ARAB REPUBLIC OF EGYPT

MINISTRY OF DEVELOPMENT
AND NEW COMMUNITIES

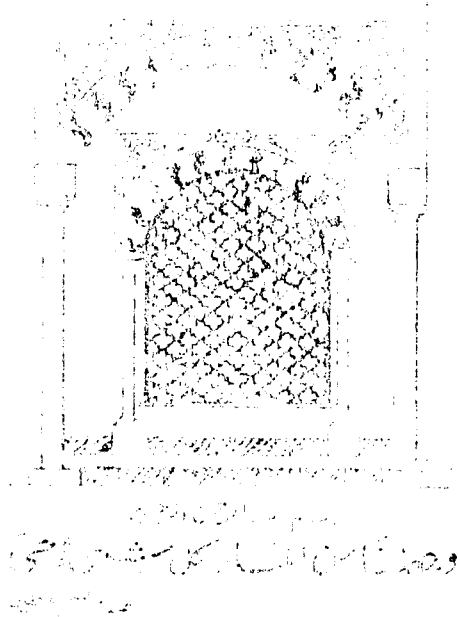
MANAGEMENT AND TARIFF STUDIES
RELATIVE TO WATER/SEWERAGE SYSTEMS

SEWERAGE UTILITY

TARIFFS

VOLUME 2

FINAL REPORT



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CONSULTING ENGINEERS

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SEWERAGE UTILITY

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The Story of Our Cover:-

On our cover is a sketch of a sybil, which is a fountain. During the Ottoman Empire these were a common source of drinking water. A well is located at ground level and a balcony on the second level where children were taught the Koran. Usually located near mosques, sybils were built and then donated to the public by various benefactors.

Beneath the sketch is a quote from the Koran, "We made from water all living things".

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Abbreviations

AC	Alternating current
acre	4047 m^2
BOD	Biochemical oxygen demand
cm	Centimeter
cmd	Cubic meter per day
cmh	Cubic meter per hour
COD	Chemical oxygen demand
DC	Direct current
ea	Each
Feddan	4,200 m^2
ha	Hectare or 10,000 m^2
hp	Horsepower
hr	Hour
hz	Hertz
kg	Kilograms
km	Kilometer
kVa	Kilovolt amperes
kW	Kilowatt
kWh	Kilowatt hour
lit/sec	Liter per second
lcd	Liter per capita per day
LE	Egyptian pound
lot	Lot or group, normally of a similar type of property
m.H	Mega hertz
m	Meter
m^2	Square meter
m^3	Cubic meter
mg	Milligrams
mg/l	Milligrams per liter
mm	Millimeter
mms	Milliemes
NA	Not available or not applicable
OC	Original cost
/	per
%	percent
pt	piastre
RC	Reproduction cost
RCLD	Reproduction cost less depreciation
R.p.m	Revolutions per minute
SS	Suspended solids
v	volt
yr	year

List of Commonly Used Expressions

ACR	Advisory Committee for Reconstruction
AWGA	Alexandria Water General Authority
ARE	Arab Republic of Egypt .
CAPMAS	Central Agency for Public Mobilization and Statistics
GOGCWS	General Organization for Greater Cairo Water Supply
GOSSD	General Organization for Sewerage and Sanitary Drainage
IBRD	International Bank for Reconstruction and Development (World Bank)
MODANC	Ministry of Development and New Communities
MOHR	Ministry of Housing and Reconstruction
SCA	Suez Canal Authority
USA	United States of America
USAID	United States Agency for International Development
WHO	World Health Organization

APPENDIX I

GREATER CAIRO/HELWAN

SEWERAGE UTILITY

TABLE 2.1

GREATER CAIRO/HELWAN SEWERAGE UTILITY

HISTORICAL AND PROPOSED CAPITAL IMPROVEMENT PROGRAM

Year	Major Projects Local LE 1000	Major Projects Foreign LE 1000	Major Projects Total LE 1000	Routine Projects LE 1000	Total LE 1000
			HISTORICAL		
1973	2,424		2,424		2,424
1974	2,686	70	2,756		2,756
1975	2,467	80	2,565		2,565
1976	6,405	4,547	10,952		10,952
1977	18,341	4,018	22,359		22,359
1978					NA
			PROPOSED[a]		
1979	17,820	25,120	42,940	230	43,170
1980	76,970	48,450	125,420	430	125,850
1981	113,630	70,650	184,280	1,000	185,280
1982	89,950	51,180	141,130	1,730	142,860
1983	120,550	79,740	200,290	2,950	203,240
1984	135,740	47,000	182,740	4,620	187,360
1985	102,680	25,290	127,970	5,910	133,880
1986	58,400	15,530	73,930	7,900	81,830
1987	57,420	4,920	62,340	8,830	71,170
1988	107,720	47,410	155,130	11,050	166,180
After 1988	1,279,560	363,640	1,643,200	255,860	1,899,060
Total 1979-2000	2,160,440	778,930	2,939,370	300,510	3,239,880

NA Not available at date of preparation of report

(a) Adopted from: Greater Cairo Wastewater Project, Draft Master Plan Report Vol. 6, John Taylor & Sons, Binnie & Partners, 1978, and Helwan Wastewater Master Plan, Final Report, Vol.3, EPC-Environmental, 1978.

TABLE 2.2

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROPOSED DEBT SERVICE CHARGES FOR CONSTRUCTION COSTS

Year	Financed With: Local Currency LE 1000	Financed With: Foreign Currency LE 1000	Total LE 1000
1979	853	580	1,433
1980	2,417	730	3,147
1981	5,955	1,643	7,598
1982	10,594	2,697	13,291
1983	16,850	5,069	21,919
1984	26,341	7,935	34,276
1985	33,016	10,426	43,442
1986	44,533	13,786	58,319
1987	49,687	15,454	65,141
1988	61,385	19,656	81,041
1990	76,744	24,631	101,375
2000	166,556	68,174	234,730

TABLE 3.1

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROJECTED POPULATION, CONNECTIONS AND SEWAGE FLOWS

Year	Population 1,000	Sewer Connections	Sewage Flows 1000 m3/d
		HISTORICAL	
1976	6,273	180,000	
1977	6,433	NA	1,220 (a)
1978	6,600	NA	1,270 (a)
		PROJECTED	
1979	6,778	203,000	1,330
1980	6,961	211,000	1,390
1981	7,156	220,000	1,450
1982	7,364	230,000	1,520
1983	7,584	240,000	1,590
1984	7,812	250,000	1,670
1985	8,049	260,000	1,750
1986	8,301	273,000	1,830
1987	8,562	286,000	1,920
1988	8,834	299,000	2,010
1990	9,420	325,000	2,210
2000	13,329	525,000	3,630

NA - Not available
(a) - Estimated

TABLE 4.1

GREATER CAIRO/HELWAN SEWERAGE UTILITY

REVENUES

Year	Operating Subsidy LE	Capital Subsidy LE	Miscellaneous Revenues LE
		HISTORICAL	
1973	2,878,067	2,573,550	145,176
1974	3,016,680	2,913,588(a)	124,287
1975	3,331,711	2,758,897	174,513
1976	3,909,320	11,907,998	116,045
1977	3,293,840	20,982,793	128,153
1978	4,518,452	27,746,544(b)	(c)
		PROJECTED	
1979	(d)	(d)	136,000
1980			140,000
1981			144,000
1982			148,000
1983			152,000
1984			156,000
1985			160,000
1986			165,000
1987			170,000
1988			175,000
1990			185,000
2000			248,000

(a) Includes loans of LE 70,330

(b) Includes loans of LE 718,845 and grants of LE 261,400

(c) Substantially all of 1978 Miscellaneous Revenues consist of unused funds from prior years. The amounts comparable with prior years is not available.

(d) No projection of subsidies has been made. Amount will depend upon the level of revenues from tariffs.

TABLE 5.1

GREATER CAIRO/HELWAN SEWERAGE UTILITY

OPERATION AND MAINTENANCE EXPENSE

Year	Wages & Benefits LE 1000	Utilities LE 1000	Commodities Including Chemicals LE 1000	Services LE 1000	Head Office Expense LE 1000	Other Expense LE 1000	Billing Expense LE 1000	Total LE 1000
				HISTORICAL				
1973	1,967	346	404	117	154	10		2,998
1974	2,097	423	365	58	179	159(a)		3,281
1975	2,482	614	120	92	187	185(a)		3,680
1976	2,904	636	157	70	211	28(a)		4,006
1977	3,549	802	240	92	250	751(a)		5,684
1978	4,600	858	344	93	339	49		6,283
				PROJECTED				
1979	4,820	1,435	440	90	375	12		7,172
1980	5,515	1,650	510	110	430	14	153	8,382
1981	6,325	1,895	585	140	495	16	176	9,632
1982	7,275	2,185	1,075	180	570	18	202	11,505
1983	8,300	2,485	1,275	220	650	20	230	13,180
1984	9,400	2,800	1,475	260	735	22	260	14,952
1985	10,500	3,150	1,675	300	825	25	290	16,765
1986	11,600	3,515	1,875	350	915	26	322	18,603
1987	12,700	3,880	2,085	400	1,005	28	354	20,452
1988	13,900	4,250	2,390	450	1,100	30	386	22,506
1990	16,700	5,150	2,950	600	1,300	35	460	27,195
2000	44,000	13,800	8,000	1,800	3,500	100	1,200	72,400

(a) Includes prior year utility cost paid in 1977

TABLE 5..

GREATER CAIRO/HELWAN SEWERAGE UTILITY

DEBT SERVICE CHARGES WITH COVERAGE REQUIREMENTS

Year	Debt Service LE 1000	Provision for Debt Coverage LE 1000	Total LE 1000
1979	1,433	230	1,663
1980	3,147	425	3,572
1981	7,598	1,000	8,598
1982	13,291	1,730	15,021
1983	21,919	2,950	24,869
1984	34,276	4,620	38,896
1985	43,442	5,908	49,350
1986	58,319	7,900	66,219
1987	65,141	8,832	73,973
1988	81,041	11,050	92,091
1990	101,375	13,830	115,205
2000	234,730	33,700	268,430

TABLE 5.3

GREATER CAIRO/HELWAN SEWERAGE UTILITY

ESTIMATED DEPRECIATION EXPENSE

Year	Sewerage Plant in Service: Annual Additions LE 1000	Cumulative Balance(a) LE 1000	Land(b) LE 1000	Depreciable Balance LE 1000	Average Balance LE 1000	Depreciation Expense(c) LE 1000
1978		126,505	2,500	124,005		
1979	43,170	169,675	3,400	166,275	145,140	4,790
1980	125,850	295,525	5,900	289,625	227,950	7,522
1981	185,280	480,805	9,600	471,205	380,415	12,554
1982	142,860	623,665	12,500	611,165	541,185	17,859
1983	203,240	826,905	16,500	810,405	710,785	23,456
1984	187,360	1,041,265	20,800	1,020,465	915,435	30,209
1985	133,880	1,148,145	23,000	1,125,145	1,072,805	35,402
1986	81,830	1,229,975	24,600	1,205,375	1,165,260	38,454
1987	71,170	1,301,145	26,000	1,275,145	1,240,260	40,929
1988	166,180	1,467,325	29,300	1,438,025	1,356,585	44,767
1989 to 1990	316,510	1,783,835	35,700	1,748,135	1,670,607	55,130
1991 to 2000	1,582,550	3,366,385	67,300	3,299,085	3,221,537	106,310

(a) At Original cost at December 31,1978 plus additions at cost subsequent thereto

(b) Estimated

(c) At average composite rate of depreciation of 3.3 percent

TABLE 5.4

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROFORMA RETURN ON INVESTMENT

Year	Estimated Construction Cost LE 1000	Cumulative Balance(a) LE 1000	Cumulative Allowance For Depreciation LE 1000	Net Plant in Service LE 1000	Required Return @ 6 Percent LE 1000
1978		266,240			
1979	43,170	309,410	9,335	300,075	18,005
1980	125,850	435,260	21,469	413,791	24,827
1981	185,280	620,540	38,634	581,906	34,914
1982	142,860	763,400	61,104	702,296	42,138
1983	203,240	966,640	89,171	877,469	52,648
1984	187,360	1,154,000	123,991	1,030,009	61,800
1985	133,880	1,287,880	164,004	1,123,876	67,433
1986	81,830	1,369,710	207,069	1,162,641	69,758
1987	71,170	1,440,880	252,609	1,188,271	71,296
1988	166,180	1,607,060	301,987	1,305,073	78,304
1990	316,510	1,923,570	416,286	1,507,284	90,437
2000	1,582,550	3,506,120	1,409,485	2,096,635	125,798

(a) Based on RCLD as of December 31,1978 plus additions at cost subsequent thereto

TABLE 5.5

GREATER CAIRO/HELWAN SEWERAGE UTILITY

COMPARATIVE SUMMARY OF REVENUE REQUIREMENTS

Year	Cash Basis				Utility Basis			
	Operation & Maintenance Expense LE 1000	Debt Service LE 1000	Routine Annual Improvements LE 1000	Total LE 1000	Operation & Maintenance Expense LE 1000	Depreciation Expense LE 1000	Return on Investment LE 1000	Total LE 1000
	(a)	(b)	(c)		(a)	(d)	(e)	
1979	7,172	1,433	230	8,835	7,172	4,790	18,005	29,967
1980	8,382	3,147	425	11,954	8,382	7,522	24,827	40,731
1981	9,632	7,598	1,000	18,230	9,632	12,554	34,914	57,100
1982	11,505	13,291	1,730	26,526	11,505	17,859	42,138	71,502
1983	13,180	21,919	2,950	38,049	13,180	23,456	52,648	89,284
1984	14,952	34,276	4,620	53,848	14,952	30,209	61,800	106,961
1985	16,765	43,442	5,908	66,115	16,765	35,402	67,433	119,600
1986	18,603	58,319	7,900	84,822	18,603	38,454	69,758	126,815
1987	20,452	65,141	8,832	94,425	20,452	40,929	71,296	132,677
1988	22,506	81,041	11,050	114,597	22,506	44,767	78,304	145,577
1990	27,195	101,375	13,830	142,400	27,195	55,130	90,437	172,762
2000	72,400	234,730	33,700	340,830	72,400	106,310	125,798	304,508

(a) Table 5.1
(b) Table 2.2,5.2
(c) Table 2.1
(d) Table 5.3
(e) Table 5.4

TABLE 6.1

GREATER CAIRO/HELWAN SEWERAGE UTILITY

TYPICAL SEWERAGE SYSTEM FACILITIES

1984 TEST YEAR

Plant components		
Preliminary treatment	375.0	1000 m^3 per day capacity
Primary sedimentation	1.5	1000 m^2 surface area
Aeration	60.0	1000 m^3 liquid volume
Secondary sedimentation	1.5	1000 m^2 surface area
Primary sludge pumping	315.0	liters per second pumping capacity
Sludge disposal	185.0	1000 m^2 surface area
Laboratory	375.0	1000 m^3 per day capacity
Administration and general	375.0	1000 m^3 per day capacity
Sewage treatment	15 percent of total Operating expense	
Sewage pumping	45 percent of total Operating expense	
Sewage networks	30 percent of total Operating expense	
Administration	10 percent of total Operating expense	

TABLE 6.2

GREATER CAIRO/HELWAN SEWERAGE UTILITY

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total Operating Expense LE 1000	Volume Related Cost LE 1000	Strength Related Cost		Customer Cost LE 1000
			BOD LE 1000	Suspended Solids LE 1000	
Pumping Expense					
Electric Power	2,691	2,691			
Other	4,037	4,037			
Total Pumping Expense	6,728	6,728			
Networks Expense	4,486	2,467			2,019
Treatment and Disposal Expense					
Preliminary Treatment	381	381			
Primary Sedimentation	90	90			
Aeration	605		605		
Secondary Sedimentation	90	90			
Sludge Pumping	180			180	
Sludge Disposal	426		213	213	
Laboratory	180		90	90	
Others	291	104	98	89	
Total Treatment Expense	2,243	665	1,006	572	
Customer Billing and Accounting	260				260
Administrative and General Expense	1,235	832	73	66	264
Total Operation and Maintenance Expense	14,952	10,692	1,079	638	2,543

TABLE 6.3

GREATER CAIRO/HELWAN SEWERAGE UTILITY

ALLOCATION OF CASH BASIS CAPITAL COSTS
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total LE 1000	Volume Related Cost LE 1000	Strength Related Cost: BOD LE 1000	Strength Related Cost: Suspended Solids LE 1000	Customer Related Cost LE 1000
Pumping Plant	6,859	6,859			
Networks	23,233	12,778			10,455
Treatment and Disposal Plant					
Preliminary Treatment	412	412			
Primary Sedimentation	206	206			
Aeration	3,155		3,155		
Secondary Sedimentation	206	206			
Sludge Pumping	274			274	
Sludge Disposal	2,057		1,028	1,029	
Laboratory and Adinistration	412	54	273	85	
Workshops and Garages	137	19	90	28	
Total Treatment Plant	6,859	897	4,546	1,416	
General Plant	1,945	1,081	239	75	550
Total Capital Cost	38,896	21,615	4,785	1,491	11,005

TABLE 6.4

GREATER CAIRO/HELWAN SEWERAGE UTILITY

ALLOCATION OF UTILITY BASIS CAPITAL COSTS
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total	Volume Related Cost	Strength Related Cost		Customer Related Cost
			BOD	Suspended Solids	
	LE 1000	LE 1000	LE 1000	LE 1000	LE 1000
Pumping Plant	16,221	16,221			
Networks	54,967	30,232			24,735
Treatment and Disposal Plant					
Preliminary Treatment	973	973			
Primary Sedimentation	487	487			
Aeration	7,462		7,462		
Secondary Sedimentation	487	487			
Sludge Pumping	649			649	
Sludge Disposal	4,866		2,433	2,433	
Laboratory and Administration	973	126	645	202	
Workshops and Garages	324	42	215	67	
Total Treatment Plant	16,221	2,115	10,755	3,351	
General Plant	4,600	2,557	566	176	1,301
Total Capital Cost	92,009	51,125	11,321	3,527	26,036

TABLE 6.5

GREATER CAIRO/HELWAN SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF CASH BASIS COST
OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Cash Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	10,692	21,615	32,307
Strength Related Cost			
BOD	1,079	4,785	5,864
Suspended Solids	638	1,491	2,129
Customer Related Cost	2,543	11,005	13,548
Total Cash Basis Cost of Service	14,952	38,896	53,848

TABLE 6.6

GREATER CAIRO/HELWAN SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF UTILITY BASIS COST OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Utility Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	10,692	51,125	61,817
Strength Related Cost			
BOD	1,079	11,321	12,400
Suspended Solids	638	3,527	4,165
Customer Related Cost	2,543	26,036	28,579
Total, Utility Basis Cost of Service	14,952	92,009	106,961

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TABLE 7.1

GREATER CAIRO/HELWAN SEWERAGE UTILITY

UNITS OF SERVICE

1984 TEST YEAR

Customer Class		Sewage Volume Units 1,000m3	Strength Units: BOD 1,000kg	Strength Units: Suspended Solids 1,000kg	Customer Units: Equivalent Meters	Customer Units: Bills
Domestic Sewage		361,224	124,100	249,600	305,300	1,413,700
Infiltration	(a)	52,531	18,091	36,265		
Total Domestic		413,755	142,191	285,865		
Industrial Sewage		56,175	60,900	93,700	12,800	29,500
Infiltration	(a)	2,198	757	1,518		
Total Industrial		58,373	61,657	95,218		
Other Sewage		129,429	44,900	90,300	46,500	192,100
Infiltration	(a)	7,993	2,752	5,517		
Total Other		137,422	47,652	95,817		
Grand Total		609,550	251,500	476,900	364,600	1,635,300

(a) Infiltration allocated on basis of percentage of equivalent meters

TABLE 7.2

GREATER CAIRO/HELWAN SEWERAGE UTILITY

UNIT COSTS OF SERVICE
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

	Total	Volume Related Costs 1,000m3	Strength Related Costs BOD 1,000kg	Strength Related Costs Suspended Solids 1,000kg	Customer Related Costs Bills
NUMBER OF UNITS		609,550	251,500	476,900	1,635,300
COSTS OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	14,952,000	10,692,000	1,079,000	638,000	2,543,000
Unit cost		17.54	4.29	1.34	1.56
Capital Cost					
Total Cost	38,896,000	21,615,000	4,785,000	1,491,000	11,005,000
Unit Cost		35.46	19.03	3.12	6.72
Total Unit Cost		53.00/ 1,000m3	23.32/ 1,000kg	4.46/ 1,000kg	8.28/ Bill

TABLE 7.3

GREATER CAIRO/HELWAN SEWERAGE UTILITY

UNIT COSTS OF SERVICE
UTILITY BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

