

1.4. フィージビリティスタディ その2

1.4.1 はじめに

ここでは、本編の冒頭で述べたように、第一期と第二期を合わせたプロジェクトのフィージビリティを検討する。

1.4.2 水道計画

本編で述べてきたように目標年次(1993年)における給水区域は4,906ha、給水人口は72,982人、日最大水需要量は14,980m³/日である。

水道計画の概要については図3.1.4.1と図3.1.4.2に、計画施設は表3.1.4.1に示した。また図3.1.4.3に建設計画、表3.1.4.2に概算事業費、表3.1.4.3に投資計画を示す。

1.4.3 財政評価

1.4.3.1 財源および借入金利

本スタディでは、LWUAの指示に従い投資額の25%を政府補助とし、75%を政府ローンとする条件を用いる。年毎の投資額及び返済額を表3に示す。この検討は、政府機関であるLWUAが国内、国外からの資金を得て、水道区がLWUAから資金を得られるという前提で進める。

また、年利は9%で、6年間(建設期間)は元金据置で返済期限は据置期間を含めて30年間である。事業費の62.5%が外貨分で、残りは内貨分となっている。外貨については、フィリピン政府はOECD、世界銀行、アジア開発銀行などの融資機関に借款を求めることとなる。

1.4.3.2 分析結果

Is it? How?

前述の仮定、条件に基づいた財政分析の結果、第一期と第二期を合わせたプロジェクトは財政面でフィージブルであることがわかった。

なお、本件では政府補助金25%という条件で計算を行った。補助金率を一段階下げて20%とした場合の財政分析結果は累積残高 — Cumulative Net Income — が赤字になる年が発生し、フィージビリティは成立しない。 — 本編末尾の分析資料参照。

1.4.3.3 水道料金

収入計算において家事用水道料金は、水道区の平均世帯収入の5%以下で設定した。

← 経済分析と呼ぶべき

1.4.4 事業便益の計測

1.4.4.1 給水人口、給水区域の増加

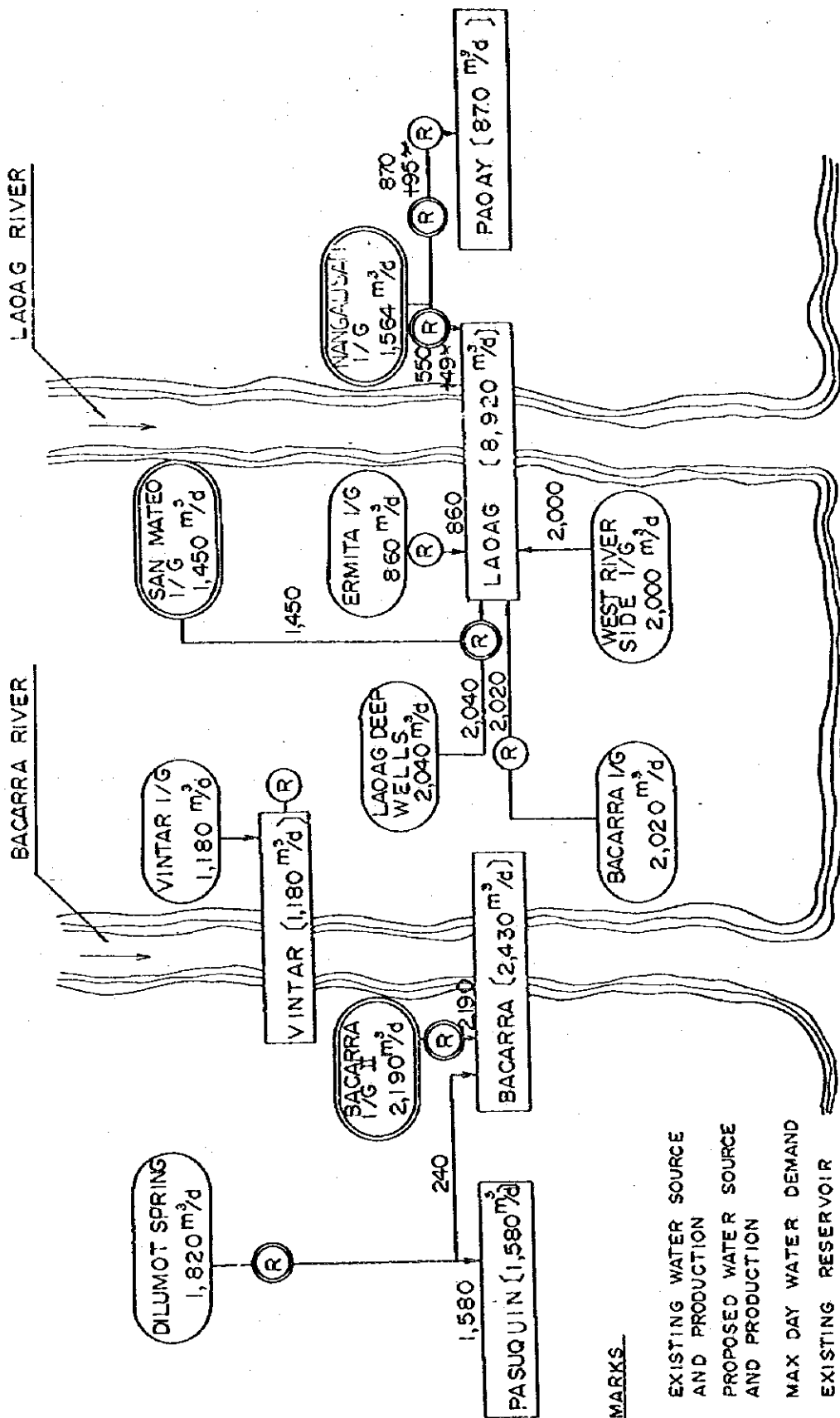
目標年次の給水人口は72,982人で現在に較べて190%の増である。

給水区域は現在1,280haで目標年次に4,906haに増加する。

1.4.4.2 内部収益率

内部収益率（IERR）を計算した結果、以下に示すように本プロジェクトは経済的に妥当である。

- 1) 換算係数を用いない場合：10%
- 2) 換算ケースAの場合：9%
- 3) 換算ケースBの場合：11%
- 4) 換算ケースCの場合：9%



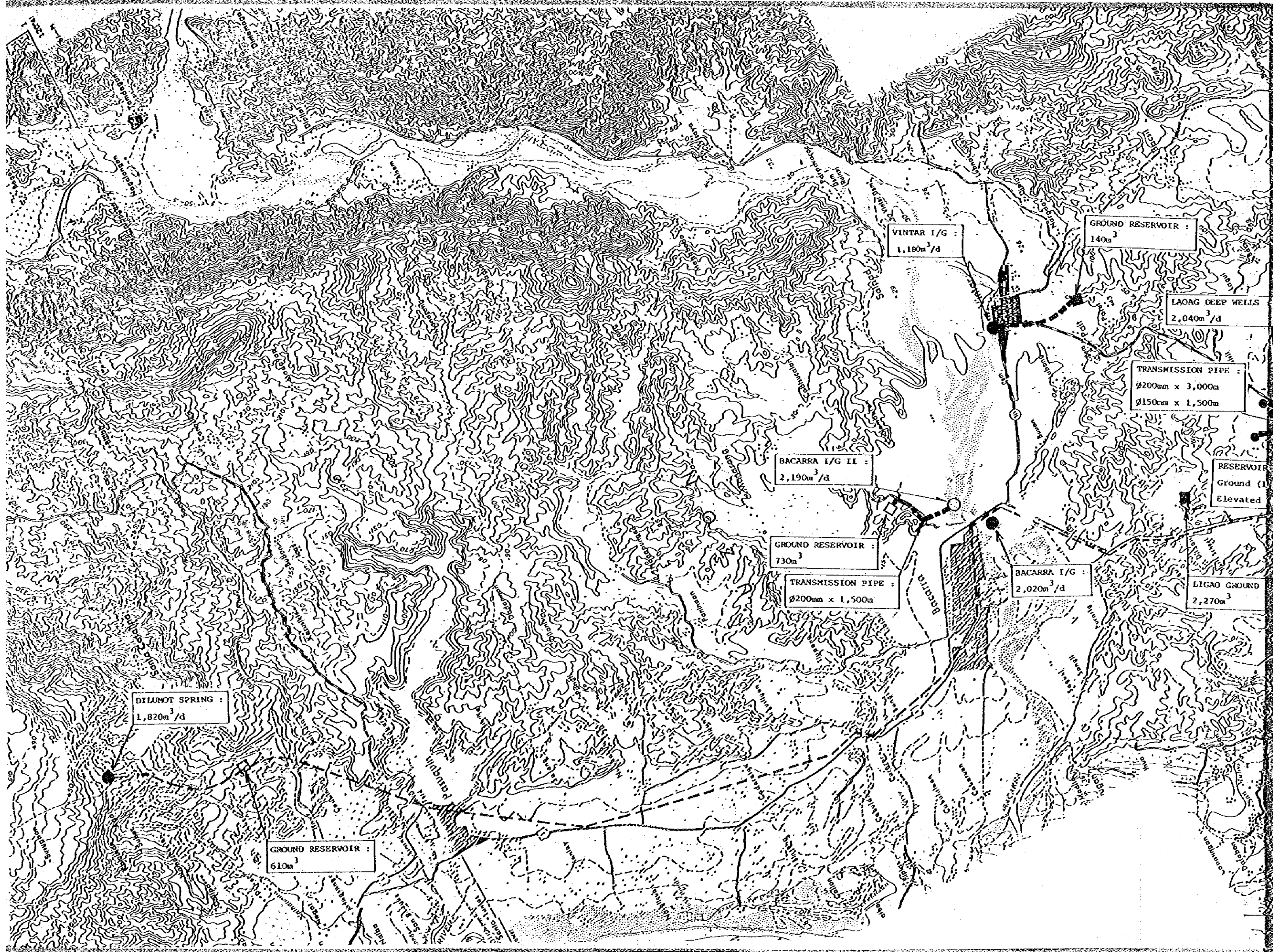
Ilocos
(I + II)

