D. WATER SUPPLY IMPROVEMENT PLAN

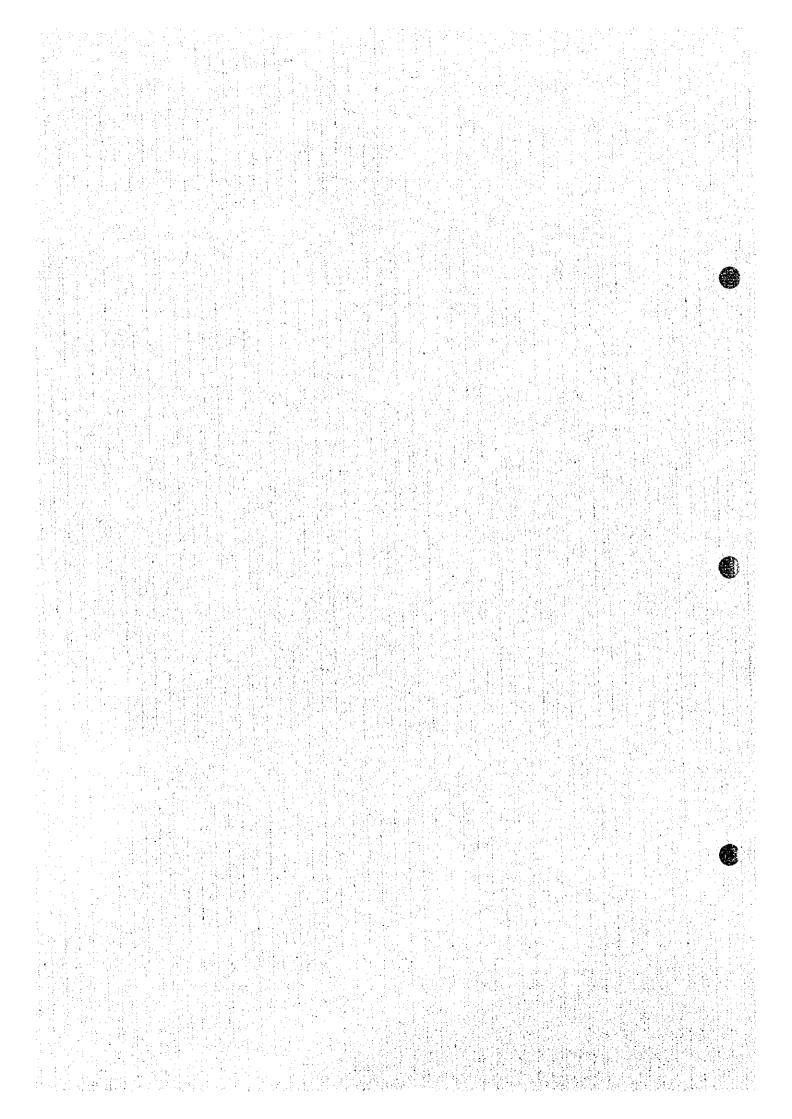


Table D.1 Proposed Works by Alternative

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A Itemstice A	1. Kaparas Intake Station Q=827,100m3/d	2. Raw Water Main Pipeline 2.1 Kaparas I.S. to T.N Intake Same as Alternative 3 2.2 Kaparas I.S. to T-U Intake Same as Alternative 1	3. Tuyamuyun Nukus W.T.P. Same as Alternative 3	4. Tuyamuyun Ürgench W.T.P. Same as Alternative 1	5. Booster Pumping Station (T-N System) 5.1 No.2 B.P.S. Same as Alternative 1
A Itemative 3	1. Kaparas Intake Station Q=813,800m3/d	2. Raw Water Main Pipeline 2.1 Kaparas I.S. to T-N Intake D=1,400mm L=10.7km 2.2 Kaparas I.S. to T-U Intake Same as Alternative 1	3. Tuyamuyun Nukus W.T.P. Rehabilitation Q=200,000m3/d Extension Q=150,000m3/d Total Q=350,000m3/d	4. Tuyamuyun Urgench W.T.P. Same as Alternative 1	5. Booster Pumping Station (T-N System) 5.1 No.2 B.P.S. Same as Alternative 1
A Ternative 2	1. Kaparas Intake Station Same as Alternative I	2. Raw Water Main Pipeline Same as Alternative !	3. Tuyamuyun Nükus W.T.P. Same as Alternative 1	4. Tuyamuyun Urgench W.T.P. Same as Alternative 1	5. Booster Pumping Station (T-N System) 5.1 No.2 B.P.S. Same as Alternative 1 5.2 No.3 B.P.S. Same as Alternative 1
Alternative 1	1. Kaparas Intake Station Q=1,000,000m3/d Purp q=240m3/min H=63m p=3,500kw N=4units	2. Raw Water Main Pipeline 2.1 Kaparus I.S. to T-N Intake D=1,400mm	3. Tuyamuyun Nukus W.T.P. Rehabilitation Q=200,000m3/d Extension Q=150,000m3/d Extension Q=150,000m3/d Total Q=500,000m3/d	4. Tuyamuyun Urgench W.T.P. Rehabilitation Q=200,000m3/d Extension Q=200.000m3/d Extension Q=100.000m3/d Total Q=500,000m3/d	5. Booster Pumping Station (T-N System) 5.1 No.2 B.P.S. Q=306.900m3/d Pump q=60m3/min H=290m p=2,700kw N=6units Chlorination Dosing System Reservoir C=3,000m3 N=3units 5.2 No.3 B.P.S. Q=306,900m3/d Pump q=60m3/min H=290m p=2,700kw N=6units Chlorination Dosing System Reservoir C=3,000m3 · N=5units

Table D.1 Proposed Works by Alternative

П				I	· · · · · · · · · · · · · · · · · · ·	
			ing Station	System) L=63.0km	Others D=400-500mm L=90.5km	-
Alternative 4			rrasp Treatment Pumpi System) Same as Alternative 1	Pipeline (C-N 16.1 B.P.S. D=1,400mm)=400-500ar	:
A			. Khazarasp Treatment Pumping Station (T-U System) Same as Alternative 1	8. Transmission Pipeline (T-N WTP - No.1 B.P.S. D=1,400mm	Others D	
	· ·		ŽC	<u>%</u>		:
	Station		g Station	ystem) L=63.0km	L=96.5km L=90.5km	
Alternative 3	, uonnacus	S. mative 1	. Khazarasp Treatment Pumping Station (T-U System) Same as Alternative 1	Pipeline (T-N S Vo.1 B.P.S. D=1,400mm	Kungrad - Muynak D=500mm Others D=400-500mm	
Alter	ssion & Di	6.2 Kungrad T.D.S. Same as Alternative	urasp Treatment Pum System) Same as Alternative	ssion Pipel IP - No.1 J D=1,	Kungrad - Muynak D=500mm Others D=400-500	
	6. Transmission & Distribution Station	6.2 Kun Saz	7. Khazarasp Tre (T-U System) Same as	8. Transmission Pipeline (T-N System) WTP - No.1 B.P.S. D=1,400mm L=63	\$ B	
	tion		Station	.00. (cr.	L=90.5km	
tive 2	foution Sta trive 1	en e	Pumping ? tive 1	(T-N Syst S. C.	g	
Alternative	ransmission & Distributi (T-N System) 6.1 Nukus North D.S. Same as Alternative		arasp Treaiment Pum System) Same as Altemative	WTP - No.1 B.P.S. D=1,400mm No.1 - No.2 B.P.S. D=1,400mm		
	6. Transmission & Distribution Station (T-N System) 6.1 Nukus North D.S. Same as Alternative 1		7. Khazarasp Treaiment Pumping Station (T-U System) Same as Alternative 1	8. Transmission Pipeline (T-N System) WTP-No.1 B.P.S. D=1,400mm L=63 No.1 - No.2 B.P.S. D=1,400mm L=59 Nukus - Takhiatash (L=21.0km)	Others	
	Om nits	H=160m N=4umits H=90m N=8umits H=125m N=4umits On=4umits	23 23	Okm Okm	L=96.5km	
÷ 1	tion Static in H=1 N=6 \$ System	in H=1 NH=1 NH=2 X System Om3 N=3	nping Station in H=90m N=6uni g System m3 N=3uni	N System) n L=63.0 n L=59.0 (L=21.0km)		
Alternative	mission & Distribution State [System) sukus North D.S. Q=255,910m3/d Pump q=30m3/min H=1,400kw N=4 Chlorination Dosing System	C=55,020m3/d Pump q=4.5m3/min H=160m P=170kw N=4units Pump q=3.7m3/min H=90m p=75kw N=8units Pump q=3.3m3/min H=125m P=125kw N=4units Chlorination Dosang System Reservoir C=10,000m3 N=3units	1 System) System) Q=256.290m3/d Pump q=55m3/min H=90m p=1200kw N=6units Chlorination Dosing System Reservoir C=3.200m3 N=3units	WTP - No.1 B.P.S. D=1,400mm No.1 - No.2 B.P.S. D=1,400mm No.1 - No.2 B.P.S. D=1,400mm	Kungrad - Muynak D=500mm Others D=400-500mm	
¥	6. Transmission & Distribution Station (T-N System) 6.1 Nukus North D.S. Q=255,910m3/d Pump q=30m3/min H=19 p=1,400kw N=6u Chlorination Dosing System	6.2 Kungrad T.D.S. Q=55,020m3/d Pump q=4.5π p=170k Pump q=3.7π p=7589 Pump q=3.3π Pump q=3.3π Chlorination D Reservoir C=10	Khazarasp Treatment Pumping Station (T-U System) Q=256.290m3/d Pump q=55m3/min H=90m p=1200kw N=6unii Chlorination Dosing System Reservoir C=3.200m3 N=3unii	8. Transmission Pipeline (T-N System) WTP - No.1 B.P.S. D=1,400mm	Kungrad D Others D	
	9 E F 2	2	2. 장유	8. Tra		· ·

Table D.1 Proposed Works by Alternative

Alternative 4	9. Transmission Pipeline (T-U System) Same as Alternative 1	10. Muynak Water Treatment Plant Same as Alternative 2	Alternative 4-1 11. Takhiatash Water Treatment Plant 11.1 Rehabilitation & Extension Q=172,900m3/d 11.2 Reverse Osmosis Q=6.760m3/d	Alternative 4-2 12. Raw Reservoir Same as Alternative 3-2	13. Takhiatash Water Treatment Plant Rehabilitation & Extension Q=172,900m3/d
Alternative 3	9. Transmission Pipeline (T-U System) Same as Alternative 1	Alternative 3-1 10. Muynak Water Treatment Plant 10.2 Reverse Osmosis Q=520m3/d	Alternative 3-1 11. Takhiatash Water Treatment Plant 11.1 Rehabilitation & Extension Q=186,200m3/d 11.2 Reverse Osmosis Q=6,760m3/d	Alternative 3-2 12. Raw Reservoir Propose C=65,000,000m3	13. Takhiatash Water Trentment Plant Rehabilitation & Extension Q=186,200m3/d
Alternative 2	9. Transmission Pipeline (T-U System) Same as Alternative 1	10. Muynak Water Treatment Plant 10.1 Rehabilitation & Extension Q=13.300m3/d 10.2 Reverse Osmosis Q=520m3/d			
Alternative 1	9. Transmission Pipeline (T-U System) D=1.200mm				

Table D.2 Cost Comparison of Alternatives

No. Item	Alternation (1,000-00) (0,324	00USD) O&M Cost 26 1,465 1,491 19 15 33 6,974 214 6,396 0 13,531 2,989 83 3,112 6,989 83 3,112 46 1,736 47 0	Alterna Cost (1 Con- strution 10,324 18,713 15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 15,945 11,890 10,860	0.0.U.S.D.) 0.0.M. Cost 26 1,423 1,449 15 34 6,779 2144 6,213 0 13,206 40 2,871 80 2,991 40 2,991 5,982 7 1,591 43 1,661	Con- strution 10,324 10,324 18,713 57,194 57,194 15,945	000(SD) O&M Cost 26 876 902 19 0 3,826 8,111 40 1,337 37 1,414	Con- strution 10,324 10,324 18,713 57,194 57,194 15,945	000USI
I Intake Station	nution (10,324) (10,324) (10,324) (10,324) (10,324) (10,324) (10,324) (17,194) (17,189) (17,194) (17,189) (17,194) (17,189) (17,1	Cost 26 1,465 1,491 19 19 15 36 6,974 214 6,396 0 13,581 40 2,989 83 3,112 40 2,989 83 3,112 40 1,713 46 1,736 47	strution 10,324 10,324 18,713 15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 15,945 15,945	Cost 26 1,423 J.449 19 15 34 6,779 214 6,213 0 13,206 40 2,871 80 2,991 40 2,871 80 2,991 5,982 27 1,591 4,9	57,194 57,194 0 15,945 0 15,945	Cost 26 816 902 19 4,285 0 3,826 8,111 40 1,337 37 1,414 0 0 1,414 0	strution 10,324 10,324 18,713 18,213 57,194 57,194 15,945	Costs 8 9 4.2 3.8 8.1 1.3
Intake Station	0,324 (0,324 (8,113) 5,037 17,194 12,889 (0,683) 15,945 15,945 15,945 11,890 (0,860)	Cost 26 1,465 1,491 19 19 15 36 6,974 214 6,396 0 13,581 40 2,989 83 3,112 40 2,989 83 3,112 40 1,713 46 1,736 47	strution 10,324 10,324 18,713 15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 15,945 15,945	Cost 26 1,423 J.449 19 15 34 6,779 214 6,213 0 13,206 40 2,871 80 2,991 40 2,871 80 2,991 5,982 27 1,591 4,9	10,324 10,324 18,713 57,194 57,194 15,945 0 15,945	Cost 26 816 902 19 4,285 0 3,826 8,111 40 1,337 37 1,414 0 0 1,414 0	strution 10,324 10,324 18,713 18,213 57,194 57,194 15,945	Costs 8 9 4.2 3.8 8.1 1.3
Right Bank	10,324 18,713 15,037 13,750 17,194 12,889 10,083 15,945 15,945 15,945 11,890 10,860	1,465 1,491 19 15, 33 6,971 214 6,396 0 13,581 40 2,989 83 3,112 40 2,989 13,581 40 2,989 14,713 46 1,736 47 1,713	10,324 18,713 15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 15,945 15,945	1,423 1,449 19 15 34 6,779 214 6,213 0 13,206 40 2,871 80 2,591 40 2,591 5,982 27 1,591 1,591 4,94 4,94 4,94 2,871 8,94 2,871 8,94 1,94	10,324 18,713 18,713 57,494 57,194 15,945 0 15,945	876 902 19 0 19 4,285 0 3,826 8,111 40 1,337 0 0 1,414 0	10,324 18,713 18,213 57,194 57,194 15,945	4.2 3.8 8.1 1.3
Right Bank q=14,400 m3/hr H=63 m P=3,500 kw Total 1 1	10,324 18,713 15,037 13,750 17,194 12,889 10,083 15,945 15,945 15,945 11,890 10,860	1,465 1,491 19 15, 33 6,971 214 6,396 0 13,581 40 2,989 83 3,112 40 2,989 13,581 40 2,989 14,713 46 1,736 47 1,713	10,324 18,713 15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 15,945 15,945	1,423 1,449 19 15 34 6,779 214 6,213 0 13,206 40 2,871 80 2,591 40 2,591 5,982 27 1,591 1,591 4,94 4,94 4,94 2,871 8,94 2,871 8,94 1,94	10,324 18,713 18,713 57,494 57,194 15,945 0 15,945	876 902 19 0 19 4,285 0 3,826 8,111 40 1,337 0 0 1,414 0	10,324 18,713 18,213 57,194 57,194 15,945	4.2 3.8 8.1 1.3
Right Bank q=14,400 m3/hr H=63 m P=3,500 kw Total 1 1	10,324 18,713 15,037 13,750 17,194 12,889 10,083 15,945 15,945 15,945 11,890 10,860	1,465 1,491 19 15, 33 6,971 214 6,396 0 13,581 40 2,989 83 3,112 40 2,989 83 3,112 40 2,989 12,989 12,113 46 1,736 47 0	10,324 18,713 15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 15,945 15,945	1,423 1,449 19 15 34 6,779 214 6,213 0 13,206 40 2,871 80 2,591 40 2,591 5,982 27 1,591 1,591 4,94 4,94 4,94 2,871 8,94 2,871 8,94 1,94	10,324 18,713 18,713 57,494 57,194 15,945 0 15,945	876 902 19 0 19 4,285 0 3,826 8,111 40 1,337 0 0 1,414 0	10,324 18,713 18,213 57,194 57,194 15,945	4.2 3.8 8.1 1.3
Total Jectical Total Jectical Reparas - T.N D=1,400 mm L=10.7 km Jectical Jectica	8,713 15,037 13,750 17,194 12,889 10,083 15,945 15,945 15,945 11,890 10,860	1,491 19 15 6,971 214 6,396 13,581 40 2,989 83 3,112 6,224 1,713 46 1,786	18,713 15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 31,890 10,850	1,449 19 15, 34 6,779 214 6,213 0 13,206 40 2,871 80 2,991 40 2,991 5,982 27 1,591 1,591	18,713 57,194 51,194 15,945 0 15,945	902 19 0 19 4,285 0 3,826 8,111 40 1,337 37 1,414 0 0 1,414 0	18,713 18,213 57,494 57,194 57,194 15,945	4,2 3,8 8,1 1,3
2 Raw Water Main Pipeline	8,713 15,037 13,750 17,194 12,889 10,083 15,945 15,945 15,945 11,890 10,860	19 15, 35 6,971 214 6,396 0 0 13,581 40 2,989 83 3,112 6,224 1,713 46 1,736	18,713 15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 31,890 10,850	19 15 34 6,779 214 6,213 0 13,266 40 2,871 80 2,991 80 2,991 5,982 27 1,591 43	18,713 57,194 51,194 15,945 0 15,945	19 0 19 4,285 0 3,826 8,111 40 1,337 37 1,414 0	18,713 18,213 57,494 57,194 57,194 15,945	4,5 3,6 8,1 1,5
Kaparas - T.N	5,037 33,750 17,194 12,889 20,083 15,945 15,945 11,890 10,860	15: 33: 6,971 214 6,396 0 13:531 40 2,989 83 3,112 6,24 1,713 46 1,786	15,037 33,750 57,194 42,889 100,083 15,945 15,945 15,945 31,890 10,860	15 34 6,779 214 6,213 0 13,206 40 2,871 80 2,991 40,2871 80 2,991 5,982 27 1,591 43	18,713 57,194 57,194 15,945 0 15,945	0 19 4,285 0 3,826 8,111 40 1,337 37 1,414 0	18,213 57,494 57,194 57,194 15,945	3,1 8,1 1,1
Total 2 3 3 Water Treatment Plant T - N 1 Q=150 km V/d Extension 5 2 Q=150 km V/d Extension 6 Q=4,000 m V/d 61=95 m P=1,600 km Q=3,600 m V/d 61=95 m P=2,500 km Total 3 100	33,750 17,194 12,889 10,083 15,945 15,945 15,945 11,890 10,860	36 6,971 214 6,396 0 0 13,531 40 2,989 83 3,112 40 2,989 1,713 46 1,736 47 1,713 46	33,750 57,194 42,889 100,083 15,945 15,945 15,945 15,945 31,890 10,850	34 6,779 214 6,213 0 13,206 40 2,871 80 2,991 40 2,871 80 2,991 5,982 27 1,591 1,591	57,194 57,194 15,945 15,945 0 15,945	19 4,285 0 3,826 8,111 40 1,337 37 1,414 0	57,194 57,194 15,945 15,945	3,1 8,1 1,1
3 Water Treatment Plant	17,194 12,889 10,083 15,945 15,945 15,945 11,890 10,860	6,971 214 6,396 0 13,531 40 2,989 83 3,112 40 2,989 83 3,112 6,224 1,713 46 1,786	57,194 42,889 100,083 15,945 15,945 15,945 15,945 31,890 10,850	6,779 214 6,213 0 13,206 40 2,871 80 2,991 5,982 27 1,591 43	57,194 57,194 15,945 15,945 0 15,945	4,285 0 3,826 8,111 40 1,337 37 1,414 0 0 1,414 0	57,194 57,194 15,945 15,945	3,1 8, 1,
Q=4,000 m3/d H= 95 m	12,889 10,083 15,945 15,945 15,945 11,890 10,860	214 6,396 13,581 40 2,989 83 3,112 40 2,989 83 3,112 6,224 1,713 46 1,786	42,889 100,083 15,945 15,945 15,945 15,945 15,945 10,860	214 6,213 0 13,206 40 2,871 80 2,871 80 2,971 80 2,991 2,991 2,791 3,591 43	57,194 15,945 15,945 0 15,945	0 3,826 8,111 40 1,337 37 1,414 0 0 1,414 0	57,194 15,945 15,945	3, 8, 1,
Q=4,000 m3/d H= 95 m	00,083 15,945 15,945 15,945 15,945 11,890 10,860	6,396 0 13,531 40 2,989 83 3,112 40 2,989 83 3,112 6,224 27 1,713 46 1,786 47 0	15,945 15,945 15,945 15,945 15,945 15,945 10,860	6,213 0 13,206 40 2,871 80 2,991 40 2,871 80 2,991 5,982 7 1,591 43	57,194 15,945 15,945 0 15,945	3,826 8,111 40 1,337 37 1,414 0 0 1,414 0	57,194 15,945 15,945	8, 1.
Q=3,600 m3/d H=230 m P=2,500 kw Total 3 10	15,945 15,945 15,945 11,890 10,860	0 13.581 40 2,989 3,112 40 2,989 83 3,112 6,224 27 1,713 46 1,786	15,945 15,945 15,945 15,945 31,890 10,850	0 13,206 40 2,871 80 2,591 40 2,871 80 2,591 5,982 27 1,591 43	57,194 15,945 15,945 0 15,945	8,111 40 1,337 37 1,414 0 1,414 0	57,194 15,945 15,945	8, 1.
Total 3 100	15,945 15,945 15,945 11,890 10,860	40 2,989 83 3,112 40 2,989 83 3,112 6,224 27 1,713 47 0	15,945 15,945 15,945 15,945 31,890 10,850	40 2,871 80 2,991 40 2,871 80 2,991 5,982 27 1,591	15,945 15,945 0 15,945	40 1,337 37 1,414 0 0 1,414 0	15,945 15,945 0	1.
A Booster Pumping Station	15,945 15,945 15,945 11,890 10,860	40 2,989 83 3,112 40 2,989 83 3,112 6,224 27 1,713 47 0	15,945 15,945 15,945 15,945 31,890 10,850	40 2,871 80 2,991 40 2,871 80 2,991 5,982 27 1,591	15,945 15,945 0 15,945	40 1,337 37 1,414 0 0 1,414 0	15,945 15,945 0	1.
Q=3,600 m3/hr H=290 m P=2,700 kw Chlorination Sub total 15	15,945 15,945 11,890 10,860	2,989 83 3,112 40 2,989 83 3,112 6,224 27 1,713 46 1,786 47 0	15,945 15,945 15,945 31,890 10,860	2,871 80 2,991 40 2,871 80 2,991 5,982 27 1,591 43	0 15,945 0 15,945	1,337 37 1,414 0 1,414 0	<u>15,945</u>	1.4
Chlorination Sub total 15	5,945 15,945 11,890 10,860	83 3,112 40 2,989 83 3,112 6,224 27 1,713 46 1,786	15,945 15,945 31,890 10,860	80 2,991 40 2,871 80 2,991 5,982 27 1,591 43	0 15,945 0 15,945	37 1.424 0 0 1.414 0	•	1.4
No.3 Q=306.94 km3/d 10	5,945 15,945 11,890 10,860	3,112 40 2,989 83 3,112 6,224 27 1,713 46 1,786	15,945 15,945 31,890 10,860	2,991 40 2,871 80 2,991 5,982 27 1,591 43	0 15,945 0 15,945	0 0 1,414 0 47	•	
No.3 Q=3600 mMr H= 290m P=2,700 kw Chlorination Sub total H= 290m P=2,700 kw Chlorination Sub total H= 290m P=2,700 kw Total 4 3 5 Transmission Pumping Nukus North Q=255.91 km3/d H= 190 m P=1,400 kw Chlorination Takhiatash Total 5 H= 100 m P=1,400 kw Total 5 H= 100 m P=1,400 kw Total 5 H= 100 m P=1,000 m3/d H= 90 m P=1,000 m3/d H= 90 m P=1,000 m3/d H= 100 m3	5,945 15,945 11,890 10,860	40 2,989 83 3,112 6,224 27 1,713 46 1,786	15,945 15,945 31,890 10,860	40 2,871 80 2,991 5,982 27 1,591 43	0 15,945 0	0 1,414 0 0	•	
Q=3,600 m3/hr H= 290m P=2,700 kw Chlorination Sub total Total 4 Total 5 Transmission Pumping Nukus North Q=1,800 m3/d H=190 m P=1,400 kw Chlorination Takhiatash Total 5 M Total 6 Tr. & Distribution Pumping Kungrad Q= 55.02 km3/d M Total 6 M P=170 kw Chlorination Kungrad Chlorination Kungrad Chlorination Muynak Total 6 M Total 7 M Total	5,945 11,890 10,860	2,989 83 3,112 6,224 27 1,713 46 1,786	15,945 31,890 10,860	2,871 80 2,991 5,982 27 1,591 43	0 15,945	0 1,414 0 0 47	0 15,945 0	
Chlorination	0.860 0.860	83 3,112 6,224 27 1,713 46 1,786	31,890 10,860	80 2,991 5,982 27 1,591 43	0 15,945	0 0 47	0 15,945 0	1,
Sub total Total 4 3 5 Transmission Pumping Nukus North Q=1800 m3/d H=190 m P=1,400 kw Chlorination Takhiatash Total 5 16 6 Tr. & Distribution Pumping Kungrad Q= 55.02 km3/d H= 90 m P= 75 kw Q=270 m3/tr H=160 m P=170 kw Chlorination Kungrad Chlorination Kungrad Chlorination Mynak Total 6 17 Transmission Pipeline T-N - No.1 B.P.S D=1,400 mm L=63.0 km 2 No.1 B.P.S D=1,400 mm L=59.0 km 2 No.1 B.P.S D=1,200 mm L=59.0 km 2 Total 7 20 8 Water Treatment Plant Mynak Rehbül & Esteq Q=13.3 km3/d Power Powe	0.860 0.860	3,112 6,224 27 1,713 46 1,786	31,890 10,860	2,991 5,982 27 1,591 43	0 15,945	0 0 47	0 15,945 0	
Total 4 3 5 5 5 5 5 5 5 5 5	0.860 0.860	6,224 27 1,713 46 1,786 47	31,890 10,860	5,982 27 1,591 43	0	0 0 47	15,945	
Station Pumping Station Q=255.91 km3/d H=190 m P=1,400 kw Chlorination Takhiatash Total 5 Mark	0,860	27 1,713 46 1,786 47	10,860	27 1,591 43	0	0 0 47	0	
Station Q=1,800 m3/d H=190 m P=1,400 kw Chlorination Takhiatash Total 5 10	0.860	1,713 46 1,786 47 0		1,591 43	0 18,933	. 7	О	
Chlorination Takhiatash Total 5 16		46 1,786 47 0	10,860	43	0 18,933	. 7	0	
Total 5 10		1,786 47 0	10,860		18,933	. 7	0	
6 Tr. & Distribution Pumping Kungrad Q= 55.02 km3/d H= 90 m P= 75 kw q=270 m3/m H=160 m P=170 kw Chlorination Kungrad Chlorination Kungrad Chlorination Muynak Total 6 H 7 Transmission Pipeline T.N. No. I.B.P.S D=1,600 mm L=63.0 km 8 No. I.B.P.S No. 2 B.P.S D=1,400 mm L=59.0 km 8 Nukus Takhiatash (L=21 km) D=1,200 mm L=11.0 km 1 Kungrad Muynak (Q=12.09 km3/d) D= 500 mm L=96.5 km 2 Total 7 20 8 Water Treatment Plant Muynak Rehbili. & Exten Q=13.3 km3/d Power		47 0	10,000	0	18,933	. 7		
Station q=220 m3/d H= 90 m P= 75 km q=270 m3/tr H=160 m P=170 km P=170 k		0			10,933	. 7		·
q=270 m3/tu								
q=270 m3/tr	.	190				190		l
Chlorination Kungrad Chlorination Maynak Total 6 10		99			l .	99		l
Chlorination Maynak Total 6 16 17 17 18 18 18 18 18 18	į	12				12		l
7 Transmission Pipeline T.NNo.1.B.P.S. D=1,400 mm L=63.0 km. 8 No.1.B.P.SNo.2.B.P.S. D=1,400 mm L=59.0 km. 7 Nukus - Takhiatash (L=21 km) D=1,200 mm L=91.0 km. 1 Kungrad - Muynak (Q=12.09 km3/d) D= 500 mm L=96.5 km. 2 Total 7 20 8 Water Treatment Plant Rehbili. & Esten. Q=13.3 km3/d Revers Osmosis 1 Q=1.015 km3/d Power		<u> </u>				1,		
7 Transmission Pipeline T-N - No. 1 B.P.S D=1,600 mm L=63.0 km 8 No. 1 B.P.S - No. 2 B.P.S D=1,600 mm L=59.0 km 2 Nukus - Takhiatash (L=21 km) D=1,200 mm L=11.0 km 1- Kungrad - Muynak (Q=12.09 km3/d) D= 500 mm L=96.5 km 2 Total 7 20 8 Water Treatment Plant Rehbili. & Exten. Q=13.3 km3/d Revers Osmosis 1 Q=1.015 km3/d Power	6,933	351		0	18,933	351		·
No.1 B.P.S. No. 2 B.P.S D=1,400 mm L=59.0 km 2	2,632	83	82,632	83		83	82,632	
Nykos Takhiatash (L=21 km) D=1,200 mm L=11.0 km 1 Kungrad Muynak (Q=12.09 km3/d) D= 500 mm L=96.5 km 2/2 Total 7 20 8 Water Treatment Plant Muynak Rehbili & Exten Q=13.3 km3/d Revers Osmosis 1 Q=1.015 km3/d Power Pow	7,344	17	77,344	77	62,032	0	1.647034	
Kungraf - Muynak (Q=12.09 km3/d) D= 500 mm L=96.5 km 2/ Total 7 20 8 Water Treatment Plant Muynak Rehbili & Esten Q=13.3 km3/d Power P	4,687	15	14,687	15		0		
8 Water Treatment Plant Maynak Rehbili. & Exten. Q=13.3 km3/d Revers Osmosis 3 Q=1.015 km3/d Power	6 175	28		0	31,267	31		
8 Water Treatment Plant Muynak Rehbili. & Exten. Q=13.3 km3/d Revers Osmosis 3 Q=1.015 km3/d Power	3,138	203	174,663	175		114	82,632	l
Revers Osmosis 1 Q=1.015 km3/d Power	27.20	0	5,440	238	117,077	0		
Power		ŏ	8,824	0	8,824	·ŏ	B,B24	1
· · · · · · · · · · · · · · · · · · ·		ĭ	0,024	111		ni	0,824	ĺ
L'octores:		I		27		27		
Sell		!	i	64		64		
Repair			ì	84		84		
Total 8	n l	o	14,264	524	8,824	286	14,264	
9 Water Treatment Plant Takhiatash Rehbili. & Faten. Q=186 2 km3/d		o		0		4,454		
(Left Bank) Rebbili, & Exten. Q=1729 km3/d				ŭ	22.21	0		4
Revers Osmosis Q=13.593 km3/d		0		0	99,341	Ŏ		·
Powet	- i	ĭ		ľ	****	1,424	''''']
Chemical			.			345		i '
Scil .	. 1	1	:			B20		
Repair		. 1			1	1 079		١,
Total 9	0	ol	ี่เก็	. 0	162,835	8,122	155,879	,
10 Distribution Network Muynak for R/O D= 100 - 150 mm L= 60 km	: <u></u> -	. 0	6,314	64		64	6,314	· · · · ·
Takhiatash diito D=100 - 400 mm L=250 km		ō	2.5	o		713	43,525	i
Total 10	77.1	·	6,314	64		717		
Grand Total 40		ol		`	I			1