	Total	Volume Related Costs	Strength Related Costs		Customer Related Costs
			BOD	Suspended Solids	
		1,000m3	1,000kg	1,000kg	Bills
NUMBER OF UNITS		609,550	251,500	476,900	1,635,300
COSTS OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	14,952,000	10,692,000	1,079,000	638,000	2,543,000
Unit cost		17.54	4.29	1.34	1.56
Capital Cost					
Total Cost	92,009,000	51,125,000	11,321,000	3,527,000	26,036,000
Unit Cost		83.87	45.01	7.39	15.92
Total Unit Cost		101.41/ 1,000m^3	49.30/ 1,000kg	8.73/ 1,000kg	17.48/ Bill

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TABLE 7.4

GREATER CAIRO/HELWAN SEWERAGE UTILITY

CASH BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE1000	Strength Related Cost: BOD LE1000	Strength Related Cost: Suspended Solids LE1000	Customer Cost LE1000	Total Allocated Cost of Service LE1000
Domestic	21,929	3,315	1,276	11,712	38,232
Industrial	3,095	1,438	425	244	5,202
Commercial and Institutional	7,283	1,111	428	1,592	10,414
All Customers	32,307	[illegible]	2,129	13,548	53,848

Note: Values are obtained by multiplying Customer Class Units of Service, Table 7.1 by Cash Basis Unit Costs of Service, Table 7.2 (i.e. Domestic Volume Units, 413,755 x Volume Unit Cost, LE 53.00 = LE 21,929.000)

TABLE 7.5

GREATER CAIRO/HELWAN SEWERAGE UTILITY

UTILITY BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE1000	Strength Related Cost BOD LE1000	Strength Related Cost Suspended Solids LE1000	Customer Cost LE1000	Total Allocated Cost of Service LE1000
Domestic	41,961	7,010	2,497	24,706	76,174
Industrial	5,920	3,040	832	516	10,308
Commercial and Institutional	13,936	2,350	836	3,357	20,479
All Customers	61,817	12,400	4,165	28,579	106,961

Note: Values are obtained by multiplying Customer Class Units of Service, Table 7.1 by Utility Basis Unit Costs of Service, Table 7.3 (i.e. Domestic Volume Units, 413,755 x Volume Unit Cost, LE 101.41 = LE 41,961.000)

TABLE 8.1

GREATER CAIRO/HELWAN SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to all Customers					
Charge per cubic meter for all measured or estimated water use per billing period.					
First 100 cubic meters	0.005	0.008	0.010	0.015	0.020
Next 400 cubic meters	0.015	0.025	0.030	0.045	0.060
Next 500 cubic meters	0.020	0.030	0.040	0.055	0.075
Next 9,000 cubic meters	0.023	0.035	0.045	0.070	4.090
Over 10,000 cubic meters	0.025	0.040	0.050	0.075	0.100
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.500	0.750	1.000
Non Domestic Customers					

See next page

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TABLE 8.1 (Cont'd)

GREATER CAIRO/HELWAN SEWERAGE UTILITY

RECOMMENDED " ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Customers					
Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	1.95	3.10	3.90	5.80	7.75
25	2.50	3.95	4.90	7.40	9.85
30	2.65	4.20	5.30	7.90	10.55
40	3.15	5.10	6.30	9.50	12.65
50	5.00	8.00	10.00	15.00	20.00
80	21.00	34.00	42.50	64.00	85.00
100	25.00	40.00	50.00	75.00	100.00
150	37.50	60.00	75.00	112.50	150.00
200	50.00	80.00	100.00	155.00	205.00
300	85.00	135.00	170.00	255.00	340.00
INDUSTRIAL SURCHARGE					
BOD Milliemes per kg for strengths in excess of 500 mg/l	0.006	0.010	0.012	0.018	0.024
Suspended solids Milliemes per kg for strengths in excess of 500 mg/l	0.001	0.002	0.002	0.003	0.004

TABLE 8.2

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED BI-MONTHLY

	Rate LE
DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period	0.053
Service Charge Charge per living unit per billing period	2.950
NON-DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period	
Commercial and Institutional	0.053
Industrial	0.061
Service Charge	
Charge per connection per billing period based on water meter size	
Meter Size mm	
20 and under	7.750
25	9.850
30	10.550
40	12.650
50	20.000
80	85.000
100	100.000
150	150.000
200	205.000
300	340.000

TABLE 8.2 (Continued)

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED BI-MONTHLY

	Rate LE
Industrial Surcharge	
BOD Charge per kg for strengths in excess of 500 mg/l	0.023
Suspended solids Charge per kg for strengths in excess of 500 mg/l	0.004

TABLE 8.3

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1987 TEST YEAR

BILLS ISSUED BI MONTHLY

	Rate LE
DOMESTIC	
Flat rate per room per billing period	2.150
NON-DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period.	
Commercial and Institutional	0.053
Industrial	0.061
Service Charge Charge per connection per billing period based on water meter size.	
Meter Size mm	
20 and Under	7.750
25	9.850
30	10.550
40	12.650
50	20.000
80	85.000
100	100.000
150	150.000
200	205.000
300	340.000

TABLE 8.3 (Continued)

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED BI MONTHLY

	Rate LE
Industrial Surcharge	
BOD Charge per kg for strengths in excess of 500 mg/l	0.024
Suspended solids Charge per kg for strengths in excess of 500 mg/l	0.004

TABLE 8.4

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to All Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 100 cubic meters	0.005	0.008	0.010	0.015	0.020
Next 400 cubic meters	0.015	0.025	0.030	0.045	0.060
Next 500 cubic meters	0.030	0.050	0.060	0.090	0.120
Next 9,000 cubic meters	0.050	0.080	0.100	0.150	0.200
Over 10,000 cubic meters	0.070	0.110	0.140	0.210	0.280
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.500	0.750	1.000
Non Domestic Customers					
See next page					

TABLE 8.4 (Continued)

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non-Domestic Customers					
Charge per connection per billing period based on water meter size for all non residential connections					
Meter Size mm					
20 and under	4.000	6.000	8.000	12.000	16.000
25	5.000	8.000	10.000	15.000	20.000
30	6.000	10.000	12.000	18.000	24.000
40	7.000	12.000	14.500	22.000	29.000
50	11.000	18.000	22.500	34.000	45.000
80	50.000	75.000	95.000	140.000	190.000
100	55.000	90.000	112.500	170.000	225.000
150	85.000	135.000	170.000	250.000	335.000
200	115.000	185.000	230.000	350.000	465.000
300	190.000	300.000	385.000	580.000	770.000

TABLE 8.4 (Continued)

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Industrial Surcharge					
BOD Charge per kg for strengths in excess of 500 mg/l	0.012	0.020	0.025	0.037	0.049
Suspended solids Charge per kg for strengths in excess of 600 mg/l	0.002	0.004	0.005	0.007	0.009

TABLE 8.5

GREATER CAIRO/HELWAN SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT RECOMMENDED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service (a) LE 1000	Revenues at Recommended Rates (b) LE 1000	Percent Revenue of Cost %
Domestic	38,232	33,032	86.4
Industrial	5,202	6,372	122.5
Commercial and Institutional	10,414	14,629	140.5
Total	53,848	54,033	100.3

(a) Based on Cash Basis Revenue Requirements

(b) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.6

GREATER CAIRO/HELWAN SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues At Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	38,232	38,209	99.9
Industrial	5,202	5,201	100.00
Commercial and Institutional	10,414	10,402	99.9
Total	53,848	53,812	99.9

(a) Based on Cash Basis Revenue Requirements

(b) At Proposed Service Charge - Volume Charge Rates, Table 8.2

TABLE 8.7

GREATER CAIRO/HELWAN SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues At Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	38,232	38,296	100.1
Industrial	5 202	5,201	100.0
Commercial and Institutional	10,414	10,402	99.9
Total	53,848	53,899	100.1

(a) Based on Cash Basis Revenue Requirements

(b) At Proposed Combined Flat Rate Applicable to Domestic Customers and Service Charge-Volume Charge Rates Applicable to Non Domestic Customers, Table 8.3

TABLE 8.8

GREATER CAIRO/HELWAN SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues At Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	76,174	58,116	76.3
Industrial	10,308	15,569	151.0
Commercial and Institutional	20,479	33,643	164.2
Total	106,961	107,328	100.3

(a) Based on Utility Basis Revenue Requirements

(b) At Proposed "Ability to Pay" Rates, Table 8.4

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TABLE 8.9

GREATER CAIRO/HELWAN SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
CASH BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Recommended Rates (a) LE 1000	Required Subsidy LE 1000
1980	11,954	11,243	711
1981	18,230	18,767	None
1982	26,526	24,590	1,936
1983	38,049	38,583	None
1984	53,848	54,033	None

(a) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.10

GREATER CAIRO/HELWAN SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
UTILITY BASIC REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Recommended Rates (a) LE 1000	Required Subsidy LE 1000
1980	40,731	22,333	18,398
1981	57,100	37,277	19,823
1982	71,502	48,845	22,657
1983	89,284	76,641	12,643
1984	106,961	107,328	None

(a) At proposed "Ability to Pay" Rates, Table 8.4

TABLE 10.1

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	11,243	18,767	24,590	38,583	54,033	66,115	84,822	94,425	114,597	142,400	340,830
OPERATING EXPENSE											
Operation and maintenance expense	8,382	9,632	11,505	13,180	14,952	16,765	18,603	20,452	22,506	27,195	72,400
Depreciation expense	7,522	12,544	17,859	23,456	30,209	35,402	38,454	40,929	44,767	55,130	106,310
Total Operating Expense	15,904	22,176	29,364	36,636	45,161	52,167	57,057	61,381	67,273	82,325	178,710
Net Operating Income	(4,661)	(3,409)	(4,774)	1,947	8,872	13,948	27,765	33,044	47,324	60,075	162,120
NON OPERATING INCOME	140	144	148	152	156	160	165	170	175	185	248
Gross Income	(4,521)	(3,265)	(4,626)	2,099	9,028	14,108	27,930	33,214	47,499	60,260	162,368
INCOME DEDUCTIONS											
Interest expense	3,024	7,598	13,291	21,919	31,154	40,130	47,916	54,104	59,484	71,677	135,577
Net Income (Loss)	(7,545)	(10,863)	(17,917)	(19,820)	(22,126)	(26,022)	(19,986)	(20,890)	(11,985)	(11,417)	26,791
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	413.8	581.9	702.3	877.5	1,030.0	1,123.9	1,162.6	1,188.3	1,305.1	1,507.3	2,096.6
Return on Investment- %[c]				0.2	0.9	1.2	2.4	2.8	3.6	4.0	7.7

(a) Based on Cash Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Plant in Service.

TABLE 10.2

GREATER CARIO/HELWAN SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	22,333	37,277	48,845	76,641	107,328	119,600	126,815	132,677	145,577	172,762	304,508
OPERATING EXPENSE											
Operation and maintenance expense	8,382	9,632	11,505	13,180	14,952	16,765	18,603	20,452	22,506	27,195	72,400
Depreciation expense	7,522	12,544	17,859	23,456	30,209	35,402	38,454	40,929	44,767	55,130	106,310
Total Operating Expense	15,904	22,176	29,364	36,636	45,161	52,167	57,057	61,381	67,273	82,325	178,710
Net Operating Income	6,429	15,101	19,481	40,005	62,167	67,433	69,758	71,296	78,304	90,437	125,798
N OPERATING INCOME	140	144	148	152	156	160	165	170	175	185	248
Gross Income	6,569	15,245	19,629	40,157	62,323	67,593	69,923	71,466	78,479	90,622	126,046
INCOME DEDUCTIONS											
Interest expense	3,024	7,598	13,291	21,919	31,154	40,130	47,916	54,104	59,484	71,677	135,577
Net Income (Loss)	3,545	7,647	6,338	18,238	31,169	27,463	22,007	17,362	18,995	18,945	(9,531)
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	413.8	581.9	702.3	877.5	1,030.0	1,123.9	1,162.6	1,188.3	1,305.1	1,507.3	2,096.5
Return on Investment- %[c]	1.6	2.6	2.8	4.6	6.0	6.0	6.0	6.0	6.0	6.0	6.0

(a) Based on Utility Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allownace for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Plant in Service.

TABLE 10.3

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	(4,661)	(3,409)	(4,774)	1,947	8,872	13,948	27,765	33,044	47,324	60,075	162,120
Depreciation Expense	7,522	12,544	17,859	23,456	30,209	35,402	38,454	40,929	44,767	55,130	106,310
Sub total	2,861	9,135	13,085	25,403	39,081	49,350	66,219	73,973	92,091	115,205	268,430
Non Operating Income	140	144	148	152	156	160	165	170	175	185	248
Operating Subsidy	711		1,936								
Total Available Operating Fund	3,712	9,279	15,169	25,555	39,237	49,510	66,384	74,143	92,266	115,390	268,678
APPLICATION OF FUNDS											
Routine Improvements	425	1,000	1,730	2,950	4,620	5,908	7,900	8,832	11,050	13,830	33,700
Debt Service Charges											
Interest	3,024	7,598	13,291	21,919	31,154	40,130	47,916	54,104	59,484	71,677	135,577
Principal	123				3,122	3,312	10,403	11,037	21,557	29,693	99,153
Total Debt Service	3,147	7,598	13,291	21,919	34,276	43,442	58,319	65,141	81,041	101,375	234,730
Total Application of Operating Funds	3,572	8,598	15,021	24,869	38,896	49,350	66,219	73,973	92,091	115,205	268,430
Net Operating Fund Change	140	681	148	686	341	160	165	170	175	185	248

(a) Based on revenues from sewerage user charges computed on Cash Basis Revenue Requirements.

TABLE 10.4

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Funds[a]	6,429	15,101	19,481	40,005	62,167	67,433	69,759	71,296	78,304	90,437	125,728
Depreciation Expense	7,522	12,544	17,859	23,456	30,209	35,402	38,454	40,929	44,767	55,130	106,310
Sub total	13,951	27,645	37,340	63,461	92,376	102,835	108,213	112,225	123,071	145,567	232,108
Non Operating Income	140	144	148	152	156	160	165	170	175	185	248
Operating Subsidy	18,398	19,823	22,657	12,643							
Total Available Operating Funds	32,489	47,612	60,145	76,256	92,532	102,995	108,377	112,395	123,246	145,752	232,356
APPLICATION OF FUNDS											
Routine Improvements	425	1,000	1,730	2,950	4,620	5,908	7,900	8,832	11,050	13,830	30,700
Debt Service Charges											
Interest	3,024	7,598	13,291	21,919	31,154	40,130	47,916	54,104	59,484	71,677	135,577
Principal	123				3,122	3,312	10,403	11,037	21,557	29,698	99,153
Total Debt Service	3,147	7,598	13,291	21,919	34,276	43,442	58,319	65,141	81,041	101,375	234,730
Total Application of Operating Funds	3,572	8,598	15,021	24,869	38,896	49,350	66,219	73,973	92,091	115,205	266,430
Net Operating Fund Changes	28,917	39,014	45,124	51,387	53,636	53,645	42,158	38,422	31,155	30,547	(36,074)

(a) Based on revenues from sewerage user charges computed on Utility Basis Revenue Requirements.

TABLE 10.5

GREATER CAIRO/HELWAN SEWERAGE UTILITY

PROFORMA BALANCE SHEET

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1998 LE1000	1999 LE1000	2000 LE1000
ASSETS											
Utility Plant in Service[a]	295,525	480,805	623,665	826,905	1,041,265	1,148,145	1,229,975	1,301,145	1,467,325	1,783,835	3,366,385
Accumulated Provision for Depreciation	68,075	80,629	98,488	121,944	152,153	187,555	226,009	266,938	311,705	416,783	1,249,573
Net Utility Plant in Service	227,450	400,176	525,177	704,961	889,112	960,590	1,003,966	1,034,207	1,155,620	1,367,052	2,116,812
Current Assets											
Cash	1,048	1,204	1,438	1,648	1,869	2,096	2,325	2,557	2,813	3,399	9,050
Accounts Receivable	2,989	4,577	6,631	9,512	13,462	16,528	21,205	23,669	28,649	35,600	85,208
Material and Supplies	225	292	538	638	738	838	938	1,043	1,195	1,475	4,000
Total Current Assets	4,262	6,073	8,607	11,798	16,069	19,462	24,468	27,269	32,657	40,474	98,258
Total Assets	231,712	406,249	533,784	716,759	905,181	980,052	1,028,434	1,061,476	1,188,277	1,407,526	2,215,070
LIABILITIES AND EQUITY											
Greater Cairo/Helwan Sewerage Utility Equity Capital	114,355	139,154	159,996	159,652	168,161	118,072	102,621	84,051	76,937	56,191	(46,511)
Long Term Debt	115,960	265,490	371,870	554,910	734,528	859,186	922,713	974,016	1,107,589	1,346,802	2,249,514
Current Liabilities											
Accounts Payable	1,397	1,605	1,918	2,197	2,492	2,794	3,100	3,409	3,751	4,533	12,067
Total Liabilities and Equity	231,712	406,249	533,784	716,759	905,181	980,052	1,028,434	1,061,476	1,188,277	1,407,526	2,215,070

(a) Based on Original Cost at December 31, 1978 and projected additions at cost subsequent thereto.

APPENDIX II

ALEXANDRIA

SEWERAGE UTILITY

TABLE 2.1

ALEXANDRIA SEWERAGE UTILITY

HISTORICAL AND PROPOSED CAPITAL IMPROVEMENT PROGRAM

Year	Major Projects Local LE 1000	Major Projects Foreign LE 1000	Major Projects Total LE 1000	Routine Projects LE 1000	Total LE 1000
			HISTORICAL		
1973	566		566		566
1974	498	22	520		520
1975	559		559		559
1976	1,042		1,042		1,042
1977	422		422		422
1978	3,082	1,053	4,135		4,135
			PROPOSED[a]		
1979	5,000	2,820	7,820	60	7,880
1980	22,060	9,200	31,260	150	31,410
1981	32,180	30,340	62,520	500	63,020
1982	27,700	27,370	55,070	890	55,960
1983	32,660	30,270	62,930	1,580	64,510
1984	74,460	41,260	115,720	2,440	118,160
1985	94,750	42,910	137,660	3,500	141,160
1986	108,040	44,320	152,360	5,140	157,500
1987	103,660	29,080	132,740	6,390	139,130
1988	92,900	27,560	120,460	8,290	128,750
After 1988	393,630	99,440	493,070	158,000	651,070
Total, 1979-2000	987,040	384,570	1,371,610	186,940	1,558,550

(a) Adopted from Alexandria Wastewater Studies, Master Plan Final Report, Camp Dresser & McKee International, 1978.

TABLE 2.2

ALEXANDRIA SEWERAGE UTILITY

PROPOSED DEBT SERVICE CHARGES FOR CONSTRUCTION COSTS

Year	Financed With Local Currency LE 1000	Financed With Foreign Currency LE 1000	Total LE 1000
1979	244	159	403
1980	690	341	1,031
1981	1,716	1,304	3,020
1982	3,069	2,326	5,395
1983	5,193	4,259	9,452
1984	8,486	6,374	14,860
1985	12,818	8,869	21,687
1986	19,929	12,604	32,533
1987	26,467	14,991	41,458
1988	35,887	18,823	54,710
1990	50,714	23,391	74,105
2000	83,088	31,434	114,522

TABLE 3.1

ALEXANDRIA SEWERAGE UTILITY

PROJECTED POPULATION, CONNECTIONS AND SEWAGE FLOWS

Year	Population 1,000	Sewer Connections	Sewage Flows 1000 m3/d
		HISTORICAL	
1976	2,290		
1977	2,327		
1978	2,366	85,000[a]	500[a]
		PROJECTED	
1979	2,407	87,000	520
1980	2,448	89,000	540
1981	2,491	91,500	560
1982	2,535	94,000	580
1983	2,580	96,500	600
1984	2,626	99,000	625
1985	2,675	102,000	650
1986	2,725	105,000	680
1987	2,776	108,000	710
1988	2,829	112,000	740
1990	3,090	120,000	820
2000	4,125	170,000	1,330

[a] Estimated

TABLE 4.1

ALEXANDRIA SEWERAGE UTILITY

REVENUES

Year	Operating Subsidy LE	Capital Subsidy LE	Miscellaneous Revenues LE
		HISTORICAL	
1973	567,848	565,568	87,871
1974	609,667	519,705(a)	104,610
1975	701,373	567,964	79,263
1976	850,302	1,045,084	96,150
1977	916,920	426,018	190,575
1978	1,295,416	4,134,785(b)	42,194
		PROJECTED	
1979	(c)	(c)	115,000
1980			118,000
1981			122,000
1982			126,000
1983			129,000
1984			133,000
1985			137,000
1986			141,000
1987			146,000
1988			150,000
1990			159,000
2000			215,000

(a) Includes loans of LE 22,405

(b) Includes loans of LE 1,052,785

(c) No projection of subsidies has been made. The amount will depend upon the level of revenue from tariffs.