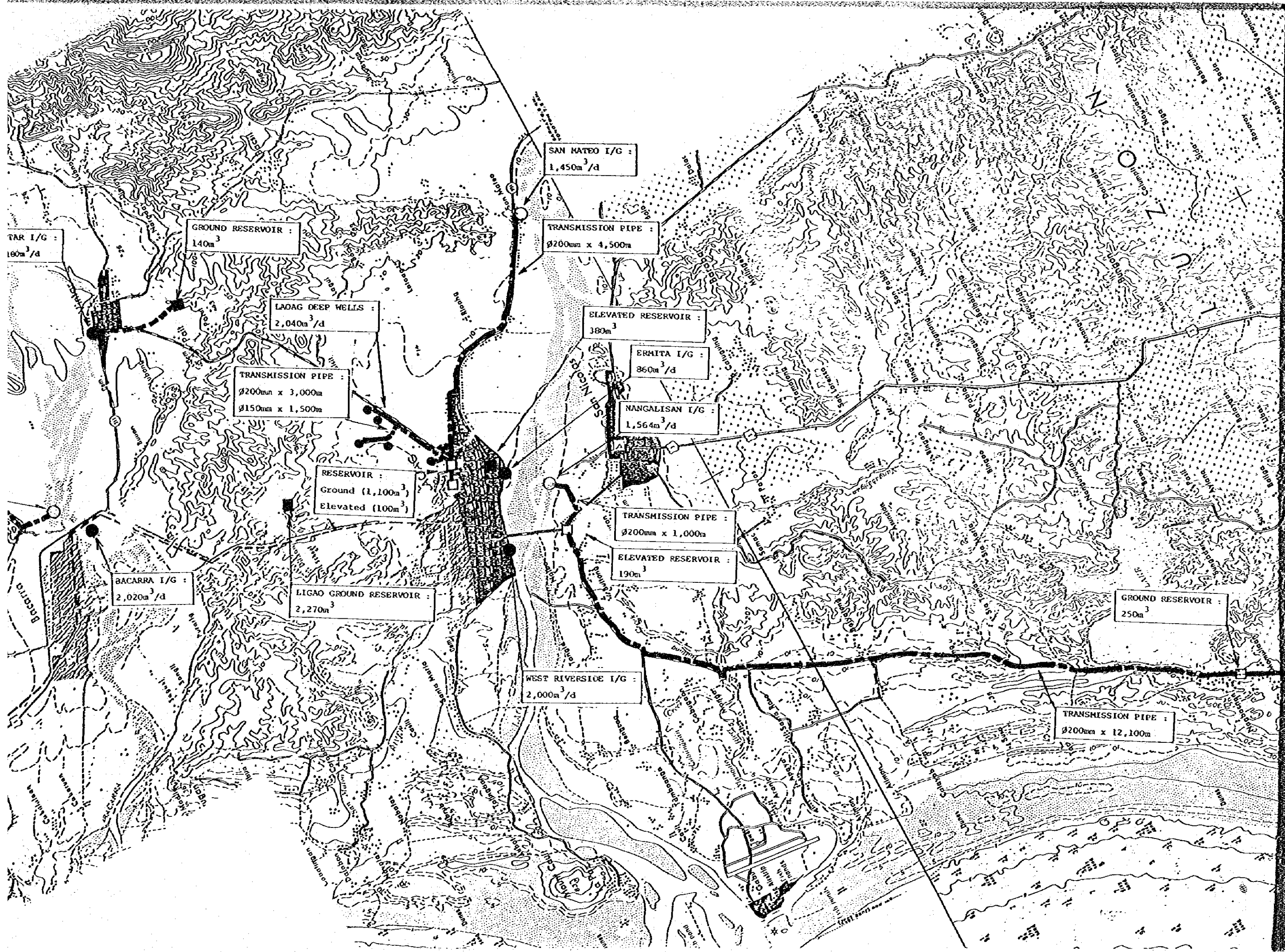
SOUTH CHINA SEA

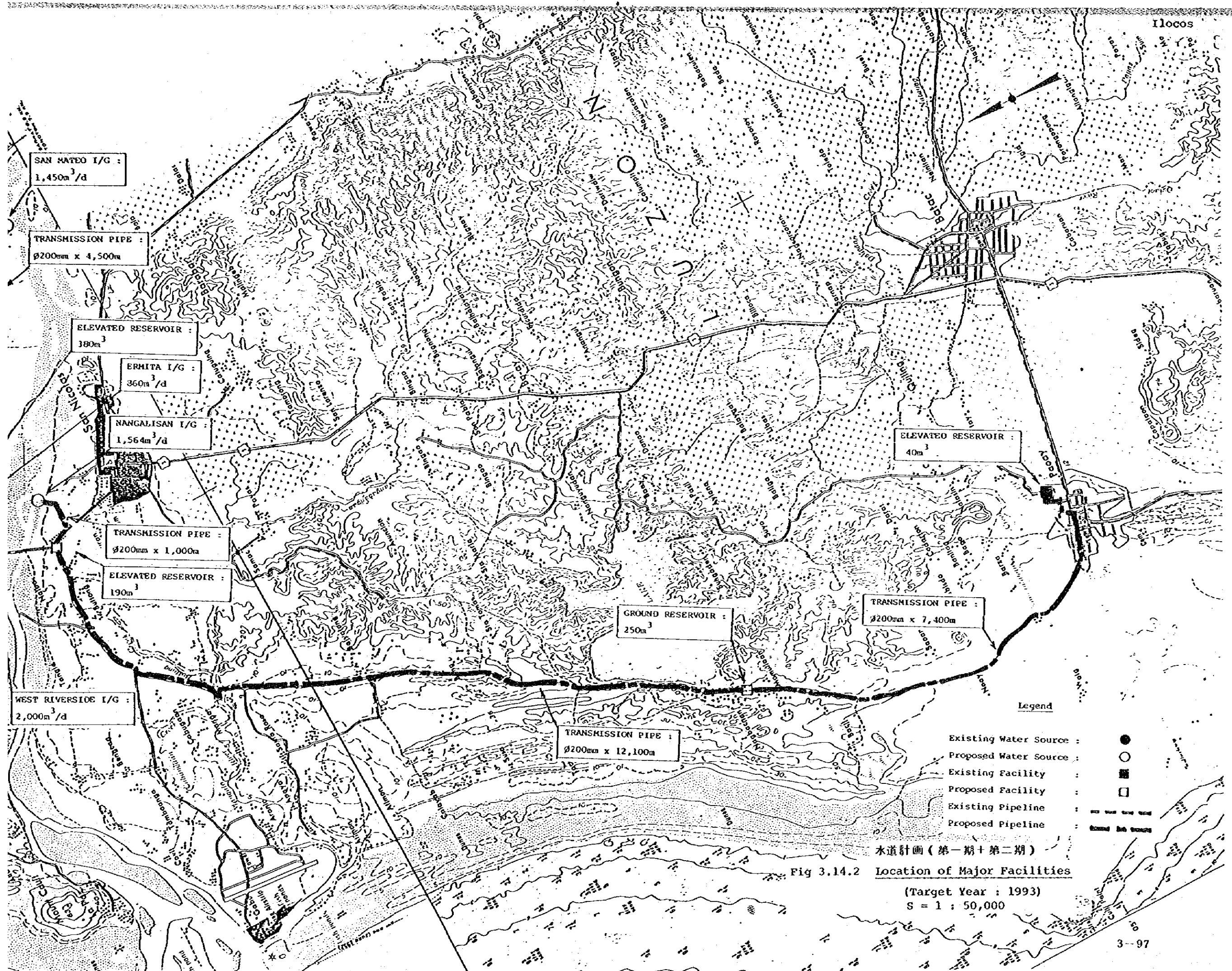
水道計画概念図 (第一期 + 第二期)
Fig 3.14.1 Proposed Water Supply System
(Target Year : 1993)