Table D.3 Construction Cost Estimation (B/P)

			-	usand USD)
			Local	Foreign
Description		Total	Currency	Currency
			Portion	Portion
I. Kaparas Raw Water Intake System				
1.1 Kaparas Intake Station				
I.I.I Kaparas Intake Station	Q=1,000,000 m3/d	6,864	6,864	
1.1.2 Machinery Equipments		2,272	440	1,83
1.1.3 Electric Equipments	· · · · · · · · · · · · · · · · · · ·	3,237	591	2,646
1.1.4 Monitoring Water Quality		523	88	43:
HIII 1911 Marija () A 1 () A 1 () A 1 () A 1 () A 1 () A 1 () A 1 () A 1 () A 1 () A 1 () A 1 () A	Total 1.1	12,897	7,984	4,91.
1.2 Raw Water Mains				
1.2.1 Kaparas I.S. to T-N existing intake st.	D=1,400 L=10.7 km	18,713	4,460	14,25
1.2.2 Kaparas I.S. to T-N existing intake st.	D=1,400 L=10.7 km	15,039	1,593	13,440
1.2.3 Kaparas I.S. to T-U existing intake st.	D=1,400 L= 1.0 km	1,643	146	1,49
1.2.4 Kaparas I.S. to T-U existing intake st.	D=1,400 L= 9.0 km	12,679	1,316	11.36
· · · · · · · · · · · · · · · · · · ·	Total 1.2	48,072	7,513	40.55
	Total 1	60,970		45,47
2. Tuyamuyun Nukus Water Supply System	10,111	00,210	13,170	7,7,7,7
2.1 Water Treatment Plant	Q=500,000 m3/d			
2.1.4 Rehabilitation	Q=200,000 m3/d	: 0		
(1) Machinery Equipments	Q=200,000 In.i/d		1.003	
		11,742	1,997	9,74
(2) Chemical and Chlorination Equipments	··· •·· • · · · · · · · · · · · · · · ·	2.556		
(3) Electric Equipments	·	3,555	596	2,959
(4) Laboratory Equipments		209	<u>0</u>	209
	Total 2,1.1	15,507	2,594	12,91.
2.1.2 Expansion Phase - I	Q=150,000 m3/d	7,14 2	6,948	194
(1) Machinery Equipments		29,016	4,929	24,087
(2) Chemical and Chlorination Equipments		3,426	585	2,841
(3) Electric Equipments		5,013	852	4,161
	Total 2.1:2	44,597	13,315	31,282
2.1.3 Expansion Phase - III	Q=150,000 m3/d	7,097	6,999	
(1) Machinery Equipments		20,618	3,517	17,101
(2) Chemical and Chlorination Equipments		3,426	585	2,841
(3) Electric Equipments		5,013	852	4,161
	Total 2.1.3	36,154	11,955	24,199
	Total 2.1	96,256	27,861	68,395
2.2 Transmission and Distribution Pumping St.	The second secon	eronomonotofinapae .:	between the last the same and and	nadanahan sebagai
2.2.1 No. 2 Booster Pumping Station Phase - 1	Q=306,940m3/d	5,745	5,745	0
(1) Machinery Equipments	· · · · · · · · · · · · · · · · · · ·	2,615	489	2,126
(2) Electric Equipments		1,166	75	1,091
	Total 2.2,1	9,527	6,309	3,218
2.2.2 No. 3 Booster Pumping Station Phase - ItI	Q=306,940m3/d	5,745	5,745	
(1) Machinery Equipments	The state of the s	2,615	489	2,126
(2) Electric Equipments		1,166	75	1,091
(1) metally Exportations	Total 2.2.2	9,527	6,309	3,218
2.2.3 Nukus North Distribution Station	Q=255,910 m3/d	4,687	4,687	2,410
(1) Machinery Equipments	Q-235,710 BING	4,580	273	4 307
(2) Electric Equipments				4,307
(2) accure equipments	Tables	1,593	74	1,519
124 Vuning Teaminister and Direct of	Total 2.2.3	10,861	5,035	5,826
2.2.4 Kungrad Transmission and Distribution St.	Q= 55,020 m3/d	13,031	13,031	0
(1) Machinery Equipments		4,287	196	4,091
(2) Electric Equipments		1,361	62	1,302
(2) Chlorination Equipments		258	44	214
	Total 2.2.4	18,939	13,333	5,606
	Total 2.2	48,853	30,985	17,868
2.3 Transmission Pipeline	e procede a ser e conquesta de la constante de			
2.3.1 W.T.P No. 1 Pumping st.	D=1,400 L= 63.0 km	82,632	9,211	73,421
2.3.2 No.1 P.S. to No.2 P.S.	D=1,400 L= 59.0 km	77,344	8,608	68,736
CARACTER PROBLEM AND ARCHIVE AND ARCHIVE	D 4444 1141	1.4.60		

Desilation		27-4-3	Local	Foreign
Description		Total	Currency Portion	Currency Portion
2.3.4 Takhiatash (Khodjeili) - Kungrad	D=1,000 L= 111.0 km	86,816	8,667	78,14
2.3.5 Kungrad - Muinak (Q=8,870 m3/d)	D=500 L= 96.5 km	28,475	3,546	24,92
2.3.6 Khalkabad - Kegeili	D=500 L= 11.5 km	3,449	576	2,87
2.3.7 Kegeili - Bozatau	D=400 L= 50.0 km	15,043	1,436	13,60
2.3.8 Kárauzyak - Takhtakupyr	D=500 L= 29.0 km	8,561	1,061	7,50
	Total 2.3	317,011	36,831	280,18
	Total 2	462,121	95,678	365,44
. Tuyamuyun Urgench Water Supply System	. 1	:		
3.1 Water Treatment Plant	Q=500,000 m3/d			
3.1.1 Rehabilitation	Q=200,000 m3/d	0	0	1
(1) Machinery Equipments		11,742	1,997	9,74
(2) Chemical and Chlorination Equipments		<u>0</u>	0	
(3) Electric Equipments		3,555	596	2,95
(4) Laboratory Equipments		207	0	20
	Total 3.1.1	15,504	2,593	12,91
3.1.2 Expansion Phase - I	Q=200,000 m3/d	10,103	9,909	19
(1) Machinery Equipments		35,425	6,011	29,41
(2) Chemical and Chlorination Equipments		4,584	784	3,80
(3) Electric Equipments		6,690	1,140	5,55
2125	Total 3,1.2	56,801	17,844	38,95
3.1.3 Expansion Phase - III	Q=100,000 m3/d	6,291	6,193	9
(1) Machinery Equipments		17,694	3,021	14,67
(2) Chemical and Chlorination Equipments		2,268	387	1,88
(3) Electric Equipments		3,335	565	2,77
	Total 3.1.3 Total 3.1	29,588	10,166	19,42
3.2 Transmission Pipeline	Total 3.1	101,893	30,602	71,29
3.2.1 W.T.P Khazarasp Pum. St. Phase - I	D=1,200 L=27.0 km	27,619	2,809	24,84
3.2.2 Khanki - Urgench	D=1,200 L=13.2 km	8,068	771	7,29
3.2.3 Yangiaryk - Khiva	D=600 L=20.0 km	7,296	741	6,55
3.2.4 S.P.1 - Koshkupyr	D=600 L=14.0 km	5,121	608	4,51
3.2.5 Koshkupyr - Shavat	D=600 L=10.0 km	3,704	428	3,27
3.2.6 Gurlen - Shavat	D=600 L=19.5 km	3,350	275	3,07
	Total 3.2	55,189	5,633	49,55
3.3 Transmission Pumping Station			:	e de estado e estado e e e e e e e e e e e e e e e e e e e
3.3.1 Khazarasp Pumping Station Phase - III	Q=256,290m3/d	5,941	5,941	
(1) Machinery Equipments		5,190	302	4,88
(2) Electric Equipments		979	45	93
	Total 3.3	12,110	6,289	5,82
	Total 3	169,191	42,523	126,66
VodoKanal Karakalpakstan				
4.1 Water Treatment Plant			[
4.1.1 Nukus W.T.P (Rehabilitation)	Q=65,000 m3/d	0	0	
(1) Machinery Equipments		12,736	1,173	11,50
(2) Chemical and Chlorination Equipments		1,807	314	1,49
(3) Electric Equipments	Total 4.1.1	3,177	146	3,0.
4.1.2 Nukus W.T.P (Expansion)	Q=35,000 m3/d	17,719	1,632	16.09
(1) Machinery Equipments	Q-55,000 HI3/0	1,425 6,274	1,327 822	5,4:
(2) Chemical and Chlorination Equipments		1,086	189	3,43
(3) Electric Equipments		1,763	247	1,5
LUNCOUNTED TRUE UNITALLE LL. L. L	Total 4.1.2	10,548	2,585	7.96
4.1.3 Chimbai W.T.P (Rehabilitation)	Q= 2,200 m3/d	8	8	1,21
(1) Machinery Equipments		1,058	48	1,0
(2) Chemical and Chlorination Equipments		32	6	<u></u>
(3) Electric Equipments		501	23	47
	Total 4.1.3	1,600	85	1,51
4.1.4 Turtkul W.T.P (Rehabilitation)	Q=8,400 m3/d	3,796	318	3,47
4.1.5 Beruni W.T.P (Rehabilitation)	Q=4,600 m3/d	2,079	175	1,90

			Local	Foreign
Description		Total	Currency	Currency
			Portion	Portion
4.1.6 Kegeili W.T.P (Rehabilitation)	Q=1,000 m3/d	728	38	690
	Total 4.1	36,470	4,833	31,637
4.2 Distribution Network		:		***************************************
4.2.1 Replacement D=100~D=400	L=228.8 km	53,216	31,819	21,397
4.2.2 Expansion D=100 ~ D=400 Phase - I	L=119.6 km	27,993	16,737	11,256
4.2.3 Expansion D=100 ~ D=400 Phase - II	L=66.0 km	24,728	14,784	9,944
4.2.4 Expansion D=100~D=400 Phase - III	L=174.0 km	40,590	24,268	16,322
	Total 4.2	146,528	87,609	58,919
4.3 Metering System				***************************************
4.3.1 Meter Installation D=20 Phase - 1	N=37,710 pieces	3,348	781	2,567
4.3.2 Meter Installation D=20 Phase - II	N=30,390 pieces	2,698	629	2,069
4.3.3 Meter Installation D=20 Phase - III	N=73,660 pieces	6,539	1,525	5,014
	Total 4.3	12,584	2,934	9,650
	Total 4	195,584	95,379	100,205
5. VodoKanal Khorezm				
5.1 Water Treatment Plant				
5.1.1 Urgench W.T.P (Rehabilitation)	Q= 50,000 m3/d	. 0	0	0
(1) Machinery Equipments		14,051	1,100	12,951
(2) Chemical and Chlorination Equipments		1,421	241	1,180
(3) Electric Equipments		4,219	194	4,025
	Total 5.1.1	19,691	1,535	18,156
5.1.2 Urgench W.T.P (Expansion)	Q= 50,000 m3/d	1,119	1,021	98
(1) Machinery Equipments		7,334	1,001	6,333
(2) Chemical and Chlorination Equipments		1,421	241	1,180
(3) Electric Equipments		2,116	319	1,797
	Total 5.1.2	11,990	2,582	9,408
5.1.3 Chalish(Rehabilitation)	Q= 11,000 m3/d	24	24	0
(1) Machinery Equipments		1,274	. 58	1,216
(2) Chemical and Chlorination Equipments		153	26	127
(3) Electric Equipments		501	23	478
	Total 5.1.3	1,953	. 133	1,820
5.1.4 Chalish(Expansion)	Q= 22,000 m3/d	2,640	1,467	1,173
(1) Machinery Equipments		398	18	380
(2) Chemical and Chlorination Equipments		306	53	253
(3) Electric Equipments		0	.0	0
	Total 5.1.4	3,343	1,537	1,806
	Total 5.1	36,977	5,787	31,190
5.2 Distribution Network			1 - 1	. /
5.2.1 Replacement D=100~D=400	L=170.3 km	39,833	23,817	16,016
5.2.2 Expansion D=100 ~ D=400 Phase - I	L= 71.5 km	16,796	10,042	6,754
5.2.3 Expansion D=100~D=400 Phase - II	L≃ 30.0 km	12,597	7,531	5,066
5.2.4 Expansion D=100 ~ D=400 Phase - III	L= 80.0 km	18,663	11,158	7,505
	Total 5.2	87,890	52,549	35,341
5.3 Metering System				4
5.3.1 Meter Installation D=20 Phase - I	N=17,550 pieces	1,557	363	1,194
5.3.2 Meter Installation D=20 Phase - II	N=14,460 pieces	1,283	299	984
5.3.3 Meter Installation D=20 Phase - III	N=34,240 pieces	3,039	708	2,331
	Total 5.3	5,880	1,371	4,509
	Total 5	130,747	59,707	71,040
	Total 1 - 5	1,018,614	308,786	709,828

INNER MORTAR LINING

(1) Inner Lining

The merit for with inner lining and the demerit for without inner lining are summarized below.

- 1) Inner lining prevents corrosion of pipe surface. If pipe surface is corroded, the surface become uneven, lost its smoothness, section becomes smaller, and flow capacity is down.
- 2) Steel Pipe is easy to be corroded and lost its useful life. Inner lining prevents this.
- 3) Steel pipe is also corroded by chlorine and consumes chlorine. Inner lining prevents these.
- 4) The inner surface corrosion of steel pipe causes red water or water quality problem.
- (2) Cost Comparison for with and without mortar lining

Basically, there are some inner lining materials. Since the inner lining are planned to do at site in this project, mortar lining method is recommended and considered for comparison because of its ease for execution. For a comparison, the following conditions are assumed.

- 1) Useful life of the pipe is same. In the case of without inner lining, to keep the same useful life as with inner lining pipe, thickness of pipe is adjusted considering corrosion, viz., corrosion thickness is added.
- 2) Condition of pipe

Useful life : 40 years

Price of steel pipe : 1,000 USD / ton (CIF)

Cost for mortar lining : 64 USD / m2

Diameter of pipe : 1,400 mm

Thickness of pipe with

mortal lining : 13 mm

Thickness of pipe without

mortar lining : 21 mm (13 + 8 = 21)

Corrosion rate : 0.2 mm/year

(source: H.H. Uhling Corrosion Hand Book 1948)

The costs of pipe are estimated as follows,

With mortar lining : 733 USD/m

Without mortar lining : 736 USD/m

It is concluded to be almost same costs.

(3) Conclusion

Pipe transfers safe drinkable water. To secure safe and quantity of precious drinkable water conveyance, inner lining is essential. Since the costs for with and without mortar lining are nearly same, inner mortar lining is recommended for the project.

Table D.4 Project Cost

337-3-7-	i Carrette	: 					million			
Work Item	Specification	-	Tota)	TENER I		nority Pro			nonty P	
		Total	LC	F/C	Lotal	LC	F/C	Total	1/C	F/C
1. Kaparas Raw Water Intake System	1			<u></u>						
1.1 Kaparas Intake Station	Q=750,000 m3/d	12.9	8.0	4.9	12.9	8.0	4.9			
1.2 Raw Water Mains Pipeline	التنسيب والمستوالية والمستوالية					ي رونسېس				
1.2.1 Kaparas I.S. to T-N Existing Intake Station	D=1,400 L=10.7 km	14.2	4.5 0.1	9.7	14.2	4.5	9.7			
1.22 Kaparas I.S. to T-U Existing Intake Station	D=1,400 L= 1.0 km	1.6		1.5	1.6	0.1	1.5			
1.2.3 Kaparas I.S. to T-U Existing Intake Station	D=1,400 L= 9.0 km	8.9	1.3		8.9	1.3	7.6			
Sub-Total		37.6	13.9	23,7	37.6	13.9	23.7			
2. Tuyamuyun-Nukus Water Supply System										
2.1 Water Treatment Plant	Q=350,000 m3/J							,.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
2.1.1 Rehabilitation	Q=200,000 m3/d Q=150,000 m3/d	15.5	2.6					15.5	2.6	12.9
2.1.2 Expansion	[Q=150,000 m3/d	44.6	13.3	31.3				44.6	13.3	31.
2.2 Transmission and Distribution Pumping Station		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								
2.2.1 No. 2 Booster Pumping Station	Q=234,410 m3/d	9.5	63	3.2 5.8	:			9,5	6.3	3.3
2.2.2 Nukus North Distribution Station	Q=122,950 m3/d	10.8	5.0	5,8	10.8	5.0	5.8			
2.2.3 Kungrad Transmission and Distribution Station	Q= 42,130 m3/d	10.5	6.7	3.8	10.5	6.7	3.8			
2.3 Transmission Pipeline	Day in the second of the secon		********				· mara dan si Eduara -			
2.3.1 W.T.P No. 1 Pumping Station	D=1,400 L= 63.0 km	56.3 10.7	9.3	47.0				56.3	9.3	47.0
2.3.2 Nukus - Takhiotash L=21 km	D=1,200 L= 11.0 km		3.7	7.0	10.7	3.7	7.0			
2.3.3 Kungrad - Muynak (Q=8,870 m3/d)	D=500 L= 96.5 km D=400 L= 50.0 km	21.4	3.6		21,4	3.6	17.8	inama		
2.3.4 Kegesti - Bozatau	D=400 L= 50.0 km	13.1	1.4					13.1	1.4	11.
Sub-Total		192.4	51.9	140.5	53.4	19.0	34.4	139.0	32.9	106.
3. Tuyamuyun-Urugench Water Supply System										
3.1 Water Treatment Plant	Q=400,000 m3/d					j				
3.1.1 Rehabilitation	Q=200,000 m3/d	15.5	2.5	13.0			:	15.5	2.5	13.0
3.1.2 Expansion	Q=200,000 m3/d	56.8	17.8	39.0	56.8	17.8	39.0			
3.2 Transmission Pipeline	1					İ				
3.2.1 W.T.P Khazarasp Pumping Station	D=1,200 L=27.0 km	17.9	2.8	15,1	17.9	2.8	15.1			
3.2.2 Khanki - Urgench	D=1,200 L=13.2 km	5.4	0.8	4.6	5.4	0.8	4.6			
3.2.3 Yangiaryk - Khiva	D=600 L=20.0 km	5.0	07	4.3	5.0	0.7	43			
3.2.4 S.P.1 - Koshkupyr	D=600 L=14.0 km	3.6	0.7		3.6	0.7	2.9		, i	
3.2.5 Gurlen - Shavat	D=600 L=19.5 km	2.6	0.3	23	2.6	0.3	2.3			
Sub-Total		106.8	25.6	81.2	91.3	23.1	68.2	15.5	2.5	33.0
4. VodoKanal Karakalpakistan										
4.1 Water Treatment Plant										-
4.1.1 Nukus W.T.P (Rehabilitation)	Q= 65,000 m3/d	17.7	1.6	16.1				17.7	1.6	16.
4.1.2 Chimbai W.T.P (Rehabilitation)	Q= 2,200 m3/d	1.6	0.1	1.5				1.6	0.1	1.3
4.1.3 Water Treatment Plant (Rehabilitation), 3Cities	Q= 14,000 m3/d	6.6	0.5	6.1				6.6	0.5	6.
4.2 Distribution Network	į .									
4.2.1 Replacement D=100~D=400	L=228.8 km	53.2	31.8	21.4	20.5	12.2	8.3	32.7	19.6	13.1
4.2.2 Expansion D=100~D=400	L=119.6 km	28.0	16.8	er ner renn mee		6.5	4.3	17.2	10.3	6.9
4.3 Metering System										
4.3.1 Meter Installation D=20	N=115,960 Picces	10.3	2.4	7.9	3.9	0.9	3.0	6.4	1.5	43
Sub-Total		117.4	53.2		35.2	19.6	15.6	82.2	33.6	48.0
5. VodoKanal Khorezm	 		33.2					02.2	33.0	70.
5.1 Water Treatment Plant		 -				 			- i	
5.1.1 Urgench W.T.P (Rehabilitation)	Q= 50,000 m3/d	19.7	1.5	18.2				19.7	1.5	18.7
5.1.2 Chalish (Rehabilitation)	Q= 11,000 m3/3	1.9	0.1	1.8		<u>-</u> -	·····	1.9	0.1	18.1
5.2 Distribution Network	14- 11,000 11.00		V. 1					1.3	V.1	1.4
5.2.1 Replacement D=100~D=400	1 - 170 2 1	39.8	23.0							
martin commercially actives and the contraction of	L=170.3 km	***********	23.8		15.3	9.1	6.2	24.6	14.7	9.9
5.2.2 Expansion D=100~D=400	L= 71.5 km	16.8	10.1	6.7	6.5	3.9	2.6	10.3	6.2	4.1
5.3 Metering System	1, ,,,,,,,	i		ļ,. <u>.</u> ,		ا پند	Oppologicy			
5.3.1 Meter Installation D=20	N=60,970 Pieces	5.4	1.3	4.1	2 1	0.5	1.6	3.3	0.8	2.5
Sub-Total	 	83.7	36.8		23.9 241.4	13.5	10.4 152.3	59.8	23.3	36.0
Total		538.0		356.5		89.1		296.6	92.35	204.7

Note:
L/C: Local currency portion, F/C: Foreign currency portion
This construction cost is pipeline without inner cement mortar lining.