TABLE 5.1

ALEXANDRIA SEWERAGE UTILITY

OPERATION AND MAINTENANCE EXPENSE

Year	Wages & Benefits LE 1000	Utilities LE 1000	Commodities Including Chemicals LE 1000	Services LE 1000	Head Office Expense LE 1000	Other Expense LE 1000	Billing Expense LE 1000	Total LE 1000
				HISTORICAL				
1973	467	33	93	29	34	9		665
1974	511	34	88	35	39	7		714
1975	600	31	76	35	39	5		786
1976	686	85	86	38	49	3		947
1977	809	82	104	41	49	26		1,111
1978	968	84	153	49	80	2		1,336
				PROJECTED				
1979	1,165	108	190	50	90	3		1,606
1980	1,310	123	215	55	100	4	65	1,872
1981	1,480	140	245	60	115	5	73	2,118
1982	1,675	160	275	70	130	6	82	2,398
1983	1,890	182	310	80	145	7	92	2,706
1984	2,110	205	345	90	160	8	103	3,021
1985	2,330	228	380	100	180	9	114	3,341
1986	2,530	252	415	120	200	11	125	3,653
1987	2,730	276	450	140	220	13	136	3,965
1988	2,930	300	485	160	240	15	147	4,277
1990	3,500	370	570	200	280	20	171	5,111
2000	8,000	970	1,300	500	600	40	400	11,810

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TABLE 5.2

ALEXANDRIA SEWERAGE UTILITY

DEBT SERVICE CHARGES WITH COVERAGE REQUIREMENTS

Year	Debt Service LE 1000	Provision for Debt Coverage LE 1000	Total LE 1000
1979	403	60	463
1980	1,031	150	1,181
1981	3,020	500	3,520
1982	5,395	890	6,285
1983	9,452	1,580	11,032
1984	14,860	2,440	17,300
1985	21,687	3,500	25,187
1986	32,533	5,140	37,673
1987	41,458	6,390	47,848
1988	54,710	8,290	63,000
1990	74,105	10,920	85,025
2000	114,552	16,170	130,722

TABLE 5.3

ALEXANDRIA SEWERAGE UTILITY

ESTIMATED DEPRECIATION EXPENSE

Year	Sewerage Plant in Service: Annual Additions LE 1000	Cumulative Balance(a) LE 1000	Land(b) LE 1000	Depreciable Balance LE 1000	Average Balance LE 1000	Depreciation Expense(c) LE 1000
1978		45,960	380	45,580		
1979	7,880	53,840	2,510	51,330	48,455	1,744
1980	31,410	85,250	12,110	73,140	62,235	2,240
1981	63,020	148,270	20,500	127,770	100,455	3,616
1982	55,960	204,230	20,500	183,730	155,750	5,607
1983	64,510	268,740	20,500	248,240	215,985	7,775
1984	118,160	386,900	20,500	366,400	307,320	11,063
1985	141,160	528,060	20,500	507,560	436,980	15,731
1986	157,500	685,560	20,500	665,060	586,310	21,107
1987	139,130	824,690	20,500	804,190	734,625	26,446
1988	128,750	953,440	20,500	932,940	868,565	31,268
1989 to 1990	108,510	1,061,950	20,500	1,041,450	1,014,325	36,516
1991 to 2000	542,560	1,604,510	20,500	1,584,010	1,536,885	55,328

(a) Based on estimated original cost at December 31, 1978 and additions at cost subsequent thereto

(b) Estimated

(c) At average composite rate of depreciation of 3.6 percent

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TABLE 5.4

ALEXANDRIA SEWERAGE UTILITY

PROFORMA RETURN ON INVESTMENT

Year	Estimated Construction Cost LE 1000	Cumulative Balance(a) LE 1000	Cumulative Allowance for Depreciation LE 1000	Net Plant in Service LE 1000	Required Return @ 6 Percent LE 1000
1978		98,315			
1979	7,880	106,195	3,629	102,566	6,154
1980	31,410	137,605	7,754	129,851	7,791
1981	63,020	200,625	13,255	187,370	11,242
1982	55,960	256,585	20,747	235,838	14,150
1983	64,510	321,095	30,407	290,688	17,441
1984	118,160	439,255	43,355	395,900	23,754
1985	141,160	580,415	60,971	519,444	31,167
1986	157,500	737,915	83,963	653,952	39,237
1987	139,130	877,045	112,294	764,751	45,885
1988	128,750	1,005,795	145,447	860,348	51,621
1990	108,510	1,114,305	219,623	894,682	53,681
2000	542,560	1,656,865	711,038	945,827	56,750

(a) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto

TABLE 5.5

ALEXANDRIA SEWERAGE UTILITY

COMPARATIVE SUMMARY OF REVENUE REQUIREMENTS

Year	Cash Basis				Utility Basis			
	Operation & Maintenance Expense LE 1000	Debt Service LE 1000	Routine Annual Improvements LE 1000	Total LE 1000	Operation & Maintenance Expense LE 1000	Depreciation Expense LE 1000	Return on Investment LE 1000	Total LE 1000
	(a)	(b)	(c)		(a)	(d)	(e)	
1979	1,606	403	60	2,069	1,606	1,744	6,154	9,504
1980	1,872	1,031	150	3,053	1,872	2,240	7,791	11,903
1981	2,118	3,020	500	5,638	2,118	3,616	11,242	16,976
1982	2,398	5,395	890	8,683	2,398	5,607	14,150	22,155
1983	2,706	9,452	1,580	13,738	2,706	7,775	17,441	27,922
1984	3,021	14,860	2,440	20,321	3,021	11,063	23,754	37,838
1985	3,341	21,687	3,500	28,528	3,341	15,731	31,167	50,239
1986	3,653	32,533	5,140	41,326	3,653	21,107	39,237	63,997
1987	3,965	41,458	6,390	51,813	3,965	26,446	45,885	76,296
1988	4,277	54,710	8,290	67,277	4,277	31,268	51,621	87,166
1990	5,111	74,105	10,920	90,136	5,111	36,516	53,681	95,308
2000	11,810	114,522	16,170	142,502	11,810	55,328	56,750	123,888

(a) Table 5.1
(b) Table 2.2, 5.2
(c) Table 2.1
(d) Table 5.3
(e) Table 5.4

TABLE 6.1

ALEXANDRIA SEWERAGE UTILITY

TYPICAL SEWERAGE SYSTEMS FACILITIES

1984 TEST YEAR

Plant components		
Preliminary treatment	375.0	1000 m^3 per day capacity
Primary sedimentation	1.5	1000 m^2 surface area
Aeration	60.0	1000 m^3 liquid volume
Secondary sedimentation	1.5	1000 m^2 surface area
Primary sludge pumping	315.0	liters per second pumping capacity
Sludge disposal	185.0	1000 m^2 surface area
Laboratory	375.0	1000 m^3 per day capacity
Administration and general	375.0	1000 m^3 per day capacity
Sewage treatment	10 percent of total operating expense	
Sewage pumping	20 percent of total operating expense	
Sewage networks	40 percent of total operating expense	
Administration and billing	30 percent of total operating expense	

TABLE 6.2

ALEXANDRIA SEWERAGE UTILITY

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total Operating Expense LE 1000	Volume Related Cost LE 1000	Strength Related Cost		Customer Cost LE 1000
			BOD LE 1000	Suspended Solids LE 1000	
Pumping Expense					
Electric Power	151	151			
Other	453	453			
Total Pumping Expense	604	604			
Networks Expense	1,209	605			604
Treatment and Disposal Expense					
Preliminary Treatment	51	51			
Primary Sedimentation	12	12			
Aeration	82		82		
Secondary Sedimentation	12	12			
Sludge Pumping	24			24	
Sludge Disposal	58		29	29	
Laboratory	24		12	12	
Others	39	14	13	12	
Total Treatment Expense	302	89	136	77	
Customer Billing and Accounting	103				103
Administrative and General Expense	803	457	34	31	281
Total Operation and Maintenance Expense	3,021	1,755	170	108	988

TABLE 6.3

ALEXANDRIA SEWERAGE UTILITY

ALLOCATION OF CASH BASIS CAPITAL COSTS
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total LE 1000	Volume Related Cost LE 1000	Strength Related Cost BOD LE 1000	Strength Related Cost Suspended Solids LE 1000	Customer Related Cost LE 1000
Pumping Plant	2,080	2,080			
Networks	6,754	3,377			3,377
Treatment and Disposal Plant					
Preliminary Treatment	176	176			
Primary Sedimentation	88	88			
Aeration	1,347		1,347		
Secondary Sedimentation	88	88			
Sludge Pumping	117			117	
Sludge Disposal	878		439	439	
Laboratory and Administration	176	23	117	36	
Workshops and Garages	58	8	38	12	
Total Treatment Plant	2,928	383	1,941	604	
Outfalls	4,673	4,673			
General Plant	865	553	102	32	178
Total Capital Cost	17,300	11,066	2,043	636	3,555

TABLE 6.4

ALEXANDRIA SEWERAGE UTILITY

ALLOCATION OF UTILITY BASIS CAPITAL
COSTS TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total	Volume Related Cost	Strength Related Cost		Customer Related Cost
			BOD	Suspended Solids	
	LE 1000	LE 1000	LE 1000	LE 1000	LE 1000
Pumping Plant	4,178	4,178			
Networks	13,579	6,790			6,789
Treatment and Disposal Plant					
Preliminary Treatment	355	355			
Primary Sedimentation	178	178			
Aeration	2,723		2,723		
Secondary Sedimentation	177	177			
Sludge Pumping	237			237	
Sludge Disposal	1,776		888	888	
Laboratory and Administration	355	46	235	74	
Workshops and Garages	118	15	78	25	
Total Treatment Plant	5,919	771	3,924	1,224	
Outfalls	9,400	9,400			
General Plant	1,741	1,113	207	64	357
Total Capital Cost	34,817	22,252	4,131	1,288	7,146

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TABLE [illegible]

ALEXANDRIA SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF CASH BASIS
COST OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Cash Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	1,755	11,066	12,821
Strength Related Cost			
BOD	170	2,043	2,213
Suspended Solids	108	636	744
Customer Related Cost	988	3,555	4,543
Total, Cash Basis Cost of Service	3,021	17,300	20,321

TABLE 6.6

ALEXANDRIA SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF UTILITY BASIS COST OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Utility Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	1,755	22,252	24,007
Strength Related Cost			
BOD	170	4,131	4,301
Suspended Solids	108	1,288	1,396
Customer Related Cost	988	7,146	8,134
Total, Utility Basis Cost of Service	3,021	34,817	37,838

TABLE 7.1

ALEXANDRIA SEWER UTILITY

UNITS OF SERVICE

1984 TEST YEAR

Customer Class		Sewage Volume Units 1,000m3	Strength Units BOD 1,000kg	Strength Units Suspended Solids 1,000kg	Customer Units Equivalent Meters	Customer Units Bills
Domestic Sewage		103,145	52,800	49,300	91,200	478,600
Infiltration	(a)	19,374	9,602	9,233		
Total Domestic		122,519	62,402	58,533		
Industrial Sewage		47,195	31,000	30,000	2,500	8,900
Infiltration	(a)	537	266	256		
Total Industrial		47,732	31,266	30,256		
Other Sewage		51,554	26,200	24,200	29,800	147,600
Infiltration	(a)	6,320	3,132	3,011		
Total Other		57,874	29,332	27,211		
Grand Total		228,125	123,000	116,000	123,500	635,100

(a) Infiltration allocated on basis of percentage of equivalent meters

TABLE 7.2

ALEXANDRIA SEWERAGE UTILITY

UNIT COSTS OF SERVICE
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

	Total	Volume Related Costs 1,000m3	Strength Related Costs BOD 1,000kg	Strength Related Costs Suspended Solids 1,000kg	Customer Related Costs Bills
NUMBER OF UNITS		228,125	123,000	116,000	635,100
COST OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	3,021,000	1,755,000	170,000	108,000	988,000
Unit Cost		7.69	1.38	0.93	1.56
Capital Cost					
Total Cost	17,300,000	11,066,000	2,043,000	636,000	3,55,000
Unit Cost		48.51	16.61	5.48	5.59
Total Unit Cost		56.20/ 1000m3	17.99/ 1000kg	6.41/ 1000kg	7.15/ Bill

TABLE 7.3

ALEXANDRIA SEWERAGE UTILITY

UNIT COSTS OF SERVICE
UTILITY BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

	Total	Volume Related Costs 1,000m3	Strength Related Costs BOD 1,000kg	Strength Related Costs Suspended Solids 1,000kg	Customer Related Costs Bills
NUMBER OF UNITS		228,125	123,000	116,000	635,100
COST OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	3,021,000	1,755,000	170,000	108,000	988,000
Unit Cost		7,69	1.38	0.93	1.56
Capital Cost					
Total Cost	34,817,000	22,252,000	4,131,000	1,288,000	7,146,000
Unit Cost		97.54	33.59	11.10	11.25
Total Unit Cost		105.23/ 1000m3	34.97/ 1000kg	12.03/ 1000kg	12.81/ Bill

TABLE 7.4

ALEXANDRIA SEWERAGE UTILITY

CASH BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE1000	Strength Related Cost BOD LE1000	Strength Related Cost Suspended Solids LE1000	Customer Cost LE1000	Total Allocated Cost of Service LE1000
Domestic	6,886	1,123	375	3,423	11,807
Industrial	2,683	562	194	64	3,503
Commercial and Institutional	3,252	528	175	1,056	5,011
All Customers	12,821	2,213	744	4,543	20,321

Note: Values are obtained by multiplying Customer Class Units of Service, Table 7.1 by Cash Basis unit Costs, Table 7.2 (i.e. Domestic Volume units, 122,519 x Volume Unit Cost, LE 56.20 = LE 6,886,000).

TABLE 7.5

ALEXANDRIA SEWERAGE UTILITY

UTILITY BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE1000	Strength Related Cost BOD LE1000	Strength Related Cost Suspended Solids LE1000	Customer Cost LE1000	Total Allocated Cost of Service LE1000
Domestic	12,893	2,182	705	6,130	21,910
Industrial	5,023	1,093	364	114	6,594
Commercial and Institutional	6,091	1,026	327	1,890	9,334
All Customers	24,007	4,301	1,396	8,134	37,838

Note: Values are obtained by multiplying Customer Class Units of Service, Table 7.1 by Utility Basis Unit Costs, Table 7.3 (i.e Domestic Volume Units, 122,519 x volume unit cost, LE 105.23 = LE 12,893,000)

TABLE 8.1

ALEXANDRIA SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to all Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 50 cubic meters	0.005	0.008	0.010	0.015	0.020
Next 50 cubic meters	0.007	0.015	0.023	0.035	0.050
Next 100 cubic meters	0.011	0.023	0.034	0.053	0.075
Next 800 cubic meters	0.013	0.027	0.041	0.063	0.090
Next 9,000 cubic meters	0.016	0.033	0.050	0.077	0.110
Over 10,000 cubic meters	0.020	0.040	0.060	0.090	0.130
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.500	0.750	1.000
Non Domestic Customers					
See next page					

TABLE 8.1 (Continued)

ALEXANDRIA SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Service Charge					
Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	1.35	2.70	4.00	6.30	9.00
25	1.75	3.50	5.25	8.00	11.50
30	2.00	4.00	6.00	9.00	13.00
40	2.25	4.50	6.75	10.50	15.00
50	3.75	7.50	11.25	17.50	25.00
80	13.50	27.00	40.00	65.00	90.00
100	17.50	35.00	52.50	80.00	115.00
150	25.00	50.00	75.00	125.00	175.00
200	35.00	70.00	105.00	170.00	240.00
300	60.00	120.00	180.00	280.00	400.00
INDUSTRIAL SURCHARGE					
BOD Charge per kg for strengths in excess of 500 mg/l	0.003	0.005	0.009	0.013	0.018
Suspended solids Charge per kg for strengths in excess of 500 mg/l	0.001	0.002	0.003	0.004	0.006

TABLE 8.2

ALEXANDRIA SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED BI-MONTHLY

	Rate LE
DOMESTIC	
Volume Charge Charge per cubic meter of measure or estimated water use per billing period	0.055
Service Charge Charge per living unit per billing period	3.850
NON DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period	
Commerical and Institutional	0.055
Industrial	0.056
Service Charge Charge per connection per billing period based on water meter size	
Meter Size mm	
20 and under	9.000
25	11.500
30	13.000
40	15.000
50	25.000
80	90.000
100	115.000
150	175.000
200	240.000
300	400.000

TABLE 8.2 (Continued)

ALEXANDRIA SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED BI-MONTHLY

	Rate LE
INDUSTRIAL SURCHARGE	
BOD Charge per kg for strengths in excess of 500 mg/l	0.018
Suspended Solids Charge per kg for strengths in excess of 500 mg/l	0.006

TABLE 8.3

ALEXANDRIA SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED BI-MONTHLY

	Rate LE
DOMESTIC	
Flat rate per room per billing period	3.350
NON DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period	
Commercial and Institutional	0.055
Industrial	0.056
Service Charge Charge per connection per billing period based on water meter size	
Meter Size mm	
20 and under	9.000
25	11.500
30	13.000
40	15.000
50	25.000
80	90.000
100	115.000
150	175.000
200	240.000
300	400.000

TABLE 8.3 (Continued)

ALEXANDRIA SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED BI-MONTHLY

	Rate LE
INDUSTRIAL SURCHARGE	
BOD Charge per kg for strengths in excess of 500 mg/l	0.018
Suspended Solids Charge per kg for strengths in excess of 500 mg/l	0.006

TABLE 8.4

ALEXANDRIA SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to All Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 50 cubic meters	0.005	0.008	0.010	0.015	0.020
Next 50 cubic meters	0.007	0.015	0.023	0.035	0.050
Next 100 cubic meters	0.020	0.040	0.055	0.085	0.125
Next 800 cubic meters	0.025	0.050	0.080	0.125	0.175
Next 9,000 cubic meters	0.035	0.070	0.100	0.160	0.225
Over 10,000 cubic meters	0.040	0.080	0.120	0.180	0.260
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.500	0.750	1.000
Non Domestic Customers					

See next page

TABLE 8.4 (Continued)

ALEXANDRIA SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED BI-MONTHLY

	Rates to be effective January 1				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Service Charge					
Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	2.400	4.800	7.200	11.000	16.000
25	3.000	6.000	9.000	14.000	20.000
30	3.600	7.200	11.000	17.000	24.000
40	4.500	8.700	13.000	20.000	29.000
50	7.000	14.000	21.000	32.000	46.000
80	29.000	57.000	86.000	130.000	190.000
100	34.000	68.000	100.000	160.000	225.000
150	50.000	100.000	150.000	235.000	335.000
200	70.000	140.000	210.000	325.000	465.000
300	115.000	230.000	345.000	540.000	770.000
INDUSTRIAL SURCHARGE					
BOD Charge per kg for strengths in excess of 500 mg/l	0.005	0.010	0.016	0.025	0.035
Suspended Solids Charge per kg for strengths in excess of 500 mg/l	0.002	0.004	0.006	0.008	0.012

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TABLE 8.5

ALEXANDRIA WATER UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT RECOMMENDED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Recommended Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	11,807	7,891	66.4
Industrial	3,503	6,377	182.1
Commercial and Institutional	5,011	6,369	127.1
Total	20,321	20,637	101.6

(a) Based on Cash Basis Revenue Requirements

(b) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.6

ALEXANDRIA WATER UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	11,807	11,785	99.8
Industrial	3,503	3,503	100.0
Commercial and Institutional	5,011	4,971	99.2
Total	20,321	20,259	99.7

(a) Based on Cash Basis Revenue Requirements

(b) At Proposed Service Charge - Volume Charge Rates, Table 8.2

TABLE 8.7

ALEXANDRIA WATER UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	11,807	11,815	100.1
Industrial	3,503	3,503	100.0
Commercial and Institutional	5,011	4,971	99.2
Total	20,321	20,289	99.8

(a) Based On Cash Basis Revenue Requirements

(b) At Proposed Combined Flat Rate applicable to Domestic Customers and Service Charge-Volume Charge Rate applicable to Non Domestic Customer, Table 8.3

TABLE 8.8

ALEXANDRIA WATER UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	21,910	12,571	57.4
Industrial	6,564	13,314	201.9
Commercial and Institutional	9,334	12,164	130.3
Total	37,838	38,049	100.6

(a) Based On Utility Basis Revenue Requirements

(b) At Proposed "Ability to Pay" Rates, Table 8.4

TABLE 8.9

ALEXANDRIA SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
CASH BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Recommended Rates(a) LE 1000	Required Subsidy LE 1000
1980	3,053	2,675	378
1981	5,638	5,547	91
1982	8,683	8,618	65
1983	13,738	13,868	None
1984	20,321	20,637	None

(a) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.10

ALEXANDRIA SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
UTILITY BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Recommended Rates(a) LE 1000	Required Subsidy LE 1000
1980	11,903	4,931	6,972
1981	16,976	10,227	6,749
1982	22,155	15,889	6,266
1983	27,922	25,569	2,353
1984	37,838	38,049	None

(a) At Proposed "Ability to Pay" Rates, Table 8.4

TABLE 10.1

ALEXANDRIA SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	2,675	5,547	8,618	13,868	20,637	28,528	41,326	51,813	67,277	90,136	142,502
OPERATING EXPENSE											
Operation and maintenance expense	1,872	2,118	2,398	2,706	3,021	3,341	3,653	3,965	4,277	5,111	11,810
Depreciation expense	2,240	3,616	5,607	7,775	11,063	15,731	21,107	26,446	31,268	36,516	55,328
Total Operating Expense	4,112	5,734	8,005	10,481	14,084	19,072	24,760	30,411	35,545	41,627	67,138
Net Operating Income	(1,437)	(187)	613	3,387	6,553	9,456	16,566	21,402	31,732	48,509	75,364
NON OPERATING INCOME	118	122	126	129	133	137	141	146	150	159	215
Gross Income	(1,319)	(65)	739	3,516	6,686	9,593	16,707	21,548	31,882	48,668	75,579
INCOME DEDUCTIONS											
Interest expense	1,031	3,020	5,395	9,452	13,807	20,571	28,183	36,843	45,005	54,179	58,320
Net Income (Loss)	(2,350)	(3,085)	(4,656)	(5,936)	(7,121)	(10,978)	(11,476)	(15,295)	(13,123)	(5,511)	17,259
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	129.9	187.4	235.8	290.7	395.9	519.4	654.0	764.8	860.3	894.7	945.8
Return on Investment- %[c]			0.3	1.2	1.6	1.8	2.5	2.8	3.7	5.4	7.9

(a) Based on Cash Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Utility Plant in Service.