REMARKS

- EXISTING WATER SOURCE AND PRODUCTION
- PROPOSED WATER SOURCE AND PRODUCTION
- [] MAX DAY WATER DEMAND
- (R) EXISTING RESERVOIR
- (R) PROPOSED RESERVOIR
- * EXTRA DEMAND IN BARANGAYS ALONG PIPELINE







SAN MATEO I/G :
1,450m³/d

TRANSMISSION PIPE :
ø200mm x 4,500m

ELEVATED RESERVOIR :
380m³

ERMITA I/G :
360m³/d

NANGALISAN I/G :
1,564m³/d

TRANSMISSION PIPE :
ø200mm x 1,000m

ELEVATED RESERVOIR :
190m³

WEST RIVERSIDE I/G :
2,000m³/d

GROUND RESERVOIR :
250m³

TRANSMISSION PIPE :
ø200mm x 7,400m

TRANSMISSION PIPE :
ø200mm x 12,100m

ELEVATED RESERVOIR :
40m³

Legend

- Existing Water Source : ●
- Proposed Water Source : ○
- Existing Facility : ■
- Proposed Facility : □
- Existing Pipeline : ———
- Proposed Pipeline : - - - - -

水道計画 (第一期+第二期)

Fig 3.14.2 Location of Major Facilities

(Target Year : 1993)
S = 1 : 50,000

<p>A. Diluot Spring System</p> <p>a) Ground Reservoir (610 m³ x 1)</p> <p>B. West Riverside I/G System</p> <p>a) Intake Pump (23.1 l/s, H = 30 m)</p> <p>C. Vintar I/G System</p> <p>a) Intake Pump (13.7 l/s, H = 40 m)</p> <p>D. Bacarra I/G II System</p> <p>a) Infiltration Gallery (ø1,000 mm x 110 m)</p> <p>b) Intake Pump Station (25.3 l/s, H = 50 m)</p> <p>c) Transmission Pipe (ø 200 mm x 1,500 m)</p> <p>d) Ground Reservoir (730 m³ x 1)</p> <p>E. San Mateo I/G System</p> <p>a) Infiltration Gallery (ø1,000 mm x 80 m)</p> <p>b) Intake Pump Station (16.8 l/s, H = 50 m)</p> <p>c) Transmission Pipe (ø200 mm x 4,500 m)</p>	<p>I. Valve</p> <p>a) ø250 mm x 3 pcs</p> <p>b) ø200 mm x 42 pcs</p> <p>c) ø150 mm x 59 pcs</p> <p>d) ø100 mm x 127 pcs</p> <p>e) ø 75 mm x 137 pcs</p> <p>f) ø 50 mm x 226 pcs</p> <p>J. Fire Hydrant (418 pcs)</p> <p>K. Bulk Meter</p> <p>a) ø250 mm x 2 pcs</p> <p>b) ø200 mm x 9 pcs</p> <p>c) ø150 mm x 9 pcs</p> <p>L. Chlorinator (13 units)</p> <p>M. Service Connection (ø13 mm x 12,196 pcs)</p> <p>N. Vehicle (3 cars)</p>	<p>F. Laoag Deep Wells System</p> <p>a) Pump Station (5.8 l/s, 7 kw, 5 units)</p> <p>b) Transmission Pipe (ø200 mm x 3,000 m)</p> <p>c) Ground Reservoir (ø150 mm x 1,500 m)</p> <p>d) Ground Reservoir (1,100 m³ x 1)</p> <p>e) Distribution Pump (50.5 l/s, H = 30 m)</p> <p>f) Elevated Reservoir (100 m³ x 1)</p> <p>G. Nangalisan I/G System</p> <p>a) Infiltration Gallery (ø1,000 mm x 80 m)</p> <p>b) Intake Pump Station (18.3 l/s, H = 60 m)</p> <p>c) Transmission Pipe (ø200 mm x 20,500)</p> <p>d) Ground Reservoir (250 m³ x 1)</p> <p>e) Elevated Reservoir (190 m³ x 1)</p> <p>H. Distribution Pipe</p> <p>a) ø200 mm x 7,600 m</p> <p>b) ø150 mm x 17,200 m</p> <p>c) ø100 mm x 37,900 m</p> <p>d) ø 75 mm x 41,000 m</p> <p>e) ø 50 mm x 67,600 m</p>
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計画施設一覧 (第一期 + 第二期)

table Table 3.14.1 Facilities to be Constructed

(Target Year : 1993)

Fig 3.14.3 Construction Schedule

(Target Year : 1993)

Work Item	Year							
	'82	'83	'84	'85	'86	'87	'88	'89
(Appraisal & Loan Procedure)	■							
<u>Engineering Services</u>		DD			SV			
<u>Procurement</u>								
- Transmission & distribution pipes, pumps, water meters, etc.		T	M					
<u>Civil Work</u>								
- Dilumot Spring System			T	C				
- Bacarra I/G II System					T	C		
- San Mateo I/G System						T	C	
- Laoag Deep Wells System				T	C			
- Nangalisan I/G System		T	C					
- Transmission and distribution pipes, pumps, water meters, etc.		T			C			

Note: DD = Detailed Design
 SV = Supervision of Construction
 T = Tendering Procedure (Advertisement/Tendering/Evaluation/Award)
 M = Manufacturing & Shipping
 C = Construction/Installation

Table 3.14.2 Project Cost

(Target Year : 1993)

Note: - Unit = One Thousand Pesos = '000 Pesos
 - Prices as of 1st July 1981
 - Foreign Exchange Rate: US \$ 1.00 = Peso 7.80

Work Items	Cost		
	Total Cost	Foreign Currency Component	Local Currency Component
A. Dilumot Spring System	826	207	619
B. West Riverside I/G System	243	219	24
C. Vintar I/G System	194	175	19
D. Bacarra I/G II System	2,844	1,290	1,554
E. San Mateo I/G System	3,422	2,125	1,297
F. Laoag Deep Wells System	5,949	3,088	2,861
G. Nangalisan I/G System	10,154	6,080	4,074
H. Distribution Pipe	24,844	16,645	8,199
I. Valve	1,666	1,215	451
J. Fire Hydrant	2,801	1,849	952
K. Bulk Meter	173	138	35
L. Chlorinator	130	117	13
M. Service Meter	7,771	5,984	1,787
N. Vehicle	210	105	105
Sub Total	61,227	39,237	21,990
Detailed Design Cost (10.5%)	6,429	3,857	2,572
Supervision Cost (3.5%)	2,143	1,286	857
Land Cost	200	-	200
Total	69,999	44,380	25,619
Physical Contingency (10%)	7,000	4,438	2,562
Total	76,999	48,818	28,181
Price Contingency	52,610	32,251	20,359
Grand Total (Project Cost)	129,609	81,069	48,540
	(Equivalent to US\$16.62 M)	(Equivalent to US\$10.40 M)	(Equivalent to US\$6.22 M)

Table 3.14.3 Disbursement Schedule
(Target Year : 1993)

NOTE:
 - F/C = Foreign Currency Component
 - L/C = Local Currency Component
 - Unit: One Thousand Pesos = 1,000 Pesos
 - Prices: As of 1st July 1981
 - Foreign Exchange Rate: US\$1.00 = Pesos 7.80
 (Thousand Pesos)