E. ENGINEERING DESIGN

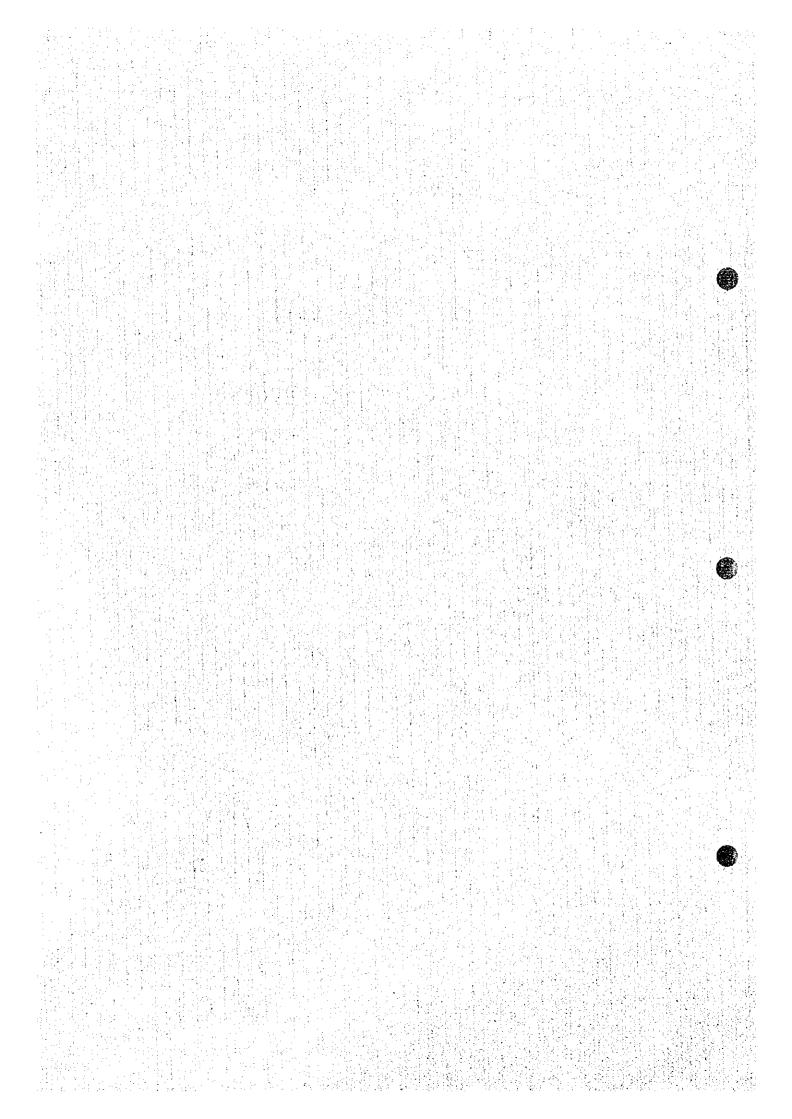


Table E.1 FS(2010)

Pipe data & hydraulic calculation result of Tuyamuyum-Nukus raw water main

0N	No Point	1 Kaparas Pun	2. Branch to	3 Existing into	4.T.W.Y.P	5 Receiving w	_										
Kemarks		240,467															
Hydrauic Head loss gradient	H (m)	27.4	16.2	3.7	0			-			•		_		-		Ì
Hydraunc gradien	1 (%)	4.083	4.089		2.403												İ
Flow velocity	V (m/sec)	2.47			1.68			_		-	-						
Flow rate	L (km) Q (m3/day) V (m/sec)		328,000		164,000			_				-			,	•	Ì
Section	L (km)	0073	3972	1539	\$												
Nos. of pipe		7			ći	-								_			
Pape diameter	D (mm)	1,400	<u>8</u>	90	200				_				_			-	
Node No.		1 - 2	es •••	4	, ,												

that sydrautic calculation, Hazen-Williams formula is used.

1 = 10.6666 = C~1.85 = (DJ:000)~4.87 = (QR6400)~1.85
H= 21,000 • L.

Coefficient (C) to the formula is set at 110

Pipe data & hydraulic calculation result of Tuyannyum-Urgench raw water main

Kemarks		240,467	:	157.300		1		
Head loss	H (m)	10.6		×			 :	
Hydraulic gradient	(99c)	1.58X				;		
rlow	V (m/sec)	ľ	1 78					
Flow rate	Q (m3/day) V (m/sec)	156,700	36,18	157,300	7.	1		;
Secuen	(m)	00/9	ì	X250		i		•
703.01 2120		C \$ C	4 	-				
Pipe	D (mm)	30,5	\$ 8					
Node No.		ca c	n er	4				

For this hydraulic calculation, Hazen-Williams formula is used.

1 = 10.666 * C*-1.85 * (D/1000)*-4.87 * (Q/n6400)*-1.85

H= 1/1000 * L.

Coefficient (C) in the formula is set at 110

Node data & hydraulic calculation result of Tayamuyum-Nukus raw water main

	_						 		 <u>.</u>		 		
Kemark													
Total water bead of pump	(m)	179.0								-			
Minimum water level of pump operation	(m)	116.0			-		-						
Fumping head	(m)	630											
Water bead from G.L	(m)	47.7	29.3	16.8	10.7	1.1	-			-	-		
Ground Water Level Water beau level (G.L.) of receiving from G.L. tank	(w)					129.0							
Ground level (G.L.)	(w)	131.3	122.4	9.8.1	121.0	1,40.0				-			
Total water bead	(w)	0.661	151.6	135.4	131.7	130.7				_			
Kequired water amount	(m3/day)	O.	0	٥	ō	32X,0001	-						328,000
Total length from base point	(m)	0	6700	10672	133	1.97		-	 -	-			total
Node	Point	Kaparas Pump. st.	2: Branch to T-U W.T.P	3 Existing intake	4)T-N W.T.P	5 Receiving well						1.	
	ź		۲	e.	4	3							

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demand

Node data & hydraulic calculation result of Tuyamuyum-Urgench raw water main Node Data

				_	_	_	_	_			 	<u> </u>	_	 _	_	_
Kemark		٠.														
Minimum Total water	Desc		(m)	0.661					***		-					
Minimum	Walter Jewel	operation	(m)	116.0					:							
Pomping	2		(m)	63.0												
Water head	120		(E)	47.7	8.67	48.6	20.6									
Ground Water level	Of receiving		(m)				125.K									
			(m)		118.6											
Total water	2		(m)	0.471	168.4	3.45 3.48	46.4							-		
×	Amount		(m.Wday)	٥	0	0	393,400									
Congth from	nioc ssio		(u)	0	9029	799X	17247							,		
Node	:	~		Kaparas pump station	2 Branch to T-N W.T.P	Existing intake pump	T-U W.T.P			-						
		_]		-	۲٠	<u>"</u>	可									

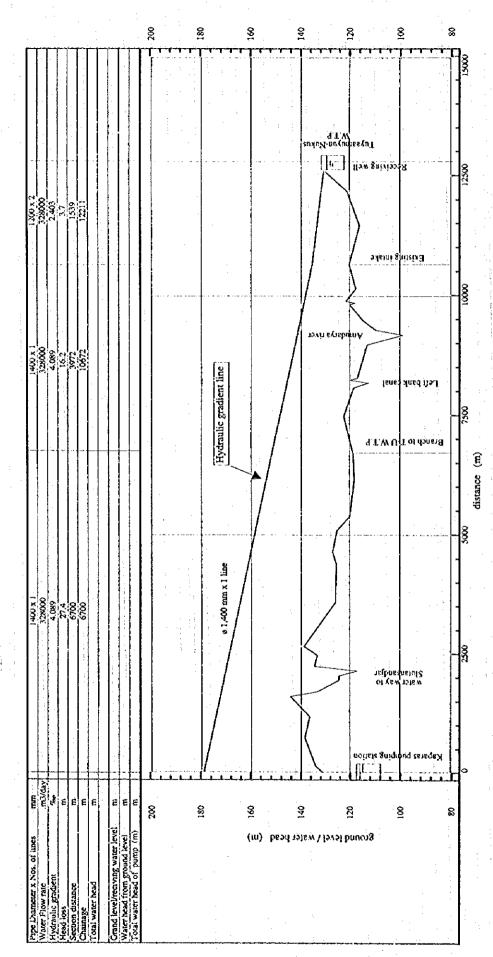
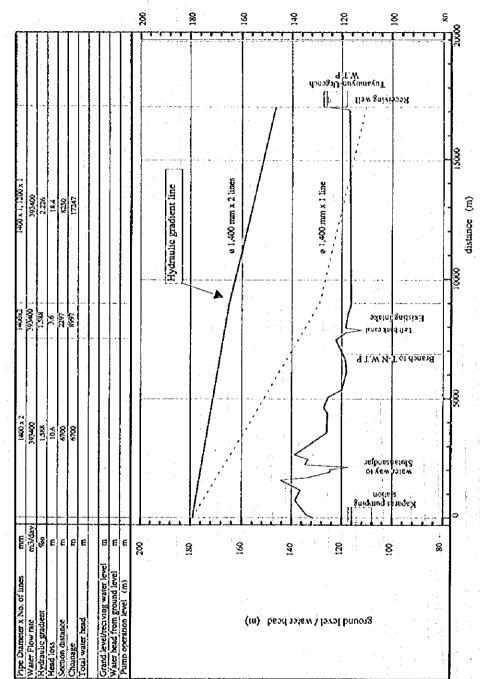


Fig. E.1 Longitudinal Section of Raw water main from Kaparas pump station to Tuyamuyum-Nukus W.T.P



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Fig. E.2 Longitudinal Section of Raw Water Main from Kaparas pump station to Tuyamuyum-Urgench W.T.P

Table E.2 Tuyamuyum-Nukus Pipeline System / Transmission Pipe Data Result (2010)

	Remark		transmission pump	3 -	transmission pump	:				transmission pump		transmission pump		:	transmission pump		transmission pump				transmission pump		
head loss		H (m)	8:59	208.3	57.2	76.2	100.0	43.6	7.2	25.2	10.1	7.2	24.8	29.4	15.7	17.7	32.4	20.4	5.7	5.9	77.3	-	Oint
hydraulic	gradient	I (‰)	1.044	3.530	2.382	2.382	2.382	3.116	0.804	668.0	0.465	0.611	1.294	1.013	1.368	0.354	1.544	0.346	0.258	0.196	0.801		"5) D.C.P. = Diamater Change Point
velocity	of flow	V (m/sec)	1.39	2.28	1.84	1.84	\$	1.93	0.83	0.88	0.62	0.57	0.77	09.0	0.71	0.30	1.32	0.59	0.50	0.43	0.53		5) D.C.P. = Dia
transmission	water volume	Q (m3/day)	313,730	302,930	244,920	244,920	244,920	188.750	56,170	59,640	41,750	18,930	18,930	10,260	12,070	3,230	129,110	57,550	49,070	42.290	9.040		£
distance		L (km)	63.00	29.00	24:00	32.00	42.00	14.00	00.6	28:00	21.80	11.80	19.20	29.00	11.50	20.00	21.00	29.00	22:00	30.00	96.50	:	Station
pipe diamater		D (mm)	1.822	1,400	1,400	1.400	1,400	1,200	1,000	1,000	1,000	28	009	200	800	004	1,200	1,200	1,200	1,200	200		*3) P.S. = Pump Station
	ipeline		~ (P.S.1.)	- P.S.2	- highest point	- P.S.3	- S.P.1	- Nukus north	 Nukus south 	- Kalkabad	- Chimbay	~ D.C.P.1	- Karauzyak	- Takhtakupir	- Kegeily	- Bozataus	- Takhiatash	- Shumanaı	~ Kanlykul	- Kungrad	- Muynak		1400*2line
	transmission Pipeline		T-N W.T.P.	(P.S.1)	P.S.2	highest point	P.S.3	S.P.1	S.P.1	Nukus north	Kalkabad	Chimbay	D.C.P.1	Karauzyak	Kalkabad	Kegeily	Nukus north	Takhiatash	Shumanai	Kanlykul	Kungrad		1) Pipe diameter: 1822 = 1400*2line
			1 ~ 2	2 - 3	3 101	101 ~ 4	4 - 102	102 - 5	102 - 6	5 ~ 7	8 1 /	8 ~ 103	103 ~ 9	9 - 10	7 - 11	11 ~ 17	5 - 12	12 ~ 13	13 ~ 14	14 ~ 15	15 - 16		1) Pipe o

*3) P.S. = Pump Station *4) S.P. = Sparate Point

coefficient of velocity C=

 $D = (d1^{2}.63 + d2^{2}.63)^{4}(1/2.63)$

TAble E.3 Tuyamuyum-Nukus Pipline System / Node Data Result (2010)

	and ino	activity	grand level	recaving	effective	pump head	discharge	
	water volume	water head		water level	water head		water head	
Node	(b)	(h1)	(PZ)	(b3)	(h4=h1-h2)	(h)	(h5=h+h2)	Remark
-				ı	(=h1-h3)			
	(m3/day)	(m)	(m)	(m)	(m)	æ	(ii)	
 T-N W.T.P. 	0		118.3		290.0	290.0	408.3	to Nukus
2 (P.S.1)	10,800	342.5	98.0	101.0	241.5			
	58,010	Ì	88.8	91.0	43.2	290.0	378.8	to Nukus
101 highest point	0		220.0		101.6			
4 P.S.3	0		91.5	95.0	150.4			
	0	145.4	79.0		4.99			
5 Nukus north	0	101.8	79.0	84.0	17.8	62.0	141.0	to Chimbay
ŀ						190.0	269.0	to Kungrad
6 Nukus south	56,170	138.2	0.62	84.0	54.2		•	
7 Kalkabad	5,820		0.79		48.8			
8 Chimbay	22.820	-	65.0	0.89	37.7	90.06	155.0	to Takhtakpyr
	0		62.5		85.3			
ĺ	8,670	123.0	63.0		0.09			
10 Takhtakupir	10.260		8.65	0.49	29.6			
1 Kegeily	8,840		67.4		32.7	0.09	127.4	to Bozataus
. 1	3.230		0.59		7.74			
12 Takhiatash	71.560		75.0	:	161.6			
- 1	8,480	216.2	0.07	-	146.2			
14 Kanlykul	6,780		65.0		145.5			
	33,250	204.6	61.0	65.0	139.6	160.0	221.0	to Muynak
16 Muynak	9.040	143.7	55.0	29.0	84.7			:
total	313,730							
							1	

Tuyamuyum-Urgench Pipeline System / Transmission Pipe Data Result (2010) Table E.4

			pipe diamater	distance	transmission	velocity	hydraulic	head loss	:
	transmission Pipeline	cline		:	water volume	of flow	gradient		Remark
			O (mm)	L (km)	Q (m3/day)	V (m/sec)	I (%)	H (m)	
1 ~ 2	T-U W.T.P.	~ Khazarasp	1,822	27.00	353,360	1:57	1.301	35.1	transmission pump
2 ~ 101	Khazarasp	- Node.1	1,562	15.00	257,480	1.56	1.533	23.0	
101 - 3	Node.1	- Khanki	1.562	15.60	257,480	1.56	1.533	23.9	
3 - 4	Khanki	~ Urgench	1.562	13.20	225,470	1.36	1.199	15.8	
4 ~ 5	Urgench	- Yangibazar	1.200	23.20	101,780	1.04	0.994	23.1	transmission pump
5 ~ 6	Yangibazar	- Gurlen	1,200	12.80	86,370	0.88	0.734	4.6	
6 - 7	Gurlen	~ Mangit	1,000	48.30	37.520	0.55	0.381	18.4	*
2 - 8	Khazarasp	- Bagat	1.000	22.30	04,780	0.95	1.047	23.3	
8 - 8	Bagat	- Yangaaryk	1,000	22.50	40,660	09.0	0.442	6.6	
9 ~ 10	Yangaryk	- Khiva	009	20.00	-:	0.90	1.709	34.2	
4 - 102		- S.P.1	1,183	19.20	51,520	0.54	0.302	5.8	transmission pump
102 - 10	S.P.1	- Khiva	8	16.60	27.770	0.0	0.648	10.8	
102 ~ 11	S.P.1	~ Koshkupyr	127	14.00	23.750	0.67	0.805	11.3	
6 = (12)	Gurlen	~ ((6) + 11.6 km)	00%	11.60	27,200	1.11	2.531	29.4	
(12) - 12	((6) + 11.6 km)	- Shavat	8	11.60	19.850	0.81	1.413	16.4	
				;					
							:		
*1) Pipe	*1) Pipe diameter: $1822 = 1200*3$ line	200*3line	*3) Pipe diameter: $721 = 500 + 600$	x: 721 = 500 +		"5) S.P. = Sparate Point	te Point		

*3) Pipe diameter: 721 = 500 + 600 *4) Pipe diameter: 1183 = 1000 + 800*1) Pipe diameter: 1822 = 1200*3line *2) Pipe diameter: 1562 = 1200*2line

coefficient of velocity C =

 $I = 10.666 * C^{-1.85} * (D/1000)^{-4.87} * (Q/86400)^{-1.85} * 1000 (\%)$ H=1/1000*L (m)

Hazen-Williams formula

 $D = (41^{\circ}2.63 + 42^{\circ}2.63) \wedge (1/2.63)$ Pipe conbimation formula

To minimize the investment, laying of the water supply pipes between Koshkupyr and Shavat should be made in the form of Phase III. As a result, the water conveying pipes are rendered unable to form a network and prove insufficient with a resultant lack of pressure hydraulically. Under a feasibility study we propose a hydraulic calculation with an approach as follows. The amount of water supply in Shavat is set up as under. The hydraulic calculation takes place on the assumption that the amount of rural water supply is entirely consumed between Gurlen and Shavat. The amount of water supply between Gurlen and Shavat are set up as follows. Koshkupyr+11.6km - Shavat Koshkupyr - Koshkupyr+11.6km

7,350 m3/d (50%) 19,850 m3/d 12,500 m3/d 14,700 m3/d 27,200 m3/d 12,500 m3/d Urban Rural Total

Table E.5 Tuyamuyum-Urgench Pipline System / Node Data Result (2010)

	ont but	activity	ground level	reciving	effective	pump head	discharge	
	water volume	water head		water level	water head		water head	
Node	(4)	(h1)	(172)	(b3)	(h4=h1-h2)	()	(h5=h+h2)	Remark
:					(=h1-h3)	:		-
	(m3/day)	(m)	(m)	(m)	(m)	(m)	(m)	
1 T-U W.T.P.	14,770	200.3	110.3		0.06	0.06	200.3	to Urgench
2 Khazarasp	31.100		106.1		59.1			
101 Node.1	0	:	0.86		43.2			
3 Khanki	32,010		97.3		21.0			
4 Urgench	72,170	102.5	0.66		3.5	75.0	174.0	to Mangit
				-		0.06	189.0	to Khiva
5 Yangabazar	15,410	150.9	0.4.0		56.9			
6 Gurlen	29,000	141.5	91.0		50.5		-	
7 Mangit	30.170				40.6			
	24.120		103.0		6.88			
	18,660	132.0			34.5			
	0	183.2	0.76		89.2			
10 Khiva	49,770	97.8	94.0		3.8			from Bagat
		172.4	94.0		78.4			from Urgench
	23.750	6.171	0.40		6.77		1	
(12) Shavat(rural)	7,350	112.1	92.2		19.9			
12 Shavat	19.850	95.7	92.2		3.5	:		
Total	368.130							
, otal	-							

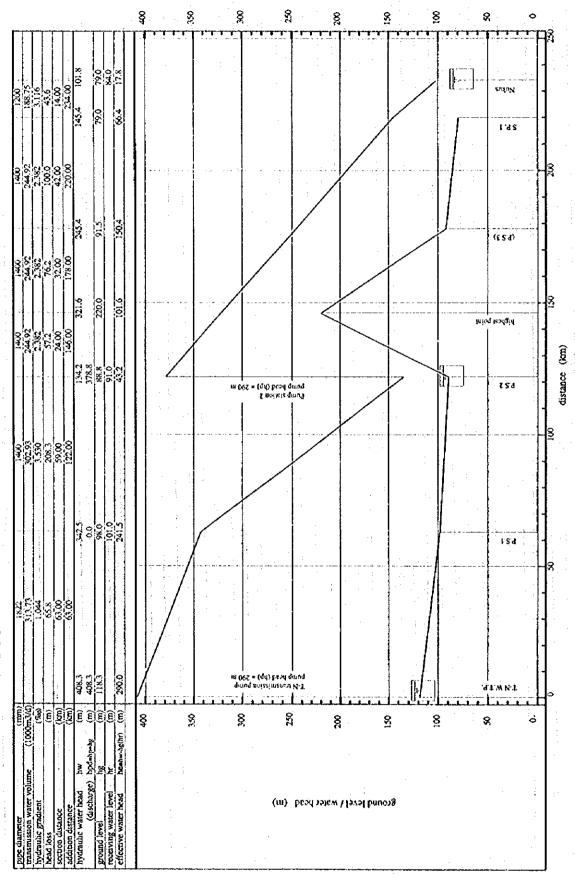


Fig. E.3 Tuyamuyum-Nukus pipeline system / T-N W.T.P - Nukus

100 100	Company Comp	pipe diameter		(mm)	1000	-	1000	700	8	_	8	- ;					: []
(cm) (cm) (cm) (cm) (cm) (cm) (cm) (cm)	(6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	transmission water volume	ĺ	3/4)	29.65 29.65	1	41.75	18,93	18.93		10.26						:
(a) 200 (b) 200 (c) 2100 1120 200 (c)	19 19 19 19 19 19 19 19	unic gradient	S	(04)	0.899		3.465	: 0.611	1.294		1,013		٠				
1,174 1,175 1,17	(iii) 1970 (iii) 1980	loss	z)	Ê	25.2		10.1	7.2	24.8		29.4						[
(c) (c) (c) (c) (c) (c) (c) (c) (c) (c)	(2) Subsequences (10) 1115 (10) 115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115 (10) 1115	on distance	S)	(H)	28.00	-		11,80	19.20		29.00						
Table Tabl	1	on distance	დ)	(m:	28.00	. 4		61.60	80.80		109.80	· ·					
171/1470 1 1 1 1 1 1 1 1 1	1	1			0.1	115.8	F 1.		7.8	123.0	:	93.6					
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Fig. E.4 Tuyamuyum-Nukus pipeline system / Nukus - Takhtakupir

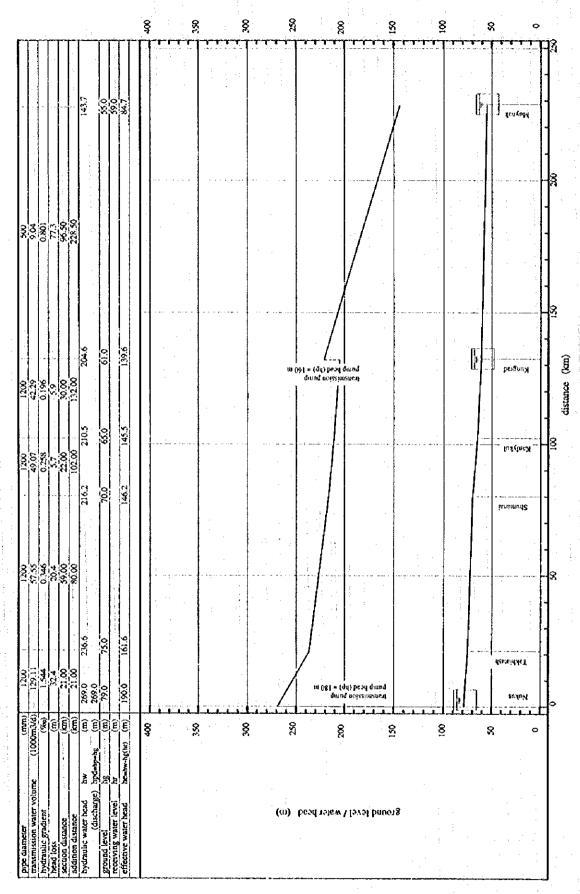


Fig. E.5 Tuyamuyum-Nukus pipeline system / Nukus - Kungrad - Muynak

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1562	225.47	1.199	15.8	13.20	70.80	102.5	0.66		3.5						<u> </u>	:				Urgench	===== .		(km)
1562	257.48	533	3.9	5.60	7.60	118.3	97.3		21.0								'- - - ·			Khanki		- - - 5	distance (km)
						142.2	0.66		43.2				·		· · · · · · · · · · · · · · · · · · ·					Node. I	,		
1562	257.48	1.533	23.0	15.00	42.00	165.2	106.1		59.1		· ,	-		-					ds	gwred X			
1822	353.36	1.301	35.1	27.00	27.00					:) ui 06 = (04) pa	ou dund					•		
(mm)	(1000m3/d)	(%)	(B)	(EE)	(See)		╄-	_	(m) 90.0		250		1-1-	/ 82	daind uois	Signs Rev		 	S Tr	,	• •	= 	>
	!					wh hodehoehe	hg	hr	he=hw-hg(hr)		•			. •	•					, d , v			
pipe diameter	transmission water volume	hydraulic gradient	head loss	section distance	addition distance	hydraulic water head hw (discharge) hpd=hp+hg	ground level	receiving water level	effective water head						(u) peaq	ostew \ Isv	. je	ьпиоля	·		:		

Fig. E.6 Tuyamuyum-Urgench pipeline system / T-U W.T.P - Urgench

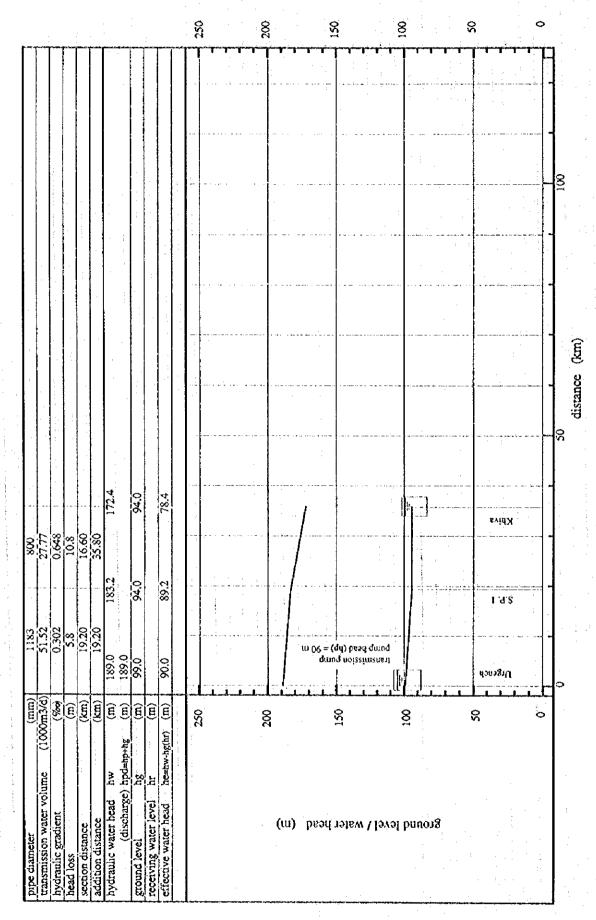
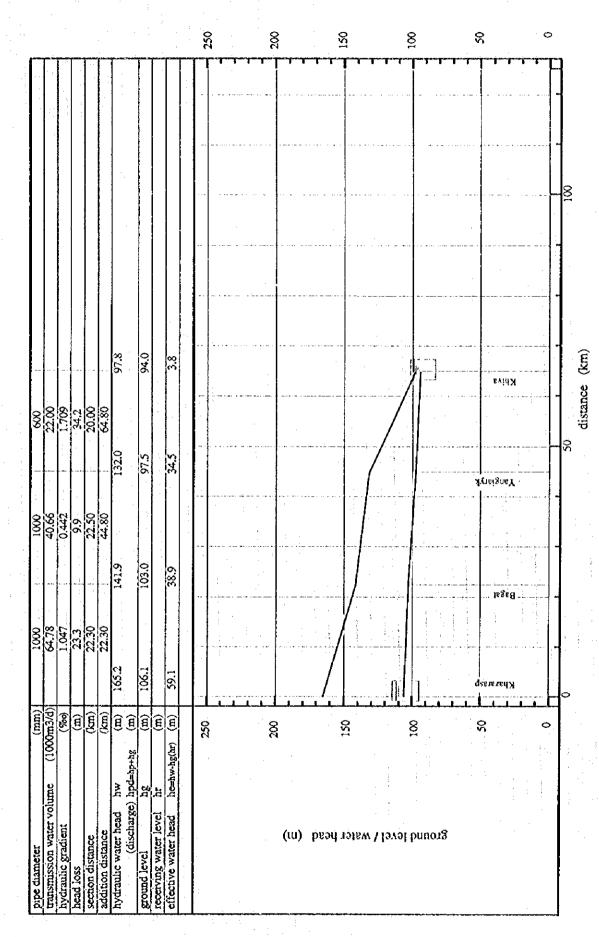


Fig. E.7 Tuyamuyum-Urgench pipeline system / Urgench - Khiva



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Fig. E.8 Tuyamuyum-Urgench pipeline system / Khazarasp - Khiva