TABLE 10.2

ALEXANDRIA SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	4,931	10,227	15,889	25,569	38,049	50,239	64,057	76,356	87,226	95,368	123,948
OPERATING EXPENSE											
Operation and maintenance expense	1,872	2,118	2,398	2,706	3,021	3,341	3,653	3,965	4,277	5,111	11,810
Depreciation expense	2,240	3,616	5,607	7,775	11,063	15,731	21,107	26,446	31,268	36,516	55,328
Total Operating Expense	4,112	5,734	8,005	10,481	14,084	19,072	24,760	30,411	35,545	41,627	67,138
Net Operating Income	819	4,493	7,884	15,088	23,965	31,167	39,297	45,945	51,681	53,741	56,810
NON OPERATING INCOME											
Gross Income	118	122	126	129	133	137	141	146	150	159	215
	937	4,615	8,010	15,217	24,098	31,304	39,438	46,091	51,831	53,900	57,025
INCOME DEDUCTIONS											
Interest expense	1,031	3,020	5,395	9,452	13,807	20,571	28,183	36,843	45,005	54,179	58,320
Net Income (Loss)	(94)	1,595	2,615	5,765	10,291	10,733	11,255	9,248	6,826	(279)	(1,295)
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	129.9	187.4	235.8	290.7	395.9	519.4	654.0	764.8	860.3	894.7	945.6
Return on Investment- %[c]	0.6	2.4	3.3	5.2	6.0	6.0	6.0	6.0	6.0	6.0	6.0

(a) Based on Utility Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Utility Plant in Service.

TABLE 10.3

ALEXANDRIA SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	(1,437)	(187)	613	3,387	6,553	9,456	16,566	21,402	31,732	48,509	75,364
Depreciation Expense	2,240	3,616	5,607	7,775	11,063	15,731	21,107	26,446	31,268	36,516	[illegible]
Sub total	803	3,429	6,220	11,162	17,616	25,187	37,673	47,848	63,000	85,025	130,692
Non Operating Income	118	122	126	129	133	137	141	146	150	159	215
Operating Subsidy	378	91	65								
Total Available Operating Funds	1,299	3,642	6,411	11,291	17,749	25,324	37,814	47,994	63,150	85,184	130,907
APPLICATION OF FUNDS											
Routine Improvements	150	500	890	1,580	2,440	3,500	5,140	6,390	8,290	10,920	16,170
Debt Service Charges											
Interest	1,031	3,020	5,395	9,452	13,807	20,571	28,183	36,843	45,005	54,179	58,320
Principal					1,053	1,116	4,350	4,615	9,705	19,926	56,202
Total Debt Service	1,031	3,020	5,395	9,452	14,860	21,687	32,533	41,458	54,710	74,105	114,522
Total Application of Operating Funds	1,181	3,520	6,285	11,032	17,300	25,187	37,673	47,848	63,000	85,025	130,692
Net Operating Fund Change	118	122	126	259	449	137	141	146	150	159	215

(a) Based on revenues from sewerage user charges computed on Cash Basis Revenue Requirements.

TABLE 10.4

ALEXANDRIA SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	819	4,493	7,884	15,068	23,965	31,167	39,297	45,945	51,681	53,741	56,810
Depreciation Expense	2,240	3,616	5,607	7,775	11,063	15,731	21,107	26,446	31,268	36,516	55,328
Sub total	3,059	8,109	13,491	22,863	35,028	46,898	60,404	72,391	82,949	90,257	112,138
Non Operating Income	118	122	126	129	133	137	141	146	150	159	215
Operating Subsidy	6,972	6,749	6,266	2,353							
Total Available Operating Fund	10,149	14,980	19,883	25,345	35,161	47,035	60,545	72,537	83,099	90,416	112,353
APPLICATION OF FUNDS											
Routine Improvements	150	500	890	1,580	2,440	3,500	5,140	6,390	8,290	10,920	16,170
Debt Service Charges											
Interest	1,031	3,020	5,395	9,452	13,807	20,571	28,183	36,843	45,005	54,179	58,320
Principal					1,053	1,116	4,350	4,615	9,705	19,926	56,202
Total Debt Service	1,031	3,020	5,395	9,452	14,860	21,687	32,533	41,458	54,710	74,105	114,522
Total Application of Operating Funds	1,181	3,520	6,285	11,032	17,300	25,187	37,673	47,848	63,000	85,025	130,692
Net Operating Fund Change	8,968	11,460	13,598	14,313	17,861	21,848	22,872	24,689	20,099	5,391	(18,339)

(a) Based on revenues from sewerage user charges computed on Utility Basis Revenue Requirements.

TABLE 10.5

ALEXANDRIA SEWERAGE UTILITY

PROFORMA BALANCE SHEET

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1999 LE1000	2000 LE1000
ASSETS											
Utility Plant in Service[a]	85,250	148,270	204,230	268,740	386,900	528,060	685,560	824,690	953,440	1,061,950	1,604,510
Accumulated Provision for Depreciation	24,456	28,072	33,679	41,454	52,517	68,248	89,355	115,801	147,069	214,853	687,428
Net Utility Plant in Service	60,794	120,198	170,551	227,286	334,383	459,812	596,205	708,889	806,371	847,097	917,082
Current Assets											
Cash	234	265	300	338	378	418	457	496	535	639	1,476
Accounts Receivable	763	1,410	2,171	3,434	5,080	7,132	10,332	12,953	16,819	22,534	35,633
Material and Supplies	108	122	138	155	173	190	208	225	243	285	650
Total Current Assets	1,105	1,797	2,609	3,927	5,631	7,740	10,997	13,674	17,597	23,458	37,759
Total Assets	61,899	121,995	173,160	231,213	340,014	467,552	607,202	722,563	823,968	870,555	954,841
LIABILITIES AND EQUITY											
Alexandria Sewerage Utility Equity Capital	22,510	20,042	16,090	11,162	5,248	(3,816)	(12,228)	(25,039)	(34,446)	(23,629)	24,657
Long Term Debt	39,077	101,600	156,670	219,600	334,262	470,811	618,821	746,941	857,701	893,332	928,216
Current Liabilities											
Accounts Payable	312	353	400	451	504	557	609	661	713	852	1,968
Total Liabilities and Equity	61,899	121,995	173,160	231,213	340,014	467,552	607,202	722,563	823,968	870,555	954,841

(a) Based on Original Cost at December 31, 1978 and projected additions at cost subsequent thereto.

APPENDIX III

ISMAILIA

SEWERAGE UTILITY

TABLE 2.1

ISMAILIA SEWERAGE UTILITY

HISTORICAL AND PROPOSED CAPITAL IMPROVEMENT PROGRAM

Year	Major Projects Local LE 1000	Major Projects Foreign LE 1000	Major Projects Total LE 1000	Routine Projects LE 1000	Total LE 1000
			HISTORICAL		
1973					
1974	132		132		132
1975	293	500	793		793
1976	282	262	443		443
1977	145	80	225		225
1978	542		542		542
			PROPOSED[a]		
1979	560	1,000	1,560		1,560
1980	5,556	8,400	13,956	60	14,016
1981	4,659	6,868	11,527	135	11,662
1982	6,719	9,556	16,275	297	16,572
1983	8,670	10,336	19,006	458	19,464
1984	5,868	6,113	11,981	620	12,601
1985	4,587	2,755	7,342	882	8,224
1986	2,259	1,073	3,332	986	4,318
1987	6,139	6,020	12,159	1,242	13,401
1988	6,909	7,754	14,663	1,361	16,024
After 1988	140,985	57,704	198,689	32,326	231,015
Total, 1979 to 2000	192,911	117,579	310,490	38,367	348,857

(a) Adopted from Ismailia Water Works and Wastewater Facilities Master Plan, Part II Staged Development Draft Final Report Volume III, Wastewater, Metcalf & Eddy, 1979

TABLE 2.2

ISMAILIA SEWERAGE UTILITY

PROPOSED DEBT SERVICE CHARGES FOR CONSTRUCTION COSTS

Year	Financed With Local Currency LE 1000	Financed With Foreign Currency LE 1000	Total LE 1000
1979			
1980	92	203	295
1981	261	434	695
1982	585	951	1,536
1983	977	1,441	2,418
1984	1,379	1,928	3,307
1985	2,031	2,714	4,745
1986	2,342	3,009	5,351
1987	3,029	3,754	6,783
1988	3,340	4,108	7,448
1990	4,455	5,114	9,569
2000	14,190	9,598	23,788

TABLE 3.1

ISMAILIA SEWERAGE UTILITY

PROJECTED POPULATION, CONNECTIONS AND SEWAGE FLOWS

Year	Population 1,000	Sewer Connections	Sewage Flows 1000 m3/d
		HISTORICAL	
1976	166		
1977	195		
1978	220	7,000[a]	23[a]
		PROJECTED	
1979	230	7,300	25
1980	240	7,600	27
1981	250	7,900	29
1982	261	8,200	31
1983	273	8,500	33
1984	284	8,800	36
1985	297	9,100	39
1986	310	9,500	42
1987	323	9,900	45
1988	337	10,300	48
1990	367	11,300	56
2000	560	21,000	130

[a] Estimated

TABLE 4.1

ISMAILIA SEWERAGE UTILITY

REVENUES

Year	Operating Subsidy LE	Capital Subsidy LE	Miscellaneous Revenues (b) LE
	HISTORICAL		
1973	NA	NA	
1974	NA	NA	
1975	121,597	299,688	
1976	117,487	408,868	
1977	119,610	247,569	
1978	NA	995,182	
	PROJECTED		
1979	(a)	(a)	1,000
1980			2,000
1981			3,000
1982			4,000
1983			5,000
1984			6,000
1985			7,000
1986			8,000
1987			9,000
1988			10,000
1990			10,000
2000			10,000

NA Not available at date of preparation of report

(a) No projection of subsidies has been made. The amount will depend upon the level of revenue from tariffs.

(b) No record of miscellaneous Revenue was available Projected revenue recognizes the probability of such non operating revenue from sale of sludge, service to customers and similar sources.

TABLE 5.1

ISMAILIA SEWERAGE UTILITY

OPERATION AND MAINTENANCE EXPENSE

Year	Wages & Benefits LE	Electric Power LE	Supplies LE	Admin. Cost LE	Billing Expense LE	Total LE
			HISTORICAL			
1973						NA
1974						NA
1975	73,872	13,766	33,959			121,597
1976	86,013	19,299	12,421			117,733
1977	88,688	16,506	14,742			119,936
1978(a)	100,000	25,000	21,000			146,000
			PROJECTED			
1979	115,000	30,000	24,000			169,000
1980	130,000	35,000	27,000	12,000	5,000	209,000
1981	150,000	42,000	31,000	14,000	6,000	243,000
1982	170,000	49,000	36,000	16,000	7,000	278,000
1983	195,000	58,000	41,000	18,000	8,000	320,000
1984	220,000	68,000	46,000	20,000	9,000	363,000
1985	245,000	78,000	51,000	23,000	10,000	407,000
1986	270,000	89,000	56,000	26,000	11,000	452,000
1987	295,000	100,000	61,000	29,000	12,000	497,000
1988	320,000	112,000	66,000	32,000	13,000	543,000
1990	380,000	140,000	80,000	38,000	16,000	654,000
2000	1,150,000	550,000	240,000	120,000	50,000	2,110,000

NA - Not available

(a) - Estimated

TABLE 5.2

ISMAILIA SEWERAGE UTILITY

DEBT SERVICE CHARGES WITH COVERAGE REQUIREMENTS

Year	Debt Service LE 1000	Provision for Debt Coverage LE 1000	Total LE 1000
1979	0	0	0
1980	295	60	355
1981	695	135	830
1982	1,536	297	1,833
1983	2,418	458	2,876
1984	3,307	620	3,927
1985	4,745	882	5,627
1986	5,351	986	6,337
1987	6,783	1,242	8,025
1988	7,448	1,361	8,809
1990	9,569	1,735	11,304
2000	23,788	3,819	27,607

TABLE 5.3

ISMAILIA SEWERAGE UTILITY

ESTIMATED DEPRECIATION EXPENSE

Year	Sewerage Plant in Service: Annual Additions LE 1000	Cumulative Balance (a) LE 1000	Land (b) LE 1000	Depreciable Balance LE 1000	Average Balance LE 1000	Depreciation Expense (c) LE 1000
1978		3,780	50	3,730		
1979	1,560	5,340	50	5,290	4,510	167
1980	14,016	19,356	190	19,166	12,228	452
1981	11,662	31,018	190	30,828	24,997	925
1982	16,572	47,590	190	47,400	39,114	1,447
1983	19,464	67,054	190	66,864	57,132	2,114
1984	12,601	79,655	190	79,465	73,164	2,707
1985	8,224	87,879	190	87,689	83,577	3,092
1986	4,318	92,197	190	92,007	89,848	3,324
1987	13,401	105,598	190	105,408	98,707	3,652
1988	16,024	121,622	190	121,432	113,420	4,197
1989 to 1990	35,322	156,944	190	156,754	147,924	5,473
1991 to 2000	195,693	352,637	190	352,447	342,662	12,678

(a) Based on estimated original cost at December 31, 1978 together with additions at cost subsequent thereto.

(b) Estimated

(c) At average composite rate of 3.7 percent

TABLE 5.4

ISMAILIA SEWERAGE UTILITY

PROFORMA RETURN ON INVESTMENT

Year	Estimated Construction Cost LE 1000	Cumulative Balance[a] LE 1000	Allowance For Depreciation LE 1000	Net Plant in Service LE 1000	Required Return @ 6 Percent LE 1000
1978		7,818			
1979	1,560	9,378	316	9,062	544
1980	14,016	23,394	918	22,476	1,348
1981	11,662	35,056	1,992	33,064	1,984
1982	16,572	51,628	3,589	48,039	2,882
1983	19,464	71,092	5,852	65,240	3,914
1984	12,601	83,693	8,709	74,984	4,499
1985	8,224	91,917	11,951	79,966	4,798
1986	4,318	96,235	15,425	80,810	4,849
1987	13,401	109,636	19,227	90,409	5,425
1988	16,024	125,660	23,573	102,087	6,125
1990	35,322	160,982	34,181	126,801	7,608
2000	195,693	356,675	130,051	266,624	15,997

(a) Based on RCLD at December 31, 1978 together with Additions at cost subsequent thereto.

TABLE 5.5

ISMAILIA SEWERAGE UTILITY

COMPARATIVE SUMMARY OF REVENUE REQUIREMENTS

Year	Cash Basis				Utility Basis			
	Operation & Maintenance Expense LE 1000	Debt Service LE 1000	Routine Annual Improvements LE 1000	Total LE 1000	Operation Maintenance Expense LE 1000	Depreciation Expense LE 1000	Return on Investment LE 1000	Total LE 1000
	(a)	(b)	(c)		(a)	(d)	(e)	
1979	169			169	169	167	544	880
1980	209	295	60	564	209	452	1,348	2,009
1981	243	695	135	1,073	243	925	1,984	3,152
1982	278	1,536	297	2,111	278	1,447	2,882	4,607
1983	320	2,418	458	3,196	320	2,114	3,914	6,348
1984	363	3,307	620	4,290	363	2,707	4,499	7,569
1985	407	4,745	882	6,034	407	3,092	4,798	8,297
1986	452	5,351	986	6,789	452	3,324	4,849	8,625
1987	497	6,783	1,242	8,522	497	3,652	5,425	9,574
1988	543	7,448	1,361	9,352	543	4,197	6,125	10,865
1990	654	9,569	1,735	11,958	654	5,473	7,608	13,735
2000	2,110	23,788	3,819	29,717	2,110	12,678	15,997	30,785

(a) Table 5.1
(b) Table 2.2,5.2
(c) Table 2.1
(d) Table 5.3
(e) Table 5.4

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TABLE 6.1

ISMAILIA SEWERAGE UTILITY

TYPICAL SEWERAGE SYSTEM FACILITIES

198[illegible] TEST YEAR

Plant components		
Preliminary treatment	50.0	1000 m^3 per day capacity
Primary sedimentation	.2	1000 m^2 surface area
Aeration	4.7	1000 liter per second blower capacity
Secondary sedimentation	.2	1000 m^2 surface area
Primary sludge pumping	37.8	liters per second pumping capacity
Sludge disposal	725.0	1000 kg per year dry solids
Laboratory	50.0	1000 m^3 per day capacity
Administrative and general	50.0	1000 m^3 per day capacity
Sewage treatment	10 percent of total Operating expense	
Sewage pumping	55 percent of total Operating expense	
Sewage networks	25 percent of total Operating expense	
Administration and billing	10 percent of total Operating expense	

TABLE 6.2

ISMAILIA SEWERAGE UTILITY

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total Operating Expense LE 1000	Volume Related Cost LE 1000	Strength Related Cost		Customer Cost LE 1000
			BOD LE 1000	Suspended Solids LE 1000	
Pumping Expense					
Electric Power	60	60			
Other	140	140			
Total Pumping Expense	200	200			
Networks Expense	91	46			45
Treatment and Disposal Expense					
Preliminary Treatment	4	4			
Primary Sedimentation	1	1			
Aeration	12		12		
Secondary Sedimentation	1	1			
Sludge Pumping	4			4	
Sludge Disposal	6		3	3	
Laboratory	4		2	2	
Others	4	1	2	1	
Total Treatment Expense	36	7	19	10	
Customer Billing and Accounting	9				9
Administrative and General Expense	27	19	1	1	6
Total Operation and Maintenance Expense	363	272	20	11	60

TABLE 6.3

ISMAILIA SEWERAGE UTILITY

ALLOCATION OF CASH BASIS CAPITAL
COST TO FUNCTIONAL COST COMPONENTS

	Total LE 1000	Volume Related Cost LE 1000	Strength Related Cost		Customer Related Cost LE 1000
			BOD LE 1000	Suspended Solids LE 1000	
Pumping Plant	548	548			
Networks	2,312	1,156			1,156
Treatment and Disposal Plant					
Preliminary Treatment	78	78			
Primary Sedimentation	43	43			
Aeration	368		368		
Secondary Sedimentation	43	43			
Sludge Pumping	52			52	
Sludge Disposal	174		87	87	
Laboratory and Administration	87	19	52	16	
Workshops and Garages	26	6	16	4	
Total Treatment Plant	871	189	523	159	
General Plant	196	99	27	8	62
Total Capital Costs	3,927	1,992	550	167	1,218

TABLE 6.4

ISMAILIA SEWERAGE UTILITY

ALLOCATION OF UTILITY BASIS CAPITAL
COSTS TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total LE 1000	Volume Related Cost LE 1000	Strength Related Cost BOD LE 1000	Strength Related Cost Suspended Solids LE 1000	Customer Related Cost LE 1000
Pumping Plant	1,138	1,138			
Networks	3,927	1,964			1,963
Treatment and Disposal Plant					
Preliminary Treatment	160	160			
Primary Sedimentation	89	89			
Aeration	748		748		
Secondary Sedimentation	89	89			
Sludge Pumping	107			107	
Sludge Disposal	356		178	178	
Laboratory and Adminstration	178	39	106	33	
Workshops and Garages	53	12	32	9	
Total Treatment Plant	1,780	389	1,064	327	
General Plant	361	184	56	17	104
Total Capital Costs	7,206	3,675	1,120	344	2,067

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TABLE 6.5

ISMAILIA SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF CASH BASIS COST
OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Cash Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	272	1,992	2,264
Strength Related Cost			
BOD	20	550	570
Suspended Solids	11	167	178
Customer Related Cost	60	1,218	1,278
Total, Cash Basis Cost of Service	363	3,927	4,290