Description	Total Cost		Yearly Disbursement												
	Breakdown		1983		1984		1985		1986		1987		1988		
	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	
A. Dilunot Spring System															
a) Ground Reservoir (610 m ³ x 1)	826	619	207				207	619							
B. West Riverside I/C System															
a) Intake Pump (23.1 l/s, H = 30 m)	243	24	219	24			219	24							
C. Vintar I/C System															
a) Intake Pump (13.7 l/s, H = 40 m)	194	19	175	19			175	19							
D. Bacarra I/G II System															
a) Infiltration Gallery (ø1,000 mm x 110 m)	440	330	110				110					110	330		
b) Intake Pump Station (25.3 l/s, H = 50 m)	600	240	360	240			360	240				360	240		
c) Transmission Pipe (ø 200 mm x 1,500 m)	878	290	588	290			588	290				588	290		
d) Ground Reservoir (730 m ³ x 1)	926	694	232	694			232	694				232	694		
E. San Neteo I/C System															
a) Infiltration Gallery (ø1,000 mm x 80 m)	320	240	80	240			80	240				80	240		
b) Intake Pump Station (16.8 l/s, H = 50 m)	469	188	281	188			281	188				281	188		
c) Transmission Pipe (ø200 mm x 4,500 m)	2,633	869	1,764	869			1,764	869				1,764	869		

(to be continued)

NOTE: - F/C = Foreign Currency Component
 - L/C = Local Currency Component
 - Unit: One Thousand Pesos = '000 Pesos
 - Prices: As of 1st July 1981
 - Foreign Exchange Rate: US\$1.00 = Pesos 7.80
 (Thousand Pesos)

Description	Cost		Yearly Disbursement												
	Total Cost	Breakdown		1983		1984		1985		1986		1987		1988	
		F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C
F. Laoag Deep Wells System															
a) Pump Station (5.8 h/s, 7 kw, 5 units)	1,075	602	473					361	284	241	189				
b) Transmission Pipe (ø200 mm x 3,000 m) (ø150 mm x 1,500 m)	1,755	1,176	579					784	386	392	193				
c) Ground Reservoir (1,100 m ³ x 1)	619	415	204					208	102	207	102				
d) Distribution Pump (50.5 h/s, H = 30 m)	1,204	301	903							301	903				
e) Elevated Reservoir (100 m ³ x 1)	771	463	308							463	308				
	525	131	394							131	394				
G. Nangalisan I/G System															
a) Infiltration Gallery (ø1,000 mm x 80 m)	320	80	240			80	240								
b) Intake Pump Station (18.3 h/s, H = 60 m)	522	313	209			313	209								
c) Transmission Pipe (ø200 mm x 20,500)	7,995	5,357	2,638			3,423	1,606	1,994	952						
d) Ground Reservoir (250 m ³ x 1)	467	117	350					117	350						
e) Elevated Reservoir (190 m ³ x 1)	850	213	637					213	637						
H. Distribution Pipe															
a) ø200 mm x 7,600 m	2,964	1,986	978			993	489	596	293	397	196				
b) ø150 mm x 17,200 m	4,730	3,169	1,561			1,585	781	951	468	633	312				
c) ø100 mm x 37,900 m	6,822	4,571	2,251			2,286	1,126	1,371	675	914	450				
d) ø 75 mm x 41,000 m	4,920	3,296	1,624			1,648	812	989	487	659	325				
e) ø 50 mm x 67,600 m	5,408	3,623	1,785			1,812	893	1,087	357	724	179	178			

(to be continued)

NOTE:

- F/C = Foreign Currency Component
- L/C = Local Currency Component
- Unit: One Thousand Pesos = '000 Pesos
- Prices: As of 1st July 1981
- Foreign Exchange Rate: US\$1.00 = Pesos 7.80

Description	Total Cost		Yearly Disbursement												
	Breakdown		1983		1984		1985		1986		1987		1988		
	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	
I. Valve															
a) ø250 mm x 3 pcs	25	18		7	16	7									
b) ø200 mm x 42 pcs	256	187		69	94	35		21	37	13					
c) ø150 mm x 59 pcs	251	183		68	92	34		20	36	14					
d) ø100 mm x 127 pcs	425	310		115	155	58		35	62	22					
e) ø 75 mm x 137 pcs	370	270		100	135	50		30	54	20					
f) ø 50 mm x 226 pcs	339	247		92	124	46		18	49	10					9
J. Fire Hydrant (418 pcs)	2,801	1,849		952	925	476		286	369	190					
X. Bulk Meter															
a) ø250 mm x 2 pcs	20	16		4	16	4									
b) ø200 mm x 9 pcs	90	72		18	72	18									
c) ø150 mm x 9 pcs	63	50		13	50	13									
L. Chlorinator (13 units)	130	117		13	117	13									
M. Service Connection (ø13 mm x 22,196 pcs)	7,771	5,984		1,787	5,984	894		357	179	179					178
N. Vehicle (3 cars)	210	105		105	105	105									

(to be continued)

NOTE: - F/C = Foreign Currency Component
 - F/C = Local Currency Component
 - Unit: One Thousand Pesos = '000 Pesos
 - Prices: As of 1st July 1981
 - Foreign Exchange Rate: US\$1.00 = Pesos 7.80

NOTE: Price Escalation Rate
 (Price Contingency)

Present - 1984: 15% Annual both for F/C and L/C
 1985 - 1989: 12% Annual both for F/C and L/C
 1990 - : 10% Annual both for F/C and L/C

(Thousand Pesos)

Description	Cost		Yearly Disbursement											
	Total Cost		1983		1984		1985		1986		1987		1988	
	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C
Sub-Total	61,227	39,237	21,990		20,421	8,032	9,732	6,377	5,669	3,999	1,419	1,654	1,996	1,928
Design Cost (10.5%)	6,429	3,857	2,572		386	257	257	171	257	171	193	129	193	129
Supervision Cost (3.5%)	2,143	1,286	857			200								
Land Cost	200	200	200											
Total Physical Contingency (10%)	69,999	44,380	25,619		20,807	8,489	9,989	6,548	5,926	4,170	1,612	1,783	2,189	2,057
	7,000	4,438	2,562		2,081	849	999	655	592	417	161	178	219	206
Total Price Contingency	76,999	48,818	28,181		22,888	9,338	10,988	7,203	6,518	4,587	1,773	1,961	2,408	2,263
	52,610	32,251	20,359		11,902	4,856	7,692	5,042	5,931	4,174	2,021	2,236	3,347	3,146
Grand Total (Project Cost)	129,609	81,069	48,540		34,790	14,194	18,680	12,245	12,449	8,761	3,794	4,197	5,755	5,409
					3,734									

Ilocos
(I + II)

財 政 評 価 分 析 表

(第 一 期 + 第 二 期)

FINANCIAL TABLE 1

I + II

ILOCOS NORTE WATER SUPPLY PROJECT
PROJECT COSTS BY YEAR OF CONSTRUCTION
(P1,000's)

Project Components By Major Elements	Costs as of 7-1-81 By Construction Year						
	Total	1983	1984	1985	1986	1987	1988
1. Vehicles	210		210				
2. Chlorinator	130		130				
3.							
4. Wells and Pumps	3,874		959	645	1,201	1,069	
5. Meters	173		173				
6. Distribution System	24,844		12,425	7,274	4,789	178	178
7. Transmission System	13,880		5,109	4,366	894	878	2,633
8. Fire Hydrants	2,801		1,401	841	559		
9. Reservoir	4,798			2,143	1,729		926
10. Valves	1,666		848	483	317	9	9
11. I/G	1,080		320			760	
12.							
13. Service Connection	7,771		6,878	357	179	179	178
14. Engineering	6,429	6,429					
15. Supervision	2,143		643	428	428	322	322
16. Land	200		200				
17. Physical Contingency	7,000	643	2,930	1,654	1,009	339	425
18.							
TOTAL, 7-1-81	76,999	7,072	32,226	18,191	11,105	3,734	4,671
ESCALATION FACTORS		1.3225	1.5209	1.7034	1.9078	2.1367	2.3931
ESCALATED COSTS	129,609	9,335	48,984	30,925	21,210	7,991	11,164

FINANCIAL TABLE 2
 ILOCOS NORTE WATER SUPPLY PROJECT
 OPERATION AND MAINTENANCE COSTS
 (P1,000's)

I + II

Year	Fixed, 7-1-81 Costs				Escalated Costs	
	Power	Chemicals	Others	Total	Factor ^{1/}	Amount
1981	209	76	261	546	1.000000	546
1982	209	80	292	581	1.150000	668
1983	212	92	314	618	1.322500	817
1984	253	97	382	732	1.520875	1,113
1985	309	111	495	915	1.703380	1,559
1986	368	124	625	1,117	1.907785	2,131
1987	429	133	824	1,386	2.136719	2,962
1988	468	143	984	1,595	2.393126	3,817
1989	511	154	1,176	1,841	2.680301	4,934
1990	556	163	1,429	2,148	2.948331	6,333
1991	599	172	1,722	2,493	2.243164	8,085
1992	638	182	2,136	2,956	3.567480	10,546
1993	682	182	2,722	3,586	3.924228	14,072
1994	682	182	2,722	3,586	4.316651	15,480
1995	682	182	2,722	3,586	4.748316	17,028
1996	682	182	2,722	3,586	5.233148	18,730
1997	682	182	2,722	3,586	5.745463	20,603
1998	682	182	2,722	3,586	6.320009	22,664

^{1/} Escalation currently 15 percent per year to 1984 (1981 = 1.00),
 12 percent per year between 1985 and 1989 and 10 percent per year
 in 1990 and afterwards.