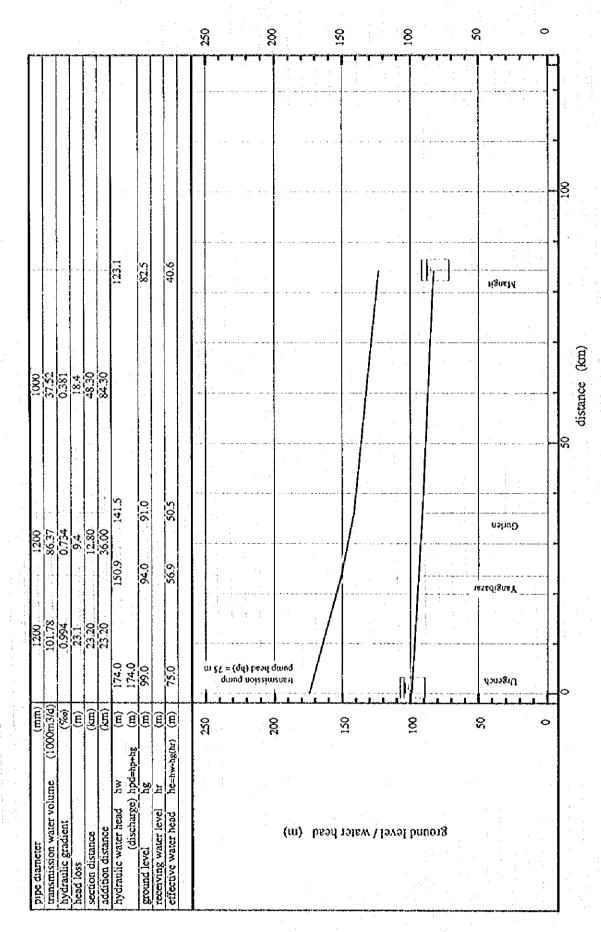


Fig. E.9 Tuyamuyum-Urgench pipeline system / Urgench - Mangit

F. FINANCIAL ANALYSIS

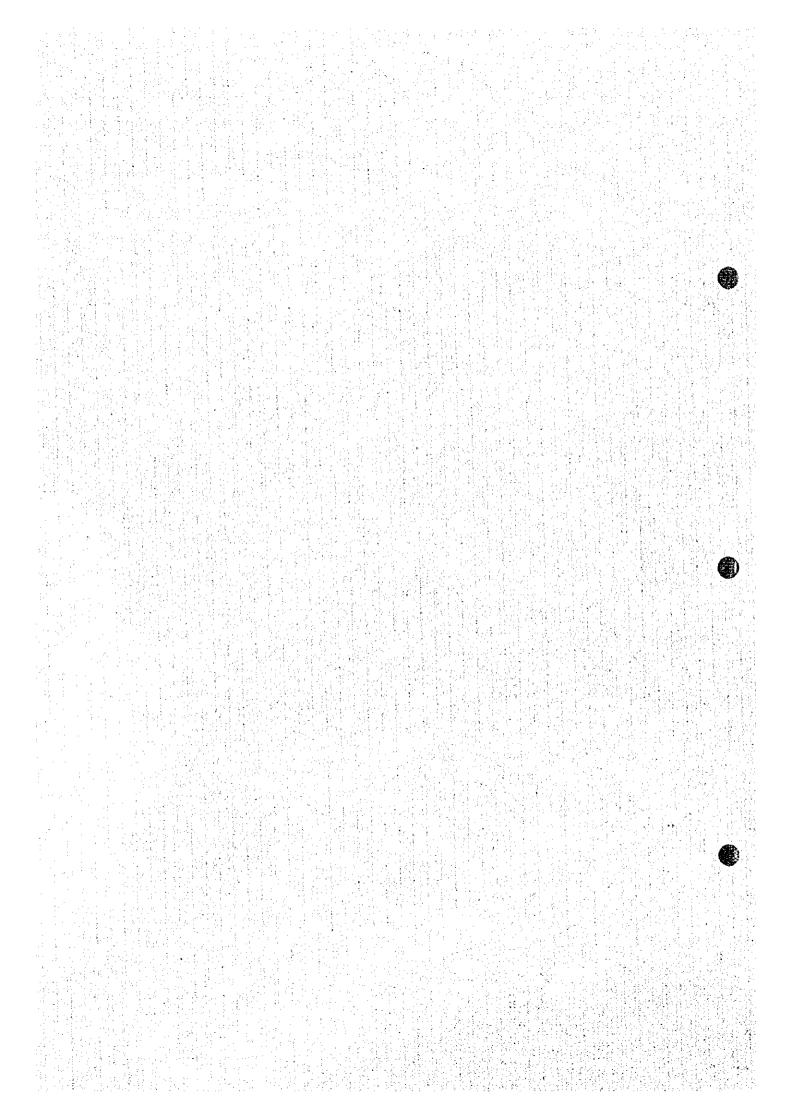


Table F.1 Construction Cost Estimation (F/S:Rescheduled Plan)

(Unit: thousand USD) Local Foreign Description Currency Total Currency Portion Portion 1. Kaparas Raw Water Intake System 1.1 Kaparas Intake Station 1.1.1 Kaparas Intake Station Q≈750,000 m3/d 6.864 6,864 1.1.2 Machinery Equipments 2,272 440 1,832 1.1.3 Electric Equipments 3,237 591 2,646 1.1.4 Monitoring Water Quality 523 88 435 Total 1.1 4,913 12,897 7,984 1.2 Raw Water Main 1.2.1 Kaparas I.S. to T-N existing intake st. 18,713 D=1,400 L=10.7 km 4,460 14,253 1.2.2 Kaparas I.S. to T-U existing intake st. D=1,400 L= 1.0 km 1,643 146 1,497 1.2.3 Kaparas LS. to T-U existing intake st. D=1,400 L= 9.0 km 12,679 1,316 11,363 33,035 5,921 27,114 Total I 45,932 13,906 32,026 2. Tuyamuyun Nukus Water Supply System 2.1 Water Treatment Plant Q=350,000 m3/d 2.1.1 Rehabilitation Q=200,000 m3/d (1) Machinery Equipments 11,742 9,745 1,997 (2) Chemical and Chlorination Equipments 3,555 (3) Electric Equipments 2,959 (4) Laboratory Equipments 209 209 15,505 2,592 12,913 2.1.2 Expansion Phase (6,948 7,142 194 (1) Machinery Equipments 29,016 4,929 24,087 (2) Chemical and Chlorination Equipments 3,426 585 2,841 (3) Electric Equipments 5,013 852 4,161 44,596 13,314 31,282 60,101 15,905 44,196 2.2 Transmission and Distribution Pumping St. 2.2.1 No. 2 Booster Pumping Station Phase - I 5,745 5,745 (1) Machinery Equipments 2,615 489 2,126 (2) Electric Equipments 1,166 75 1,091 6,309 Total 2.2.1 9,527 3,218 2.2.2 Nukus North Distribution Station 4,687 4.687 (1) Machinery Equipments 4.580 273 4,307 (2) Electric Equipments 74 1,593 1,519 5,826 10.861 5,035 2.2.3 Kungrad Transmission and Distribution St. 6,498 6,498 2,728 (1) Machinery Equipments 2,859 131 (2) Electric Equipments 910 42 868 (2) Chlorination Equipments 258 44 214 Total 2.2.3 10,524 6,714 3,810 30,911 18,057 12,854 2.3 Transmission Pipeline 2.3.1 W.T.P. - No. 1 Pumping st. D=1,400 L= 63.0 km82.632 9,211 73,421 D=1,200 L= 11.0 km 2.3.2 Nukus - Takhiatash (Khodjeili) L=21 km 14.687 3.723 10.964 2.3.3 Kungrad - Muinak (Q=8,870 m3/d) D=500 L= 96.5 km 28,475 3,546 24,929 15,043 1,436 13,607 2.3.4 Kegeili - Bozatau D=400 L= 50.0 km 122,920 140,837 17,917 Total 2.3 51,880 179,969 Total 2 231,849 3. Tuyamoyun Urgench Water Supply System 3.1 Water Treatment Plant Q=400,000 m3/d 3.1.1 Rehabilitation Q=200,000 m3/d (1) Machinery Equipments 11,742 1,997 9,745 (2) Chemical and Chlorination Equipments (3) Electric Equipments 3,555 2,959 596 (4) Laboratory Equipments 207 207

15,503

2,592

12,911

	3		Local	Foreign
Description		Total	Currency	Currency
	0.000.000		Portion	Portion
3.1.2 Expansion Phase I	Q=200,000 m3/d	10,103	9,909	19
(1) Machinery Equipments		35,425	6,011	29,41
(2) Chemical and Chlorination Equipments (3) Electric Equipments		4,584 6,690	784	3.80
(3) raceone repulpations	Total 3.1.2		1,140 17,844	5,55
	Total 3.1.2	56,801 72,304	20,436	38,95 51,86
3.2 Transmission Pipeline	20(d) 5,1	12,304	20,450	31,00
3.2.1 W.T.P Khazarasp Pum, St. Phase - 1	D=1,200 L=27,0 km	27,649	2,809	24,84
3.2.2 Khanki - Urgench	D=1,200 L=13.2 km	8,068	771	7,29
3.2.3 Yangiaryk - Khiva	D=600 L=20.0 km	7,296	741	6,55
3.2.4 S.P.1 - Koshkupyr	D=600 L=14.0 km	5,121	608	4,51
3.2.5 Gürlen - Shavat	D=600 L=19.5 km	3,350	275	3,07
	Total 3.2	51,484	5,205	46,27
	Total 3	123,788	25,640	98,14
VodoKanal Karakalpakstan			T.	
4.1 Water Treatment Flant	0 (6 000 344			
4.1.1 Nukus W.T.P (Rehabilitation) (1) Machinery Equipments	Q=65,000 m3/d	12,736	0 1,173	11 5
(2) Chemical and Chlorination Equipments	· · · · · · · · · · · · · · · · · · ·	1,807	314	11,5 1,4
(3) Electric Equipments		3,177	146	3,0
Laber dinamia madrimining	Total 4.1.1	17,720	1,633	16,0
4.1.2 Chimbai W.T.P (Rehabilitation)	Q= 2,200 m3/d	8	8	
(1) Machinery Equipments		1,058	48	1,0
(2) Chemical and Chlorination Equipments		32	6	
(3) Electric Equipments		501	23	4
	Total 4.1.2	1,600	85	1,5
4.1.3 Turtkul W.T.P (Rehabilitation)	Q=8,400 m3/d	3,796	318	3,4
4.1.4 Beruni W.T.P (Rehabilitation)	Q=4,600 m3/d	2,079	175	1.9
4.1.5 Kegeili W.T.P (Rehabilitation)	Q=1,000 m3/d	728	38	69
A Description of the State of t	Total 4.1	25,923	2,249	23,6
4.2 Distribution Network	L=228.8 km	63.012	11.030	
4.2.1 Replacement D=100 ~ D=400 4.2.2 Expansion D=100 ~ D=400 Phase - I	L=228.8 km L=119.6 km	53,217	31,820	21,3
4.2.2 Expansion D=100 *D=400 trase -1	Total 4.2	27,993 81,211	16,737 48,558	11,2 32,6
4.3 Metering System	(010) 4.2	01,411	40,550	32,0
4.3.1 Meter Installation D=20 Phase - I	N=115,960 pieces	10,295	2,400	7.8
···	Total 4.3	10,295	2,400	7.8
	Total 4	117,429	53,207	64,2
. VodoKanal Khorezm				
5.1 Water Treatment Plant				
5.1.1 Urgench W.T.P (Rehabilitation)	Q= 50,000 m3/d	0	0	
(1) Machinery Equipments		14,051	1,100	12,9
(2) Chemical and Chlorination Equipments		1,421	241	1,1
(3) Electric Equipments		4,219	194	4,0
5.1.2 Chalish(Rehabilitation)	Total 5.1.1	19,691	1,535	18,1
(1) Machinery Equipments	Q= 11,000 m3/d	24 1,274	24 58	
(2) Chemical and Chlorination Equipments		1,274	26	1,2 1
(3) Electric Equipments		501	23	4
	Total 5.1.2	1,953	133	1,8
	Total 5.1	21,644	1,667	19.9
5.2 Distribution Network				
5.2.1 Replacement D=100~D=400	L=170.3 km	39,844	23,818	16,0
5.2.2 Expansion D=100~D=400 Phase -1	L= 71.5 km	16,799	10,042	6,7
	Total 5.2	56,643	33,859	22,7
5.3 Metering System		·	[چېدومونند د د د	
5.3.1 Meter Installation D=20 Phase - I	N=60,970 pieces	5,419	1,263	4,1
	Total 5.3	5,419	1,263	4,1
	Total 5	83,706 603,705	36,789	46.9
	TUGIT'S	602,705	181,423	421,2

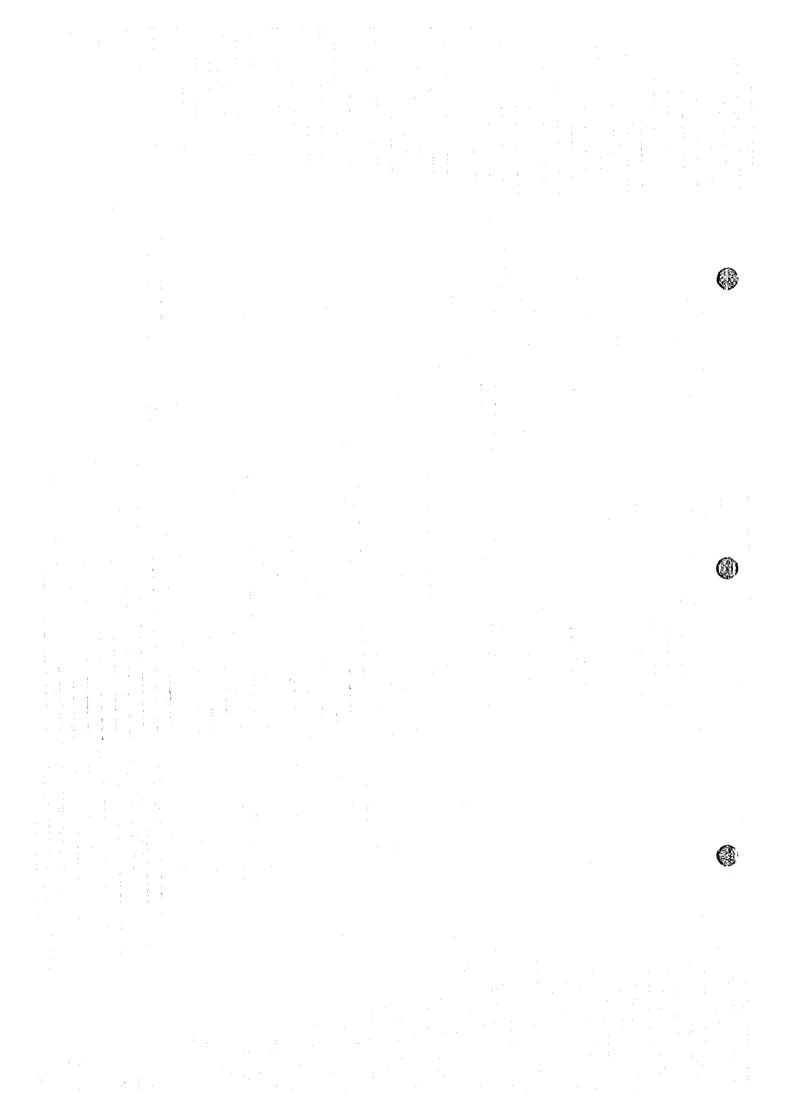
Financial Feasibility Analysis

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Phase 1 of The Basec Plan

(Preliminary Evaluation)

Part 2 Chapter 6. Case 1-1, Case 1-2



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1995 184.2 67.233	65.1 23.762	119.1 43.472	<u> </u>	ٺ	1.00	,	- Walter 1987	1) 	To a visite of	17 26 472	20.440	-	3	1	11 11 11 11			2000	100	100
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	:	142.1 51.867	298	2 m - 4 c	and Section		2000 C 5000	SA 10 10		2000		24.273	16.024	7.24	1 X			A 40 CA	A STATE OF	1.000.00	1 10 10 1
1398 235.6 65.99	92.1 29.967	153.5	028 8372 7,769	191 96 141	12,565	976	4.560 0.050	50 2.780	181 62 0	21,843	17. 33.982 0.0525 1.784 26.171		0.241 6.307 17.265	0,241	4.161	12252 0.158	11.397	622.11-	0.930	-10,446	
1999 232 8 92272	67.9 32.0-7	165.0 60.225	9.919			970	4.891 0.050	, ,			83,038 36,464 0,0525			0,241				1.00'22	9,865	-23.365	-33.011
2000 269 9 98 S14	93.5 34.128	176.4 64.386	386 8.818 712.326	26 21 144	12.565		5.351 0.050	١.						0.241				15,658	0.305	-12.604	-45.415
2001, 278,1 101,507	95.1 24.127	212.0 77.380	380				5,511 0,050							0.241				5,106	0.749	3.824	-2.591
2002 275,3 101 507	66.1 24.127	216.0 78.840	940			:	5,511 0,050	50 3912	9 422			_		0.241				5,034	0.637	3.506	39,085
2003 278.1 101.507	99	215.0 78.840	940	_			5.5111 0.050					30,879						5.034	0.548	292	-35.823
2004 278.1 101.507	66.1, 24.127	216.0 78.840	240			l	5.511 0.050		9.422	629 5		2,106 30,879				14,456 0.158	9,714	5.034	0.603	3,034	-32.789
2005 278.1 101.307	66,1 24,127		Peop				5.511 0.050					2,106 30,879			1	•		5.034	1950	2.822	29.966
2006 278.1 101.507	66,1 24,127	216.0 78.840	0.0	-		_	5.511 0,050)				2,106,30,879 0			i I			5,034	0.522	2,626	.27.341
2007 278.1 101.507		215,0 78,840	3401				5,511 0,050				ш	_	L.,		1 -!			\$,034	0.485	2.442	24.698
2000 278.1 101.507	99	0-4,85 10,015 155.55	0*6				3,511 0,050	ı						0,241				5,034	0.451	2,272	-22.626
702 101 1025 1005	551.52	216.0 78.00	O	-	_	-	3211,0,050	- 1						0,241				5,034	0,420	2,113	-20.513
2010 278.1 101.507	_ _ _	216.0 78.5	140				3.517 0.050							0.247				5,034	165.0	996"	18.547
702 101 5.052 1105	66.1 24.127	215.0 78.840	340			-	5.511 0.050	21.6			91.360 40.114 0.0525 2	2,106 30,879 0	0.241 7.442 20.367	367 0.241	4,906	14,456, 0,158	5,252	5.034	0.363	1,629	16.718
2012 2201 101 507	56.1 Z4.127	216.0 78.840	240				2000 115.5	- 1					L., i	0.241				-60	0.338	1,701	15,017
2013 279,1 101,507	24.127 216,0 78,840	4,87 JO.215	Ove				5,511 0,050							0.241				5.034	0.314	.583	3.3
2014 275 1 101.507		216.0 78.840	04				350.0 115.5	1	,					0.241				5.03	0.292	1.472	11.96
7015 278.1 101.507	55,1 2-127	215.0 ZBJ840	0.40				9500 1155	. 1										5,034	0,272	1.369	10.393
2016 278 1 101 507	561 25127	216.0 76.840	340	_	-		050,2 115,5	ı	-				0.201 7.442 20.367					à	623	7.77	والدور
201 102 2202	721.52 1.39	216.0 29.800	540				5.511 0.050				_	_	1	0,20		. ,		9	0,735	1,185	9.34
702 tot 1.872 810%	66.1 24.127	216.0, 78.8.0				-	5,511 0,050	- 1	9.422		0.0525		7.442					5.034	9.219	90,	120.7
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17.00 62,000 17.	1		Ī	2000	.		2016		1	and the former	ter to xm.	DATE:	Ţ		17)998(86	1	14)1704	G I	FLER	Trees.	1
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1700 6500 2504 1005 1305 1315	1998		29,912	72,685 10	765.50	5,343	107,940	128.7	46,976	11	4,052	139.8	51,027	0.050	2,331	102		-105,40	_	#D//\Q#	
1500 14,927 14,927 13,92 13,	986		27,474		37.717	5,618	143,335	138.9	50,699	8	2,957	147.0	53,655	0.050	2,516	147		-140,67		#DIV/Q!	iO/AIG#
135.0 114.975 114.975 113.97	800		11,613		23.514	5,827	109,341	149.0	\$4,385	5.1	1,862	154.1	56,247	0.050	2,698	26		-106,550		*O//\d#	#DIV/0#
11.50 11.4272 11.505 1	2001		526			13,404	13,404	212.0	77,380	19.0	6,935	231.0	84,315	0.050	3,839			-9,220		#D///0#	#DIV/O
13.15 11.4572 11.4572 13.725	2002		975			13,795	13,795	212.0	77,380	26.0	9,490	238.0	86,870	0.050	3,839	471		-9,485		#DIV/0	#DIV/O
13.15 11.4572 11.4572 13.755	2003	3	975			13,795	13,795	212.0	77,380	26.0	9,490	238.0	86,870	0.050	3,839	471		-9,485	1	#DIV/0	10/A/Q#
114-202 114-	2002		576			13,795	13,795	0.212	77,380	26.0	9,490	238.0	86,870	0.050	3,839	174		-9,485		:0/NC#	#D!/\!O#
11.4975 11.4975 11.299	2002	_	576			13,795	13,795	212.0	77,380	26.0	9,490	238.0	86,870	0.050	3,839	174		-9,485	1 1	#0//O	#DV/0
13150 114,973 114,973 13795 13725 13725 13726 13729	2006		276	-		13,795	13,795	212.0	77,380	26.0	9,490	238.0	86,870	0.050	3,839	471	4,310	-9,485		#OIV/01	#D///0#
1150 114975 114	2002]	275			13,795	13,795	212.0	77,380	26.0	9.490	238.0	86,870	0.050	3,839	471	4,310	-9,485		#O/V/0#	#DV/O
11.6973 11.6973 11.2	2002		975		_	13,795	13,795	212.0	77,380	26.0	9.490	238.0	86,870	0.050	3,839	47.1	4,310	-9,485	Щ.	#D1V/0#	iO/AIC#
11.6972 11.4972 11.4972 11.7795 11.7795 21.20 77.290 26.0 9.490 258.0 96.870 0.050 3.879 471 4.310 9.485 900/10 8.871 4.310 9.485 900/10 8.971 4.310 9.485 900/10 8.971 4.310 9	5002		975			13,795	13,795	212.0	77,380	26.0	9,490	238.0	86,870	0.050	3,839	471	4,310	-9.485		*DIV/O	10/VC#
114975 1	0102		975	-		13,795	13,795	2:2.0	77,380	26.0	9,490	-	86,870	0.050	3,839	471	4.310	-9,485		#DIV/0	#DIV/0!
13.50 114.975 114.975 13.795	,,,0,		575			13,795	13,795	212.0	77,380	26.0	9,490		86,870	0.050	3,839	124	4,310	-9,485		O/AC#	#DIV/0
13.50 114.975 1.2.795 13.795 21.2.0 77.390 26.0 26.870 0.050 3.839 471 4.310 -3.485 800/00 80.00 1.2.205 1.2.205 1.2.205 1.2.205 2.2.20 2.2.2	210		279			13,795	13,795	212.0	77,380	26.0	9.490		86.870	0.050	3,839	47.1	4,310	-9,485	i . ł	#DIV/0#	10/AC#
13.50 114.975 13.795 1	.013	!	975	-	-	13,795	13,795	212.0	77,380	0'92	9.490		86,870	0.050	3,839	471	4,310	-9.485	- 1	DV/O#	#DI//O#
315.0 114.975 114.975 13.795 13.795 212.0 77.380 26.0 94.90 238.0 86.870 0.050 3.839 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 8.830 471 4.310 9.485 800//0 8.830 8.830 8.830 8.8	2014	- 1	375			13,795	13,795	212.0	77,380	26.0	9,490	1	86,870	0.050	3,839	47.	4,310	-9,485	_1	i0//\c#	6/A/0#
13.50 114.975 114.975 13.795 13.795 13.795 12.20 77.380 26.0 9.490 238.0 66.870 0.050 3.839 471 4.310 9.485 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070 89.070			275	_		13,795	13,795	212.0	77,380		9,490		86,870	0.050	3,839	471	4,310	-9,485	البيد	10/NO#	#01V/Q#
315.0 114.975 13.795 13.795 13.795 212.0 77.380 25.6 9490 238.0 66.870 0.050 3.839 471 4.310 9-465 80V/O 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	910	[375			13,795	13,795	212.0	77,380	_	9,490		86,870	0.050	3,839	471	4,310	-9,485	1	#DV/01	#ON/O#
114,975	710		975			13,795	13,795	212.0	77,380	26.0	9,490		86,870	0.050	3,839	471	4.310	-9,485		#O//\0	#DV/0
13.550 114.975 13.795 13.795 13.795 12.795 21.20 77.380 25.0 94.90 238.0 96.870 0.050 3.839 477 4.310 9.465 400,00 400,00 400	919		975			13,795	13,795	212.0	77,380	\perp	9,490		86.870	0.050	3,839	471		-9.485		#DN/0	#DN/Q
315.0 114.972 114.972 113.795 113.79	610		375			13,795	13,795	212.0	77,380	_1	9,490		86,870	0.050	3,839	471	4,310	-9,485		#D//O	#DW/0
315.0 114.975	020	\perp	975		+	13,795	13,795	212.0	77,380	26.0	9,490		86,870	0,050	3,839	1,74	4,310	-9,485		10/AIC#	#DV/0#
315.0 114.975 13.795 13.795 212.0 77.380 26.0 94.90 238.0 86.870 0.050 3.839 4.71 4.310 -9.465 4.007//01 4.007//01 4.007/	123		975		_	13.795	13.795	212.0	77,380	_	9.490	İ	86,870	0.050	3,839	47.1	4310	-9,485		#DV/O	#DV/O#
315.0 114.975 13.795 13.795 13.795 212.0 77.380 26.0 9.490 238.0 9.6870 0.050 3.839 4.71 4.310 -9.485 4.007/01 4.007/01 4.310 -9.485 4.007/01 4	720		978		-	13.795	13,795	212.0	77,380		9,490		86,870	0.050	3,839	471	4310	-9,485	. 1	10/VC#	#DV/O
315.0 114.975 13.795 13.795 212.0 77.380 26.0 9490 238.0 86.870 0.050 3.839 4.71 4.310 -9.485 #0V/O # # # # # # # # # # # # # # # # # # #	.023		975			13,795	13,795	212.0	77,380	_	9,490		86,870	0.050	3,839	471	4,310	-9.485	1	10//NC#	#DV/O#
315.0 114.975 13.795 1	170		975			13,795	13,795	212.0	77,380		9,490		86,870	0.050	3,839	471	4,310	-9.485		*O//\Q#	0/NG#
315.0 114.975	520		975			13,795	13,795	212.0	77,380	_	9,490	:	86,870	0.050	3,839	471	4,310	-9,485		#DIV/Or	#DV/0#
# 315.0 114.975 13.795 13.795 13.795 212.0 77.380 26.0 9.490 238.0 86.870 0.050 3.839 471 4.310 -9.485 #0v/or # #0v/o		- [975	:	7	13,795	13,795	212.0	77,380	_	9.490	1	86,870	0.050	3,839	471	4,310	-9.485		#OV/O#	#DV/O
	_		375			13,795	13,795	212.0	77,380		9,490		86,870	0.050	3,839	471	4,310	-9,485		iO/AIC#	#DIV/OI
up to year 1999 \$0.1047 xaccounted -for water/m³ up to year 2000 \$0.1036 xaccounted -for water/m³			68399	74,829 34	3.628									÷					1	#DIV/O	
\$0.1036×accoun			[O&Mcos		to year 1	666	\$0.1047>	Caccounter	d -for wate	r/m*								ym. = Tuss			
				Š	to year 2		\$0.1036>	Kaccounte	d-forwate	ir/m³	:	-									