TABLE 6.6

ISMAILIA SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF UTILITY BASIS COST
OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Utility Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	272	3,675	3,947
Strength Related Cost			
BOD	20	1,120	1,140
Suspended Solids	11	344	355
Customer Related Cost	60	2,067	2,127
Total, Utility Basis Cost of Service	363	7,206	7,569

TABLE 7.1

ISMAILIA SEWERAGE UTILITY

UNITS OF SERVICE

1984 TEST YEAR

Customer Class	Sewage Volume Units 1,000m3	Strength Units BOD 1,000kg	Strength Units Suspended Solids 1,000kg	Customer Units Equivalent Meters	Customer Units Bills
Domestic Sewage (a)	7,891	3,406	3,954	11,400	36,600
Infiltration	1,502	648	752		
Total Domestic	9,393	4,054	4,706		
Industrial Sewage (a)	1,122	484	562	300	300
Infiltration	32	14	16		
Total Industrial	1,154	498	578		
Other Sewage (a)	2,462	1,015	1,180	1,000	1,600
Infiltration	131	57	66		
Total Other	2,593	1,072	1,246		
Grand Total	13,140	5,624	6,530	12,700	38,500

(a) Infiltration allocated on basis of percentage of equivalent meters

TABLE 7.2

ISMAILIA SEWERAGE UTILITY

CASH BASIS REVENUE REQUIREMENTS
UNIT COSTS OF SERVICE

1984 TEST YEAR

	Total	Volume Related Costs	Strength Related Costs		Customer Related Costs
			BOD	Suspended Solids	
		1,000m3	1,000kg	1,000kg	Bills
NUMBER OF UNITS		13,140	5,624	6,530	38,500
COSTS OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost		272,000	20,000	11,000	60,000
Unit Cost		20.70	3.56	1.68	1.56
Capital Cost					
Total Cost	3,927,000	1,992,000	550,000	167,000	1,218,000
Unit Cost		151.60	97.80	25.57	31.63
Total Unit Cost		172.30/ 1000m3	101.36/ 1000kg	27.25/ 1000kg	33.19/ Bill

TABLE 7.3

ISMAILIA SEWERAGE UTILITY

UNIT COSTS OF SERVICE
UTILITY BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

	Total	Volume Related Costs 1,000m3	Strength Related Costs BOD 1,000kg	Strength Related Costs Suspended Solids 1,000kg	Customer Related Costs Bills
NUMBER OF UNITS		13,140	5,624	6,530	38,500
COSTS OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	363,000	272,000	20,000	11,000	60,000
Unit Cost		20.70	3.56	1.68	1.56
Capital Cost					
Total Cost	7,206,000	3,675,000	1,120,000	344,000	2,067,000
Unit Cost		279.68	199.15	52.68	53.69
Total Unit Cost		300.38/ 1000 m3	202.71/ 1000 kg	54.36/ 1000 kg	55.25/ Bill

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TABLE 7.4

ISMAILIA SEWERAGE UTILITY

CASH BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE1000	Strength Related Cost BOD LE1000	Strength Related Cost Suspended Solids LE1000	Customer Cost LE1000	Total Allocated Cost of Service LE1000
Domestic	1,618	411	128	1,214	3,371
Industrial	199	50	16	11	276
Commercial and Institutional	447	109	34	53	643
All Customers	2,264	570	178	1,278	4,290

Note: Values are obtained by multiplying Customer Class Units of Service, Table 7.1 by Cash Basis Unit Costs of Service, Table 7.2 (i.e. Domestic Volume Units, 9,393 x Volume Unit Cost, LE 172.30 = LE 1,618.000)

TABLE 7.5

ISMAILIA SEWERAGE UTILITY

UTILITY BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE1000	Strength Related Cost BOD LE1000	Strength Related Cost Suspended Solids LE1000	Customer Cost LE1000	Total Allocated Cost of Service LE1000
Domestic	2,821	822	256	2,022	5,921
Industrial	347	101	31	17	496
Commercial and Institutional	779	217	68	88	1,152
All Customers	3,947	1,140	355	2,127	7,569

Note: Values are obtained by multiplying customer class units of Service, Table 7.1 by Utility Basis Unit Costs of Service, Table 7.3 (i.e. Domestic Volume Units, 9,393 x Volume Unit Cost, LE 300.38 = LE 2,821,000)

TABLE 8.1

ISMAILIA SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to All Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 50 cubic meters	0.003	0.005	0.010	0.015	0.020
Next 50 cubic meters	0.012	0.020	0.040	0.060	0.080
Next 100 cubic meters	0.038	0.063	0.125	0.188	0.250
Next 800 cubic meters	0.050	0.083	0.165	0.248	0.330
Next 9,000 cubic meters	0.060	0.100	0.200	0.300	0.400
Over 10,000 cubic meters	0.070	0.115	0.230	0.345	0.460
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.750	1.150	1.500
Non Domestic Customers					

See next page

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TABLE 8.1 (Cont'd)

ISMAILIA SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Service Charge Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	0.380	0.630	1.250	1.880	2.500
25	0.480	0.790	1.600	2.350	3.150
30	0.550	0.900	1.800	2.700	3.600
40	0.600	1.000	2.000	3.000	4.000
50	1.000	1.650	3.250	4.900	6.500
80	3.750	6.250	12.500	18.750	25.000
100	4.800	8.000	16.000	24.000	32.000
150	7.500	12.500	25.000	37.000	50.000
200	10.000	16.250	32.500	48.750	65.000
300	18.000	30.000	60.000	90.000	120.000
400	24.000	40.000	80.000	120.000	160.000
INDUSTRIAL SURCHARGE					
BOD Charge per kg for strengths in excess of 400 mg/l	0.015	0.025	0.050	0.075	0.100
Suspended Solids Charge per kg for strengths in excess of 400 mg/l	0.004	0.007	0.014	0.021	0.028

TABLE 8.2

ISMAILIA SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period	0.180
Service Charge Charge per living unit per billing period	22.750
NON DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period	
Commercial and Institutional	0.180
Industrial	0.180
Service Charge Charge per connection per billing period based on water meter size	
Meter Size mm	
20 and under	25.000
25	32.000
30	36.000
40	41.000
50	66.000
80	250.000
100	320.000
150	480.000
200	660.000
300	1,150.000

TABLE 8.2 (Continued)

ISMAILIA SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
INDUSTRIAL SURCHARGE	
BOD Charge per kg for strengths in excess of 400 mg.l	0.100
Suspended Solids Charge per kg for strengths in excess of 400 mg/l	0.028

TABLE 8.3

ISMAILIA SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
DOMESTIC	
Flat rate per room per billing period	13,900
NON DOMESTIC	
Volume Charge	
Charge per cubic meter for all measured or estimated water use per billing period	
Commercial and Institutional	0.180
Industrial	0.180
Service Charge	
Charge per connection per billing period based on water meter size	
Meter Size mm	
20 and under	25.000
25	32.000
30	36.000
40	41.000
50	66.000
80	250.000
100	320.000
150	480.000
200	660.000
300	1,150.000

TABLE 8.3 (Continued)

ISMAILIA SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
INDUSTRIAL SURCHARGE	
BOD Charge per kg for strengths in excess of 400 mg/l	0.100
Suspended Solids Charge per kg for strengths in excess of 400 mg/l	0.028

TABLE 8.4

ISMAILIA SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to All Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 50 cubic meters	0.003	0.005	0.010	0.015	0.020
Next 50 cubic meters	0.012	0.020	0.040	0.060	0.080
Next 100 cubic meters	0.060	0.100	0.200	0.300	0.400
Next 800 cubic meters	0.090	0.150	0.300	0.450	0.600
Next 9,000 cubic meters	0.105	0.175	0.350	0.525	0.700
Over 10,000 cubic meters	0.120	0.200	0.400	0.600	0.800
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.750	1.150	1.500
Non Domestic Customers					
See next page					

TABLE 8.4 (Continued)

ISMAILIA SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Service Charge					
Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	5.000	8.000	16.000	25.000	33.000
25	6.000	10.000	20.000	30.000	40.000
30	7.500	12.500	25.000	37.500	50.000
40	9.000	15.000	30.000	45.000	60.000
50	14.000	22.500	45.000	70.000	95.000
80	60.000	100.000	200.000	300.000	400.000
100	70.000	115.000	230.000	345.000	460.000
150	105.000	175.000	350.000	525.000	700.000
200	140.000	240.000	475.000	700.000	950.000
300					
INDUSTRIAL SURCHARGE					
BOD Charge per kg for strengths in excess of 300 mg/l	0.030	0.050	0.100	0.150	0.200
Suspended Solids Charge per kg for strengths in excess of 300 mg/l	0.008	0.014	0.028	0.040	0.055

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TABLE 8.5

ISMAILIA SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE/USER CHARGES AT RECOMMENDED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Recommended Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	3,371	2,834	84.1
Industrial	276	470	170.3
Commercial and Institutional	643	987	153.5
	4,290	4,291	100.0

(a) Based On Cash Basis Revenue Requirements

(b) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.6

ISMAILIA SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service[a] LE 1000	Revenues At Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	3,371	3,340	99.1
Industrial	276	276	100.0
Commercial and Institutional	643	644	100.1
Total	4,290	4,260	99.3

(a) Based On Cash Basis Revenue Requirements

(b) At Proposed Service Charge - Volume Charge Rates, Table 8.2

TABLE 8.7

ISMAILIA SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE/USER CHARGES AT PROPOSED RATES WITH COST/OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service[a] LE 1000	Revenues At Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	3,371	3,370	100.0
Industrial	276	276	100.0
Commercial and Institutional	643	644	100.1
Total	4,290	4,290	100.0

(a) Based On Cash Basis Revenue Requirements

(b) At Proposed Combined Flat Rate applicable to Domestic Customers and Service Charge - Volume Charge Rates applicable to Non Domestic Customers, Table 8.3

TABLE 8.8

ISMAILIA SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues At Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	5,921	4,888	82.6
Industrial	496	851	171.6
Commercial and Institutional	1,152	1,857	161.2
Total	7,569	7,596	100.3

(a) Based On Utility Basis Revenue Requirements

(b) At Proposed "Ability to Pay" Rates, Table 8.4

TABLE 8.9

ISMAILIA SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
CASH BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Recommended Rates(a) LE 1000	Required Subsidy LE 1000
1980	564	482	82
1981	1,073	865	208
1982	2,111	1,847	264
1983	3,196	2,951	245
1984	4,290	4,291	None

(a) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.10

ISMAILIA SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
UTILITY BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenue At Recommended Rates(a) LE 1000	Required Subsidy LE 1000
1980	2,009	855	1,154
1981	3,152	1,530	1,622
1982	4,607	3,270	1,337
1983	6,348	5,224	1,124
1984	7,569	7,596	None

(a) At Proposed "Ability to Pay" Rates, Table, 8.4

TABLE 10.1

ISMAILIA SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	482	865	1,847	2,951	4,291	6,034	6,789	8,522	9,352	11,958	29,717
OPERATING EXPENSE											
Operation and maintenance expense	209	243	278	320	363	407	452	497	543	654	2,110
Depreciation expense	452	925	1,447	2,114	2,707	3,092	3,324	3,652	4,197	5,473	12,678
Total Operating Expense	661	1,168	1,725	2,434	3,070	3,499	3,776	4,149	4,740	6,127	14,788
Net Operating Income	(179)	(303)	122	517	1,221	2,535	3,013	4,373	4,612	5,831	14,929
NON OPERATING INCOME	2	3	4	5	6	7	8	9	10	10	10
Gross Income	(177)	(300)	126	522	1,227	2,542	3,021	4,382	4,622	5,841	14,939
INCOME DEDUCTIONS											
Interest expense	295	695	1,536	2,418	3,307	4,057	4,621	5,059	5,619	6,959	13,789
Net Income (Loss)	(472)	(995)	(1,410)	(1,896)	(2,080)	(1,515)	(1,600)	(677)	(997)	(1,118)	1,150
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	22.5	33.1	48.0	65.2	74.9	79.9	80.8	90.4	102.1	126.8	266.6
Return on Investment- %[c]			0.2	0.8	1.6	3.1	3.7	4.8	4.5	4.6	5.6

(a) Based on Cash Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Utility Plant in Service.

TABLE 10.2

ISMAILIA SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	855	1,530	3,270	5,224	7,596	8,297	8,625	9,574	10,865	13,735	30,785
OPERATING EXPENSE											
Operation and maintenance expense	209	243	278	320	363	407	452	497	543	654	2,110
Depreciation expense	452	925	1,447	2,114	2,707	3,092	3,324	3,652	4,197	5,473	12,678
Total Operating Expense	661	1,168	1,725	2,434	3,070	3,499	3,776	4,149	4,740	6,127	14,788
Net Operating Income	194	362	1,545	2,790	4,526	4,798	4,849	5,425	6,125	7,608	15,997
NON OPERATING INCOME	2	3	4	5	6	7	8	9	10	10	10
Gross Income	196	365	1,549	2,795	4,532	4,805	4,857	5,434	6,135	7,618	16,007
INCOME DEDUCTIONS											
Interest expense	295	695	1,536	2,418	3,307	4,057	4,621	5,059	5,619	6,959	13,789
Net Income (Loss)	(99)	(330)	13	377	1,225	748	236	375	516	659	2,218
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	22.5	33.1	48.0	65.2	74.9	79.9	80.8	90.4	102.1	126.8	266.6
Return on Investment- %[c]	0.8	1.1	3.2	4.3	6.0	6.0	6.0	6.0	6.0	6.0	6.0

(a) Based on Utility Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Utility Plant in Service.

TABLE 10.3

ISMAILIA SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	(179)	(303)	122	517	1,221	2,535	3,013	4,373	4,612	5,831	14,929
Depreciation Expense	452	925	1,447	2,114	2,707	3,092	3,324	3,652	4,197	5,473	12,678
Sub total	273	622	1,569	2,631	3,928	5,627	6,337	8,025	8,809	11,304	27,607
Non Operating Income	2	3	4	5	6	7	8	9	10	10	10
Operating Subsidy	82	208	264	245							
Total Available Operating Fund	357	833	1,837	2,881	3,934	5,634	6,345	8,034	8,819	11,314	27,617
APPLICATION OF FUNDS											
Routine Improvements	60	135	297	458	620	882	986	1,242	1,361	1,735	3,819
Debt Service Charges											
Interest	295	695	1,536	2,418	3,307	4,057	4,621	5,059	5,619	6,959	13,789
Principal						688	730	1,724	1,829	2,610	9,999
Total Debt Service	295	695	1,536	2,418	3,307	4,745	5,351	6,783	7,448	9,569	23,788
Total Application of Operating Fund	355	830	1,833	2,876	3,927	5,627	6,337	8,025	8,809	11,304	27,607
Net Operating Fund Change	2	3	4	5	7	7	8	9	10	10	10

(a) Based on revenes from sewerage user charges computed on Cash Basis Revenue Requirements.

TABLE 10.4

ISMAILIA SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	194	362	1,545	3,790	4,526	4,798	4,849	5,425	6,125	7,608	15,997
Depreciation Expense	452	925	1,447	2,214	2,707	3,092	3,324	3,652	4,197	5,473	12,678
Sub total	646	1,287	2,992	4,904	7,233	7,890	8,173	9,077	10,322	13,081	28,675
Non Operating Income	2	3	4	5	6	7	8	9	10	11	10
Operating Subsidy	1,154	1,622	1,337	1,124							
Total Available Operating Fund	1,802	2,912	4,333	6,033	7,239	7,897	8,181	9,086	10,332	13,091	28,685
APPLICATION OF FUNDS											
Routine Improvements	60	135	297	458	620	882	986	1,242	1,361	1,735	3,819
Debt Service Charges											
Interest	295	695	1,536	2,418	3,307	4,057	4,621	5,059	5,619	6,959	13,789
Principal						688	730	1,724	1,829	2,610	9,999
Total Debt Service	295	695	1,536	2,418	3,307	4,745	5,351	6,783	7,448	9,569	23,788
Total Application of Operating Fund	355	830	1,833	2,876	3,927	5,627	6,337	8,025	8,809	11,304	27,607
Net Operating Fund Change	1,447	2,082	2,500	3,157	3,312	2,270	1,844	1,061	1,523	1,787	1,078

(a) Based on revenues from sewerage user charges computed on Utility Basis Revenue Requirements.

TABLE 10.5

ISMAILIA SEWERAGE UTILITY

PROFORMA BALANCE SHEET

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
ASSETS											
Utility Plant in Service[a]	19,356	31,018	47,590	67,054	79,655	87,879	92,197	105,598	121,622	156,944	352,637
Accumulated Provision for Depreciation	1,579	2,504	3,951	6,065	8,772	11,864	15,118	18,840	23,037	33,345	127,715
Net Utility Plant in Service	17,777	28,514	43,639	60,989	70,883	76,015	77,079	86,758	98,585	123,599	224,922
Current Assets											
Cash	26	30	35	40	45	51	57	62	68	82	264
Accounts Receivable	141	268	525	799	1,072	1,509	1,697	2,130	2,338	2,990	7,428
Material and Supplies	14	16	18	21	23	26	28	31	33	40	120
Total Current Assets	181	314	578	860	1,140	1,586	1,782	2,223	2,439	3,112	7,812
Total Assets	17,958	28,828	44,217	61,849	72,023	77,601	78,861	88,981	101,024	126,711	232,734
LIABILITIES AND EQUITY											
Ismailia Sewerage Utility Equity Capital	3,976	3,315	2,424	1,045	(767)	(1,849)	(3,197)	(3,517)	(4,314)	(5,592)	(3,763)
Long Term Debt	13,947	25,472	41,747	60,751	72,729	79,382	81,983	92,415	105,247	132,194	236,145
Current Liabilities											
Accounts Payable	35	41	46	53	61	68	75	83	91	109	352
Total Liabilities and Equity	17,958	28,828	44,217	61,849	72,023	77,601	78,861	88,981	101,024	126,711	232,734

(a) Based on Original Cost at December 31, 1978 and projected additions at cost subsequent thereto.

APPENDIX IV

PORT SAID

SEWERAGE UTILITY

TABLE 2.1

PORT SAID SEWERAGE UTILITY

HISTORICAL AND PROPOSED CAPITAL IMPROVEMENT PROGRAM

Year	Major Projects Local LE 1000	Major Projects Foreign LE 1000	Major Projects Total LE 1000	Routine Projects LE 1000	Total LE 1000
			HISTORICAL		
1973					
1974	204		204		204
1975	328	542	870		870
1976	417	246	663		663
1977	246	80	326		326
1978	990		990		990
			PROPOSED[a]		
1979	1,235	196	1,431	13	1,444
1980	2,284	2,910	5,194	31	5,225
1981	9,656	3,833	13,489	131	13,620
1982	18,083	13,097	31,180	255	31,435
1983	2,106	299	2,405	390	2,795
1984	2,318	737	3,055	517	3,572
1985	3,062	628	3,690	568	4,258
1986	6,341	2,541	8,882	791	9,673
1987	4,301	577	4,878	835	5,713
1988	4,558	612	5,170	895	6,065
After 1988	76,545	16,987	93,532	17,167	110,699
Total, 1979-2000	130,489	42,417	172,906	21,593	194,499

(a) Adopted from Port Said Water and Wastewater Master Plan, Part II - Staged Development, Volume 3, Wastewater Facilities, Hazen & Sawyer, 1979.

TABLE 2.2

PORT SAID SEWERAGE UTILITY

PROPOSED DEBT SERVICE CHARGES FOR CONSTRUCTION COSTS

Year	Financed With Local Currency LE 1000	Financed With Foreign Currency LE 1000	Total LE 1000
1979	32	41	73
1980	90	88	178
1981	403	363	766
1982	908	658	1,566
1983	1,498	960	2,458
1984	1,998	1,267	3,265
1985	2,245	1,373	3,618
1986	3,196	1,883	5,079
1987	3,458	1,954	5,412
1988	3,849	2,039	5,888
1990	4,790	2,356	7,146
2000	10,061	3,497	13,558

TABLE 3.1

PORT SAID SEWERAGE UTILITY

PROJECTED POPULATION, CONNECTIONS AND SEWAGE FLOWS

Year	Population 1,000	Sewer Connections	Sewage Flows 1000 m3/d
		HISTORICAL	
1976	263		
1977	273		
1978	287	11,000[a]	36[a]
		PROJECTED	
1979	295	11,200	39
1980	306	11,500	42
1981	318	12,000	46
1982	330	12,500	50
1983	342	13,000	55
1984	356	13,500	60
1985	369	14,000	65
1986	383	14,600	71
1987	398	15,200	77
1988	414	16,000	83
1990	446	18,000	97
2000	650	26,000	177

[a] Estimated

TABLE 4.1

PORT SAID SEWERAGE UTILITY

REVENUES

Year	Operating Subsidy LE	Capital Subsidy LE	Miscellaneous Revenue(b) LE
	HISTORICAL		
1973	NA	NA	
1974	NA	NA	
1975	214,000	145,035	
1976	254,000	441,893	
1977	314,000	367,772	
1978	NA	542,175	
	PROJECTED		
1979	(a)	(a)	1,000
1980			2,000
1981			3,000
1982			4,000
1983			5,000
1984			6,000
1985			7,000
1986			8,000
1987			9,000
1988			10,000
1990			10,000
2000			10,000

NA Not available at date of preparation of report

(a) No projection of subsidies has been made. The amount will depend upon the level of revenues from tariffs.