Ilocos

I + II

FINANCIAL TABLE 3
 ILOCOS NORTE WATER SUPPLY PROJECT
 LOAN DISBURSEMENTS AND DEBT SERVICE
 (P1,000's)

Year	Disbursement ^{1/}		Loans Outstanding		Interest Payments ^{4/}		Principal Payments ^{3/}	Total Debt Service
	Grant _{25%}	Loan _{75%}	Beginning	Ending	First Year _{2/}	Later Years		
1981								
1982								
1983	2,334	7,001		7,316				
1984	12,246	36,738	7,316	46,365				
1985	7,731	23,194	46,365	74,775				
1986	5,303	15,907	74,775	98,127				
1987	1,998	5,993	98,127	113,220				
1988	2,791	8,373	113,220	132,159				
1989			132,159	131,854		11,894	305	12,199
1990			131,854	129,922		11,867	1,932	13,799
1991			129,922	126,806		11,693	3,116	14,809
1992			126,806	122,718		11,413	4,088	15,501
1993			122,718	118,000		11,045	4,718	15,763
1994			118,000	112,493		10,620	5,507	16,127
1995			112,493	106,986		10,124	5,507	15,631
1996			106,986	101,479		9,629	5,507	15,136
1997			101,479	95,972		9,133	5,507	14,640
1998			95,972	90,465		8,637	5,507	14,144

1/ From Financial Table 1.

2/ Disbursements assumed to be equally spread during year. Charge with 50 per cent of annual interest in first year.

3/ Principal payments made in equal yearly instalments.

4/ Interest capitalized during construction.

FINANCIAL TABLE 4

ILOCOS NORTE WATER SUPPLY PROJECT
CASH REQUIREMENTS PER REVENUE UNIT
(₱1,000's)

Year	Debt Service	O & M	Total Costs	Estimated Reserves 1/	Cost With Reserves	Revenue Units 2/	Cost Per Revenue Unit 3/
1981		546	546		546	1,845	0.30
1982		668	668		668	2,081	0.32
1983		817	817		817	2,224	0.37
1984		1,113	1,113		1,113	2,412	0.46
1985		1,559	1,559		1,559	2,609	0.60
1986		2,131	2,131		2,131	3,117	0.68
1987		2,962	2,962		2,962	3,695	0.80
1988		3,817	3,817		3,817	4,077	0.94
1989	12,199	4,934	17,133	857	17,990	4,496	4.00
1990	13,799	6,333	20,132	1,007	21,139	4,995	4.23
1991	14,809	8,085	22,894	2,289	25,183	5,418	4.65
1992	15,501	10,546	26,047	2,605	28,652	5,746	4.99
1993	15,763	14,072	29,835	2,984	32,819	6,864	4.78
1994	16,127	15,480	31,607	3,161	34,768	6,864	5.07
1995	15,631	17,028	32,659	3,266	35,925	6,864	5.23
1996	15,136	18,730	33,866	3,387	37,253	6,864	5.43
1997	14,640	20,603	35,243	3,524	38,767	6,864	5.65
1998	14,144	22,664	36,808	3,681	40,489	6,864	5.90

1/ Reserve estimate equal to 10 per cent of total costs. (5 per cent for the first two years)

2/ Revenue units from Tables 9A, 9B and 9C.

3/ Revenue units divided into costs with reserves.

FINANCIAL TABLE 5 - A
ILOCOS NORTE WATER SUPPLY PROJECT
 ABILITY TO PAY FOR WATER

I + II

Year	Ave. Monthly Family Income ^{1/}	Available 5%	Average Family Size	Household Water Use		Revenue Units Per Month ^{2/}	Max. Ability Per Rev. Unit
				lpcd	Cubic Meters/ Month		
1981	843.00	42.15	6.20	91	17	33	1.28
1982	969.45	48.47	6.19	91	17	33	1.47
1983	1,114.87	55.74	6.18	91	17	33	1.69
1984	1,282.10	64.11	6.17	91	17	33	1.94
1985	1,435.95	71.79	6.16	91	17	33	2.18
1986	1,608.27	80.41	6.15	93	17	33	2.44
1987	1,801.26	90.66	6.14	102	19	36	2.52
1988	2,017.41	100.87	6.13	102	19	36	2.80
1989	2,259.50	112.98	6.12	103	19	36	3.14
1990	2,485.45	124.27	6.11	103	19	36	3.45
1991	2,733.99	136.69	6.10	105	19	36	3.80
1992	3,007.40	150.37	6.09	104	19	36	4.18
1993	3,308.13	165.41	6.08	102	19	36	4.59

^{1/} Average monthly income escalated by 15 per cent per year to 1984, 12 per cent per year between 1985 and 1989, and 10 per cent in 1990 and afterwards.

^{2/} Assumed 1/2" service.

FINANCIAL TABLE 5 - B

ILOCOS NORTE WATER SUPPLY PROJECT
ABILITY TO PAY FOR WATER

I + II

1 Year	2 Ave. Monthly Family Income 1/	3 Available 5%	4 Average Family Size	5 Household Water Use		7 Revenue Units Per Month 2/	8 Max. Ability Per Rev. Unit
				lpcd	Cubic Meters/ Month		
1994	3,638.94	181.95	6.07	102	19	36	5.05
1995	4,002.84	200.14	6.06	102	19	36	5.56
1996	4,403.12	220.16	6.05	102	19	36	6.12
1997	4,843.43	242.17	6.04	102	18	35	6.92
1998	5,327.78	266.39	6.03	102	18	35	7.61

1/ Average monthly income escalated by 15 percent year to 1984, 12 percent per year between 1985 and 1989, and 10 percent in 1990 and afterwards.

2/ Assumed 1/2" service.

Ilocos
I + II

FINANCIAL TABLE 6 - A
 ILOCOS NORIE WATER SUPPLY PROJECT
 ILLUSTRATIVE CASH FLOW TABLE
 ₱1,000'S EXCEPT CHARGES PER UNIT

Year	Revenue Units <u>1/</u>	Charges Per Unit	Gross Revenues	Net Revenue <u>2/</u>		Basic Costs <u>3/</u>	Required Reserves <u>4/</u>	Total Costs <u>5/</u>	Net Income	
				%	Amount				Annual	Cumulative
1981	1,845	0.80	1,476	95	1,402	546		546	856	856
1982	2,081	0.80	1,665	95	1,582	668		668	914	1,770
1983	2,222	1.25	2,778	95	2,639	817		817	1,822	3,592
1984	2,426	1.90	4,609	96	4,425	1,113		1,113	3,312	6,904
1985	2,589	1.90	4,919	96	4,722	1,559		1,559	3,163	10,067
1986	3,117	2.45	7,637	96	7,331	2,131		2,131	5,200	15,267
1987	3,695	2.50	9,238	97	8,961	2,962		2,962	5,999	21,266
1988	4,077	2.80	11,416	97	11,074	3,817		3,817	7,257	28,523
1989	4,496	3.15	14,162	97	13,738	17,133	708	17,841	-4,103	24,420
1990	4,955	3.45	17,095	98	16,753	20,132	855	20,987	-4,234	20,186
1991	5,418	3.80	20,588	98	20,176	22,894	2,059	24,593	-4,417	15,769
1992	5,846	4.18	24,436	98	23,948	26,047	2,444	28,491	-4,543	11,226
1993	6,371	4.59	29,243	98	28,658	29,835	2,924	32,759	-4,101	7,125

1/ From Tables 9A, 9B and 9C.
 2/ Gross revenues from water sales reduced by bad debt allowance.
 3/ Total of project debt service, operation and maintenance costs.
 4/ Ten percent of gross water sales, after completion of construction. (5 percent for the first two years)
 5/ Includes the costs of replacing the first complement of project components with seven years of life expectancy.