(1)

Table6.2.6(2) 7NO%

0.805 0.602 2.134 1 40cym = 1usS 167.5 \$0,0281 XAccounted -for water/m² \$21,600,000 X0,596/nem 5,1,1,5,1,3) \$0,0281 XAccounted -for water/m² + \$21,600,000 X0,596/nem 5,1,1,5,1,3) 232 80.894 22.193 0.0968 1.001 21.207 0.1590 3.372 122.595 0.1980 6.454 1.0826 0.134 10,826, 0.134 8,227 0,134 e0.934 27.193 9.0368 1.001 21.207 0.1590 3.377 32.595 0.1989 6.454 10.0026 0.134 10,826 0,134 1.484 80,994 27,192 0,0368 1,001 21,207 0,1590 3,272 32,595 0,1980 6,454 11 10,826 11 0,134 1381 80,994 27,193 0,0368 1,001 21,207 0.1590 3,372 22,595 0,1980 6,454 10,826 0,134 80.994 27.199 0.0368 1.001 21.207 0.1590 3372 32.599 0.1980 5.454 10.926 0.134 . 321 80,994 22,193 0,0368 1,001,21,202 0,1890 3,322 32,595 0,1980 6,454 10,826 0,134 \$0.99 | 27.193 | 0.0369 | 1.001 | 2.021 | 0.1590 | 3.372 | 32.595 | 0.159 | 0.036 | 0.175 | 40.056 4.075 R0.994 27.192 0.0368 1.001 21.207 0.1590 3.375 32.595 0.1990 6.454 3.596 6.00 80,994, 22,193, 0,0368, 1,001, 21,207, 0,1590, 2,372, 32,595, 0,1980, 6,454, 10,826, 1,044 RQ 994 Z7 197 0 0368 1,001 Z1,207 0,1590 3,372 32,595 0 1980 6,454 80,994 27,19310,0368 1,001 21,207 0,1590 3,372 32,595 0,1980 6,454 \$0,994 27,191 0 0368 1,001 21,207 0 1590 3,372 32,595 0 1980 6,454 61.539 20.639 0.0368 750 16.097 0.1590 2.559 24.784 0.1980 4.907 80,994 27,393 0,0368 1,001 21,202 0,1590 3,372 32,595 0,1990 5,454 2,288 80,994 27,193 0,0368 1,001 21,207(0,1590) 3,372 32,595 0,1980 6,454 1,000 127,133 0,0368 1,000 121,207 0,1590 3,372 32,595 0,1980 15,454 1952 39594 27,93 0.0368 1.001 21,207 0.1590 3,372 32,595 0.1980 5,454 90,994 27 1931 0,0368 1,001 21,207 0,1590 3,372 32,595 0,1980 3,454 895 80,994 27,193 0,0368 1,001 21,207 0,1590 3,372 32,595 0,1990 6,454 60.554 20,331 0.0368 748 15,841 0.1590 2.519 24,382 0.1990 4,828 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0. \$0,994, 27,193 0,0368 1,001 21,201 0,1590 3,372 32,595 0,1980 6,454 80,994 27,193 0,0368 1,001 2, 207 0,1590 3,272 32,595 0,1980 6,454 80,994 27,157,191 0.0369 1.007,12,207 0.1590 3,377,12,595 0.1990 6,454 80,994 27,193 0,0368 1,000 12,205 0,1500 3,375 12,593 0,1980 6,454 80,994 27,193 0,0368 1,001 21,207 0,1590 3,372 32,595 0,1980 5,454 80.994 22 22 2 22 22 20 21 20 21 20 21 20 22 22 22 23 0 1 380 G 454 785 495 19 966 0 0358 735 15,586 0.1590 2,478 23,944 0,1980 4,741 80.994 ZZ 32.595 0.000 1 200 1 200 0 3375 32 595 0 1980 8.454 3.372 22.595 0.1980 80,994 27,199 0.0368 1,001 21,207 0.1590 14.573 15,002 15.294 56.028 19.798 1352,61 1305,72 58,400 19,601 15,230 13.518 7,285 1,702 0,065 2,450 33,036 7.785 2384 2,065 4,901 7,285 1,672 9,065 2,422 1,837 0,065 2,498 2384 0.055 +901 2,384 0,045 4,901 2 394 0 065 4 901 2,384 0,065 4,301 2,3641 0,0651 4,901 2.284 0.065 4.901 2,384 0.065 4,901 2,384 0,065 4,901 2384 0065 4901 2384 0065 4901 2,384 0,065 4,901 2384 0065 4901 2,384 0,065 4,901 2,384 0,065 4,901 2384 9065 4901 2,384 0,065 4,901 2,384 0,065 4,901 2384 0,065 4,901 2394 0055 4901 2,384i 0,065i 4,901 2.384 0.065 4.921 2384 0.065 4,301 2 × 0 457 1997 1661 50927 660 23-360 1001 36-517 1998 1658 603.7 660 23-360 100.8 37-157 5-633 5-703 11.36 5-642 1998 167-6 61.01 66-0 22-360 103-8 37-40 6-831 22-039 28-87-8 5-862 64.0 23.360 105.0 38.325 5.301 3.8801 9.182 5.842 1967 7 10805 20601 75,1901 90.27 10.805 1573 4 1504 06.27 10.505 205.01 75.30 1996 1625 59313 640 23360 985 35,953 40.2 14.573 206.0 75.90 1995 | 1609 | 18,729 | 64,0 | 23,360 | 96,9 | 35,359 2001 246 Z 89 863 40 Z 4673 205.0 75,190 901 27 9050 2050 75.190 2006 | 245,2| 89,863 | 40,2 14,677 | 206,0 | 25,990 2009 246,21 89,863 40,21 4,673 205,61 75,190 2010 2462 89.863 40.2 14.673 206.0 75.190 2013 246.2 89,863 40.2 14,573 206,0 75,190 40.2 14.673 205.01 75.190 202 14,5721 205.0 75,190 967,31 206.0 75,190 40,2 14,572 206,0 75,190 2023 246 2 89 853 40 2 14 577 266 75,190 40.2[14.673 | 206.0; 75,190 2005 | 245 2 | 89,863 | 40,2 | 14,673 | 205,0 | 75,190 140 2 14,673 1578, 15 CON Aberton Towns America 20.7 246.2 69.863 2012 246.2 H9.863 2021 246 2 89,863 169.0 61.683 2007 246 2 89 963 2014 | 2462 | 89,8691 2008 246.2 19953 2505 245 2 10 053 245 Z E9 963 Adda (Die 1 Stanton) 245.2 89.863 245.2 89.863 245 2 39 REJ 2022 246.2 69,863 2027 | 246.2| 69.863 2002 246.2 69.863 2462 29.863 246.2 09.863 245.21 B9.863 2019 2462 89.863 2025 246.2 89.853

K Z (Pre Financial Analysis)

Part II Chapter 6 Subsidies : 0%

	200	i		The same of the	,						C.10 mm						. 90	164	187
	Taxable	į.	1 V contraction Cont	Total Cont	A VOADA PAGE	K)Tores!		Acres	A X PARTITION OF SAME AND 1 (P. X PA	h×m,	tank o	10)Setting		11 Water Revenue	14)Total	35	18	Present	Cumulatore
	i	1	Sago:		10,88		TVORMER	Section 167	A CONTRACT		a) Tee		2	£	Revenue	Pare-Euc	0///0	× ×	10
	ŝ	lege.	LOCK C FUNDOR	10 I		-		٤	Abe (Ony Total/Ye.	/A Abs /Dry	Say Total/fr.	/\$\$0	Vodokanal KZ	Others	10"×5	10'>5		10°×5	10*x5
1995	180.0	65,700	-	*	e de la companya de l			69	-		180,1 65,737	31		可能を対象				Action of the state of	gertest and a second
1996	180.0	65,700	The second second second			Taylor and the same	98.5					7	State of the State		A second second second		Section 2007	Section 1	
1997	180.0	65,700					1001	1			Ŀ	16 may 14	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Section 1			A Color William St.	Laborate America
1998	180.0	65,700	19,164 42,518	18 61,682	4,707	66,389	101.8				180,1 65,737	290.0	55 2,422	1,863	4,285	-62,104	#DV/O#	#DN/O	#DIV/O
1999	180.0	65,700	8,629 49,788	88 58,417	4,707	63,124	103.4	37,741	_	27,996 18	180,1 65,737	7 0.065	2,460	1,825	4,285	-58,839	#DV/O#	*O//\C#	10/AIG#
2000	180.0	65,700	1 1		4,168	28,630	105,0		75.1 27.4	27.412 18	180.1 65.737	7 0.065	2 498	1 787	4,285	-24,344	#DV/VO#	#DN/0	#DIV/O
2001	360.0	131,400	1			7,209	206.0				294.5 107,493	3 0.065	196,4	2,106	7,007	202	#DV/\01	#DN/0	#DIV/O#
2002	360.0	131,400			7,517	7,517	206.0	-			307.8 112,347	7. 0.065	55 4,901			-193		#DN/0	iO//\Q#
2003	360,0	137,400			7,517	7.5.7	206,0				.	7 0.065	1,901			-193	#DIV/01	#DV/O	#DIV/O
2005	360.0	131,400			7,517	7,517	206.0	1			307.8 112.347	7 0.065	4,901	2,422	7,324	-193	#D//\0#	10//\C#	#DV/O
2005	360,0	131,400			7,517	7.5.7	206.0	75,190	101.8 37.1	37,157 30	307.8 112,347	7. 0.065	190,4	2,422	7 324	-193	#DW/W	#D//\G#	#DV/O
5006	360.0	131,400			7,517	7.5.7	206.0	75,190	101.8 37,157		307.8 112,347		15 4,901	2 422	7.324	-193	#DIV/O1	#DW/0:	#DIV/O
2007	360.0	131,400			7.517	7.517	206.0	75,190	101.8 37,157		307.8 112,347	7 0.065		2,422	7.324	-193	#DV/\0;	#OVVO	#DV/O
2008	360.0	131,400			7,517	7,517	206.0		101.8 37,157		307.8 112,347		1901	2,422	7,324	-193		#D//\O#	10/VIC#
6002	360.0	131,400			7,517	7,5,7	206.0	75,190	101.8 37,157		307.8 112,347		1901	2,422	7,324	-193	#DV/O#	#DV/O#	#DV/OI
0.07	360,0	131,400			7.517	7.5.7	206.0				- 1		55 4,901		7,324		*D//O#	#D/V/O#	#D/\/O#
1102	360.0	131,400			7,517	7,517	206.0	75,190	101.8 37.157		307.8 112.347	7 0.065	15 4,901	2,422	7,324	-193	#0//\Q#	#DV/Ot	#DV/0#
2012	360.0	131,400		-	718,7	7.517	206.0	75,190	101.8 37,157		307.8 112,347	7 0.065	4,901		7.324	-193	#D//\Q#	#DV/O#	#DIV/O
2013	360.0	131,400			7,517	7.5.7	206.0		101,8 37,157		307.8 112,347	7 0,065	4,901	2,422	7,324	-193	#DIV/O	#DIV/01	i0/AIC#
7,02	360.0	131,400	-		7,517	7.5.7	506.0	75,190 1/	101.8 37,157		307.8 112,347	7 0.065	1901	2,422	7,324	193	10/AC#	#01/VO#	#DN/0:
2015	360.0	131,400	:		7,517	7.5.7	206.0	75,190	101.8 37,157	į	307.8 112,347	7 0.065	4,901		7,324	-193	#DV/Q#	#DIV/01	#DIV/OI
2016	360.0	131.400			7,517	7.5.7	206.0	i i			307.8 112,347	7 0,065	4.901	2,422	7,324	-193	iO/AlG#	40//\Q#	#DIV/0I
2017	360.0	131,400			7.517	7.517	206.0		101.8 37,157		307.8 112,347	7 0.065	1901	2.422	7,324		-193 #DV/OI	*D//\0#	10//VC#
2018	360.0	131,400			7,517	7.5.7	206.0	75,190 1(101,8 37,157		307.8 112,347	7 0.065	5 4,901	2,422	7,324	.193	iO/AlG#	#DIV/Or	10/NC#
2019	360.0	131,400			7.5.7	7.5.7	206.0	75,190 10	101.8 37.157	-	307.8 112.347	7 0.065	5. 4.901	2.422	7,324	-193	₩DV/VIG#	#DV/O	:0//Q#
2020	360.0	131.400			7,517	7.517	206.0	75,190 1	101.8 37,157		307.8 112,347	7 0.065	196,4	2,422	7,324	-193	#O//\Q#	#D//\0;	#DV/\0
1202	360.0	131,400			7.517	7.517	206.0	75,190 10	101.8 37.157	ĺ	307.8 112,347	7 0.065	4 301	2,422	7,324	-193	#DV/O#	#DIV/OF	10//\O#
2022	360.0	131.400		-	7,5,7	7.5.7	206.0	75,190 10	101.8 37.157		307.8 112.347	7 0,065	4,901	2,422	7,324	-193	#OV/O#	#DIV/Or	#D//\O#
2023	360.0	131,400			7,5,7	7.5.7	206.0	75,190 10	101.8 37.157		307.8 112.347	7 0.065	4,901	2,422	7,324	-193	IO/AIG#	#DV/O	#OV/O
2024	360.0	131.400			7,517	7,517	206.0	75,190	101.8 37,157		307.8 112,347	7 0.065	4,901	2,422	7,324	-193	#DIV/O	#DV//Ot	#DV/0
2025	360.0	131,400			7,517	7,517	206.0	75,190 1(101,8 37,157		307.8 112,347	7 0.065	55 4,901	2 422	7,324	-193	#OIV/O#	10/NG#	#DN/01
2026	360.0	131,400			7,517	7,517	206.0	75,190 10	101.8 37.157	.	307.8 112,347	7 0.065	15 4,901	2,422	7,324		-193 #DIV/OF	#D//Q#	#DIV/OF
2022	360.0	131,400			7,517	7.5.7	206.0	75,190 10	101.8 37.157	_]	307.8 112.347	7 0.065	55 4.901	2,422	7.324		-193 #DIV/OF	*D//\U*	#DIV/01
			31,096 113,465	65 144,561	216,220						:				7	•		iO//\u0	
			OSMonst	Population 1999	1999	\$0.07163	X	\$0.0716 x counted for water/m ²	~	i					الا. عاد . عاد .	400ym = 108%	:		
				from year	2000	\$0.0634×	ccounted-	for water/I	<u></u>	:	\$0.0634×ccounted -for water/m³	•							
				from year		\$0.0634x	ccounted	for water/i	1,+\$78,7	750.000 X	:0.5%(item ;	3,1,1,3,1,	(3)						

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	Ĺ	SKineseen Con.	-	<u>`</u>	:	1	=	177		Major Severa			<u></u>	_		_	-	-	3	Î
	Total Total	16.01	(Carles)	12-61		3	_ }		1	1435692		Caxi		Ì	3	(C Cont.x90m)	•			ı
1 1 20 1 1 1 1 1 1 1 1 1	21 762 1141 44472	1			-			17 36 673	•	20.50				23 1 20%	100	S. 36.45 Sec.		18.7	Contract Contract	i i
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210.5 75.753 76.4	1424	والمع فالمراود فالمجال والمراوية والمجالة والمجالة والمراودة	* 12 m . m		and the second	**************************************	T	71 852 11 576	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2	16.024			100 miles	Company of the Company of	1	100	A CONTRACTOR	On Can bergal	2.
23.6 65.554 52.	33.5	19191 2964 16141	12,565	970 4,56	4.56c arrel 6.	625.92 922	766,25	52500 38,982 0.0525	92	10.20	6.307 17.265	19. 4 161	12,252	95.0	204	14.527	ĺQ.	0660	40	
8 48 242 26		6166			4.191 9112 6.	249		52,000 56,464 0.0525		0.241	6,765 16,306	1026	4,560 13,39		698'44	58,035	222		561	1,681
2699, 98514		8.818 12.326	1_1			215		85,659 38,909 0.0525		0.241	7,222 19,783	0.241			11.295	19.030	6-9-	٠.		2203
105 101 1 922					8,517 O.112 B			91,360 40,114 0,0525		0.241	7,442 20,167	0.243			10,825	0	274	0.749	902	964.1
1 27 101 101 105			<u> </u>	5.5	5,511 0,112 8	671		91,360 40,114 0.0525		0.241	7,442 29,367	0.243	•		10.070	-6	27.	2690	ı	1,607
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2004 278.1 101,507 66,1 24,127				18,81		14.69		\$250.0 -11,00 005,19		1250	7,442 20,367	0,241	Ŀ		. [14.6]	o	274	6090	ŀ	. 463
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2005 2781 101 507 661 24127	0227 0215 7514	, , , , , , , , , , , , , , , , , , ,		15.5	5.511 0.112	14182	7887	91,360 40,114 0.0525; 2,106 30,679 0.241	0525, 2,106,30		7,442 20,367 0,241	1	4,908 74,456	14,456 0,158	7.540	0	\$1.2	0.522	143	1,166
2002 278 11 to 507 663 24 27	1.27 2.20 77.360			15,51	5,517 9,112 8,	1291 141 125		1,360 40,114 0.0525; 2,106/30,879 0.241	2525 2,196/30		7,442 30,367	0.241	954'41 906'4	0,158	7,014	6	274	0.465	1.33	1,033
122.42 (39 , 202.50) 10.922 19002	222 77.350		_	3,64	3.684 0.11Z E.	471	6.479	91.360 40.114 0.0525 2.106 10.057 0.2411	0525 2.10eln		7-42 20.567	1420	1964 11,456		6,525	6	10.	0.451	46	
278.101.107.2	005.77 02.15 72.19			19.5	5,684 0.112 B	358 1 129	1209	91,360 40,114 0,0525	2525 2106 39,699	9.241	7.442 20.367	0.741	4,908 14,455	95.6	0263	ļo	101	. 02#6	1.7	246-
228 t 101 507	2120			29'5	5.654 0,112 6			91,360 40,114 0,0525		0.241	7.442 20.367	0.241	4,906 14,456		5,646	ő	101	1465.0	ç	Į.
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1.01.101.1.12.2	02.27 22.0 77.380			18.8		5		91,360 1911,00 108219) (* 0 0	7,442 20,957	0.241		L	\$ 545	-5	274	0.31	£	γ̈́
105 101 1:622	9827 0212 721		-	5.51	5.511 0.112 6.	129		21,360 programme 0,0525		0.241	0.241 7,442 20,367	0.241			4,220	0	27.4	12620		9
25.55 24.10.507 56.1 24.27	02.27 02.15 15.20	1		15.5	5,511 9.12 8.	[143	:	91,3601 40,114 0.0525			7,442 20.367	1520			3,933	ō	\$7.2	2420	ĸ.	1,2
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49.7	1086.77 0.515 155.05	1		15.51	5,511 9,112 B.	-149		23,360 49,114 0,0525		12.0	3	1926			3,403	-ē:	27.2	5235	£5.	Ŕ
278.1 101.507 66.1	2120		1	10.5	5,004 0.12 6.	14.9		91,350 40,114 0.0525		0.243	7,442 20,367	1770	55774 9367	85.6	994	o	101	9150	. 22	1
2015 278,1 101,507 66,1 24	24.27 2.20 27.380			5,61	-	149		35.360 1-11.00 1036,16		0.241	7,442 20,367	0,241			2.945	o	101	*02 G	1.2	į
2070 278 101 507 65.1 24	24.27 212.6 72.65	-	_	1. 5,66				91,360 40,114 0.0525		0.241	7,442 20,367	0.241	, 1		.239	70	101	50.0		
2021 Z7811 TO 507 651 24	24 127 2120 77380			5.51	5.511 0.112 8.	20171 14.05		21,360 40,114 0.0525	678,06 30,879	0.747	7442 20.167	0.247	4908 14,456	0.158	2.548	-5	274	921.0	-	£2.
66.1	24.27 2.20 27.90			1, 5,51	5,511 p,112 6.	571 14182	2 2326	25,200 1211,02,035,10	92825 2 98 30.879	0.241	7-442 20367	0.249	4 908 14 456	921.0	1252	ō	274	9.164	150	7.02
2023 2761 101 507 661 24	24.27 2.20 77.380	-		18'6	5,511 D.112 B.	501,41 1178		91,360 40,114 9,0525	9525 2.106 39,879	7.241	7442 20167	1,0,247	4 908 14.455	0158	2,205		274	551.0		ç
22. 62 1.99. 202 10. 1. 62.2 1. 62.02	02.2 7.20 72.0	-		1,5,51	5,511 0,112 B.	581 x 1185	2:0:2	3500 0 1211,00 1005,19		0,24)	7.442 20,367	0.241	4,908 14,456	95.0	L\$0'Z	ů	274	5+1.0	361	.01
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2026 27931100 5071 563 24327	227 23.5 77.580			5.53	Samlouzi e	191.41 1.782	1061	91,360 1011,04 005,19		0.243	7.442 20.367	0.241			1,775	9	27.4	. 2210	34	•
2027 278.1 101.507 66.1 24.127	08277 0212 7219		-		5.511 0.112 8.	[1.29		91,360 40,114 0,0525		2.106/30.679 0.241 7.442 20.367 0.241	7.442 20.367	0.241			1.651	o	274	0.114	33	Ċ
		269,76 69,5497 69,546 37,695	37,695	2,910			321,350	:						_]=	167,202	200 - 100]	6	
		#Flued tarrif of wister purchase & for consumers/unescaleted) * Tarrif of base year 1055 / SYM * Yetler parches \$0,112 / AAAA *******************************	1055 / 50,112 50,112	Numera (unescell SYM / 4.48c/m	(juga		(Osmoost)	st] up to year 2000 from year 2001		\$0,0589X.Accounted -for-water/m² - \$25,900,000X0.5%(name.).1, 4.1.3, 4.1.4)	arted for wat	er/m² + \$25;	юе,ооожо.	S%(rtame.)	.1, 4,1,3, 4,1	इ			-	:
			50.241	19.64cym													٠			
	٠		ŽÝÝ.	₩. 9.04cym	:															

P-7

Part II Chapter 6 Subsidies::90%

	T. Carrier of C.			2 Vermendana								6 Mercenture							16)	17)	
_	Cuxwo		3)Construction Cost		4)OSM coat	5)Total		*	Accounter for water 10" Xm	ester 10° xm²			10)Seleva	1 1) Water Revenue	إعاشاره		angangra.		FIRE	Present	Cumpletine
	-	-	10*x5		10°×3	Expendeurs	7)Vodokena	23	C)		Ď.	2	*	(2)	€.	•	(C Contx90%)	₹.	0/AU	Value	50
1	<u>ا</u> .	3	Control Control	(0,0)		10.43	\$6\2\ \$4\0\	1	VAC/201	_	_I_	200	/	Vodokumalikiki	5	10.43	10 × 3	10 × 3		X S	XX.
<u>66.</u>		62 050					186		_Î_	222	183	43.180									
1996	170.0	62 050	Section of the second of the s				1083	39,530	17.2	5,278	125.5	45.808			A special or a second or						
1997	170.0	62.050	the standard of the second sec	100 100 400			1185	43,253	142	5,133	132.7	48.436	A	41.		Salah Salah	Section Same serves	A			
1998	170.0	52,050	29.912 72,685	102 597	5,343	107,940	1287	46,976	11.1	4,052	139.8	51,027	2110	5.264	42,4	5,718	92,337	-9,884	10//VC#	WON/O	
1999	170.0	62,050	27,474 110,243	717.751	5,618	143,335	1389	\$0,699	8.1	2,957	147.0	53,655	0.112	5,681	331	6,013	123,945	-13,377	*OV/O	#DtV/0	*01/10
2000	170.0	62.050	10,613 91,901	103,514	5,827	109.341	149.0	54.385	5.1	1.862	154.1	56.247	2110	6.094	23	6.303	93,163	-9.876	-#DAVO#	*DV/0	*DIV/O
1002	315.0	114.975			13.404	13,404	212.0	77 380	19.0	6.935	231.0	84.315	0.112	8,671		9,448	0	-3,955	#0V/Of	#DtV/01	#DV/04
2002	315.0	114.975			13,795	13.795	0.212		26.0	9,490	238.0	86,870	5.112	8,671	1,063	9,735	0	4,061	*O//O*	#OV/O	#D//Q#
2003	315.0	114,975			13,795	13,795	212.0		26.0	9,490	238.0	86.870	0.112	8.671	1,063	9.735	0	+061	10/AO#	10/AC#	*D//\C#
2002		114.975			13,795	13,795	212.0			9,490	238.0	86,870	9.112	8,671	1,063	9,735	Ö	4.051	*O//O*	#O/VO	*07/0#
2002		114,975			13,795	13,795	2120	77.380	26.0	9,490	239.0	86,870	0.112	8,671	1,063	9,735	0	-4,061	#DV/0t	WOV/OI	IO/A/O#
9002	315.0	114.975		-	13,795	13,795	212.0		0.92	067'6	230.0	86,870	0.112	8,671	1,063	9,735	0	-4,061	*OV/O	#OV/Or	#O/V/O#
2002	315.0	114 975			13,795	13,795		į	26.9	9,490	238.0	86,870	0.112	8.677	1,053	9,735	l. 0	4,061	*OV/0t	#0//\O	#D1//O#
2006	315.0	114,975		-	13,795	13,795	212.0	77,380	092	0676	238.0	86,870	0.112	8 677	1,063	9,735	٥	-4,061	#DIV/01	10//10#	#DV/OF
5000	315.0	114.975	_		13,795	13,795		- :	26.0	0676	238.0	86,870	0.112	8 67*	1 063	9,735	0	-4,061	10/AIC#	10/AC#	#DV/OH
2010	315.0	114,975			13,795	13,795				9.490	238.0	86.870	0.112	8.671	1,063	9,735	Ċ	1904	10/AC#	10/AC#	#O//O#
1,102	1315.0 T	114 975			13,795	13,795			26.0	9,490	238.9	86,870	0.112	8 671	1,063	9,735	0	4,05	#DV/O#	#DW/D	10/AC#
2012	315.0	114,975	1		13,795	13,795	0.212			10686	238.0	86,870	211.0	8,671	1,063	3526	O	4,061	#DV/Or	- WXV/OF	#DIV/OF
2013	315.0	114.975	1		13,795	13,795	212.0	77,380	26.0	9,490	238.0	96.870	0.112	9,671	1,063	9,735	اه ا	4061	₽ *	10//04	IÓ/AC#
2014	315.0 11	114,975			13,795	13,795	212.0	77,380	25.0	9,490	238.0	86,870	0.112	8,671	1,063	9,735	O	-4.061	:0/AC#	*O//O	WWW.
2015	315.0	114,975			13,795	13,795	212.0	77,380	26.0	9,490	238.0	86,870	0,112	8,671	1,063	9,735	0	-4,061	#OV/0	#D//\0	10/AC#
2016	275.0	114.975			13,795	13,795	212.0	77,380	26.0	9.490	238.0	86,870	0.112	8 671	1.063	9,735	C	-4.061	*O/A/O*	#DV/W	#DV/O#
2017	315.0	114,975	A		13,795	13,795	212.0	77,380	26.0	9,490	238.0	36,870	0.12	8 671	1.063	9,735	0	4,061	#DV/OI	#Drv/01	#DV/O
2018	11.0.215	114.975		-	13,795	13.795	2120	77.380	0.92	9.490	238.0	86,870	0112	8.671	1,063	9,735	0	-4.061	#0//O#	*OV/O	*01/10
2019	315.0 11	114 975	·		13,795	13,795	2120	77,380	26.0	9,490	238.0	86,870	211.0	8,671	1,063	9,735	0	-4.061	#DV/O#	#DIV/O	#DIV/OF
2020	315.0	114,975		-	13,795	13.795	212.0	77,380	26.0	9,490	238.0	86,870	0.112	8,671	1,063	9,735	0	4,061	٥/\c≠	#DV/0	#DV/O#
702	315.0	114.975			13,795	13,795	212.0	77, 380	26.0	9,490	238.0	86,870	2110	8 671	1,063	9,735	0	1,061	#01/VO#	#DIV/01	#DVV/OI
2022	\$15.0 11	114.975			19,795	13,795	212.0	77,380	25.0	9,490	238.0	85,870	0.112	8,671	1 063	9,735	0	1.061	#DV/O	₩QVVQ#	#OV/O
2023	315.0	114.975			13,795	13.795	0212	77.380	26.0	9.490	238.0	85,870	0.112	8.671	1.063	9,735		4061	#OV/Or	10/AC#	#DV/01
2024	335.0	114.975			13,795	13.795	2120	77,380	26.0	9,490	238.0	85,870	0.112	8,671	1,063	9,735	0	8	₩/\\Q#	10///0#	#OV/O
5202	315.0 11	114.975			13,795	13,795	212.0	77,380	26.0	9,490	238.0	86,870	211.0	8,671	1,063	9,735	0	1,061	#O//\C#	10//10#	#ON/0
9202	375.0	114.975	_	-	13,795	13,795	212.0	77,380	26.0	9,490	238.0	86,870	511.0	8,671	1,063	9,735	c	4.061	*O//O*	iG/AIC#	#0//O#
2022	315.0 11	114,975	-		13,795	13.795	212.0	77,380	26.0	9,490	238.0	86.870	0.112	8.671	1,063	9.735	٥	-4,061	#O/VO#	#Ov//0	*O//O*
: •		J	68,999 274,829 343,828	343.828													. :		 	#D///0#	