(b) No record of miscellaneous revenue was available. Projected revenue recognizes the probability of such non operating revenue from sale of sludge, service to customers and similar sources.

TABLE 5.1

PORT SAID SEWERAGE UTILITY

OPERATION AND MAINTENANCE EXPENSE[a]

Year	Wages & Benefits LE	Electric Power LE	Supplies LE	Admin. Cost LE	Billing Expense LE	Total LE
			HISTORICAL			
1973						NA
1974	80,000	18,000	50,000			148,000
1975	112,000	22,000	80,000			214,000
1976	128,000	26,000	100,000			254,000
1977	160,000	32,000	117,000			309,000
1978	176,000	38,000	129,000			343,000
			PROJECTED			
1979	197,000	45,000	140,000			382,000
1980	222,000	54,000	150,000	22,000	9,000	457,000
1981	255,000	64,000	160,000	24,000	10,000	513,000
1982	290,000	77,000	170,000	27,000	11,000	575,000
1983	330,000	93,000	180,000	30,000	12,000	645,000
1984	375,000	110,000	190,000	34,000	13,000	722,000
1985	420,000	128,000	200,000	38,000	15,000	801,000
1986	460,000	148,000	215,000	42,000	17,000	882,000
1987	510,000	168,000	230,000	46,000	19,000	973,000
1988	560,000	188,000	245,000	50,000	21,000	1,064,000
1990	680,000	240,000	275,000	61,000	25,000	1,281,000
2000	1,600,000	700,000	400,000	138,000	60,000	2,898,000

NA - Not available

(a) No historical Record of Operation and Maintenance expense was available. All costs are estimated using experience of the Ismailia Sewerage Utility.

TABLE 5.2

PORT SAID SEWERAGE UTILITY

DEBT SERVICE CHARGES WITH COVERAGE REQUIREMENTS

Year	Debt Service LE 1000	Provision For Debt Coverage LE 1000	Total LE 1000
1979	73	13	86
1980	178	31	209
1981	766	131	897
1982	1,566	255	1,821
1983	2,458	390	2,848
1984	3,265	517	3,782
1985	3,618	568	4,186
1986	5,079	791	5,870
1987	5,412	835	6,247
1988	5,888	895	6,783
1990	7,146	1,068	8,214
2000	13,558	1,880	15,438

TABLE 5.3

PORT SAID SEWERAGE UTILITY

ESTIMATED DEPRECIATION EXPENSE

Year	Sewerage Plant in Service: Annual Additions LE 1000	Cumulative Balance(a) LE 1000	Land(b) LE 1000	Depreciable Balance LE 1000	Average Balance LE 1000	Depreciation Expense(c) LE 1000
1978		4,779	50	4,729		
1979	1,444	6,223	1,250	4,973	4,851	179
1980	5,225	11,448	1,250	10,198	7,585	281
1981	13,620	25,068	1,250	23,818	17,008	629
1982	31,435	56,503	1,250	55,253	39,535	1,463
1983	2,795	59,298	1,250	58,048	56,650	2,096
1984	3,572	62,870	1,250	61,620	59,834	2,214
1985	4,258	67,128	1,250	65,878	63,749	2,359
1986	9,673	76,801	1,250	75,551	70,714	2,616
1987	5,713	82,514	1,250	81,264	78,408	2,901
1988	6,065	88,579	1,250	87,329	84,296	3,118
1989 to 1990	23,783	112,362	1,250	111,112	105,166	3,891
1991 to 2000	86,916	199,278	1,250	198,028	193,682	7,166

(a) Based on estimated original cost at December 31, 1978 together with additions at cost subsequent thereto

(b) Estimated

(c) At average composite rate of depreciation of 3.7 percent

TABLE 5.4

PORT SAID SEWERAGE UTILITY

PROFORMA RETURN ON INVESTMENT

Year	Estimated Construction Cost LE 1000	Cumulative Balance (a) LE 1000	Allowance for Depreciation LE 1000	Net Plant in Service LE 1000	Required Return @ 6 Percent LE 1000
1978		7,753			
1979	1,444	9,197	289	8,908	534
1980	5,225	14,422	680	13,742	825
1981	13,620	28,042	1,419	26,623	1,597
1982	31,435	59,477	2,992	56,485	3,389
1983	2,795	62,272	5,198	57,074	3,424
1984	3,572	65,844	7,522	58,322	3,499
1985	4,258	70,102	9,991	60,111	3,607
1986	9,673	79,775	12,717	67,058	4,023
1987	5,713	85,488	15,728	69,760	4,186
1988	6,065	91,553	18,957	72,596	4,356
1990	23,783	115,336	26,573	88,763	5,326
2000	86,916	202,252	84,583	117,669	7,060

(a) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto.

TABLE 5.5

PORT SAID SEWERAGE UTILITY

COMPARATIVE SUMMARY OF REVENUE REQUIREMENTS

Year	Cash Basis				Utility Basis			
	Operation & Maintenance Expense LE 1000 (a)	Debt Service LE 1000 (b)	Routine Annual Improvements LE 1000 (c)	Total LE 1000	Operation & Maintenance Expense LE 1000 (a)	Depreciation Expense LE 1000 (d)	Return on Investment LE 1000 (e)	Total LE 1000
1979	382	73	13	468	382	179	534	1,095
1980	457	178	31	666	457	281	825	1,563
1981	513	766	131	1,410	513	629	1,597	2,739
1982	575	1,566	255	2,396	575	1,463	3,389	5,427
1983	645	2,458	390	3,493	645	2,096	3,424	6,165
1984	722	3,265	517	4,504	722	2,214	3,499	6,435
1985	801	3,618	568	4,987	801	2,359	3,607	6,767
1986	882	5,079	791	6,752	882	2,616	4,023	7,521
1987	973	5,412	835	7,220	973	2,901	4,186	8,060
1988	1,064	5,888	895	7,847	1,064	3,119	4,356	8,539
1990	1,281	7,146	1,068	9,495	1,281	3,891	5,326	10,498
2000	2,898	13,558	1,880	18,336	2,898	7,166	7,060	17,124

(a) Table 5.1
(b) Tables 2.2, 5.2
(c) Table 2.1
(d) Table 5.3
(e) Table 5.4

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TABLE 6.1

PORT SAID SEWERAGE UTILITY

TYPICAL SEWERAGE SYSTEM FACILITIES

1984 TEST YEAR

Plant components		
Preliminary treatment	50.0	1000 m^3 per day capacity
Primary sedimentation	.2	1000 m^2 surface area
Aeration	4.7	1000 liter per second blower capacity
Secondary Sedimentation	.2	1000 m^2 surface area
Primary sludge pumping	37.8	liters per second pumping capacity
Sludge disposal	726.0	1000 kg per year dry solids
Laboratory	50.0	1000 m^3 per day capacity
Administrative and general	50.0	1000 m^3 per day capacity
Sewage treatment	10 percent of total operating expense	
Sewage pumping	50 percent of total operating expense	
Sewage networks	30 percent of total operating expense	
Administration and billing	10 percent of total operating expense	

TABLE 6.2

PORT SAID SEWERAGE UTILITY

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total Operating Expense LE 1000	Volume Related Cost LE 1000	Strength Related Cost		Customer Cost LE 1000
			BOD LE 1000	Suspended Solids LE 1000	
Pumping Expense					
Electric Power	94	94			
Other	267	267			
Total Pumping Expense	361	361			
Networks Expense	217	87			130
Treatment and Disposal Expense					
Preliminary Treatment	9	9			
Primary Sedimentation	2	2			
Aeration	20		20		
Secondary Sedimentation	2	2			
Sludge Pumping	8			8	
Sludge Disposal	12		6	6	
Laboratory	10		5	5	
Others	9	2	4	3	
Total Treatment Expense	72	15	35	22	
Customer Billing and Accounting	13				13
Administrative and General Expense	59	39	3	2	15
Total Operation and Maintenance Expense	722	502	38	24	158

TABLE 6.3

PORT SAID SEWERAGE UTILITY

ALLOCATION OF CASH BASIS CAPITAL COSTS
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total LE 1000	Volume Related Cost LE 1000	Strength Related Cost		Customer Related Cost LE 1000
			BOD LE 1000	Suspended Solids LE 1000	
Pumping Plant	468	468			
Networks	2,269	908			1,361
Treatment and Disposal Plant					
Preliminary Treatment	77	77			
Primary Sedimentation	43	43			
Aeration	360		360		
Secondary Sedimentation	43	43			
Sludge Pumping	51			51	
Sludge Disposal	171		85	86	
Laboratory and Administration	86	19	51	16	
Workshops and Garages	26	6	16	4	
Total Treatment Plant	857	188	512	157	
General Plant	188	82	27	8	71
Total Capital Costs	3,782	1,646	539	165	1,432

TABLE 6.4

PORT SAID SEWERAGE UTILITY

ALLOCATION OF UTILITY BASIS CAPITAL
COSTS TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total LE 1000	Volume Related Cost LE 1000	Strength Related Cost BOD LE 1000	Strength Related Cost Suspended Solids LE 1000	Customer Related Cost LE 1000
Pumping Plant	788	788			
Networks	3,428	1,714			1,714
Treatment and Disposal Plant					
Preliminary Treatment	109	109			
Primary Sedimentation	61	61			
Aeration	509		509		
Secondary Sedimentation	61	61			
Sludge Pumping	73			73	
Sludge Disposal	242		121	121	
Laboratory and Administration	120	26	72	22	
Workshops and Garages	36	8	21	7	
Total Treatment Plant	1,211	265	723	223	
General Plant	286	146	38	12	90
Total Capital Costs	5,713	8,913	761	235	1,804

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TABLE 6.5

PORT SAID SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF CASH BASIS COST
OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Cash Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	502	1,646	2,148
Strength Related Cost			
BOD	38	539	577
Suspended Solids	24	165	189
Customer Related Cost	158	1,432	1,590
Total, Cash Basis Cost of Service	722	3,782	4,504

TABLE 6.6

PORT SAID SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF UTILITY BASIS
COST OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Utility Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	502	2,913	3,415
Strength Related Cost			
BOD	38	761	799
Suspended Solids	24	235	259
Customer Related Cost	158	1,804	1,962
Total, Utility Basis Cost of Service	722	5,713	6,435

TABLE 7.1

PORT SAID SEWERAGE UTILITY

UNITS OF SERVICE

1984 TEST YEAR

Customer Class		Sewage Volume Units 1,000m3	Strength Units BOD 1,000kg	Strength Units Suspended Solids 1,000kg	Customer Units Equivalent Meters	Customer Units Bills
Domestic Sewage		12,436	4,232	3,749	14,300	49,600
Infiltration	(a)	1,849	629	557		
Total Domestic		14,285	4,861	4,306		
Industrial Sewage		2,935	999	885	1,000	1,600
Infiltration	(a)	134	46	40		
Total Industrial		3,069	1,045	925		
Other Sewage		3,888	1,360	1,206	5,100	9,000
Infiltration	(a)	658	224	199		
Total Other		4,546	1,584	1,405		
Grand Total		21,900	7,490	6,636	20,400	60,200

(a) Allocation of infiltration based on number of equivalent meters

TABLE 7.2

PORT SAID SEWERAGE UTILITY

CASH BASIS REVENUE REQUIREMENTS
UNIT COSTS OF SERVICE

1984 TEST YEAR

	Total	Volume Related Costs	Strength Related Costs		Customer Related Costs
			BOD	Suspended Solids	
		1,000m3	1,000kg	1,000kg	Bills
NUMBER OF UNITS		21,900	7,490	6,636	60,200
COST OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	722,000	502,000	38,000	24,000	158,000
Unit Cost		22.92	5.07	3.62	2.62
Capital Cost					
Total Cost	3,782,000	1,646,000	539,000	165,000	1,432,000
Unit Cost		75.16	71.96	24.86	23.79
Total Unit Cost		98.08/ 1000m3	77.03/ 1000kg	28.48/ 1000kg	26.41/ Bill

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TABLE 7.3

PORT SAID SEWERAGE UTILITY

UNIT COSTS OF SERVICE
UTILITY BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

	Total	Volume Related Costs 1,000m3	Strength Related Costs BOD 1,000kg	Strength Related Costs Suspended Solids 1,000kg	Customer Related Costs Bills
NUMBER OF UNITS		21,900	7,490	6,636	60,200
COST OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	722,000	502,000	38,000	24,000	158,000
Unit Cost		22.92	5.07	3.62	2.62
Capital Cost					
Total Cost	5,713,000	2,913,000	761,000	235,000	1,804,000
Unit Cost		133.01	101.60	35.41	29.97
Total Unit Cost		155.93/ 1000m3	106.67/ 1000kg	39.03/ 1000kg	32.59/ Bill

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TABLE 7.4

PORT SAID SEWERAGE UTILITY

CASH BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE1000	Strength Related Cost BOD LE1000	Strength Related Cost Suspended Solids LE1000	Customer Cost LE1000	Total Allocated Cost of Service LE1000
Domestic	1,401	374	123	1,310	3,208
Industrial	301	80	26	41	448
Commercial and Institutional	446	123	40	239	848
All Customers	2,148	577	189	1,590	4,504

Note: Values are obtained by multiplying Customer Class Units of Service, Table 7.1 by Cash Basis Unit Costs of Service, Table 7.2 (i.e. Domestic Volume, 14,285 x Volume Unit Cost, LE 98.08 = LE 1,401,000)

TABLE 7.5

PORT SAID SEWERAGE UTILITY

UTILITY BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE1000	Strength Related Cost: BOD LE1000	Strength Related Cost: Suspended Solids LE1000	Customer Cost LE1000	Total Allocated Cost of Service LE1000
Domestic	2,227	519	168	1,616	4,530
Industrial	479	111	36	52	678
Commercial and Institutional	709	169	55	294	1,227
All Customers	3,415	799	259	1,962	6,435

Note: Values are obtained by Multiplying Customer Class Units of Service, Table 7.1 by Utility Basis Unit Costs of Service, Table 7.3 (i.e. Domestic Volume, 14,285 x Volume unit Cost, LE 155.93 = LE 2,227,000).

TABLE 8.1

PORT SAID SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILL ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to All Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 50 cubic meters	0.003	0.005	0.010	0.015	0.020
Next 50 cubic meters	0.012	0.020	0.040	0.060	0.080
Next 100 cubic meters	0.026	0.060	0.095	0.135	0.170
Next 800 cubic meters	0.032	0.075	0.115	0.170	0.210
Next 9,000 cubic meters	0.038	0.088	0.140	0.200	0.250
Over 10,000 cubic meters	0.045	0.105	0.165	0.240	0.300
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.750	1.150	1.500
Non Domestic Customers					

See next page

TABLE 8.1 (Continued)

PORT SAID SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILL ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Service Charge					
Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	0.780	1.800	2.850	4.100	5.150
25	1.000	2.300	3.600	5.300	6.600
30	1.150	2.650	4.150	6.000	7.500
40	1.300	3.000	4.700	6.800	8.500
50	2.100	4.900	7.700	11.200	14.000
80	7.800	18.000	29.000	42.000	52.000
100	9.900	23.000	36.000	53.000	66.000
200	20.000	47.000	75.000	110.000	135.000
300	35.000	85.000	135.000	195.000	250.000
INDUSTRIAL SURCHARGE					
BOD Charge per kg for strengths in excess of 300 mg/l	0.012	0.027	0.042	0.062	0.077
Suspended Solids Charge per kg for strengths in excess of 300 mg/l	0.004	0.010	0.016	0.023	0.029

100

TABLE 8.2

PORT SAID SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
DOMESTIC	
Volume Charge	
Charge per cubic meter of measured or estimated water use per billing period	0.110
Service Charge	
Charge per living unit per billing period	10.500
NON DOMESTIC	
Volume Charge	
Charge per cubic meter of measured or estimated water use per billing period	
Commercial and Institutional	0.110
Industrial	0.110
Service Charge	
Charge per connection per billing period based on water meter size	
Meter Size mm	
20 and under	19.000
25	24.000
30	27.000
40	31.000
50	50.000
80	185.000
100	240.000
150	400.000
200	550.000
300	900.000

TABLE 8.2 (Continued)

PORT SAID SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
INDUSTRIAL SURCHARGE	
BOD Charge per kg for strengths in excess of 300 mg/l	0.077
Suspended Solids Charge per kg for strengths in excess of 300 mg/l	0.029

TABLE 8.3

PORT SAID SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
DOMESTIC	
Flat rate per room per billing period	10.900
NON DOMESTIC	
Volume Charge Charge per cubic meter for all measured or estimated water use per billing period	
Commercial and Institutional	0.110
Industrial	0.110
Service Charge Charge per connection per billing period based on water meter size	
Meter Size mm	
20 and Under	19.000
25	24.000
30	27.000
40	31.000
50	50.000
80	185.000
100	240.000
150	360.000
200	500.000
300	900.000

TABLE 8.3 (Continued)

PORT SAID SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
INDUSTRIAL SURCHARGE	
BOD Charge per kg for strengths in excess of 500 mg/l	0.077
Suspended Solids Charge per kg for strengths in excess of 500 mg/l	0.029

TABLE 8.4

PORT SAID SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to All Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 50 cubic meters	0.003	0.005	0.010	0.015	0.020
Next 50 cubic meters	0.012	0.020	0.040	0.060	0.080
Next 100 cubic meters	0.035	0.075	0.120	0.175	0.220
Next 800 cubic meters	0.045	0.105	0.165	0.240	0.300
Next 9,000 cubic meters	0.050	0.120	0.190	0.280	0.350
Over 10,000 cubic meters	0.065	0.150	0.230	0.335	0.420
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.750	1.150	1.500
Non Domestic Customers					

See next page

TABLE 8.4 (Continued)

PORT SAID SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Service Charge					
Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	3.000	7.000	11.000	16.000	20.000
25	4.000	9.000	14.000	20.000	25.000
30	4.500	10.000	16.000	24.000	30.000
40	5.000	12.000	19.000	28.000	35.000
50	9.000	21.000	33.000	48.000	60.000
80	36.000	84.000	130.000	190.000	240.000
100	40.000	100.000	150.000	225.000	280.000
150	65.000	145.000	230.000	335.000	420.000
200	85.000	200.000	320.000	465.000	580.000
300	145.000	335.000	530.000	770.000	960.000
INDUSTRIAL SURCHARGE					
BOD Charge per kg for strengths in excess of 300 mg/l	0.017	0.038	0.060	0.088	0.110
Suspended Solids Charge per kg for strengths in excess of 300 mg/l	0.006	0.014	0.022	0.032	0.040

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TABLE 8.5

PORT SAID SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT RECOMMENDED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Recommended Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	3,208	2,606	81.2
Industrial	448	832	185.9
Commercial and Institutional	848	1,130	133.2
Total	4,504	4,568	101.4

(a) Based On Cash Basis Revenue Requirements

(b) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.6

PORT SAID SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	3,208	3,185	99.3
Industrial	448	452	100.8
Commercial and Institutional	848	852	100.4
Total	4,504	4,489	99.7

(a) Based On Cash Basis Revenue Requirements

(b) At Proposed Service Charge - Volume Charge Rates, Table 8.2

TABLE 8.7

PORT SAID SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	3,208	3,215	100.2
Industrial	448	452	100.8
Commercial and Institutional	848	852	100.4
Total	4,504	4,519	100.3

(a) Based On Cash Basis Revenue Requirements

(b) At Proposed Combined Flat Rate applicable to Domestic Customers and Service Charge - Volume Charge Rates applicable to Non Domestic Customers, Table 8.3

TABLE 8.8

PORT SAID SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1954 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	4,530	3,413	75.3
Industrial	678	1,213	178.9
Commercial and Institutional	1,227	1,848	150.6
Total	6,435	6,474	100.6

(a) Based On Utility Basis Revenue Requirements

(b) At Proposed "Ability to Pay" Rates, Table 8.4

TABLE 8.9

PORT SAID SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
CASH BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Recommended Rates(a) LE 1000	Required Subsidy LE 1000
1980	666	480	186
1981	1,410	1,227	183
1982	2,396	2,093	303
1983	3,493	3,351	142
1984	4,504	4,568	None

(a) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.10

PORT SAID SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
UTILITY BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Proposed Rates(a) LE 1000	Required Subsidy LE 1000
1980	1,563	680	883
1981	2,739	1,738	1,001
1982	5,427	2,966	2,461
1983	6,165	4,749	1,416
1984	6,435	6,474	None

(a) At Proposed "Ability to Pay" Rates, Table 8.4

TABLE 10.1

PORT SAID SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	480	1,227	2,093	3,351	4,568	4,987	6,752	7,220	7,847	9,495	18,336
OPERATING EXPENSE											
Operation and maintenance expense	457	513	575	645	722	801	882	973	1,064	1,281	2,898
Depreciation expense	281	629	1,463	2,096	2,214	2,359	2,616	2,901	3,119	3,891	7,166
Total Operating Expense	738	1,142	2,038	2,741	2,936	3,160	3,498	3,874	4,183	5,172	10,064
Net Operating Income	(258)	85	55	610	1,632	1,827	3,254	3,346	3,664	4,323	8,272
NON OPERATING INCOME	2	3	4	5	6	7	8	9	10	10	10
Gross Income	(256)	88	59	615	1,638	1,834	3,262	3,355	3,674	4,333	8,282
INCOME DEDUCTIONS											
Interest expense	178	766	1,566	2,458	3,086	3,428	3,676	3,924	4,161	4,565	6,921
Net Income (Loss)	(434)	(678)	(1,507)	(1,843)	(1,448)	(1,594)	(414)	(569)	(487)	(532)	1,361
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	13.7	26.6	56.6	57.1	58.3	60.1	67.1	69.8	72.6	88.8	117.7
Return on Investment- %[c]		0.3	0.1	1.1	2.8	3.0	4.8	4.8	5.0	4.9	7.0

(a) Based on Cash Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Utility Plant in Service.