FINANCIAL TABLE 6 - B

ILOCOS NORTE WATER SUPPLY PROJECT
ILLUSTRATIVE CASH FLOW TABLE
 ₱1,000's EXCEPT CHARGES PER UNIT

I + II

Year	Revenue Units <u>1/</u>	Charges Per Unit	Gross Revenues	Net Revenues <u>2/</u>		Basic Costs <u>3/</u>	Required Reserves <u>4/</u>	Total Costs <u>5/</u>	Net Income	
				%	Amount				Annual	Cumulative
1994	6,371	5.05	32,174	98	31,531	31,607	3,217	34,824	-3,293	3,832
1995	6,371	5.50	35,041	98	34,340	32,659	3,504	36,163	-1,823	2,009
1996	6,371	6.00	38,226	98	37,461	33,866	3,823	37,689	-228	1,781
1997	6,371	6.00	38,226	98	37,461	35,243	3,823	39,066	-1,605	176
1998	6,371	7.00	44,597	98	43,705	36,808	4,460	41,268	3,329	3,505

1/ From Tables 9A, 9B and 9C.

2/ Gross revenues from water sales reduced by bad debt allowance.

3/ Total of project debt service, operation and maintenance costs.

4/ Ten percent of gross water sales, after completion of construction.

5/ Includes costs of replacing the first complement of project components with seven years of life expectancy.

Ilocos

I + II

FINANCIAL TABLE 7
ILOCOS NORTE WATER SUPPLY PROJECT
 ILLUSTRATIVE RATE SCHEDULE

DOMESTIC AND GOVERNMENTAL SERVICE CONNECTIONS, 1/2"

Year	First 10 m ³ <u>1/</u>	Charge for Each Added m ³ <u>2/</u>			Charge <u>3/</u> per Revenue Unit
		11-20	21-45	over 45	
1981	20.00	0.96	1.12	1.36	0.80
1982	20.00	0.96	1.12	1.36	0.80
1983	31.25	1.50	1.75	2.13	1.25
1984	47.50	2.28	2.66	3.23	1.90
1985	47.50	2.28	2.66	3.23	1.90
1986	61.25	2.94	3.43	4.17	2.45
1987	62.50	3.00	3.50	4.25	2.50
1988	70.00	3.36	3.92	4.76	2.80
1989	78.75	3.78	4.41	5.36	3.15
1990	86.25	4.14	4.83	5.87	3.45
1991	95.00	4.56	5.32	6.46	3.80
1992	104.50	5.02	4.85	7.11	4.18
1993	114.75	5.51	6.43	7.80	4.59

Note: 1/ To obtain charge per m³ for the first 10 m³ classified by connection size, multiply R.U. charge shown in 3/ above by the following connection size factors.
 Domestic : 1.0 for 3/8"; 2.5 for 1/2"; 4.0 for 3/4"; 8 for 1"
 Commercial: 5.0 for 1/2"; 8.0 for 3/4"; 16.0 for 1"; 40.0 for 1 1/2"

2/ To obtain charge for each added m³, multiply R.U. charges shown in 3/ by the following block factors.
 Domestic : 1.2 for 11-20 m³; 1.4 for 21-45 m³; 1.7 for over 45 m³
 Commercial: 2.4 for 21-45 m³; 2.8 for 45-100 m³; 2.4 for over 100 m³

FINANCIAL TABLE 8

ILOCOS NORTE WATER SUPPLY PROJECT
 I + II
 GROWTH IN POPULATION, SERVICE CONNECTIONS
 AND IN DELIVERED AND PROCURED WATER

Ilocos

Year	Ave. Number Service Connections	Number For Service	Persons Served	Daily Use lpcd <u>l/</u>	Annual Water Supply (1,000 M ³)		
					Delivered	% Unacct.	Produced
1981	3,166	7.9	25,000	114	1,044	45	1,998
1982	3,598	7.8	28,000	114	1,187	43	2,081
1983	3,713	7.7	28,700	114	1,277	40	2,122
1984	4,024	7.8	31,200	114	1,388	40	2,314
1985	4,663	7.4	34,550	116	1,457	40	2,428
1986	5,419	7.2	39,200	122	1,743	37	2,767
1987	6,366	6.9	44,125	128	2,054	34	3,112
1988	7,237	6.7	48,500	128	2,269	32	3,337
1989	8,171	6.5	53,150	129	2,507	30	3,581
1990	9,344	6.3	58,600	129	2,766	28	3,841
1991	10,628	6.0	63,400	131	3,020	26	4,081
1992	12,496	5.4	68,000	130	3,230	25	4,306
1993	15,122	4.8	72,982	128	3,419	25	4,588

l/ Liters per capita per day.

FINANCIAL TABLE 9A

ILOCOS NORTE WATER SUPPLY PROJECT
CALCULATION OF REVENUE UNITS

A) AVERAGE NUMBER OF CONCESSIONAIRES

Year	Residential and Government					Commercial and Industrial					Total
	3/8"	1/2"	3/4"	1"	S-Total	1/2"	3/4"	1"	1 1/2"	S-Total	
1981	876	2,015	26	3	2,920	211	22	12	1	246	3,166
1982	940	2,161	28	3	3,132	218	23	13	2	256	3,388
1983	950	2,181	28	3	3,162	223	23	13	2	261	3,423
1984	1,097	2,525	33	4	3,659	235	25	14	2	276	3,935
1985	1,299	2,986	39	4	4,328	286	30	17	2	335	4,663
1986	1,484	3,415	45	5	4,949	401	42	24	3	470	5,419
1987	1,724	3,968	52	6	5,750	526	55	31	4	616	6,366
1988	1,980	4,555	59	7	6,601	543	57	32	4	636	7,237
1989	2,254	5,187	68	8	7,517	558	59	33	4	654	8,171
1990	2,601	5,984	78	9	8,672	574	60	34	4	672	9,344
1991	2,981	6,857	89	10	9,938	589	62	35	4	690	10,628
1992	3,537	8,134	106	12	11,789	604	64	35	4	707	12,496
1993											

B) SERVICE REVENUE UNITS PER CUBIC METER

Year	Residential and Government					Commercial and Industrial					Total
	1.00	2.50	4.0	8.0	S-total	5.0	8.0	16.0	40.0	S-Total	
1981	876	5,038	104	24	6,042	1,055	176	192	40	1,463	7,505
1982	940	5,403	112	24	6,479	1,090	184	208	80	1,562	8,041
1983	950	5,453	112	24	6,539	1,115	184	208	80	1,587	8,126
1984	1,097	6,313	132	32	7,574	1,175	200	224	80	1,679	9,253
1985	1,299	7,458	156	32	8,945	1,430	240	272	80	2,022	10,967
1986	1,484	8,538	180	40	10,242	2,005	336	384	120	2,845	13,087
1987	1,724	9,920	208	48	11,900	2,630	440	496	160	3,726	15,626
1988	1,980	11,383	236	56	13,655	2,715	456	512	160	3,843	17,498
1989	2,254	12,968	272	64	15,558	2,790	472	528	160	3,950	19,508
1990	2,601	14,960	312	72	17,945	2,870	480	544	160	4,054	21,999
1991	2,981	17,143	356	80	20,560	2,945	496	560	160	4,161	24,721
1992	3,537	20,335	424	96	24,392	3,020	512	560	160	4,252	28,644
1993	4,318	24,828	520	112	29,778	3,115	528	576	160	4,379	34,157

FINANCIAL TABLE 9B1
ILOCOS NORTE WATER SUPPLY PROJECT I + II
CALCULATION OF REVENUE UNITS

DOMESTIC

Year	Delivered Water (x1000 cum)	Service Connections (x 0.12)	Net	11 - 20 cum		21 - 45 cum		over 45 cum		Total CRU's
				cum	x 1.2	cum	x 1.4	cum	x 1.7	
1981	929	350	579	350	420	229	320	-	-	740
1982	1,056	376	680	376	451.2	304	425.6	-	-	876.8
1983	1,137	379	758	379	454.8	379	530.6	-	-	985.4
1984	1,235	439	796	439	526.8	357	499.8	-	-	1,026.6
1985	1,297	519	778	519	622.8	259	362.6	-	-	985.4
1986	1,551	594	957	594	712.8	363	508.2	-	-	1,221
1987	1,828	690	1,138	690	828	448	627.2	-	-	1,455.2
1988	2,019	792	1,227	792	950	435	609	-	-	1,559
1989	2,231	902	1,329	902	1,082	427	597.8	-	-	1,679.8
1990	2,461	1,041	1,420	1,041	1,249	380	532	-	-	1,781
1991	2,688	1,193	1,495	1,193	1,431.6	302	422.8	-	-	1,854.4
1992	2,875	1,415	1,460	1,415	1,698	45	63	-	-	1,761
1993	3,043	1,727	1,316	1,316	1,579	-	-	-	-	1,579

