3
Ave. Mineralization	g/l	4.67	4.73	4.28	4.16	4.59	4.53	4.65	4.86	4.98	4.85	4.89	5.07
Total mineralization	thous.ton/day	417.9	876.9	1146.5	746.3	771.2	521.9	377.9	395.4	366.9	316.5	267.2	280.4

Table C.9 (1) Collector Discharge Rate (1976 to 1993)

Section : Termez - Kerki — unit : million m3/day

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AVERAGE
1976	0.81	1.02	1.31	1.44	2.03	1.65	1.52	1.32	0.94	0.70	0.76	0.92	1.20
1977	1.07	1.18	1.69	1.90	0.94	1.33	1.35	1.39	0.90	0.70	0.56	0.84	1.15
1978	0.85	0.90	2.29	1.41	1.53	1.65	1.06	1.77	1.70	1.47	0.61	0.54	1.32
1979	0.77	0.79	1.28	1.77	1.95	2.25	1.72	1.88	1.75	1.14	0.61	0.48	1.37
1980	1.07	1.17	1.79	2.40	2.41	1.84	2.42	1.78	1.49	1.18	1.11	1.27	1.66
1981	0.98	1.25	1.73	1.56	1.55	1.54	1.83	1.95	1.30	1.03	0.81	0.84	1.36
1982	1.34	1.58	2.02	2.40	1.75	1.79	1.64	1.52	1.52	1.27	0.96	1.14	1.58
1983	0.80	1.08	1.18	1.14	1.15	0.88	1.71	1.91	1.51	1.00	0.82	1.03	1.18
1984	0.78	0.73	1.53	2.06	1.73	2.00	1.85	1.92	1.68	1.43	1.18	1.07	1.50
1985	1.69	1.71	2.29	2.53	2.34	1.92	1.89	1.65	1.61	1.38	0.95	1.19	1.76
1986	1.07	1.50	1.16	1.04	1.16	0.94	1.17	1.21	1.07	0.76	0.52	0.60	1.02
1987	1.25	1.12	1.09	2.24	2.41	2.70	2.45	2.03	1.51	1.02	0.97	1.02	1.65
1988	1.41	1.43	1.60	1.89	1.96	2.25	2.27	2.23	1.81	1.83	0.99	1.17	1.74
1989	2.65	4.42	3.03	2.71	2.34	2.01	1.71	1.41	1.11	1.07	0.94	1.07	2.04
1990	1.15	1.88	2.52	3.15	2.13	1.99	1.90	1.90	1.66	1.41	1.22	1.45	1.86
1991	0.92	0.84	1.56	1.90	1.80	1.47	1.32	1.18	1.13	1.41	1.35	1.81	1.39
1992	1.24	0.85	1.77	2.37	1.62	1.97	1.83	1.71	1.33	1.30	1.29	1.43	1.56
1993	1.40	1.73	2.22	2.18	2.14	2.10	1.66	1.61	1.36				1.82
VERAG	1.18	1.40	1.78	2.01	1.83	1.79	1.74	1.69	1.41	1.18	0.92	1.05	
Non-exceeding probability													
90%	1.5	1.8	2.7	2.8	2.4	2.4	2.4	2.1	1.8	1.6	1.3	1.6	
75%	1.3	1.6	2.3	2.4	2.3	2.1	1.9	1.9	1.7	1.4	1.2	1.3	
50%	1.1	1.1	1.8	2.1	2.0	2.0	1.8	1.8	1.5	1.3	1.0	1.1	