TABLE 10.2

PORT SAID SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	680	1,738	2,966	4,749	6,474	6,767	7,521	8,060	8,539	10,498	17,124
OPERATING EXPENSE											
Operation and maintenance expense	457	513	575	645	722	801	882	973	1,064	1,281	2,898
Depreciation expense	281	629	1,463	2,096	2,214	2,359	2,616	2,901	3,119	3,891	7,166
Total Operating Expense	738	1,142	2,038	2,741	2,936	3,160	3,498	3,874	4,183	5,172	10,064
Net Operating Income	(58)	596	928	2,008	3,538	3,607	4,023	4,186	4,356	5,326	7,060
NON OPERATING INCOME	2	3	4	5	6	7	8	9	10	10	10
Gross Income	(56)	599	932	2,013	3,544	3,614	4,031	4,195	4,366	5,336	7,070
INCOME DEDUCTIONS											
Interest expense	178	766	1,566	2,458	3,086	3,428	3,676	3,924	4,161	4,865	6,921
Net Income (Loss)	(234)	(167)	(634)	(445)	458	186	355	271	205	471	149
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	13.7	26.6	56.6	57.1	58.3	60.1	67.1	69.8	72.6	88.8	117.7
Return on Investment- %[c]		2.2	1.6	3.5	6.1	6.0	6.0	6.0	6.0	6.0	6.0

(a) Based on Utility Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Utility Plant in Service.

TABLE 10.3

PORT SAID SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	(258)	85	55	610	1,632	1,827	3,254	3,346	3,664	4,323	8,272
Depreciation Expense	281	629	1,463	2,096	2,214	2,359	2,616	2,901	3,119	3,891	7,166
Sub total	23	714	1,518	2,706	3,846	4,186	5,870	6,247	6,783	8,214	15,438
Non Operating Income	2	3	4	5	6	7	8	9	10	10	10
Operating Subsidy	186	183	303	142							
Total Available Operating Fund	211	900	1,825	2,853	3,852	4,193	5,878	6,256	6,793	8,224	15,448
APPLICATION OF FUNDS											
Routine Improvements	31	131	255	390	517	568	791	835	895	1,068	1,880
Debt Service Charges											
Interest	178	766	1,566	2,458	3,086	3,428	3,676	3,924	4,161	4,865	6,921
Principal					179	190	1,403	1,488	1,727	2,281	6,637
Total Debt Service	178	766	1,566	2,458	3,265	3,618	5,079	5,412	5,888	7,146	13,558
Total Application of Operating Fund	209	897	1,821	2,848	3,782	4,186	5,870	6,247	6,783	8,214	15,438
Net Operating Fund Change	2	3	4	5	70	7	8	9	10	10	10

(a) Based on revenues from sewerage user charges computed on Cash Basis Revenue Requirements.

TABLE 10.4

PORT SAID SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	(58)	596	928	2,008	3,538	3,607	4,023	4,186	4,356	5,326	7,060
Depreciation Expense	281	629	1,463	2,096	2,214	2,359	2,616	2,901	3,119	3,891	7,116
Sub total	223	1,225	2,391	4,104	5,752	5,966	6,639	7,087	7,475	9,217	14,226
Non Operating Income	2	3	4	5	6	7	8	9	10	10	10
Operating Subsidy	883	1,001	2,461	1,416							
Total Available Operating Fund	1,108	2,229	4,856	5,525	5,758	5,973	6,647	7,096	7,485	9,227	14,236
APPLICATION OF FUNDS											
Routine Improvements	31	131	255	390	517	568	791	835	895	1,068	1,880
Debt Service Charges											
Interest	178	766	1,566	2,458	3,086	3,428	3,676	3,924	4,161	4,865	6,921
Principal					179	190	1,403	1,488	1,727	2,281	6,637
Total Debt Service	178	766	1,566	2,458	3,265	3,618	5,079	5,412	5,888	7,146	13,558
Total Application of Operating Fund	209	897	1,821	2,848	3,782	4,186	5,870	6,247	6,783	8,214	15,438
Net Operating Fund Change	899	1,332	3,035	2,677	[illegible],976	1,787	777	849	702	1,013	(1,202)

(a) Based on revenues from sewerage user charges computed on Utility Basis Revenue Requirements.

TABLE 10.5

PORT SAID SEWERAGE UTILITY

PROFORMA BALANCE SHEET

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
ASSETS											
Utility Plant in Service[a]	11,448	25,068	56,503	59,298	62,870	67,128	76,801	82,514	88,579	112,362	199,278
Accumulated Provision for Depreciation	2,582	3,211	4,674	6,770	8,987	11,343	13,959	16,860	19,978	27,373	84,283
Net Utility Plant in Service	8,866	21,857	51,829	52,528	53,883	55,785	62,842	65,654	68,601	84,989	114,995
Current Assets											
Cash	57	64	72	80	90	100	110	122	133	160	362
Accounts Receivable	167	352	599	873	1,126	1,247	1,688	1,805	1,962	2,374	4,584
Material and Supplies	75	80	85	90	95	100	108	115	123	138	200
Total Current Assets	299	496	756	1,043	1,311	1,447	1,906	2,042	2,218	2,672	5,146
Total Assets	9,165	22,353	52,585	53,571	55,194	57,232	64,748	67,696	70,819	87,661	120,141
LIABILITIES AND EQUITY											
Port Said Sewerage Utility Equity Capital	2,464	2,153	1,195	(235)	(1,501)	(2,977)	(2,953)	(3,410)	(3,745)	(4,590)	(603)
Long Term Debt	6,625	20,114	51,294	53,698	56,575	60,075	67,554	70,944	74,387	92,037	120,261
Current Liabilities											
Accounts Payable	76	86	96	108	120	134	147	162	177	214	483
Total Liabilities and Equity	9,165	22,353.	52,585	53,571	55,194	57,232	64,748	67,696	70,819	87,661	120,141

(a) Based on Original Cost at December 31, 1978 and projected additions at cost subsequent thereto.

APPENDIX V

SUEZ

SEWERAGE UTILITY

TABLE 2.1

SUEZ SEWERAGE UTILITY

HISTORICAL AND PROPOSED CAPITAL IMPROVEMENT PROGRAM

Year	Major Projects Local LE 1000	Major Projects Foreign LE 1000	Major Projects Total LE 1000	Routine Projects LE 1000	Total LE 1000
			HISTORICAL		
1973					
1974	307		307		307
1975	290	457	747		747
1976	444	161	605		605
1977	150	79	229		229
1978	308		308		308
			PROPOSED[a]		
1979	729	167	896	23	919
1980	8,879	4,125	13,004	56	13,060
1981	18,922	6,650	25,572	160	25,732
1982	17,102	4,840	21,942	290	22,232
1983	21,341	2,652	23,993	449	24,442
1984	11,965	472	12,437	654	13,091
1985	8,535	4,656	13,191	799	13,990
1986	23,707	2,949	26,656	1,108	27,764
1987	28,694	1,167	29,861	1,258	31,119
1988	12,249	2,341	14,590	1,514	16,104
After 1988	64,105	5,713	69,818	27,996	97,814
Total 1979-2000	216,228	35,732	251,960	34,307	286,267

(a) Adopted from Suez Water and Wastewater Facilities Master Plan Draft Report - Wastewater, Pirnie-Harris International, 1979

TABLE 2.2

SUEZ SEWERAGE UTILITY

PROPOSED DEBT SERVICE CHARGES FOR CONSTRUCTION COSTS

Year	Financed With Local Currency LE 1000	Financed With Foreign Currency LE 1000	Total LE 1000
1979	87	57	144
1980	246	122	368
1981	744	345	1,089
1982	1,468	572	2,040
1983	2,445	816	3,261
1984	3,736	1,119	4,855
1985	4,734	1,304	6,038
1986	6,670	1,763	8,433
1987	7,720	1,943	9,663
1988	9,713	2,173	11,886
1990	12,604	2,611	15,215
2000	18,709	3,059	21,768

TABLE 3.1

SUEZ SEWERAGE UTILITY

PROJECTED POPULATION, CONNECTIONS AND SEWAGE FLOWS

Year	Population 1,000	Sewer Connections	Sewage Flows 1000 m3/d
		HISTORICAL	
1976	194		
1977	208		
1978	222	10,000[a]	30[a]
		PROJECTED	
1979	238	10,500	33
1980	255	11,000	36
1981	273	11,600	40
1982	292	12,200	45
1983	313	12,800	50
1984	335	13,400	56
1985	359	14,000	63
1986	384	15,200	71
1987	411	16,400	79
1988	440	17,600	87
1990	505	20,200	105
2000	1,000	40,000	282

[a] Estimated

TABLE 4.1

SUEZ SEWERAGE UTILITY

REVENUES

Year	Operating Subsidy LE	Capital Subsidy LE	Miscellaneous Revenues(b) LE
	HISTORICAL		
1973	NA	NA	
1974	NA	NA	
1975	136,000	444,996	
1976	140,000	268,069	
1977	150,000	247,002	
1978	NA	307,792	
	PROJECTED		
1979	(a)	(a)	1,000
1980			2,000
1981			3,000
1982			4,000
1983			5,000
1984			6,000
1985			7,000
1986			8,000
1987			9,000
1988			10,000
1990			10,000
2000			10,000

NA Not available at date of preparation of report

(a) No projection of subsidies has been made. The amount will depend upon the level of revenues from tariffs.

(b) No record of miscellaneous revenues was available. Projected revenue recognizes the probability of such non operating revenue from sale of sludge, service to customers and similar sources

TABLE 5.1

SUEZ SEWERAGE UTILITY

OPERATION AND MAINTENANCE EXPENSE

Year	Wages & Benefits LE	Electric Power LE	Supplies LE	Admin. Cost LE	Billing Expense LE	Total LE
			HISTORICAL[a]			
1973						NA
1974						NA
1975	115,000	15,000	6,000			136,000
1976	115,000	19,000	6,000			140,000
1977	115,000	25,000	10,000			150,000
1978	128,000	31,000	20,000			179,000
			PROJECTED			
1979	148,000	37,000	35,000			220,000
1980	170,000	45,000	40,000	16,000	8,000	279,000
1981	197,000	55,000	46,000	18,000	9,000	325,000
1982	230,000	68,000	54,000	21,000	10,000	383,000
1983	265,000	83,000	62,000	25,000	12,000	447,000
1984	414,000	301,000	151,000	29,000	14,000	909,000
1985	459,000	355,000	173,000	33,000	16,000	1,036,000
1986	527,000	423,000	203,000	38,000	18,000	1,209,000
1987	596,000	495,000	235,000	43,000	20,000	1,389,000
1988	667,000	569,000	267,000	49,000	22,000	1,574,000
1990	840,000	759,000	347,000	62,000	28,000	2,036,000
2000	2,740,000	3,316,000	1,350,000	220,000	90,000	7,716,000

NA Not Available

(a) No historical record of operation and maintenance expense was available. All costs are estimated using experience of Ismailia Sewerage Utility.

TABLE 5.2

SUEZ SEWERAGE UTILITY

DEBT SERVICE CHARGES WITH COVERAGE REQUIREMENTS

Year	Debt Service LE 1000	Provision For Debt Coverage LE 1000	Total LE 1000
1979	144	23	167
1980	368	56	424
1981	1,089	160	1,249
1982	2,040	290	2,330
1983	3,261	449	3,710
1984	4,855	654	5,509
1985	6,038	799	6,837
1986	8,433	1,108	9,541
1987	9,663	1,258	10,921
1988	11,886	1,514	13,400
1990	15,215	1,913	17,128
2000	21,768	2,636	24,404

TABLE 5.3

SUEZ SEWERAGE UTILITY

ESTIMATED DEPRECIATION EXPENSE

Year	Sewerage Plant In Service: Annual Additions LE 1000	Cumulative Balance[a] LE 1000	Land[b] LE 1000	Depreciable Balance LE 1000	Average Balance LE 1000	Depreciation Expense[c] LE 1000
1978		4,133				
1979	919	5,052		5,052	4,592	165
1980	13,060	18,112	811	17,301	11,176	402
1981	25,732	43,844	811	43,033	30,167	1,086
1982	22,223	66,067	811	65,256	54,145	1,949
1983	24,442	90,509	811	89,698	77,477	2,789
1984	13,091	103,600	1,545	102,055	95,877	3,452
1985	13,990	117,590	1,545	116,045	109,050	3,926
1986	27,764	145,354	1,545	143,809	129,927	4,677
1987	31,119	176,473	1,545	174,928	159,368	5,737
1988	16,104	192,577	1,545	191,032	182,980	6,587
1989 to 1990	33,041	225,618	1,545	224,073	215,813	7,769
1991 to 2000	64,782	290,400	1,545	288,855	285,616	10,282

(a) Based on estimated original cost at December 31, 1978 together with additions at cost subsequent thereto

(b) Estimated

(c) At average composite rate of depreciation of 3.6 percent

TABLE 5.4

SUEZ SEWERAGE UTILITY

PROFORMA RETURN ON INVESTMENT

Year	Estimated Construction Cost LE 1000	Cumulative Balance (a) LE 1000	Allowance For Depreciation LE 1000	Net Plant in Service LE 1000	Required Return @ 6 Percent LE 1000
1978		8,885			
1979	919	9,804	336	9,468	568
1980	13,060	22,864	573	22,291	1,337
1981	25,732	48,596	2,166	46,430	2,786
1982	22,223	70,819	4,286	66,533	3,992
1983	24,442	95,261	7,246	88,015	5,281
1984	13,091	108,352	10,869	97,483	5,849
1985	13,990	122,342	14,966	107,376	6,443
1986	27,764	150,106	19,814	130,292	7,817
1987	31,119	181,225	25,722	155,503	9,330
1988	16,104	197,329	32,480	164,849	9,890
1990	33,041	230,370	47,769	182,601	10,956
2000	64,782	295,152	140,990	154,162	9,250

(a) Based on RCLD at December 31, 1978 together with Additions At cost subsequent thereto and an allowance for Depreciation.

TABLE 5.5

SUEZ SEWERAGE UTILITY

COMPARATIVE SUMMARY OF REVENUE REQUIREMENTS

Year	Operation & Maintenance Expense LE 1000	Debt Service LE 1000	Routine Annual Improvements LE 1000	Total LE 1000	Operation & Maintenance Expense LE 1000	Depreciation Expense LE 1000	Return on Investment LE 1000	Total LE 1000
	(a)	(b)	(c)		(a)	(b)	(c)	
1979	220	144	23	387	220	165	568	953
1980	279	368	56	703	279	402	1,337	2,018
1981	325	1,089	160	1,574	325	1,086	2,786	4,197
1982	383	2,040	290	2,713	383	1,949	3,992	6,324
1983	447	3,261	449	4,157	447	2,769	5,281	8,517
1984	909	4,855	654	6,418	909	3,452	5,849	10,210
1985	1,036	6,038	799	7,873	1,036	3,926	6,443	11,405
1986	1,209	8,433	1,108	10,750	1,209	4,677	7,817	13,703
1987	1,389	9,663	1,258	12,310	1,389	5,737	9,330	16,456
1988	1,574	11,886	1,514	14,974	1,574	6,587	9,890	18,051
1990	2,036	15,215	1,913	19,164	2,036	7,769	10,956	20,761
2000	7,716	21,768	2,636	32,120	7,716	10,282	9,250	27,248

(a) Table 5.1
(b) Table 2.2,5.2
(c) Table 2.1
(d) Table 5.3
(e) Table 5.4

TABLE 5.1

SUEZ SEWERAGE UTILITY

TYPICAL SEWERAGE SYSTEM FACILITIES

1984 TEST YEAR

Plant components		
Preliminary treatment	50.0	1000 m^3 per day capacity
Primary sedimentation	.2	1000 m^2 surface area
Aeration	4.7	1000 liter per second blower capacity
Secondary sedimentation	.2	1000 m^2 surface area
Primary sludge pumping	37.8	liters per second pumping capacity
Sludge disposal	726.0	1000 kg per year dry solids
Laboratory	50.0	1000 m^3 per day capacity
Administrative and general	50.0	1000 m^3 per day capacity
Sewage treatment	10 percent of total Operating expense	
Sewage pumping	45 percent of total Operating expense	
Sewage networks	35 percent of total Operating expense	
Administration and billing	10 percent of total Operating expense	

TABLE 6.2

SUEZ SEWERAGE UTILITY

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total Operating Expense LE 1000	Volume Related Cost LE 1000	Strength Related Cost: BOD LE 1000	Strength Related Cost: Suspended Solids LE 1000	Customer Cost LE 1000
Pumping Expense					
Electric Power	102	102			
Other	130	130			
Total Pumping Expense	232	232			
Networks Expense	180	72			108
Treatment and Disposal Expense					
Preliminary Treatment	54	54			
Primary Sedimentation	13	13			
Aeration	135		135		
Secondary Sedimentation	13	13			
Sludge Pumping	49			49	
Sludge Disposal	71		36	35	
Laboratory	58		29	29	
Others	53		26	27	
Total Treatment Expense	446	80	226	140	
Customer Billing and Accounting	14				14
Administrative and General Expense	37	16	10	6	5
Total Operation and Maintenance Expense	909	400	236	146	127

TABLE 6.3

SUEZ SEWERAGE UTILITY

ALLOCATION OF CASH BASIS CAPITAL COSTS
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total	Volume Related Cost	Strength Related Cost		Customer Related Cost
			BOD	Suspended Solids	
	LE 1000	LE 1000	LE 1000	LE 1000	LE 1000
Pumping Plant	1,279	1,279			
Networks	3,072	1,229			1,843
Treatment and Disposal Plant					
Preliminary Treatment	74	74			
Primary Sedimentation	41	41			
Aeration	348		348		
Secondary Sedimentation	41	41			
Sludge Pumping	50			50	
Sludge Disposal	165		83	82	
Laboratory and Administration	83	18	50	15	
Workshops and Garages	25	5	15	5	
Total Treatment Plant	827	179	496	152	
General Plant	331	172	32	10	117
Total Capital Costs	5,509	2,859	528	162	1,960

TABLE 6.4

SUEZ SEWERAGE UTILITY

ALLOCATION OF UTILITY BASIS CAPITAL COSTS
TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

	Total LE 1000	Volume Related Cost LE 1000	Strength Related Cost BOD LE 1000	Strength Related Cost Suspended Solids LE 1000	Customer Related Cost LE 1000
Pumping Plant	2,325	2,325			
Networks	4,650	1,860			2,790
Treatment and Disposal Plant					
Preliminary Treatment	167	167			
Primary Sedimentation	93	93			
Aeration	783		783		
Secondary Sedimentation	93	93			
Sludge Pumping	112			112	
Sludge Disposal	372		186	186	
Laboratory and Administration	186	40	112	34	
Workshops and Garages	55	12	33	10	
Total Treatment Plant	1,861	405	1,114	342	
General Plant	465	245	55	19	146
Total Capital Costs	9,301	4,835	1,169	361	2,936

TABLE 6.5

SUEZ SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF CASH BASIS COST OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Cash Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	400	2,859	3,259
Strength Related Cost			
BOD	236	528	764
Suspended Solids	146	162	308
Customer Related Cost	127	1,960	2,087
Total, Cash Basis Cost of Service	909	5,509	6,418