FINANCIAL TABLE 9B2
ILOCOS NORTE WATER SUPPLY PROJECT
 CALCULATION OF WATER REVENUES UNITS I + II

COMMERCIAL

Year	Delivered Water (x1000 cum)	Service Connections (x 0.12)	Net	21 - 45 cum		46 - 100 cum		Over 100 cum		Total CRU's
				cum	x 2.4	cum	x 2.8	cum	x 3.4	
1981	115	30	85	85	204	-	-	-	-	204
1982	131	31	100	100	240	-	-	-	-	240
1983	140	31	109	109	262	-	-	-	-	262
1984	153	33	120	116	278	-	-	-	-	289
1985	160	40	120	120	278	-	-	-	-	289
1986	192	56	136	136	326	-	-	-	-	326
1987	226	74	152	152	365	-	-	-	-	365
1988	250	76	174	174	418	-	-	-	-	418
1989	276	78	198	198	475	-	-	-	-	475
1990	304	81	223	223	535	-	-	-	-	535
1991	332	83	249	249	598	-	-	-	-	598
1992	355	85	270	270	648	-	-	-	-	648
1993	376	87	289	289	694	-	-	-	-	694

FINANCIAL TABLE 9C

SUMMARY OF REVENUE UNITS

I + II

Year	Residential and Governmental				Commercial and Industrial				Total All
	Service		Commodity Rev. Units	Total R & C	Service		Commodity Rev. Units	Total C & I	
	RU/Serv. Connection	Multiplied by 0.12			RU/Serv. Connection	Multiplied by 0.12			
1981	6,042	725	740	1,465	1,463	176	204	380	1,845
1982	6,479	777	877	1,654	1,562	187	240	427	2,081
1983	6,539	785	985	1,770	1,587	190	262	452	2,222
1984	7,574	909	1,027	1,936	1,679	201	289	490	2,426
1985	8,945	1,073	985	2,058	2,022	243	288	531	2,589
1986	10,242	1,229	1,221	2,450	2,845	341	326	667	3,117
1987	11,900	1,428	1,455	2,883	3,726	447	365	812	3,695
1988	13,655	1,639	1,559	3,198	3,843	461	418	879	4,077
1989	15,558	1,867	1,680	3,547	3,950	474	475	949	4,496
1990	17,945	2,153	1,781	3,934	4,054	486	535	1,021	4,955
1991	20,560	2,467	1,854	4,321	4,161	499	598	1,097	5,418
1992	24,392	2,927	1,761	4,688	4,252	510	648	1,158	5,846
1993	29,778	3,573	1,579	5,152	4,379	525	694	1,219	6,371

Ilocos

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(第 一 期 + 第 二 期)

Ilocos

ECONOMIC TABLE 1
ILOCOS NORTE WATER SUPPLY PROJECT
SUMMARY OF PROJECT COST
Costs as of July 1, 1981 in 1,000 Pesos

I + II

Components	Total Cost	Foreign Currency Portion	Local Currency Portion
1. Vehicles	210	105	105
2. Chlorinator	130	117	13
3. Wells and Pump	3,874	2,413	1,461
4. Meters	173	138	35
5. Distribution System	24,844	16,645	8,199
6. Transmission System	13,880	9,300	4,580
7. Fire Hydrants	2,801	1,849	952
8. Reservoirs	4,798	1,201	3,597
9. Valves	1,666	1,215	451
10. I/G	1,080	270	810
11. Service Connection	7,771	5,984	1,787
12. Engineering	6,429	3,857	2,572
13. Supervision	2,143	1,286	857
14. Land	200		200
15.			
16.			
17.			

Source: From Cost Estimates

ECONOMIC TABLE 2
 ILOCOS NORTE WATER SUPPLY PROJECT
 I + II
 ANNUAL DEMAND AND GROSS PRODUCTION IN 1,000 M³

1 Year	2 Average Connections	3 Persons Per Service Connection	4 Population Served	5 Average Water Use		6 Water Delivered Annually	7 Net Increase in Delivered Volume	8 Unaccounted Percentage	9 Annual Production
				Liters/ Capita Per Day	Water Delivered Annually				
1981	3,166	7.9	25,000	114	1,044	-	-	45	1,878
1982	3,598	7.8	28,000	114	1,187	-	-	43	2,081
1983	3,713	7.7	28,700	114	1,277	-	-	40	2,128
1984	4,024	7.8	31,200	114	1,388	111	111	40	2,314
1985	4,663	7.4	34,550	116	1,457	180	180	40	2,428
1986	5,419	7.2	39,200	122	1,743	466	466	37	2,761
1987	6,366	6.9	44,125	128	2,054	777	777	34	3,112
1988	7,237	6.7	48,500	128	2,269	992	992	32	3,337
1989	8,171	6.5	53,150	129	2,507	1,230	1,230	30	3,581
1990	9,344	6.3	58,600	129	2,766	1,489	1,489	28	3,841
1991	10,628	6.0	63,400	131	3,020	1,743	1,743	26	4,081
1992	12,496	5.4	68,000	130	3,230	1,953	1,953	25	4,306
1993	15,122	4.8	72,982	128	3,419	2,142	2,142	25	4,588

PK 125 kg

ECONOMIC TABLE 3-A
 ILOCOS NORTE WATER SUPPLY PROJECT
 CONVERSION OF CONSTRUCTION COST TO ECONOMIC COST
 Costs as of July 1, 1981 in 1,000 Pesos

Component	Foreign Costs	Local Costs	Common Labor Costs	Residual Local Cost	Converted Value			Total
					Foreign x 1.25	Labor x 0.5	Residual x 0.95	
1. Vehicles	105	105	-	105	131	-	100	231
2. Chlorinator	117	13	1	12	146	1	11	158
3. Wells and Pump	2,413	1,461	731	730	3,016	366	694	4,076
4. Meters	138	35	7	28	173	4	27	204
5. Distribution System	16,645	8,199	3,280	4,919	20,806	1,640	4,673	27,119
6. Transmission System	9,300	4,580	1,145	3,435	11,625	573	3,263	15,461
7. Fire Hydrants	1,849	952	381	571	2,311	191	542	3,044
8. Reservoirs	1,201	3,597	2,338	1,259	1,501	1,169	1,196	3,866
9. Valves	1,215	451	180	271	1,519	90	257	1,866
10. I/G	270	810	405	405	338	203	385	926
11. Service Connection	5,984	1,787	357	1,430	7,480	179	1,359	9,018
12. Engineering Cost	3,857	2,572	-	2,572	4,821	-	2,443	7,264
13. Supervision	1,286	857	-	857	1,608	-	814	2,422
14. Land	-	200	-	200	-	-	190	190
15.								
16.								
17.								

ECONOMIC TABLE 3-B

ILOCOS NORTE WATER SUPPLY PROJECT
 CONVERSION OF CONSTRUCTION COST TO ECONOMIC COST
 Costs as of July 1, 1981 in 1,000 Pesos

I + II

Ilocos

Component	Foreign Costs	Local Costs	Common Labor Costs	Residual Local Cost	Converted Value			Total
					Foreign x 1.0	Labor x 0.5	Residual x 0.95	
1. Vehicles	105	105	-	105	-	100	205	
2. Chlorinator	117	13	1	12	1	11	129	
3. Wells and Pumps	2,413	1,461	731	730	366	694	3,473	
4. Meters	138	35	7	28	4	27	169	
5. Distribution System	16,645	8,199	3,280	4,919	1,640	4,673	22,958	
6. Transmission System	9,300	4,580	1,145	3,435	573	3,263	13,136	
7. Fire Hydrants	1,849	952	381	571	191	542	2,582	
8. Reservoirs	1,201	3,597	2,338	1,259	1,169	1,196	3,566	
9. Valves	1,215	451	180	271	90	257	1,562	
10. I/G	270	810	405	405	203	385	858	
11. Service Connection	5,984	1,787	357	1,430	179	1,359	7,522	
12. Engineering Cost	3,857	2,572	-	2,572	-	2,443	6,300	
13. Supervision	1,286	857	-	857	-	814	2,100	
14. Land	-	200	-	200	-	190	190	
15.								
16.								
17.								