EX-rate 40cym = 1us\$

\$0.1047 x accounted -for water/m³ \$0.1036 x accounted -for water/m³ \$0.1532 x accounted -for water/m³ + \$97,350,000 x 0.5%(item 1.1, 2.1.1, 2.1.2, 2.2.1, 2.2.3, 2.2.4) up to year 1999 up to year 2000 from year 2001

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K Z (Pre Financial Analysis)

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18	ľ	Towns Towns		10,81	! '	3	16.21						Walet Appropri		1			} -	(Coxed		_		1
	-1		200	Johnshift Total	Ŷ.	3	5	į	17.2	-	N. Mark	"PIAI MEET/PA	H	ALC: NAME OF PERSONS ASSESSMENT	, e	ž		-	_[-	-}	7
1905 1609 56.729	00CCZ 0.00 E	26.3 25.369				***	American Inches	A Commence of the	\$		55,028 19,798	10.673	3	22.557	A 10 10 10 10 10 10 10 10 10 10 10 10 10	2 Car 15			and the same	Service of the service	distanta successive a	e selection and the	3 .
1996 162.5 59,313	00002 000 0	56.55 5.95		Acres of Arrest	Acres Com			1. A. S.		with at the	57.305 19.236	15.002	2	23,068	Section .	A 1 121 2 2		1.0	in the southful to	A Company		e and and the state	2
1997 164.1 59.BEZ	640 23360	1001 36.537		* * * * * * * * * * * * * * * * * * *				1.35			38,400 19,601	15.294	1	23.50					and the second				3
715.09 6.201 9991	03 CZ 0'33 Z	721.72 8.101	5.633	351.11 607.2	7,0,7	123	1.623.	14 4222	17,039	15.8421	59,495 19,366 0,0368	45.55	2 00210 30221	2476 23.344 0.1980	1350 4741	¥5.67	0134	2339	10,021	3	0.520	980	П
1999 167.4 51.101	040 2300	103.4 37,741	6,035	22 039 20 07*	74 5.842	151	1,702: 0,114	882"	>4.864	30,169	60.554 20.331 0.0368	746 15.841 0.1590		25.25 282.57	1399 4,628	6,005		7,004	25.907	1		-677	a
2000 169 0 61 665	2 54.0 23.350	105.0 38.325	5.307	3.881 9.182	5842	159	1,637, 0,114	14 4355	15.374	12.375	61 539 20 659 0.0368	760 16,097 0,1590		2.559 24.784 0.1980	1980 4.907	6.227	0.134	6.622				1991 1102	2
2007 246.2 89.863	40.2 14,673	206.0 75.190					2384, 0,114	14 8,543	10.927	6,162	80,234 27.137 0,0368	0,001 21,207 0,1590		3,372,32,595 0,1980	11980 6.454	10.026	0.334	8,107	0	.101		920.1 92-	7
2002 244.2 5002	-02 14.673	206.0 75.190		-			2.384 0.114		10.927	7.612	80,994 27,193 0,0368	1,001 21,20		0861.0 262.58 0.1980		10.826	L	7.541	0				9
2003 246.2 89.863	40.2	206.0 75.190			L		2104 0114		10.977	7 000		1001 21 202 0 1880	1	1377 77 595 0 1880	1	30.800	:	1010					8
201.2	40.2	206.07 75.190		<u> </u> _			2384 0.114		10927	985 9	1	1 001 21 202 0 1500	401590	72 12 COK		10.826	L	0 5.20	-	:		,	,
	:	206.0 73,190		_			2384 0.114	Ę	10.927	6127		1 001 21 207	9310	0 177 92 595 D 19AC	1940	١		6 070	-	Ŀ	ľ		Ī
2006 2462 69.863		40.2 14.673 206.0 75.190	-	-			2.384 0.114		726.01	2,700		1001 21 20	951	772 47 593	245	19696		26.2	 -	Ŀ			3
2007 246.2 89.863		206.0 73,730			_		2384 0,114	1	70.00	- 202		1 001 21 207 0 1590	2010	200 10 10 20 10 10 10 10 10 10 10 10 10 10 10 10 10	200	2000	L		,			L	
	9.2 34.673	206.0 75.190				-	2.475 0.114		11.018	1 (6)	1	1,001 21,207 0,1590		3,372 32,595 0,1980	1980	10.26					ŀ	l	1 3
2009 2002 89.863	40.2 14.673	206.0 75.190					2475 0,114		11.016	929*		1,001 21.26		177 17 596 (1980 6.654	30.076		245					ğ
2010 246.2 89.563		206.0 75.190		_			2475 0114		11.016	101	ı	1,001 21,207 0,1590	7 0.530	1972 92 595 0.1980	4244 0461	9770	L		 	ļ			1
24.2	7	206.0 75.190	_			-	2384 0.114	Ц.	10.927	0,6		1.001 21.207 0.1590		172 42 tack	2372 32 595 0 1980 6 858	72 8 01	L		-				1
	0.2 1 673	206.0 75.90			_		2384 0,114		10.927	7697		0.00, 21,207 0.1530		3372 32.595 0.1960	1960 6.654	10.626		8898	ļ.,	L	L		{ :
2013 246.2 23.063	797 70	206.0 75.190		<u>+</u>			2384 0,114		126.01	3,435		1,001 21.20		3,372, 32,595, 0,1980		10.625		\$	6				×
2014 2462 99.865	50.2 14.67	206.27 0.005			-		2.364 0,114		10.927	3,196	27,193 0.0568	1,001 21,207 0,1590		3,372 32,595 0,1980	-	10.026		3,166	-6				X
2015 246.2 89.865	3 40.2 14,673	206.0 75.30			_		2384 6714		10.927	7.97.1		1,001 21,207 0,1590		3,372 32,595 0,1990				2.945	O				Š
2016 2442 09,063	10.0 14.673	206.0 75.190				-	2304 0114		10.927	2.765		1,001 21,207 0,1590		372 32.595		10,626		27-0	ō				
2017 246.2 82,063	1 402 14.673	20% 25.190	_				2384 0.114		10.927	2.572		1,001 21,207 0,1590		3,372 32,595 0,1980	1950 6.454			2549	-				8
2018 2462 69.065	3 402 14,673	206.0 75.190					2.075 0.114	6.543	11,018	2.033	22 193 0.0366	1,001 21.20		32.595 01990		10.826		2371	0				ż
2019 246.2 89.863	673 14 673	206.0 75.190		3	:	+	2475 0.114	14, 8543	11.018	***	80.99- 27.192 0.0368	0921.0 20212 1001		27.23.23.5		10.826		2.205	0			.1	136
2020 246.2 69,863	673-1. 500	206.0 73.190	-				2475 0,114	Ē	11.018	288		1,001 21,207 0,1590		272 32 595 (*372 52.595 0.1980 6.454			2,052	O	7			30
2021 2462 59263	C9** 750 8	2060 23.19				-	230- 0,114	. 9.543	10,927	,,926	60,994 27 193 0,0368	1,001 21,207 0,1590		99519 28526 1256	1980 6.454	10,626	0.134	1,900	0	101	0,176	1.0	1
2022 246.2 89,863	1402 14573	206.01 75.130	-	-			2384 0314	10.50	10.927	7.52	80.994 27,193 0,0369	0.001 21,207 0,1590		3372 32595 01980			0.134	1,775	0	.01.	0.164	-17	3
2023 246.2 55,063	29'1 2'0"	206.0 75.190	_	-		-	2384 0,114	(250)	10.927	1.667	00.00 27.22 27.24 00.00 71.27 100.1 5.00.2 5.27.2 40.000	1,001	.c 0051.0 5	272 32.595	1			1,651	6				3
202- 2462 89.863	402 14.673	206.0 75.190		-			2384 0314	1	10.927	1.531	00.994 27.193 0.03561 1.001 21.207 0.1590 3.372 92.595 0.1950	1,001 21,20	Z 0031.0 7	372 32.595	1980 6.454	19,826		965.1	ō				2
2025 2462 29.863	40.2 10,673	206.0 75.190					2384 0334	65.0	70.00	1.442	\$6.954 00.00 26.25 27.25 00.15.90 0.15.90 0.15.90 0.15.50 0.00.000	3,001 21,20	7 0,1590 3	372 32.595	1380 6.454	10.826	0,134	1,429	٥	-101		. 19	Ž,
2026 2462 89.65	-02 1-673	206.0 25.190					2304 0314		10.927	1.342	90.994 Z7.193 Q0368 1,001 21.207 Q1590 3372 32.595 Q1980 6.454	1,001 21.20	7 01590 3	272 32 59519	-1980 6.454	10,826		5.7	•	_		L	2
2027 246.2 62.863	_1	205.0 75.190	_				2,384 0,114	!	10.927	1.248	80.394 27,193 0.0368	1.001 21 207 0.1530	7 0.1530.3	3.372 32.598 0.1980	1930 6.454	30.876	L	444	-		Ĺ		٥
		_	17.569	31,623 49,192 17,526	921 17 526	1,35,1			٦	I									<u>י</u>			 	ì
			MFixed ter	iff of water p	urchase & fe	*Fixed tariff of water purchase & for consumers(unescalated)	unescalated)			[O&Mcost]			X Accounted -	for water/m3			ร 3		400m = 1us				
			Tariff of base year water parch tariff (GP) GRP2	antf of base year water parches taniff : G4P1 GRP2	50,114 50,037 50,037	1454cm 1454cm 1470cm	€ E E				from year 2000		\$0.0281XAccounted -for vector/in ² * \$21, 600,00 0X6.5%(ram 5.1.1,5.1,3).	for water/m ² =	\$21,600,000	X0.5%(nam 5	1.1, 5,1,3)						
			3	£	\$0.198	17.920	E																

Part 11 Chapter 6 Subsidies : 90%

																				5
	217	TOWNS CONT.	3)Contractor Con	- T	410M cont	STEER		Acres 4	Account to for water 152 XE	, ex	A Market	101Sellens	11)Wa)) Water Revenue	14)Total	wppedce.	_	, 3, 3	• [Completion
	ı	1	10.x3		10.x3	f. comment	7)Vodeske	0	S)Common		9)Total	ě	12)	33	Revenue	(C CostX30%)	Rest	46.92176	Veter	1
	, Andrews	Total	Comp. Committee	C. Yotal		5×20.		į	Abe /Dey Total/Yr	Abs. Co.	Total/ft.	US\$/m3	Vodotare	8	10*X\$	1045	_	_	10.×5	10*x5
1995	<u> </u>	L		A CONTRACTOR AND ADMINISTRA	A THE ARM LINES	1941. TABLE 19					1 65,737			14 25 25		The second secon		1.00 The F	Sec. 1.	
1996	L	L.					98.5	l	L.				100		Section Section 1988	1			Carlo Care	
1997	_		The state of the state of the state of	a Joseph James	17. 34.	and make and	8						21 54 - 21 -	The section with		April Same Same	4 2 2		Albert State of the Control of the C	100
3998	L		19,164 42,518	18 61,682	4,707	66.389	101.8					0,174	4,222	3,247	7.469	515.23	3,406	1850 9	-2.318	.2,318
6661			8,629		4,707	63.124	103.4	L.				4110	4,288						-1.426	-3,745
2000		_	3,303		4,168	28,630	105.0					·	4,355					5150	270	-3.475
2007		١.			7,209	7,209	206.0				1		8,543	3,670	12,214		2		1,074	-2,401
2002					7,517	7.5.7	206.0	-	_			4114			12,765	0			767	-1.634
2002	:				7.517	7.517	206.0		_									6000	522	-1,112
2002	Ŀ				7,517	7,517	206.0	•	101.6 37,157		1	4110	8,543				5,249		355	-757
5002		i	_		7,517	7.517	206.0		L		1 1		8,543						242	-515
2002					7,517	7,517	206.0						8.543					_	165	-351
2007					7.517	7.5.7	206.0					0.114	6,543	4,222	12,765			120'0 6	112	-239
2008					7,517	7,517	206,0		101.8 37.157			411.0	8,543		12,765			5,000	76	-162
5003					7,517	7.5.7	206,0						8,543			1.1			55	-110
2010	L				7.517	7.5.7	206.9						8,543						35	-75
2011					7.517	7.5.7	206,0	. 1					8,543			- :			24	151
2012					7,517	7.517	206.0						8.543		12,765	٥			16	-35
2913					7.5.7	7.517	206.0				8 112,347		8,543		12,765		5,249	9 0.002	11	-24
2014					7.517	7.517	206.0		101.8 37,157		8 112.347	0.114	8,543				5,249	0.001	2	-16
2015				_	7.5.7	7.517	206.0				.		8,543			:			\$	-11
2016				_	7.517	7.5.7	206.0		1		8 112,347		8,543		12,765		5,249	0.00		7
202	7 3600	ı			7517	7.517	206.0		101,6 37,157		8 112347	0.114	8.543	4	12,765				2	s
2018	9.096	131.400			7.517	7517	206.0		101,8 37,157		8 112,347	0.114	8543	4,222			5,249	0000	7	
203	0'090 6	131.400			7.5.7	7.517	206.0				ı	0,114	8.543		12,765	٥	.	0000	-	-2
2020	360,0	. 1		-	2157	72127	206.0	L		_1	8 112,347	0,114	8.543	4222	12,765	٥	5,249	0000		
Ş	9090	13,400	· · · · · · · · · · · · · · · · · · ·		7157	7,517	206.0	75.190	101.8 37.157	22 307.8	8 112.347	0.114	8,543	4.727	12,765	Ó	65,243	8000		
2202	0.095 Z	31.400		:	7.5.7	7.517	206.0	1 061.57	107.8 37.157	57 307.8	8 112,347	0,114	8,543	4,222	12,765	0	5,249	0000	Ô	-
202	3 360,0	131,400			2.517	7.512	206.0	1	1		8 112,347	9114	8.543	4,222	12,765	٥	5.249	0000	0	9
2024	4 3600	131.400			7.5.7	7.537	206.0				8 112,347	0.114	8.543		12,765	Ċ	5,249	0000	٥	ç
2025	2 360.0	31 400			7.5.7	7.57	206.0	75,190	101.8 37.157	ı	8 112,347	411.0	8,543		12,765	٥	5.249	0000	°	٩
2026	9 360.0	131,400	_		7.517	7.517	206.0	75.190 1(101.8 37,157	57 307.8	8 112,347	0,114	8.543	4,222	12,765	0	5,249	0000	0	Ç
2027	2600	131 400			7.517	7.577	206.0	75.190	721.75 8,101		8 112,347	0.114	8.543	4.222	12,765	0	5.249	0000	°	0
			31,096 113,465 144,561	15 144,561		:	•.		:								•	.:	C	
			P. P. Mannell		, QQ	2000		,	-						EC-rate 4	40cym = 1uss		1		
	•		[USMCOST]	up to year 1999	1999	50.07163	50.0716Xecounted	-tor water/m	È e											

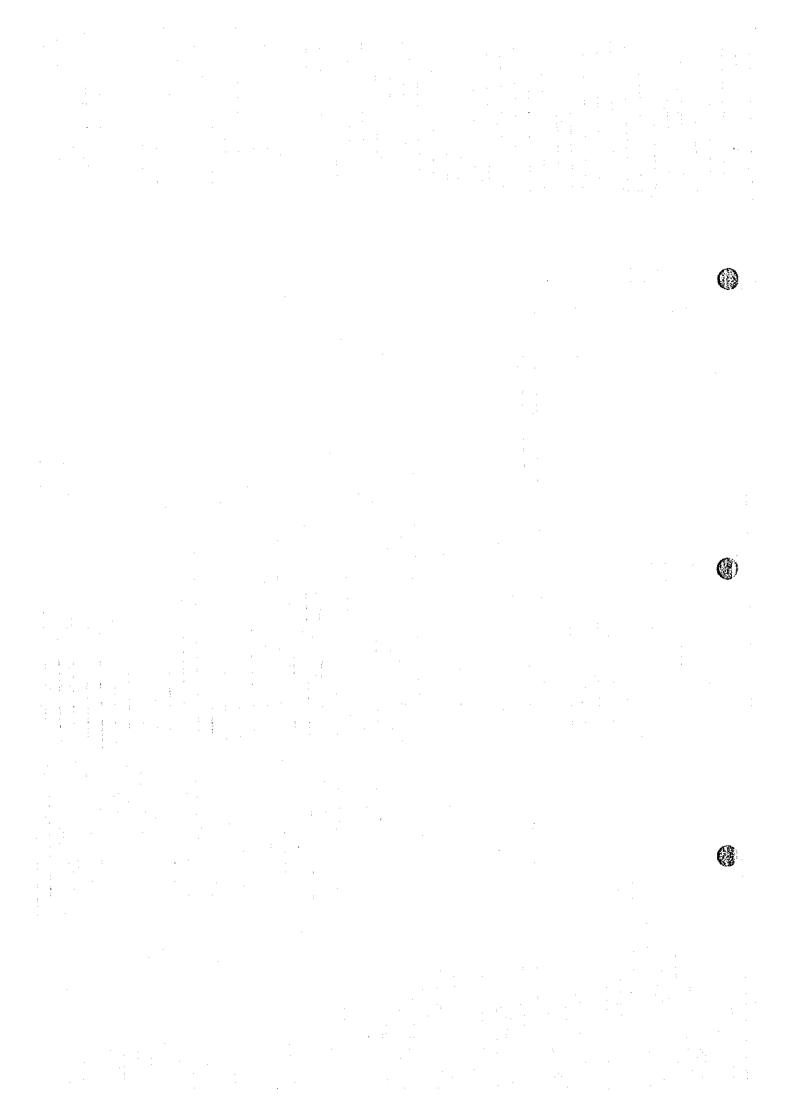
up to year 1999 from year 2000 from year 2001

\$0.0716xccounted -for water/m³ \$0.0634xccounted -for water/m³ \$0.0634xccounted -for water/m³ + \$78,750,000x0.596(tem 3.1.1, 3.1.2)

Projection of Financial Statement

a) Table 6.2.2 Income Statementb) Table 6.2.3 Cash Flow Statementc) Table 6.2.4 Balance Sheet

for KKP, T-N, KZ, T-U



Rescheduled Project(FPP)
Case No.20
Sensitive Analysis

Table 6.12(R) PROJECTED INCOME STATEMENT (KKP)

	0000	000,	0000	-000	300							2 2 2 2		٦.	NIT-USS - 10°
1631	22.62	1888	7007	200	7007	7003	2004	5007	5002	7007	2008	5002	2010	1102	2012
Total Supply (m3*103)	85,994	92,272	98,514	101,507	104,500	104.500	104,500	104,500	104.500	104.500	104.500	104,500	104,500	104,500	104,500
Accounted for Water (m ² *10 ³)	77,417	83,038	88,659	91,360	94,061	94,061	94,061	94,061	94,061	190,76	94,061	94,061	94,061	94,061	94,061
Ave. Tanff (\$/m³)	0.144	0.14	0.144	0.144	0.144	4	0.14	0.144	0.144	0.144	0.144	0.144	0.144	0.144	0.144
Water Sales	11,147	11,957	12,766	13,155	13,544	13,544	13,544	13,544	13,544	13,544	13,544	13,544	13,544	13,544	13,544
Subsidies WaterMetering	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
-Total Revenues-	11,147	11,957	12,766	13,155	13,544	13,544	13,544	13,54	13,544	13,544	13,544	13,544	13,544	13,544	13,544
Operational & Maintenance Cost			:											:	
Water Purchase	6,568	7,039	7,510	7,670	7,830	7,830	7,830	7,830	7,830	7,830	7.830	7,830	7,830	7,830	7,830
Electricity	1,198	1,285	1,372	1,414	1,456	1,456	1,456	1,456	1,456		1,456	1,456	1,456	1,456	1,456
Wages	898	610	652	671	691	691	691	169	691		691	169	691	691	691
Chemicals	252	270	288	297	306	306	306	306	306		306	306	306	306	306
Repair Fund	718	770	822	847	872	872	872	872	872		1,044	1,044	1,044	1,044	1,044
Social Ins.	228	245	292	270	277	277	277	277	277	277	277	277	277	277	277
Fuel & Gus	182	195	208	215	. 221	221	221	122	221	221	221	221	221	221	221
Others	1,413	1,516	1,618	1,667	1,718	1,718	1,718	1,718	1,718	1,718	1,718	1,718	1.718	1,718	1,718
-Total Costs-	11,128	11,930	12,732	13,051	13,371	13,371	13,371	13,371	13,371	13,371	13,543	13,543	13,543	13,543	13,543
Income Before Depreciation	13	27	34	104	173	173	173	173	173	173	<u></u>	-	•		. II.
Depreciation	149	149	149	149	149	1,029	1,029	1,029	1,029	1,029	1,029	1,029	1,029	1,029	1,029
Income Before interest	-130	-122	-115	-45	24	-856	-856	-856	-856	-856	-1.028	-1,028	-1.028	-1,028	-1.028
Interest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ō
Net Income	-130	-122	-115	-45	24	-856	-856	856	-856	-856	-1,028	-1.028	-1.028	-1,028	-1.028
Aggregated Net Income	-130	-252	-367	-412	-3881	-1.244	2.100	-2.956	-3.812	-4 668	-5,696	6 724	77.75	-8 780	808.6
	Note:	Note: 100% cubaiding	acc out	10000						22.					

Table 6.13(R) PROJECTED CASH FLOW STATEMENT (KKP)

										:				N D	UNIT-US \$ *103
Year	1998	1999	2000	2001	2002	2003	2004	2002	2006	2002	2008	5003	2010	2011	2012
Sources of Funds		- 3													
Income Before Depreciation	စ္	. 27	34	104	173	173	173	173	173	173			<u></u>	*	
Foreign Loan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<u></u>
Subsidies	7,041	7,041	7,041	7,041	7,041	0	0	0	0	0	0	0	0	0	0
-Total Sources of Funds-	7,060	2,068	7,075	7.145	7,214	173	173	173	173	173	Į.	-	•-	1	-
Ameliantione of Electic					p										
Applications of rends	7 041	7 0.61	7 041	7 041	7 041	C	c	C	Ċ	Ċ	C	Ó		0	Ö
Capitalized Interest	}	>		>	0	0	0	• •	0	0	0	0	0	0	0
[Total Investment]	7,041	7,041	7,041	7,041	7,041	0	0	0	0	0	0	0	0	0	0
Interest(Soft Loan)	0	0	0	0	O	0	0	0	0	0	. 0	0	0	0	0
<total interest="" operational=""></total>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
Principal(Soft Loan)	0	0	0	0	0	0	O	0	O	0	0	0	O		Ö
<total principal="" repayment=""></total>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ō
[Total Debt Services]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ô
Working Capital Increase	ო			7.	12	0	0	0	0	0	82-	0	0	٥	ō
Cash & Other Current Assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accounts Receivable	1,857	1,992	2,127	2,192	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257	2,257
Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<u></u>
Accounts Payable	1,854	1,988	2,122	2,175	2,228	2,228	2,228	2,228	2,228	2,228	2,257	2,257	2,257	2,257	2,257
Customers Deposit	0	0	0	0	0	Ó	0	0	0	0	0	0	0	0	Ö
-Total Applications of funds-	7,044	7.042	7.042	7,053	7,053	Ö	0	0	0	0	-29	o	0	0	0
				:							:				
Cash Surplus	9	26	33	95	161	173	173	173	173	173	8	•	-	-	P.m.
Cumulative Cash Surplus	16	45	75	167	328	501	674	847	1,020	1,193	1,223	1,224	1,225	1,226	1,227
Cash Flow	16	26	33	92	161	173	173	173	173	173	30	1			-
	Note:	Note: 100% subsidies are considered.	dies are cor	sidered.	٠	٠		•				·	÷	-	

Part II capter 6.