TABLE 6.6

SUEZ SEWERAGE UTILITY

SUMMARY OF ALLOCATION OF UTILITY BASIS COST OF SERVICE TO FUNCTIONAL COST COMPONENTS

1984 TEST YEAR

Cost Component	Operation and Maintenance Expense LE 1000	Utility Basis Capital Related Costs LE 1000	Total LE 1000
Volume Related Cost	400	4,835	5,235
Strength Related Cost			
BOD	236	1,169	1,405
Suspended Solids	146	361	507
Customer Related Cost	127	2,936	3,063
Total, Utility Basis Cost of Service	909	9,301	10,210

TABLE 7.1

SUED SEWERAGE UTILITY

UNITS OF SERVICE

1984 TEST YEAR

Customer Class		Sewage Volume Units 1,000m3	Strength Units BOD 1,000kg	Strength Units Suspended Solids 1,000kg	Customer Units Equivalent Meters	Customer Units Bills
Domestic Sewage	(a)	12,315	3,236	3,659	14,500	52,200
Infiltration		2,166	569	643		
Total Domestic		14,481	3,805	4,302		
Industrial Sewage	(a)	1,661	436	494	300	300
Infiltration		47	12	14		
Total Industrial		1,708	448	508		
Other Sewage	(a)	3,864	959	1,084	2,600	3,600
Infiltration		387	102	115		
Total Other		4,251	1,061	1,199		
Grand Total		20,440	5,314	6,009	17,400	56,100

(a) Infiltration allocated on the basis of the number of equivalent meters

TABLE 7.2

SUEZ SEWERAGE UTILITY

CASH BASIS REVENUE REQUIREMENTS
UNIT COSTS OF SERVICE

1984 TEST YEAR

	Total	Volume Related Costs 1,000m3	Strength Related Costs BOD 1,000kg	Strength Related Costs Suspended Solids 1,000kg	Customer Related Costs Bills
NUMBER OF UNITS		20,440	5,314	6,009	56,100
COST OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	909,000	400,000	236,000	146,000	127,000
Unit Cost		19.57	44.41	24.30	2.26
Capital Cost					
Total Cost	5,509,000	2,859,000	528,000	162,000	1,960,000
Unit Cost		139.87	99.36	26.96	34.94
Total Unit Cost		159.44/ 1000m3	143.77/ 1000kg	51.26/ 1000kg	37.20/ Bill

TABLE 7.3

SUEZ SEWERAGE UTILITY

UTILITY BASIS REVENUE REQUIREMENTS
UNIT COSTS OF SERVICE

1984 TEST YEAR

	Total	Volume Related Costs	Strength Related Costs		Customer Related Costs
			BOD	Suspended Solids	
		1,000m3	1,000kg	1,000kg	Bills
NUMBER OF UNITS		20,440	5,314	6,009	56,100
COST OF SERVICE	LE	LE	LE	LE	LE
Operation & Maintenance Expense					
Total Cost	909,000	400,000	236,000	146,000	127,000
Unit Cost		19.570	44.410	24.300	2.260
Capital Cost					
Total Cost	9,301	4,835,000	1,169,000	361,000	2,936,000
Unit Cost		236.540	219.980	60.080	52.340
Total Unit Cost		256.110/ 1000m3	264.390/ 1000kg	84.380/ 1000kg	54.600/ Bill

TABLE 7.4

SUEZ SEWERAGE UTILITY

CASH BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE 1000	Strength Related Cost: BOD LE 1000	Strength Related Cost: Suspended Solids LE 1000	Customer Cost LE 1000	Total Allocated Cost of Service LE 1000
Domestic	2,309	547	221	1,943	5,020
Industrial	272	64	26	12	374
Commercial and Institutional	678	153	61	132	1,024
All Customers	3,259	764	308	2,087	6,418

Note: Values are obtained by multiplying customer class units of Service, Table 7.1 by Cash Basis Unit Costs of Service, Table 7.2 (i.e Domestic Volume Units, 14,481 x Volume Unit Cost, LE 159.44 = LE 2,309,000).

TABLE 7.5

SUEZ SEWERAGE UTILITY

UTILITY BASIS COST OF SERVICE ALLOCATED TO CUSTOMER CLASSES

1984 TEST YEAR

Customer Classes	Volume Cost LE 1000	Strength Related Cost: BOD LE 1000	Strength Related Cost: Suspended Solids LE 1000	Customer Cost LE 1000	Total Allocated Cost of Service LE 1000
Domestic	3,709	1,006	363	2,852	7,930
Industrial	437	118	43	18	616
Commercial and Institutional	1,089	281	101	193	1,664
All Customers	5,235	1,405	507	3,063	10,201

Note: Values are obtained by multiplying Customer Class Units of Service, Table 7.1 by Utility Basis Unit Costs of Service, Table 7.3 (i.e. Domestic Volume Units, 14,481 x Volume Unit Cost, LE 256.10 = LE 3,709,000

TABLE 8.1

SUEZ SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to All Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 50 cubic meters	0.003	0.005	0.010	0.015	0.020
Next 50 cubic meters	0.012	0.020	0.040	0.060	0.080
Next 100 cubic meters	0.056	0.112	0.168	0.224	0.280
Next 800 cubic meters	0.068	0.136	0.204	0.272	0.340
Next 9,000 cubic meters	0.080	0.160	0.240	0.320	0.400
Over 10,000 cubic meters	0.090	0.180	0.270	0.360	0.450
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.750	1.150	1.500
Non Domestic Customers					
See next page					

TABLE 8.1 (Continued)

SUEZ SEWERAGE UTILITY

RECOMMENDED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON CASH BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Service Charge					
Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	0.750	1.500	2.250	3.000	3.750
25	0.950	1.900	2.850	3.800	4.750
30	1.100	2.200	3.300	4.400	5.500
40	1.200	2.400	3.600	4.800	6.000
50	2.000	4.000	6.000	8.000	10.000
80	8.000	16.000	24.000	32.000	40.000
100	10.000	20.000	30.000	40.000	50.000
150	14.000	28.000	42.000	56.000	70.000
200	20.000	40.000	60.000	80.000	100.000
300	36.000	72.000	108.000	144.000	180.000
INDUSTRIAL SURCHARGE					
BOD Charge per kg for strengths in excess of 300 mg/l	0.029	0.058	0.087	0.116	0.145
Suspended Solids Charge per kg for strengths in excess of 300 mg/l	0.010	0.020	0.030	0.040	0.050

TABLE 3.2

SUEZ SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period	0.180
Service Charge Charge per living unit per billing period	21.000
NON DOMESTIC	
Volume Charge Charge per cubic meter of measured or estimated water use per billing period	
Commercial and Institutional	0.180
Industrial	0.180
Service Charge Charge per connection per billing period based on water meter size	
Meter Size mm	
20 or under	66.000
25	84.000
30	96.000
40	110.000
50	175.000
80	660.000
100	840.000
150	1,250.000
200	1,750.000
300	3,000.000

TABLE 8.2 (Continued)

SUEZ SEWERAGE UTILITY

PROPOSED SERVICE CHARGE-VOLUME CHARGE SEWERAGE USER CHARGES BASED ON CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
INDUSTRIAL SURCHARGE	
BOD Charge per kg for strengths in excess of 300 mg/l	0.145
Suspended Solids Charge per kg for strengths in excess of 300 mg/l	0.050

TABLE 8.3

SUEZ SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
DOMESTIC	
Flat rate per room per billing period	14.600
NON DOMESTIC	
Volume Charge Charge per cubic meter for all measured or estimated water use per billing period	
Commercial and Institutional	0.180
Industrial	0.180
Service Charge Charge per connection per billing period based on water meter size	
Meter Size mm	
20 and under	66.000
25	84.000
30	96.000
40	110.000
50	175.000
80	660.000
100	840.000
150	1,250.000
200	1,750.000
300	3,000.000

TABLE 8.3 (Continued)

SUEZ SEWERAGE UTILITY

PROPOSED COMBINED FLAT RATE-SERVICE CHARGE-VOLUME CHARGE
SEWERAGE USER CHARGES BASED ON
CASH BASIS REVENUE REQUIREMENTS

1984 TEST YEAR

BILLS ISSUED QUARTERLY

	Rate LE
INDUSTRIAL SURCHARGE	
BOD Charge per kg for strengths in excess of 300 mg/l	0.145
Suspended Solids Charge per kg for strengths in excess of 300 mg/l	0.050

TABLE 8.4

SUEZ SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
VOLUME CHARGE					
Applicable to All Customers					
Charge per cubic meter for all measured or estimated water use per billing period					
First 50 cubic meters	0.003	0.005	0.010	0.015	0.020
Next 50 cubic meters	0.012	0.024	0.040	0.060	0.080
Next 100 cubic meters	0.088	0.176	0.264	0.350	0.440
Next 800 cubic meters	0.105	0.215	0.320	0.425	0.535
Next 9,000 cubic meters	0.125	0.250	0.375	0.500	0.625
Over 10,000 cubic meters	0.140	0.280	0.420	0.560	0.700
SERVICE CHARGE					
Domestic Customers					
Charge per living unit per billing period	0.250	0.400	0.750	1.150	1.500
Non Domestic Customers					
See next page					

TABLE 8.4 (Continued)

SUEZ SEWERAGE UTILITY

PROPOSED "ABILITY TO PAY" SEWERAGE USER CHARGES
BASED ON UTILITY BASIS REVENUE REQUIREMENTS

BILLS ISSUED QUARTERLY

	Rates to be effective January 1,				
	1980 LE	1981 LE	1982 LE	1983 LE	1984 LE
Non Domestic Service Charge					
Charge per connection per billing period based on water meter size					
Meter Size mm					
20 and under	6.200	12.500	18.500	25.000	31.000
25	7.500	15.000	22.000	30.000	38.000
30	9.000	18.000	27.000	35.000	46.000
40	11.000	22.000	33.000	44.000	55.000
50	18.000	36.000	54.000	72.000	90.000
80	75.000	150.000	220.000	295.000	370.000
100	85.000	170.000	260.000	345.000	435.000
150	130.000	260.000	390.000	520.000	650.000
200	180.000	360.000	540.000	720.000	900.000
300	300.000	600.000	900.000	1,200.000	1,500.000
INDUSTRIAL SURCHARGE					
BOD Charge per kg for strengths in excess of 300 mg/1	0.055	0.105	0.160	0.210	0.265
Suspended Solids Charge per kg for strengths in excess of 300 mg/1	0.017	0.035	0.050	0.070	0.085

TABLE 8.5

SUEZ SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT RECOMMENDED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Recommended Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	5,020	3,769	75.1
Industrial	374	844	225.7
Commercial and Institutional	1,024	1,823	178.1
Total	6,418	6,436	100.3

(a) Based on Cash Basis Revenue Requirements

(b) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.6

SUEZ SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service[a] LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	5,020	5,004	99.7
Industrial	374	376	100.5
Commercial and Institutional	1,024	1,040	101.6
Total	6,418	6,419	100.0

(a) Based on Cash Basis Revenue Requirements

(b) At Proposed Service Charge - Volume Charge Rates, Table 8.2

TABLE 8.7

SUEZ SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	5,020	5,018	99.9
Industrial	374	376	100.5
Commercial and Institutional	1,024	1,040	101.6
Total	6,418	6,434	100.2

(a) Based on Cash Basis Revenue Requirements.

(b) At Proposed Combined Falt Rate applicable to Domestic Customers and Service Charge - Volume Charge Rates applicable to Non Domestic Customers, Table 8.3

TABLE 8.8

SUEZ SEWERAGE UTILITY

COMPARISON OF REVENUES FROM SEWERAGE USER CHARGES AT PROPOSED RATES WITH COST OF SERVICE BY CUSTOMER CLASSES

1984 TEST YEAR

Customer Class	Cost of Service(a) LE 1000	Revenues at Proposed Rates(b) LE 1000	Percent Revenues of Cost %
Domestic	7,930	5,710	72.0
Industrial	616	1,346	218.5
Commercial and Institutional	1,664	3,139	188.7
Total	10,210	10,195	99.9

(a) Based On Utility Basis Revenues Requirements

(b) At Proposed "Ability to Pay" Rates, Table 8.4

TABLE 8.9

SUEZ SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
CASH BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Recommended Rates(a) LE 1000	Required Subsidy LE 1000
1980	703	826	None
1981	1,574	1,838	None
1982	2,713	3,105	None
1983	4,157	4,598	None
1984	6,418	6,436	None

(a) At Recommended "Ability to Pay" Rates, Table 8.1

TABLE 8.10

SUEZ SEWERAGE UTILITY

SUBSIDY REQUIRED TO RECOVER
UTILITY BASIS REVENUE REQUIREMENTS

Year	Total Revenue Requirements LE 1000	Revenues at Proposed Rates(a) LE 1000	Required Subsidy LE 1000
1980	2,018	1,309	709
1981	4,197	2,912	1,994
1982	6,324	4,918	1,406
1983	8,517	7,283	1,234
1984	10,210	10,195	None

(a) At Proposed "Ability to Pay" Rates, Table 8.4

TABLE 10.1

SUEZ SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	826	1,838	3,105	4,598	6,436	7,873	10,750	12,310	14,974	19,164	32,120
OPERATING EXPENSE											
Operation and maintenance expense	279	325	383	447	909	1,036	1,209	1,389	1,574	2,036	7,716
Depreciation expense	402	1,086	1,949	2,789	3,452	3,926	4,577	5,737	6,587	7,769	10,282
Total Operating Expense	681	1,411	2,332	3,236	4,361	4,962	5,886	7,126	8,161	9,805	17,998
Net Operating Income	145	427	773	1,362	2,075	2,911	4,864	5,184	6,813	9,359	14,122
NON OPERATING INCOME	2	3	4	5	6	7	8	9	10	10	10
Gross Income	147	430	777	1,367	2,081	2,918	4,872	5,193	6,823	9,369	14,132
INCOME DEDUCTIONS											
Interest expense	368	1,089	2,040	3,261	4,830	5,667	7,362	7,941	9,422	11,746	10,222
Net Income (Loss)	(221)	(659)	(1,263)	(1,894)	(2,749)	(2,749)	(2,490)	(2,748)	(2,599)	(2,377)	3,910
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	22.3	46.4	66.5	88.0	97.5	107.4	130.3	155.5	164.8	182.6	154.2
Return on Investment- %[c]	0.6	0.9	1.2	1.5	2.1	2.8	3.7	3.3	4.1	5.1	9.2

(a) Based on Cash Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Utility Plant in Service.

TABLE 10.2

SUEZ SEWERAGE UTILITY

PROFORMA STATEMENT OF INCOME

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
OPERATING INCOME											
Revenue from user charges[a]	1,309	2,912	4,918	7,283	10,195	11,405	13,703	16,456	18,051	20,761	27,248
OPERATING EXPENSE											
Operation and maintenance expense	279	325	383	447	909	1,036	1,209	1,389	1,574	2,036	7,716
Depreciation expense	402	1,086	1,949	2,789	3,452	3,926	4,677	5,737	6,587	7,769	10,282
Total Operating Expense	681	1,411	2,332	3,236	4,361	4,962	5,886	7,126	8,161	9,805	17,998
Net Operating Income	628	1,501	2,586	4,047	5,834	6,443	7,817	9,330	9,890	10,956	9,250
NON OPERATING INCOME	2	3	4	5	6	7	8	9	10	10	10
Gross Income	630	1,504	2,590	4,052	5,840	6,450	7,825	9,339	9,900	10,966	9,260
INCOME DEDUCTIONS											
Interest expense	368	1,089	2,040	3,261	4,830	5,667	7,362	7,941	9,422	11,746	10,222
Net Income (Loss)	262	415	550	791	1,010	783	463	1,398	478	(780)	(962)
NET UTILITY PLANT IN SERVICE (LE MILLIONS)[b]	22.3	46.4	66.5	88.0	97.5	107.4	130.3	155.5	164.8	182.6	154.2
Return on Investment- %[c]	2.8	3.2	3.9	4.6	6.0	6.0	6.0	6.0	6.0	6.0	6.0

(a) Based on Utility Basis Revenue Requirements.

(b) Based on RCLD at December 31, 1978 together with additions at cost subsequent thereto and an allowance for depreciation.

(c) Return on Investment is computed by dividing Net Operating Income by Net Utility Plant in Service.

TABLE 10.3

SUEZ SEWERAGE UTILITY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	145	427	773	1,362	2,075	2,911	4,864	5,184	6,813	9,359	14,122
Depreciation Expense	402	1,086	1,949	2,789	3,452	3,926	4,677	5,737	6,587	7,769	10,282
Sub total	547	1,513	2,722	4,151	5,527	6,837	9,541	10,921	13,400	17,128	24,404
Non Operating Income	2	3	4	5	6	7	8	9	10	10	10
Operating Subsidy											
Total Available Operating Fund	549	1,516	2,726	4,156	5,533	6,844	9,549	10,930	13,410	17,138	24,414
APPLICATION OF FUNDS											
Routine Improvements	56	160	290	449	654	799	1,108	1,258	1,514	1,913	2,636
Debt Service Charges											
Interest	368	1,089	2,040	3,261	4,830	5,667	7,362	7,941	9,422	11,746	10,222
Principal					25	371	1,071	1,722	2,464	3,469	11,546
Total Debt Service	368	1,089	2,040	3,261	4,855	6,038	8,433	9,663	11,886	15,215	21,768
Total Application of Operating Fund	424	1,249	2,330	3,710	5.509	6,837	9,541	10,921	13,400	17,128	24,404
Net Operating Fund Change	125	267	396	446	24	7	8	9	10	10	10

(a) Based on revenues from sewerage user charges computed on Cash Basis Revenue Requirements.

TABLE 10.4

SUEZ SEWERAGE UTILTIY

PROFORMA STATEMENT OF SOURCE AND APPLICATION OF OPERATING FUNDS

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
SOURCE OF FUNDS											
Net Operating Income[a]	628	1,501	2,586	4,047	5,834	6,443	7,817	9,330	9,890	10,956	9,250
Depreciation Expense	402	1,086	1,949	2,789	3,452	3,926	4,677	5,737	6,587	7,769	10,282
Sub total	1,030	2,587	4,535	6,836	9,286	10,369	12,494	15,067	16,477	18,725	19,532
Non Operating Income	2	3	4	5	6	7	8	9	10	10	10
Operating Subsidy	709	1,994	1,406	1,234							
Total Available Operating Fund	1,741	4,584	5,945	8,075	9,292	10,376	12,502	15,076	16,487	18,735	19,542
APPLICATION OF FUNDS											
Routine Improvements	56	160	290	449	654	799	1,108	1,258	1,514	1,913	2,636
Debt Service Charges											
Interest	368	1,089	2,040	3,261	4,830	5,667	7,362	7,941	9,422	11,746	10,222
Principal					25	371	1,071	1,722	2,464	3,469	11,546
Total Debt Service	368	1,089	2,040	3,261	4,855	6,038	8,433	9,663	11,886	15,215	21,768
Total Application of Operating Fund	424	1,249	2,330	3,710	5,509	6,837	9,541	10,921	13,400	17,128	24,404
Net Operating Fund Change	1,317	3,335	3,615	4,365	3,783	3,539	2,961	4,155	3,087	1,607	(4,862)

(a) Based on revenues from sewerage user charges computed on Utility Basis Revenue Requirements.

TABLE 10.5

SUEZ SEWERAGE UTILITY

PROFORMA BALANCE SHEET

	1980 LE1000	1981 LE1000	1982 LE1000	1983 LE1000	1984 LE1000	1985 LE1000	1986 LE1000	1987 LE1000	1988 LE1000	1990 LE1000	2000 LE1000
ASSETS											
Utility Plant in Service[a]	18,112	43,844	66,067	90,509	103,600	117,590	145,354	176,473	192,577	225,608	290,400
Accumulated Provision for Depreciation	1,562	2,648	4,597	7,386	10,838	14,764	19,441	25,178	31,765	46,712	138,207
Net Utility Plant in Service	16,550	41,196	61,470	83,123	92,762	102,826	125,913	151,295	160,812	178,896	152,193
Current Assets											
Cash	35	41	48	56	114	130	151	173	197	255	965
Accounts Receivable	175	394	678	1,039	1,605	1,968	2,688	3,078	3,743	4,791	8,030
Material and Supplies	20	23	27	31	76	87	102	118	134	174	675
Total Current Assets	230	458	753	1,126	1,795	2,185	2,941	3,369	4,074	5,220	9,670
Total Assets	16,780	41,654	62,223	84,249	94,557	105,011	128,854	154,664	164,886	184,116	161,863
LIABILITIES AND EQUITY											
Suez Sewerage Utility Equity Capital	2,784	2,100	709	(1,276)	(3,453)	(5,866)	(7,631)	(9,978)	(11,923)	(15,808)	1,435
Long Term Debt	13,950	39,500	61,450	85,450	97,875	110,704	136,283	164,411	176,547	199,585	159,142
Current Liabilities											
Accounts Payable	46	54	64	75	135	173	202	231	262	339	1,286
Total Liabilities and Equity	16,780	41,654	62,223	84,249	94,557	105,011	128,854	154,664	164,886	184,116	161,863

(a) Based on Original Cost at December 31, 1978 and projected additions at cost subsequent thereto.