Rescheduled Project(FPP)

Table 6.14(R) PROJECTED BALANCE SHEET (KKP)

2003 2004 2005 2007 2008 2001 2011 2 35,205 35,480 3,481 3,482 3,483 2,758 2,931 3,104 3,277 3,450 3,481 3,482 3,483 36,189 35,205 35,205 31,766 30,738 29,710 28,682 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 35,205 33,961 33,105 32,249 31,329										100					IND	UNIT:US \$ *103
7,041 14,082 21,123 28,164 35,205 </th <th>Year</th> <th>1998</th> <th>1999</th> <th>2000</th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2002</th> <th>2006</th> <th>2002</th> <th>2008</th> <th>5003</th> <th>2010</th> <th>2011</th> <th>2012</th>	Year	1998	1999	2000	2001	2002	2003	2004	2002	2006	2002	2008	5003	2010	2011	2012
149 298 447 5,803 3,832 4,861 5,890 6,919 7,948 8,977 10,006 6,892 13,784 20,676 27,568 34,460 33,431 32,402 31,373 30,344 29,315 28,286 27,257 26,228 25,199 1,873 2,034 2,034 2,202 2,389 2,583 2,758 2,937 3,480 3,480 3,481 3,482 3,489 3,480 3,483 3,483 3,483 3,483 3,489 3,483 3,483 3,483 3,483 3,483 3,483 3,483 3,483 3,483 3,483 3,483 3,483 3,483 3,483 3,447 33,605 35,205	Fixed Asset	7,041	14,082	21,123	28,164	35,205	35,205	35,205	35,205	35,205	35,205	35,205	35,205	35,205	35,205	35,205
6.892 13.784 20,676 27,568 34,460 33,431 32,402 31,373 30,344 29,315 28,286 27,257 26,228 25,199 1,873 2,034 2,034 2,376 2,931 3,104 3,277 3,450 3,481 3,482 3,483 8,765 15,818 22,378 2,333 34,477 33,621 32,765 31,766 30,738 29,710 28,682 7,041 14,082 21,123 28,164 35,205	Depreciation	149	298	447	965	745	1,774	2,803	3,832	4,861	5,890	6,919	7,948	8,977	10,006	11,035
1,873 2,034 2,202 2,389 2,585 2,756 2,931 3,104 3,277 3,450 3,480 3,481 3,482 3,483 3,447 33,621 3,565 3,483 3,447 3,483 3,447 33,621 3,483 3,447 3,483 3,447 33,447 34,448 34,448 34,448 34,448 34,448 34,448 3	Net Fixed Asset	6,892	13,784	20,676	27,568		33,431	32,402	31,373	30,344	29,315	28,286	27,257	26,228	25,199	24,170
8,765 15,818 22,876 29,927 37,045 36,189 35,333 34,477 33,621 32,765 31,766 30,738 29,710 28,682 7,041 14,082 21,123 28,164 35,205	Current Asset	1,873	2,034	2,202	2,359		2,758	2,931	3,104	3,277	3,450	3,480	3,481	3,482	3,483	3,484
7,041 14,082 21,123 28,164 35,205	-Total Assets-	8,765	15,818	22,878	29.927	37,045	36,189	35,333	34,477	33,621	32,765	31,766	30,738	29.710	28,682	27,654
7,041 14,082 21,123 28,164 35,205 </td <td>Capital Equity</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Capital Equity			-							-					
-130 -252 -367 -412 -388 -1,244 -2,100 -2,956 -3,812 -4,668 -5,696 -6,724 -7,752 -8,780 6,911 13,830 20,756 27,752 34,817 33,961 33,105 32,249 31,393 30,537 29,509 28,481 27,453 26,425 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Government Grant	7,041	14,082	21,123	28,164	33	35,205	35,205	35,205	35,205	35,205	35,205	35,205	35,205	35,205	35,205
6,911 13,830 20,756 27,752 34,817 33,961 33,105 32,249 31,393 30,537 29,509 28,481 27,453 26,425 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Operational Surplus	-130	-252	-367	412	388	-1,244	-2,100	-2,956	-3,812	-4.668	-5,696	-6,724	-7,752	-8,780	-9,808
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-Total Equity-	6,911	13,830	20,756	27,752	34,817	33,961	33,105	32,249	31,393	30,537	29,509	28,481	27,453	26,425	25,397
1,854 1,988 2,122 2,228 2,228 2,228 2,228 2,228 2,228 2,228 2,257 2,257 2,257 8,765 15,818 22,878 29,927 37,045 36,189 35,333 34,477 33,621 32,765 30,738 29,710 28,682 2	Long Term Debt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8,765 15,818 22,878 29,927 37,045 36,189 35,333 34,477 33,621 32,765 31,766 30,738 29,710 28,682	Current Liabilities	1,854	1,988	2,122	2,175	2,228	2,228	2,228	2,228	2,228	2,228	2,257	2,257	2,257	2,257	2,257
	-Total Equity and Liabilities-	8,765	15,818	22,878	29.927	37,045	36.189	35,333	34,477	33,621	32,765	31,766	30,738	29,710	28,682	27.654

Table 6.12(R) PROJECTED INCOME STATEMENT (T-N _)

															UNITICIS \$ *103
Year	1998	1999	2000	2001	2002	2003	2004	2002	2006	2002	2008	5003	2010	2011	2012
Total Supply (m3*103)	62,050	62,050	62,050	62,050	62,050	62,050	62,050	62,050	62,050	62,050	62,050	62,050	62,050	62,050	62,050
Accounted for Water (m ³⁺ 10 ³)	51,794	54,641	57,488	59,568	61,649	61,649	61,649	61,649	61,649	61,649	61,649	61,649	61,649	61,649	61,649
Ave. Tariff (\$/m³)	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118
Water Sales	6,135	6,473	6,810	7,056	7,303	7,303	7,303	7,303	7,303	7,303	7,303	7,303	7,303	7,303	7,303
Other Revenues Subsidies Water Metering	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
-Total Revenues-	6,135	6,473	6,810	7,056	7,303	7,303	7,303	7,303	7,303	7,303	7,303	7,303	7,303	7,303	7,303
Operational & Maintenance Cost								 ; .	•	:					
Water Purchase	0	0	0	;	Ó	0	0	0	0	0	0	0	0	0	0
Electricity	3.060	3,228	3,396	4,694	4,858	4,858	4,858	4,858	4,858	4,858	4,858	4,858	4,858	4,858	4,858
Wages	650	989	721	748	774	774	774	774	774	774	774	774	774	774	774
Chemicals	290	623	655	189	196	196	1961	1961	196	1961	196	196	196	196	196
Repair Fund	218	229	241	389	398	398	398	398	398	398	398	398	398	398	398
Social Ins.	260	272	588	599	310	310	310	310	310	310	310	310	310	310	310
Fuel & Gus	290	306	322	334	345	345	345	345	345	345	345	345	345	345	345
Others	355	374	395	408	421	421	421	421	421	421	421	421	421	421	421
-Total Costs-	5,423	5,721	6,019	7,061	7,302	7,302	7,302	7,302	7,302	7,302	7,302	7,302	7,302	7,302	7,302
Income Before Depreciation	712	752	797	5	,	y-	-	F -4	g	•	•-			•	
Depreciation	351	351	351	2,594	2,594	2,594	2,594	2,594	2,594	2,594	2,594	2,594	2,594	2,594	2.594
								•					1		(
Income Before Interest	361	0	044	-2,599	-2,593	-2,593	-2,593	-2,593	-2,593	-2,593	-2,593	-2,593	-2,593	-2,593	-2.593
Interest	0	<u>~</u>	0	0	o	0	0	0	0	0	0	<u></u>	0	0	Ö
			(,	c	002	202	602.6	602.0	004	cou	202	202	2 502	2 503	600 6
Nec income	100	2	2	56.25	-2,535	-2.335	52,33	-2,030	2,535	-6.535	56.55	-6,533	2.255	22.000	20,000
Aggregated Net Income	361	762	1,202	-1,397	-3,990	-6,583	-9,176	-11,769	-14,362	-16,955	-19,548	-22,14	-24,734	1756 17-	-29.920
	Nate.	Pinding 1000 T many	J. 00 000 00 00	- Independent											

Rescheduled Project (FPP)
Case, No.20
Sensitive Analysis

Table 6.13(R) PROJECTED CASH FLOW STATEMENT (T-N)

															UNIT:US \$ -10-
Year	1998	1999	2000	2001	2002	2003	2004	2002	2006	2002	2008	5002	2010	2011	2012
Sources of Funds															
Income Before Depreciation	712	752	791	ς'n	r-	_	-	-	<u> </u>	-	F-1	_	-		p
Foreign Loan	0	0	٥	0	0	ō	0	0	O	0	0	0	0	0	ō
Subsidies	45,034	26,184	18,488			 :									
-Total Sources of Funds-	45.746	26,936	19,279	5-	-	Ė	-	-	-	-	,	-	1	-	F
Applications of Funds			-							_					an ang and
Investment in Project	45.034	26.184	18.488	0		0	ō	0	O	O	0	0	0	<u>;</u> 0	O
Capitalized Interest	0		0	0	0	0	0	0	0	o	0	0	0	0	Ö
[Total Investment]	45,034	26,184	18,488	0	0	0	0	0	0	0	0	0	0	0	Ö
Interest(Soft Loan)	0	0	0	O	0	0	0	0		o	0	0	0	0	0
<total interest="" operational=""></total>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Principal(Soft Loan)	0	0	0	0	Ċ	6	O	Ó	0	ō	0	0	0		0
<total principal="" repayment=""></total>	0	0	0	0	0	0	0	0	0	0	ō	0	0	0	0
[Total Debt Services]	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Working Capital Increase	119		7	-132	0	0	0	o		0	O	Ö	0	Ó	Ó
Cash & Other Current Assets	0	0	0	0	· φ	0	ō	0	0	0	0	0	0	0	Õ
Accounts Receivable	1,022	1,078	1,135	1,176	1,217	1,217	1,217	1,217	1,217	1,217	1,217	1,217	1,217	1,217	1,217
Reserves	0	0	0	0	0		0	0	0	0	0	O	0	0	ō
Accounts Payable	903	953	1,003	1,176	1,217	1,217	1,217	1,217	1,217	7,217	1,217	1,217	1,217	1,217	7,217
Customers Deposit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Total Applications of funds-	45,153	26,190	18,495	-132	0	0	0	0	0	0	0	0	0	0	O
Cash Surplus	593	746	784	127			F7	F		r.	-	ę			
Cumulative Cash Surplus	593	1,339	2,123	2,250	7.251	2,252	2,253	2,254	2,255	2,256	2,257	2,258	2,259	2,260	2,267
Cash Flow	593	746	784	127	-		-		-		-	-	*		-
	Note:	100% subsi	Note: 100% subsidies are considered	sidered.											

Note: 100% subsidies are consider

Table 6.14(R) PROJECTED BALANCE SHEET (T-N)

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2 45,034 71,218 89,706 89,				Ì	*		:									
Fixed Asset 45,034 71,218 89,706 89	Year	1998	6661	2000	1002	2002	2003	2004	2002	5006	2002	2008	200	9	9 2010	_
Deperciation 351 702 1,053 3,647 6,241 8,835 11,429 14,023 16,617 19,211 21,805 Net Fixed Asset 44,683 70,516 88,653 86,059 83,465 80,871 78,277 75,683 70,995 67,901 Current Asset 1,615 2,417 3,256 3,426 3,469 3,470 3,472 3,473 3,473 3,473 3,473 3,474 3,472 3,473 3,474 3,472 3,473 3,474 3,476 3,476 3,476 3,476 3,476 3,476 3,476 3,478	Fixed Asset	45,034	71,218	99,706	89,706	902,68	89,706	90,468	902'68	89,706	89,706	902'68	89,70	9	902'68 9	
Net Fixed Asset 44,683 70,516 88,653 86,059 83,465 80,871 78,277 75,683 73,089 70,495 67,901 Current Asset 1,615 2,417 3,258 3,426 3,469 3,470 3,471 3,472 3,474 3,476 3,474 3,476 3,476 3,476 3,476 3,476 3,476 3,476 3,476 3,476 3,476 <	Depreciation	351	702	1,053	3,647	6,241	8,835	11,429	14.023	16,617	19,211	21,805	24,399	~	56,993	
Current Asset 1,615 2,417 3,256 3,426 3,469 3,470 3,472 3,472 3,474 3,472 3,474 3,474 3,472 3,474 3,474 3,472 3,474 3,474 3,472 3,474 3,474 3,474 3,474 3,475 3,474 3,474 3,475 3,474 3,476 3,474 3,476	Net Fixed Asset	44,683	70,516	88,653	86,059	83,465	80,871	78,277	75,683	73,089	70,495	106,79	65,307		62,713	<u></u>
Contract Assets- 46,298 72,933 91,911 89,485 86,933 84,340 81,747 79,154 76,561 73,968 71,375 Capital Equity 45,034 71,218 89,706	Current Asset	1,615	2,417		3,426	3,468	3,469	3,470	3,471	3,472	3,473	3,474	3,475			3,476 3,477
Capital Equity Capital Equity 45,034 71,218 89,706 81,217 1,217	-Total Assets-	46,298	72,933	91,911	89,485	86,933	84,340	81,747	79,154	76,561	73,968	71,375	68,782		66,189	66,189 63,596
Government Grant 45,034 71,218 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 89,706 99,706 71,342 71,362 -16,955 -19,548 -19,751 -19,178	Capital Equity				,			·				E				
Operational Surplus 361 762 1,202 -1,397 -3,990 -6,583 -9,176 -11,769 -14,362 -16,955 -19,548 -Total Equity- 45,395 71,980 90,908 88,309 85,716 83,123 80,530 77,937 75,344 72,751 70,158 Long Term Debt 0	Government Grant	45,034	71,218		89,706	89,706	902'68	89,706	89,706	89,706	89,706	902'68	89,706		89,706	89,706 89,706
-Total Equity- 45,395 71,980 90,908 88,309 85,716 83,123 80,530 77,937 75,344 72,751 70,158 Long Term Debt 0 <td>Operational Surplus</td> <td>361</td> <td>762</td> <td>1,202</td> <td>-1,397</td> <td>-3,990</td> <td>-6,583</td> <td>-9,176</td> <td>-11,769</td> <td>-14,362</td> <td>-16,955</td> <td>-19,548</td> <td>-22,141</td> <td></td> <td>-24,734</td> <td>-24,734 -27,327</td>	Operational Surplus	361	762	1,202	-1,397	-3,990	-6,583	-9,176	-11,769	-14,362	-16,955	-19,548	-22,141		-24,734	-24,734 -27,327
Long Term Debt 0		45,395	71,980	90,908	88,309	85,716	83,123	80,530	77,937	75,344	72,751	70,158	67,565		64,972	64,972 62,379
Current Liabilities 903 953 1,003 1,176 1,217 1,		0	0	0	0	0	0	0	Ó	•	0	0	0		0	0
46.298 72.933 91.911 89.485 86.933 84.340 81.747 79.154 76.561 73.968 71.375		903	953	1,003	1,176	1,217	1,217	1,217	1,217	1,217	1,217	1,217	1,217		1,217	1,217 1,217
	-Total Fourty and Liabilities-	46.298	72.933	91,911	89.485	86.933	84.340	81.747	79.154	76.561	73.968	71.375	68.782	-	66.189	66 189 63 596

Rescheduled Project (FPP)
Case No.20
Sensitive Analysis

Table 6.12(R) PROJECTED INCOME STATEMENT (KZ)

		: ::	ı	: : :										Ž	INITHIS S *103
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2002	2008	2009	2010	2011	2012
	000	000		0			000		000	000	000		000	000 00	000
Total Supply (m*10°)	000	266,10	D 0.10	00,00	200	000,10	005,19	095.19	095,19	2002	200	200	2005.19	000	2005
Accounted for Water (m³*10³)	59,897	60,700	61,539	80,994	82,235	82,235	82,235	82,235	82,235	82,235	82,235	82,235	82,235	82,235	82,235
Ave. Tanff (\$/m³)	0.090	0.090	0.090	0.090	0.000	0.000	0.090	0.000	0.000	0.000	0.000	0.090	060.0	0.090	0.090
Water Sales	5,405	5,474	5,550	7.305	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417
Other Revenues Subsidies	0	0	o	0		C	C	C	C	C	c	C	Ċ	C	Ċ
Water Metering	0	0	0	0	0	0	0		0	0	0	0	0	0	50
-Total Revenues-	5,402	5,474	5,550	7,305	7,417	7.417	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7.417	7,417
Operational & Maintenance Cost														:	
Water Purchase	2,518	2,535	2,552	5,037	5,105	5.105	5,105	5,105	5,105	5,105	5,105	5,105	5,105	5,105	5,105
Electricity	720	730	740	974	686	989	989	686	686	686	989	989	686	686	686
Wages	264	267	271	356	362	362	362	362	362	362	362	362	362	362	362
Chemicals	109	111	112	148	150	150	150	150	150	150	150	150	150	150	150
Repair Fund	228	231	234	308	312	312	312	312	312	312	405	405	405	402	402
Social Ins.	106	80	109	44	146	146	146	146	146	146	146	146	146	146	146
Fuel & Gus	92	77	28	103	105	105	105	105	105	105	105	105	105	305	105
Others	180	182	186	242	246	246	246	246	246	246	247	247	247	247	247
-Total Costs-	4,201	4,241	4,282	7,312	7,415	7,415	7,415	7,415	7,415	7,415	7,506	7,506	7,506	7,506	7,506
Income Before Depreciation	1,201	1,233	1.268	-2	7	7	8	2	-2	~	-89	80	68	68	8
Depreciation	152	152	152	152	152	749	749	749	749	749	749	749	749	749	749
Income Before Interest	1.049	1,081	1.116	-159	-150	-747	-747	-747	-747	-747	80	800	-838	60	0.00
Interest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net income	1,049	1,081	1,116	-159	150	-747	-747	-747	-747	-747	-838	889	-838	-838	-838
Aggregated Net income	1,049	2,130	3,246	3.087	2.937	2.190	1.443	969	-53	-798	-1.636	-2.474	-3.312	-4.150	4.988
	Note:	100% subsit	Note: 100% subsidies are considered	sidered.											

Table 6.13(R) PROJECTED CASH FLOW STATEMENT (KZ)

1,201 1,223 1,266 7-7 2 2 2 2 2 2 2 2 2	>	000.	000	0000	.000	- 0000	- 0000	, 000	1000	0000	1000	0000	0000	0100		2.00
1,201 1,233 1,268 -7 4,774	rear	1338	222	2002	1002	2002	2003	2004	2002	2002	2007	2002	5003	20102	701	2017
1,201 1,233 1,266	Sources of Funds											i				
## 4,774 4,774 4,774 4,774 4,774 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Income Before Depreciation	1,201	1,233	1,268		2	2	2	2	2	7	ဆို	£ 68-	8	68-	-89
8,5,75 6,007 6,042 4,774 4,7	Foreign Loan	0	0	0	0	0	0	0	0	0	0	0		0	0	O
853-75 6.007 6.042 4.774 4.774 4.774 4.774 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Subsidies	4,774	4,774	4,774	4,774	4,774	0	0	0	0	0	0	0	0	O	Ö
4,774 4,774 4,774 4,774 4,774 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-Total Sources of Funds-	5,975	6,007	6,042	4,767	4,776	2	2	2	2	2	-89	68-	-89	68-	-89
## 4,774		•														
A	Applicacions of remain	2774	4774	4774	4 774	2 7 7 4	Č	C		c	C	~~~		C	C	Č
4,774	The state of the state of	ř	•	t c	r c	ř	5 6	5 6	5 C	> 0	> 0	> <	> (> 0	> <	5 6
Section Color Co	depression of the control of the con	4 77 4	4 774	2 774	4 774	4 77 4) C	5 C	5 C	o c	5 C	> C	> C	5 C) C	o c
1,001 1,227 1,262 2.06 0 0 0 0 0 0 0 0 0			•	F		•		>	<u> </u>	>	>	>	>	>	>	>
1,001 1,227 1,262 2.06 0 0 0 0 0 0 0 0 0	nterest(Soft Loan)	0	0	0	0	0	O	0	0	0	0	0	0	O	0	0
Color Colo	<total interest="" operational=""></total>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ō
1,001 1,227 1,262 2.06 0 0 0 0 0 0 0 0 0	Principal(Soft Loan)	0	0	0	0	0	0	0	o	0	0	0	0	0	0	Ô
Column C	<total principal="" repayment=""></total>	0	0	0	0	0	0	0	0	0	Ö	0	0	0	0	0
Column C	Total Debt Services]	•	0	0	0	0	0	0	0	o	0	0	0	0	0	0
1,001 1,227 1,262 2,06 0 0 0 0 0 0 0 0 0	Norking Capital Increase	200	w	မ	-213	2	0	0	Ó	0	0	91.	0	0	0	ō
900 912 925 1,216 1,236	Cash & Other Current Assets	0	0	0	0	0	0	0	0	0	0	0	Ö	0	0	0
0 0	Accounts Receivable	906	912	928	1,217	1,236	1,236	1,236	1,236	1.236	1,236	1,236	1,236	1,236	1,236	1,236
700 706 713 1,218 1,235 2,228 3,596 3,696 3,696 3,700 3,702 3,704 3,706 3,706 3,706 3,633 3,544 3,455 3,366	Reserves	o	0	0	0	0	0	0	0	0	0	0	0	0	0	ō
obstance 0<	Accounts Payable	200	902	713	1,218	1,235	1,235	1,235	1,235	1,235	1,235	1,251	1,251	1,251	1,251	1,251
rds- 4,974 4,780 4,561 4,776 0 0 0 0 -16 0	Customers Deposit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rds- 4,974 4,780 4,780 4,561 4,776 0 <th></th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- - - - -</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>•</td> <td></td>									- - - - -						•	
1,001 1,227 1,262 206 0 2 2 2 2 -73 -89 -89 -89 1,001 2,228 3,490 3,696 3,698 3,700 3,702 3,706 3,633 3,544 3,455 3,366 3,366 3,366 3,544 3,455 3,366 3,54 3,455 3,266 3,54 3,455 3,266 3,54 3,455 3,266 3,54 3,455 3,266 3,54 3,455 3,65 3,54 3,455 3,266 3,54 3,455 3,54 3,455 3,54 3,455 3,54 3,54 3,455 3,54	Total Applications of funds-	4,974	4,780	4,780	4,561	4,776	0	0	0	0	0	-16	ō	0	0	0
1,001 1,227 1,262 206 0 2 2 2 2 2 2 -73 -89 -89 -89 1,001 2,228 3,490 3,696 3,698 3,700 3,702 3,704 3,706 3,633 3,544 3,455 3,366 3,3 1,001 1,227 1,262 206 0 2 2 2 2 2 2 2 -73 -89 -89 -89			: !	1 1							- :	:	:		······································	
1,001 2,228 3,490 3,696 3,696 3,698 3,700 3,702 3,704 3,706 3,633 3,544 3,455 3,366 3,2 1,001 1,227 1,262 206 0 2 2 2 2 2 2 -73 -89 -89 -	ash Surpius	8	1,227	1,262	506				7					8	589	
- 1,001 1,227 1,262 206 0 2 2 2 2 2 -73 -89 89 89 -89	Jumulative Cash Surplus	1,00,1	2,228	3,490	3,696				3,702					3,455	3,366	
	ash Flow	1,00,1	1,227	1,262	506	0	2	2	- 2	2	2	-73	-89	68-	-89	68-

Part II capter 6.

Rescheduled Project (FPP)
Case No.20
Sensitive Analysis

Table 6.14(R) PROJECTED BALANCE SHEET (KZ)

				1							:			LIND	UNIT:US \$ -103
Year	1998	1999	2000	2001	2002	2003	2004	2002	2006	2007	2008	5003	2010	2011	2012
Fixed Asset	4,774	9,548	14,322	19,096	23,870	23,870	23,870	23,870	23,870	23,870	23,870	23,870	23,870	23,870	23,870
Depreciation	152	304	456	608	260	1,509	2,258	3,007	3,756	4,505	5,254	6,003	6,752	7,501	8,250
Net Fixed Asset	4,622	9,244	13,866	18,488	23,110	22,361	21,612	20,863	20,114	19,365	18,616	17,867	17,118	16,369	15,620
Current Asset	1,901	3,140	4,415	4,913	4,932	4,934	4,936	4,938	4,940	4,942	4,869	4,780	4,691	4,602	4,513
-Total Assets-	6,523	12,384	18,281	23,401	28,042	27,295	26,548	25,801	25,054	24,307	23,485	22,647	21,809	20,971	20,133
Capital Equity												. :		• • •	
Government Grant	4,774	9,548	14,322	19,096	23,870	23,870	23,870	23,870	23,870	23,870	23,870	23,870	23,870	23,870	23,870
Operational Surplus	1,049	2,130	3,246	3,087	2,937	2,190	1,443	969	-51	-798	-1,636	-2,474	-3,312	-4,150	-4.988
-Total Equity-	5,823	11,678	17,568	22,183	26,807	26,060	25,313	24,566	23,819	23,072	22,234	21,396	20,558	19,720	18,882
Long Term Debt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ö
Current Liabilities	700	206	713	1,218	1,235	1,235	1,235	1,235	1,235	1,235	1,251	1,251	1,251	1,251	1,251
-Total Equity and Liabilities-	6.523	12,384 18,281	18,281	23,401	28,042	27,295	26,548	25,801	25,054	24,307	23,485	22,647	21.809	20.971	20,133
-	Note:	Note: 100% subsidies are considered.	lies are con	sidered.											

Table 6.12(R) PROJECTED INCOME STATEMENT (T-U)

			0000	, 000	0000	0000	, 000	2000	7000	2007	2000	2000	0.00	2011	2012
rear	1998	1999	2007	1007	7007	\$002	1000	2002	2007	,000	0000	5003	202	-	3103
Total Supply (m3*103)	65,700	65,700	65,700	131,400	131,400	131,400	131,400	131,400	131,400	131,400	131,400	131,400	131,400	131,400	131,400
Accounted for Water (m³*10³)	65,737	65,737	65,737	105,084	108,186	108,186	108,186	108,186	108,186	108,186	108,186	108,186	108,186	108,186	108,186
Ave. Tariff (\$/m³)	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067
Water Sales	4,382	4,382	4,382	7,005	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212
Outer revenues Subsidies Water Metering	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
-Total Revenues-	4,382	4,382	4,382	7,005	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212	7,212
Operational & Maintenance Cost	,										:		-ii		**************************************
Water Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O
Electricity	2,641	2,641	2,641	4,222	4,346	4,346	4,346	4,346	4,346	4,346	4,346	4,346	4,346	4,346	4,346
Wages Chamical	749	7455	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	334	3.43	243	2 4 6 2 6 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	343	4 4 9 4 5 4	343	343	2. 84. 2. 84.3.	343	343	343
Repair Fund	180	£ 60	18	605	614	614	619	9 6	614	614	614	614	6.4	614	614
Social Ins.	182	28	182	292	300	300	300	300	800	800	300	စ္တ	300	စ္တ	300
Fuel & Gus	294	294	294	470	484	484	484	484	484	484	484	484	484	484	484
Others	205	205	745	328	339	339	339	339	339	339	339	339	339	339	339
-Total Costs-	4,707	4,707	4,707	6,979	7,175	7,175	7,175	7,175	7,175	7,175	7,175	7,175	7,175	7,175	7,175
Income Before Depreciation	-325	-325	-325	58	37	37	37	37	37	37	37	37	37	37	37
Depreciation	213	213	213	213	213	3,439	3,439	3,439	3,439	3,439	3,439	3,439	3,439	3,439	3,439
				-	:			-			5 I				1
Income Before interest	-538	-538	538	187	-176	-3,402	-3,402	-3,402	-3,402	-3,402	3,402	-3,402	-3,402	-3,4021	-3,402
Interest	<u>o</u>	0	0	0	0	0	0	<u>о</u>	0	0	0	0	0	ō	Ö
Net Income	-538	-538	-538	-187	-176	-3,402	-3,402	-3,402	-3,402	-3,402	-3,402	-3,402	-3,402	-3,402	-3,402
Aggregated Net Income	-538	-1,076	-1,614	-1,801	1,977	-5,379	-8,781	-12,183	-15,585	-18,987	-22,389	-25,791	-29,193	-32,595	-35.997
		~~~		1											

Note: 100% subsidies are considered.

Rescheduled Project (FPP)
Case No.20
Sensitive Analysis

Table 6.13(R) PROJECTED CASH FLOW STATEMENT (T-U)

								:						NO	JNIT-US\$*103
Year	1998	1999	2000	2001	2002	2003	2004	2002	9002	2002	2008	5003	2010	2011	2012
Sources of Funds									<del></del>		<u> </u>				
Income Before Depreciation	-325	-325	-325	56	37	37	37	37	37	37	37	37	37	37	37
Foreign Loan	0	•	0	0	0	O	0	0	0	0	0	0	0	0	ō
Subsidies	29,003	61,957	24,909	8,063	5,121		:				<del></del>		:		
-Total Sources of Funds-	28,678	61,632	24,584	8,094	5,158	37	37	37	37	37	37	37	37	37	37
Applications of Funds							<u> </u>				-				300.047.4
Investment in Project	29,003	61,957	24,909	8,068	5,121	0	0	0	O	0	0	0	0	0	7
Capitalized Interest	0	0		0	0	0	0	0	0	0	0	0	0	0	Ō
[Total Investment]	29,003	61,957	24,909	8,068	5,121	0	0	0	0	0	0	0	0	0	~~~
Dranact (Coff   Can)	Ċ		C	(		•		<	•	<	(	~		<	
/Total Operational Interest	о <b>с</b>	· C	> <	> <	> <	<b>5</b> C	> <		<b>o</b> c	5 6	<b>5</b> (	5 0	> <	> <	<b>5 7</b>
Vocal Spelational Interest	>	>	<b>&gt;</b>	5	5	5	<del>)</del>	5	<del>5</del>	5	3	Ċ	>	<b>5</b>	0
Principal(Soft Loan)	0	0	0	0	0	0	0	0	0	O	0	0	0	0	Ō
Total Principal Repayment>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[Total Debt Services]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Working Capital Increase	-54	0	0	58	8	0	0	0	ō	0	0	•	0	Ó	ō
Cash & Other Current Assets	Ö	•	0	0	0	0	0	0	ō	0	0	Ó	0	0	ō
Accounts Receivable	730	730	730	1,167	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202
Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ō
Accounts Payable	784	784	784	1,163	1,195	1,195	1,195	1,195	1,195	1,195	1.195	1,195	1,195	1,195	1,195
Customers Deposit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							:	<del></del>							
-Total Applications of funds-	28,949	61,957	24,909	8,126	5,124	0	0	0	0	0	0	0	0	0	0
Cash Surplus	-271	-325		-32	£.	37	37	37	37	37	37	37	37	37	37
Cumulative Cash Surplus	-271	-596	-951	-953	-919	-885	-845	-808	-771	-734	-697	-660	-623	-586	-549
Cash Flow	271	-325	-325	-32	34	37	37	37	37	37	37	37	37	37	37
	Note:	100% subs	Note: 100% subsidies are considered.	sidered.											

Table 6.14(R) PROJECTED BALANCE SHEET (T-U)

	1								***					CND	UNITIUS \$ *10
Year	1998	1999	2000	2001	2002	2003	2004	5002	5006	2002	2008	5002	2010	2011	2012
Fixed Asset	29,003	96,06	115,869	123,937	129,058	129,058	129,058	129,058	129,058	129,058	129,058	129,058	129,058	129,058	129,058
Depreciation	213	426	639	852	1,065	4,504	7,943	11,382	14,821	18,260	21,699	25,138	28,577	32,016	35,455
Net Fixed Asset	28,790	90,534	115,230	123,085	127,993	124,554	121,115	117,676	114,237	110,798	107,359	103,920	100,481	97,042	93,603
Current Asset	459	134	-191	214	283	320	357	394	431	468	505	545	579	616	653
-Total Assets-	29,249	90,668	115,039	123,299	128,276	124,874	121,472	118.070	114,668	111,266	107,864	104,462	101,060	97,658	94,256
Capital Equity	2003	0	מ מ	122 927	850 661	800	830 601	850 661	850 661	850 861	29.058	129.058	129.058	129.058	129.058
Operational Surplus	-538	1		-1,801	1,977	-5,379	-8,781	-12,183	-15,585	-18,987	-22,389	-25,791	-29,193	-32,595	-35,997
-Total Equity-	28,465	89,884	114,255	122,136	127,081	123,679	120,277	116,875	113,473	170,011	106,669	103,267	99,865	96,463	93,061
Long Term Debt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Current Liabilities	784	784	784	1,163	1,195	1,195	1,195	1,195	1,195	1,198	1,195	1,195	1,195	1,195	1,195
-Total Equity and Liabilities-	29,249		90.668 115.039	123,299	128,276	124,874	121,472	118,070	114,668	111,266	107,864	104,462	101,060	97,658	94,256
	Note:	. 00% e. thei	Note: 100% subsidies are considered	eidarad											

Note: 100% subsidies are considered.

Economic Analysis(FS Total)

Table 6.15, Economic Construction Cost(Case 2)

Sensitivity Analysis

-											:					5	(CNIT: 19XUSS)
		7	T-N-T			T	n-				ΚKΡ			24			@Total
	၁၀	① Construction Cost		© Net % Investment for VK/KKP	<b>ာ</b>	© Construction	Cost	@Net ** Investment for VK/KZ	(\$)Total	9	© Construction Cost	Sost	0 0	Construction Cost	:502	® Total	Economic Construction cost
	X0.8(S.E.P)	Foreign	Total	0X0.830	Xo.8(S.E.P)	Foreign	Total	@X0.614	@+@	Cocal X0.8(S.E.P)	Foreign	Total	Cocal X0.8(S.E.P)	Foreign	Total		<b>@-</b> ©
1998	16,806	24,026	40,832	33,891	11,914	14,111	26,025	15,979	49,870	3,136	3,121	6,257	2,162	2,072	4,234	10,491	60,361
1999	2,906	22,551	25,457	25,457 21,130	7,127	53,048	60,175	36,948	58,077	3,136	3,121	6,257	2,162	2,072	4,234	10,491	68,568
2000	2,262	15,661	17,923	14,876	2,658	21,586	24,244	14,886	29,762	3,136	3,121	6.257	2,162	2.072	4,234	10,491	40,252
2001	0	0	O	0	617	7,297	7,914	4,859	4.859	3,136	3,121	6,257	2,162	2,072	4.234	10,491	15,350
2002	0	0	0	0	486	4,513	4,999	3,070	3,070	3,136	3,121	6,257	2,162	2,072	4,234	10,491	13.560
2003	12,610	24,669	37,279	30,942	0	0	0	0	30,942	4,142	16,199	20,341	3,146	16,844	19,990	40,331	71,273
2004	7,366	57 490	64,856	53,830	0	0	0	0	53,830	3.812	10,686	14,498	2,354	3,252	5.606	20,104	73,935
2005	5,838	49,114	54,952	45,610	1,598	9,745	11,343	6,964	52,575	3,253	6,153	9,406	2,316	6,097	8,413	17,819	70,394
2006	477	3,168	3,645	3.025	477	3,166	3,643	2,237	5.262	3,136	3,121	6,257	2,162	2,072	4,234	10,491	15,752
2007						:				3,136	3,121	6,257	2,162	2,072	4,234	10,491	10,491
2008						,				3,136	3,121	6,257	2,162	2,072	4,234	10,491	10,491
2009						::		•		3,136	3,121	6,257	2,162	2,072	4,234	10,491	10,491
2010					-					3.136	3,095	6.231	2,162	2.072	4.234	10,465	10.465
Total	48,266	196,679	244,945	203,304	24,877	113,466	138,343	84,942	288,246	42,566	64,222	106,788	29,433	46,913	76,346	183,134	471,381

**Note: Investment cost only for the "urban"area (Vodokanals) calculated by the assumed proportional volume of AFW in 2010 year.

Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children   Children
APW         Observations         APW         Observations         APW           77,380         4,556         77,380         4,556         0         59,834           83,038         4,891         83,036         4,691         0         60,663           84,669         5,222         86,659         5,222         0         61,466           91,390         5,391         91,360         60,884         60,884           5,440         6,464         60,884         60,884           6,134         6,046         60,884           6,134         6,046         60,884           6,134         6,046         60,884           6,134         6,046         60,884           6,134         6,046         60,884           6,134         6,046         60,884           6,134         6,046         60,884
77,300 4,556 77,300 83,008 4,891 95,008 86,659 5,722 66,659 91,590 5,301 91,300
05.77 05.00 05.79 05.79
33,286 2,383 2,244
54,436 2,165 66,000 4,627
49,764 5,706 700

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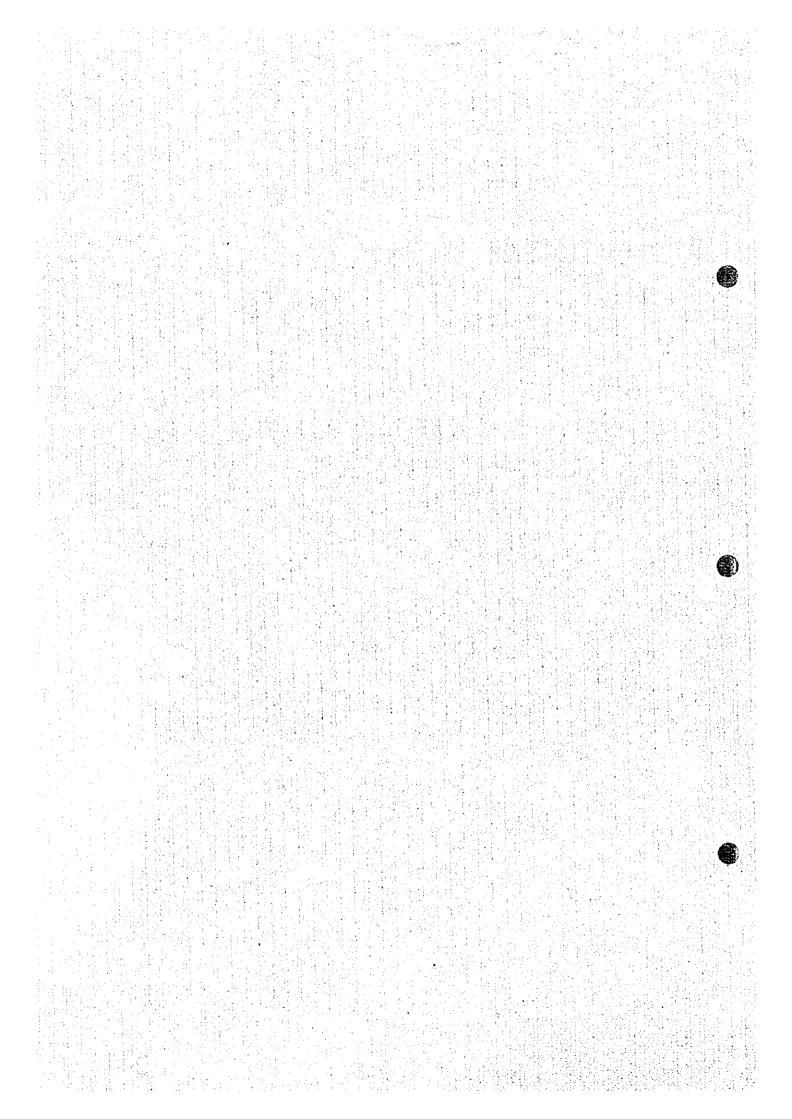
### Table6.17 Economic Benefit (Case 2)

<del>,</del>			1/1/0		:		·		<u> </u>	<u>(U</u>	VIT:10°XUSS
	A)with	project	B)withou	vt project	A)-B) incremental water revenue	C)with	project	KZ D)withou	ut project	C)-O) Incremental water revenue	Total :
Case 1	AFW	Revenue	AFW	Revenue	44.00	AFW	Revenue	AFW	Revenue	Waler reserved	
1998	55,699	10,343	54,166	10,059	285	47,158	5,593	45,479	5,394	199	484
1999	61,466	11,414	54,166	10,059	1,356	49,531	5,874	46,173	5,476	398	1,754
2000	66,503	12,350	54,166	10,059	2,291	51,210	17,411	46,793	5,550	11,862	14,153
2001	69,460	25,631	54,166	10,059	15,572	68,292	23,219	46,173	5,476	17,743	33,315
2002	72,453	26,735	54,166	10,059	16,676	<b>70.3</b> 36	23,914	45,552	5,402	18,512	35,188
2003	71,504	26,385	54,166	10,059	16,326	72,453	24,634	<b>45.0</b> 05	5,338	19,296	35,622
2004	72,416	26,722	54,166	10,059	16,663	74,570	25,354	44,457	5,273	20,081	36,744
2005	73,000	26,937	54,166	10,059	16,878	76,723	26,086	43,946	5,212	20,874	37,752
2006	85,082	31,395	54,166	10,059	21,336	78,913	26,830	43,289	5,134	21,696	43,033
2007	88,549	32,675	54,166	10,059	22,616	81,140	27,587	42,669	5,060	22,527	45,143
2008	92,053	33,968	54,166	10,059	23,909	83,366	28,344	42,085	4,991	23,353	47,262
2009	95,630	35,287	54,166	10,059	25,229	87,819	29,858	41,574	4,931	24,928	50,157
2010	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2011	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2012	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2013	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2014	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2015	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2016	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2017	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2018	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2019	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2020	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2021	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2022	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2023	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2024	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2025	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2026	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
2027	99,280	36,634	54,166	10,059	26,576	87,162	29,635	41,026	4,866	24,769	51,345
Total	2,690,853	959,258	1,624,980	301,759	657,500	2,410,424	798,137	1,271,660	150,819	647,318	1,304,818



S S	Officenomic Construction Cost	©Economic O&M Cost	O&M Cost	©Total	(s) Economic Benefit	Benefit	© Total	. O	ERR F	Present
1.N + 1.U	Vocokana KKP + KZ	(spinemeron) X	KKP + KZ		ΚKΡ	ğ	Coconent		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
49,870	10,491	52	0	60,413	285	199	484	626,65-	0.928	55,602
58,077		89	0	68,636	1,356	368	1,754	-66.882	0.861	-57,572
29,762		-199	0	40,054	2,291	11,862	14,153	-25,901	0.799	-20,686
4,859		2,944	568	18,861	15,572	17,743	33,315	14,454	0.741	10,710
3,070		3,011	627	17,198	16,676	18,512	35,188	17,990	0.687	12,368
30,942		3,064	989	75,023	16,326	19,296	35,622	-39,400	0.638	-25,131
53,830		3,009	742	77,685	16,663	20,081	36,744	-40,941	0.592	-24,229
52,575		2,953	298	74,144	16,878	20,874	37,752	-36,392	0.549	-19,982
5,262	10,491	9,477	1,817	27,047	21,336	21,696	43,033	15,986	0.509	8,144
	10,491	10,238	2,081	22,809	22,616	22,527	45,143	22,334	0.473	10,556
	10,491	10,562	2,600	23,652	23,909	23,353	47,262	23,610	627.0	10,353
	10,491	10,870	2,851	24,212	25,229	24,928	50,157	25,944	0.407	10,556
-	10,465	10,991	3,037	24,492	26,576	24,769	51,345	26,853	0.377	10,136
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.350	13,069
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.325	12,126
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.301	11,250
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.280	10,438
		166'01	3,037	14,027	26,576	24,769	51,345	37,318	0,260	9,684
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.241	8,985
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.223	8,336
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.207	7,734
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.192	7,176
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.178	6,658
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.166	6,177
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.154	5,731
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.142	5,317
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.132	4,933
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.123	4,577
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.114	4,247
		10,991	3,037	14,027	26,576	24,769	51,345	37,318	0.106	3,940

# G. INITIAL ENVIRONMENTAL EXAMINATION BY UZBEK SIDE



Environmental Matrix

/ /	P. Oct.	1	2	8		olgni Isolor Ay		7	8.	.6	10.	xəlqı Joot	ord Ord	13.	Note:
	Environmental Element Project Sector	1. Port and Bay area	2. Airport	3. Roads	4. Railways	5. Rivers, erosion and torrent control	6. Waste, garbage control	7. Sewerage	. Underground water development	9. Water Supply	10. Regional development plan	11. Tourism	12. Transport	13. Urban transportation utilities	<ul> <li>significant influential factors.</li> </ul>
	I . Resettlement		ŀ	Ŏ	I	1	1	O	1	-	0	-	1	O	
•	2. Economic activities 3. Teaffic Combits facilities	<u> </u>	] 	0	<u> </u>	0	© O	0	0	0		0	1	0	0
Social	3. Traffic / public facilities	}  1	1	0		0	0	$\circ$				- 0	1	0	: influential factors,
	esuresal treasures	] 	1	0	1	1	0	0	;	Ο	 	0	1.	O	ial fac
environment	6. Walet right	1	1	1	1	0	 	Ο	0	0	I	1	1	1	tors,
Ţ	7 : Public health	i	1	0	1	0	0	0	O	0	1	0	1	ı	
	8. Solid waste	1	1	Ō	t	0	0	О	0	0	1	0	l	1	l .
	9. Risk of disaster	1	1	0	1	0	0	O	1	1	ı	,	1	1	non-i
	10. Topography / geography	1	1	О	ì	0	0	0	1	0	1	1	 I	1	: non-influential factors
	noisos lio S. 11		 	<u> </u>	1	0	0	0			   		1	 	itial fa
Natural conditions	12. Groundwater	 		0	1	(O		0	<u> </u>	$\frac{1}{0}$		0			ctors
l condi	14. Coastal and sea area	 	1 	<b>I</b>	1				1				 	1	
tions	Snus Bona and Fauna	l 	1	О	i 	О	0	0	 	l 	I . 	0		1	
į	16. Weather	1	1	0	1	0	i	0		1	1.	1	1	1	1
	əqsəsbns.l.yl	ı	1	0	1,	0	0	0	ı	0	I.	0	1	1	] ·
	18. Air pollution	ŀ	1	0	1	i	0	O	1	ı	1	0	1	1	
	notiullog 1918W . Q1	1	1	1	1	(O)	0	0		0	I	1	1	1	
Pollution	noitullog fio OS	-	1	O	1	О	0	0	<u>.</u> ·.	0	1	1	1	1	
uo	S. Noise and vibration	1	1	O	1	0	0		1	 I	i	Ċ	 		
	\$2. Ground subsidence				1	'			O		   	ļ			
٦	23. Offensive odor		·		1			0	Γ,	Γ,	T.	Γ.		Γ,	]

						Social	Social environment	ment			-			Natura	Natural conditions	Suon					Pollution	noti		
major development facilities related to a planning		Environmental Element	I . Resettlement	2. Económic activities	solitios) oliduq Voilliet T. C.	4. Area separation	sourseoutesigolosedous. C	6. Water right	7. Public health	sizew biloz . 8	9. Risk of disaster	Vhqergoog / VhqergoqoT . 01	10. Source and a second	siewanneward	14. Coastal and sea area	enus I bus riofi . či	16. Weather	ogeospued . 71	18. Air pollution	19. Water poliution	notiullog lies . 02	noinerdiv bas seioN . 1S	22. Ground subsidence	23. Offensive odor
Water Intake		Overall	1	0	0	. 1	1	· O	0			 	0	- (	1	1 - 1 - 1 - 1 - 1	1	O	1	0	1	1	1	1.
Raw Water Transmission	Construction	Topographical changes: Expand of living territory	0	O	1	O	1	· O	1		-	0	0	-   (	1	l	- 	0	ı	1		1	I;	11
Water Treatment	Phase	Commissioning of structures, machines and transport facilities	ı	0	0	O			0	) <u>,</u>	0			<u> </u>	1 1	0	1		. 1	0	1	I	1	l
Treated Water Transmission	Operation	Expand of living territory	1	0	Ο	1	1	0	0	0		·	i		1	1	· I		l	ı	ı	1 ;	ı	ı
Water Distribution	Phase	Using of mechanisms, tools, instruments	1	0	О	1	1	O	0	0			0	0		0	Ο	0	1	0	Ο	0	1	1
Note:	0	: influential factors,	ı	uou :	influ	ential	non-influential factors	80			:													

### General Features of IEE & EIA projects

Denomination	Description
1. Name of the Project	Study on water supply system in six citites of the Aral Sea region in Uzbekistan
2. General provisions	Incomplete rate of population served by high quality water supply
3. Objectives	Drinking water quality improvment and feasability study
4. Location area, geographical conditions	Study area is located in the North-West of Republic of Uzbekistan
5. Initiator (organisation) of project developing	Republic of Uzbekistan, MPU and SCNP of Republic of Uzbekistan.
6. Population which will get benefit	1,485.6 ths. people
7. Main planning objectives	Investigation, F/S, construction, commissioning
8. Content of the projects	Investigations and F/S
9. Project specifications	
10. Water sources, water quality	Kaparas reservoir - water supply source
11. Water intake and supply facility	Pumping stations, drinking water pipelines to the consumers
12. Water treatment plant. Process.	Coagulation, sedimentation, Filtration and desinfection
13. Distribution nodes	Water main pipelines
14. Auxialary equipment	Utilisation of water treatment waste products
15. The problems to be highlighted specially	Finding money for project implementation

General Description should be framed by existing information.

### Status of the project in relation to the territory

Denomination	Description					
Project name	Study on water supply system in six citite of the Aral Sea region in Uzbekistan					
Occupation of local population	Agricultural activity					
Socio-demografic pattern in Karakalpakstan in Khorezm	Karakalpakstan 32.3% - Karakalpaks, 32,8 %- Uzbeks, others					
III KROICZIII	26.7%- Kazakhs and others					
Water and power supply	Water supply from wells, reservoir, mainly from the surface sources as well as from the local underground lenses					
Sanitation and hygiene condtions. Health condition and infectious deseases						
Geological/topogrphy conditions	Located in Central Asia in the North-West of Uzbekistan					
Meteorogical conditions, lake water, river water, underground water, precipitations.	Amudarya river, Tuyamuyun reservoir, lakes					
Flora and fauna,	Inhabited terrritory in past and present					
Public opinion.	Complaints of inhabitants for environment has changed. Ground soiling. Low quality potable water, increasing morbidity					
How to resolve the problems, what kind of measures are taken by the Government, what kind of subsidies are granted?						

### The problems to be approached specially:

- 1. To provide 100% of population with high quality potable water
- 2. Improving of sanitation and hygiene standards of living conditions
- 3. Improving of socio-economical conditions





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	23. Mal- odour, exhausted gases,	<u>'</u>	◁	Ļ	Ľ	Ĺ	<u> </u>	Ľ	L				⊲	4
	22. Ground sagging, bad odour	L <u>.</u>	Ŀ	Į.	Ŀ	÷	٧	◁	<u>L</u>	<u>.</u>	∢			
	21. Noise, vibration	⋄	+	+	+			ಶ	4	<	♦	◊	+	+
	20. Soil pollution	۵	<u>.</u>			i	∇.	7			⊲		۷	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	19. Water pollution	۵	Δ.		◁	ಶ	Δ	7	٥	<	٠ ٧		Σ	٧
÷	18, Air pollution	۷	+	+	+	·	÷	₹			٠.Δ٠	,	۷	+
	77. Landscape, scenety	٧	۵	۷	٧	٧	٧	۳		◊	. 0	٧	Ÿ	٧
	16. Weather and climate	Ţ.,			Γ.	_				,	Δ	. 1	Δ.	1
suo	15. Flore and fauna	+	+	+	+	+	◁	٧	•	Δ	∇	۵	٥	Δ.
conditions	ebisses bns ses A . P I	+	,	,	Ī.	Ι.	,				⊲	۷	٠	•
	13. Lakes, rivers, surface waters condition	<		,	Γ.	+	,	,		Δ.	: ◊	٧		٠
Natural	12. Underground lenses		•		7	Ī,	◁	•	+	-	<			ı
	I Soil erosion		Γ	٧	⊲	Ī.			·		∇	♥	∇	•
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	9. Risk of disaster and calaminity	⊲			.∇				-	•	Δ	4	۷	۷
Ì	etsew bilo2' ,8	. □	₫	٧	⊴	4	+	+	-	Ψ	٧	Þ	٧	٧
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PVUO	6. Conflicts on water usage and rights	+	,	۵		+	1	,	V	Δ	۷			٠
environvent	5. Historical places and places of interest		Ī.		7	,				,		۷	۷.	∇
Social	ሳ, Reductions in social environment		♦	۷.	۷	Δ		Δï	$\overline{\ }$				7	۷
တိ	3.Everyday transportation conditions	٧.	◁				•		-		.♥	٧	٧	∇
ľ	2. Economical activities, living conditions	٧	۵	۵	4	•	٧	-		7	◁	۵	٧	ं⊲
	1. Possibility of peoples migration	+	+	÷	+	+	V	٥		٥	۵	۵	۷	⊲
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Evaluation matrix interlinks		puoc				_	atio					:		3
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Evaluatio interlinks		Change of topographical cond	Airport	Roads	4. Railways	5. Rivers, banks condition	6. Waste, garbage incineration	Sewarage	Underground water	Water supply	10. Local infrastructure	11. Tourism	12. Transport	13. Urban transporatation uti
	in Ex	Char	2. A	ري بر	4. R	S.	6. ∖	7. \$	8. ∪	.e	ő	.:	12	13.
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+ effecting significant factors

- non-influential factors

Δ influential factors

General process of "SCOPING" to define, what kind of facilities should be involved into the construction of water treatment plant

	Construction plans of water The mans a treatment facilities	Water intake Before	Water supply commissioning Water treatment	Treated water After supply	Water commissioning distribution system
	activitie	40		L	
	The mans activities that caused the influence on environment	Topographical changes	Expand of living territory. Commissioning of structures, machines and transport facilities	Expand of living territory	Using of mechanisms, tools, instruments
	1. Possibility of peoples migration	•			,
	2. Economical activities, living conditions	+	+	+	+
Social	3.Everyday transportation conditions		•		
al env	4. Reductions in social environment 5. Historical places and places of interest	+	1	+	'   +
environvent	6. Conflicts on water usage and rights	+	+	: ; +	+
ent	7. 'Hyglene conditions, sanitation	+	+	+	+
	essew bilos8	1	: i	+	+
	9. Risk of disaster and calaninity	1	l	- 1	1
	snotribnos lesigologo bne lesindergogot' .01	+	+	<u> </u>	
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Natural conditions	12. Underground lenses 13. Lakes, rivets, sutlace waters condition	+	+	+	+
condi	14. A sea and search records and		,		
tions	15. Flore and fauna	+	†	+	+
	16. Weather and chmate	, ,		: 1	
	17. Landscape, scenery	ŀ	1		1
	18. Air pollution	1	1		,
	19. Water politition	+	+		
	20. Soil pollution		,		
	22. Ground sagging, bad odour	l	1		
	\$3. Mat. odour, exhausted gases,		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		
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generation of substancies having nnal-bdout

influential significant factors

non-influential factors

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## SCREENING Table for defining the rate of influential factors

1	Possibility of peoples migration	-
2	Economical activities, living conditions	+
3	Everyday transportation conditions	-
4	Reductions in social environment	+-
5	Historical places and places of interest	-
6	Conflicts on water usage and rights	+
7	Hygiene conditions, sanitation	+
8	Solid waste	-
9	Risk of disaster and calaminity	-
10	Topographical and geological conditions	+
11	Soil erosion	-
12	Underground lenses	+
13	Lakes, rivers, surface waters condition	-
14	Sea and seaside	<u>-</u>
15	Flora and fauna	+
16	Weather and climate	-
17	Landscape, scenery	-
18	Air pollution	-
19	Water pollution	+
20	Soil pollution	-
21	Noise, vibration	-
22	Ground sagging, bad odour	-
23	Mal- odour	

()

- Influential factor
- + Non-influential factor

				**************************************
ļ	SCOPING	- <del>L</del>	<u> </u>	*
	Table for defining the significance rate	of factors		
		T		
1	Possibility of peoples migration	4		
2	Economical activities, living conditions	+		
3	Everyday transportation conditions	-		
4	Reductions in social environment	+	:	
5	Historical places and places of interest	-		
6	Conflicts on water usage and rights	+		
7	Hygiene conditions, sanitation	+		
8	Solid waste	+	1	
9	Risk of disaster and calaminity	-		
10	Topographical and geological conditions	-		
11	Soil erosion	•	1 1	
12	Underground lenses	+		
13	Lakes, rivers, surface waters condition	+		
14				
15	Flora and fauna	+		
16	Weather and climate			
-17	Landscape, scenery			
18		-		
19		-		
20		-		
21				:
22		-		<u> </u>
23	Mal- odour	-		1
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		Insignifica		:
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