ECONOMIC TABLE 3-C
ILOCOS NORTE WATER SUPPLY PROJECT
 CONVERSION OF CONSTRUCTION COST TO ECONOMIC COST
 Costs as of July 1, 1981 in 1,000 Pesos

I + II

Component	Foreign Costs	Local Costs	Common Labor Costs	Residual Local Cost	Converted Value			Total
					Foreign x 1.25	Labor x 1.0	Residual x 1.0	
1. Vehicles	105	105	-	105	131	-	105	236
2. Chlorinator	117	13	1	12	146	1	12	159
3. Wells and Pump	2,413	1,461	731	730	3,016	731	730	4,477
4. Meters	138	35	7	28	173	7	28	208
5. Distribution System	16,645	8,199	3,280	4,919	20,806	3,280	4,919	29,005
6. Transmission System	9,300	4,580	1,145	3,435	11,625	1,145	3,435	16,205
7. Fire Hydrants	1,849	952	381	571	2,311	381	571	3,263
8. Reservoirs	1,201	3,597	2,338	1,259	1,501	2,338	1,259	5,098
9. Valves	1,215	451	180	271	1,519	180	271	1,970
10. I/G	270	810	405	405	338	405	405	1,148
11. Service Connection	5,984	1,787	357	1,430	7,480	357	1,430	9,267
12. Engineering Cost	3,857	2,572	-	2,572	4,821	-	2,572	7,393
13. Supervision	1,286	857	-	857	1,608	-	857	2,465
14. Land	-	200	-	200	-	-	200	200
15.								
16.								
17.								

ECONOMIC TABLE 4-0

ILOCOS NORTE WATER SUPPLY PROJECT
ECONOMIC COSTS DISTRIBUTED TO YEARS
P x 1,000

Value without CONVERSION

Components	Total	1983	1984	1985	1986	1987	1988
1. Vehicles	210		210				
2. Chlorinator	130		130				
3. Wells and Pumps	3,874		959	645	1,201	1,069	
4. Meters	173		173				
5. Distribution System	24,844		12,425	7,274	4,789	178	178
6. Transmission System	13,880		5,109	4,366	894	878	2,633
7. Fire Hydrants	2,801		1,401	841	559		
8. Reservoirs	4,798			2,143	1,729		926
9. Valves	1,666		848	483	317	9	9
10. I/G	1,080		320			760	
11. Service Connection	7,771		6,878	357	179	179	178
12. Engineering	6,429	6,429					
13. Supervision	2,143		643	428	428	322	322
14. Land	200		200				
15.							
16.							
17.							
18.							
Total	69,999	6,429	29,296	16,537	10,096	3,395	4,246

ECONOMIC TABLE 4-A
 ILOCOS NORTE WATER SUPPLY PROJECT
 ECONOMIC COSTS DISTRIBUTED TO YEARS
 P x 1,000

Table 3-A

Value with CONVERSION A

Components	Total	1983	1984	1985	1986	1987	1988
1. Vehicles	231		231				
2. Chlorinator	158		158				
3. Wells and Pumps	4,076		1,009	679	1,263	1,125	
4. Meters	204		204				
5. Distribution System	27,119		13,563	7,940	5,228	194	194
6. Transmission System	15,461		5,691	4,863	996	978	2,933
7. Fire Hydrants	3,044		1,523	914	607		
8. Reservoirs	3,866			1,727	1,393		746
9. Valves	1,866		950	541	355	10	10
10. I/G	926		274			652	
11. Service Connection	9,018		7,982	414	208	208	206
12. Engineering Cost	7,264	7,264					
13. Supervision	2,422		726	484	484	364	364
14. Land	190		190				
15.							
16.							
17.							
18.							
Total	75,845	7,264	32,501	17,562	10,534	3,531	4,453

Ilocos

I + II

ECONOMIC TABLE 4-B
 ILOCOS NORIE WATER SUPPLY PROJECT
 ECONOMIC COSTS DISTRIBUTED TO YEARS
 ₱ x 1,000

Value with CONVERSION B

Components	Total	1983	1984	1985	1986	1987	1988
1. Vehicles	205		205				
2. Chlorinator	129		129				
3. Wells and Pumps	3,473		860	578	1,077	958	
4. Meters	169		169				
5. Distribution System	22,958		11,482	6,722	4,426	164	164
6.. Transmission System	13,136		4,835	4,132	846	831	2,492
7. Fire Hydrants	2,582		1,292	775	515		
8. Reservoir	3,566			1,593	1,285		688
9. Valves	1,562		795	453	297	9	8
10. I/G	858		254			604	
11. Service Connection	7,522		6,658	346	173	173	172
12. Engineering	6,300	6,300					
13. Supervision	2,100		630	419	419	316	316
14. Land	190		190				
15.							
16.							
17.							
18.							
Total	64,750	6,300	27,499	15,018	9,038	3,055	3,840

ECONOMIC TABLE 4-C
 ILOCOS NORTE WATER SUPPLY PROJECT
 ECONOMIC COSTS DISTRIBUTED TO YEARS
 P x 1,000

Value with CONVERSION C

Components	Total	1983	1984	1985	1986	1987	1988
1. Vehicles	236		236				
2. Chlorinator	159		159				
3. Wells and Pumps	4,477		1,108	745	1,388	1,236	
4. Meters	208		208				
5. Distribution System	29,005		14,506	8,492	5,591	208	208
6. Transmission System	16,205		5,965	5,097	1,044	1,025	3,074
7. Fire Hydrants	3,263		1,632	980	651		
8. Reservoirs	5,098			2,277	1,837		984
9. Valves	1,970		1,003	571	375	11	10
10. I/G	1,148		340			808	
11. Service Connection	9,267		8,202	426	214	213	212
12. Engineering	7,393	7,393					
13. Supervision	2,465		740	492	492	371	370
14. Land	200		200				
15.							
16.							
17.							
18.							
Total	81,094	7,393	34,299	19,080	11,592	3,872	4,858

ECONOMIC TABLE 5

ILOCOS NORTE WATER SUPPLY PROJECT
OPERATION AND MAINTENANCE EXPENSES
 Costs as of July 1, 1981 in 1,000 Pesos

Year	Power	Chemicals	Others	Total	Net Costs
1981	209	76	261	546	
1982	209	80	292	581	
1983	212	92	314	618	37
1984	253	97	382	732	151
1985	309	111	495	915	334
1986	368	124	625	1,117	536
1987	429	133	824	1,386	805
1988	468	143	984	1,595	1,014
1989	511	154	1,176	1,841	1,260
1990	556	163	1,429	2,148	1,567
1991	599	172	1,722	2,493	1,912
1992	638	182	2,136	2,956	2,375
1993	682	182	2,722	3,586	3,005

Base Year = 1983

ECONOMIC TABLE 6-0
ILOCOS NORTE WATER SUPPLY PROJECT
 LIFE EXPECTANCY AND REPLACEMENT SCHEDULES
 ₱ x 1,000

Value without CONVERSION

Components	Life Expectancy of Components				
	7 Years	15 Years	50 Years	Infinite	Total
1. Vehicles	210				210
2. Chlorinator	130				130
3. Wells and Pumps		3,874			3,874
4. Meters		173			173
5. Distribution System			24,844		24,844
6. Transmission System			13,880		13,880
7. Fire Hydrants			2,801		2,801
8. Reservoirs			4,798		4,798
9. Valves			1,666		1,666
10. I/G			1,080		1,080
11. Service Connection			7,771		7,771
12. Land				200	200

7 Year Items	Years of Installation					Years of Replacement				
	1984					1991	1998	2005	2012	
1. Vehicles	1984					1991	1998	2005	2012	
2. Chlorinator	1984					1991	1998	2005	2012	

15 Year Items	Years of Installation					Years of Replacement				
	1984	1985	1986	1987		1999	2000	2001	2002	
1. Wells and Pumps	1984					1999	2000	2001	2002	
2. Meters	1984					1999				

ECONOMIC TABLE 6-A
ILOCOS NORTE WATER SUPPLY PROJECT
LIFE EXPECTANCY AND REPLACEMENT SCHEDULES
P x 1,000

Value with CONVERSION A

Components	Life Expectancy of Components				
	7 Years	15 Years	50 Years	Infinite	Total
1. Vehicles	231				231
2. Chlorinator	158				158
3. Wells and Pumps		4,076			4,076
4. Meters		204			204
5. Distribution System			27,119		27,119
6. Transmission System			15,461		15,461
7. Fire Hydrants			3,044		3,044
8. Reservoirs			3,866		3,866
9. Valves			1,866		1,866
10. I/G			926		926
11. Service Connection			9,018		9,018
12. Land				190	190

7 Year Items	Years of Installation					Years of Replacement				
1. Vehicles	1984					1991	1998	2005	2012	
2. Chlorinator	1984					1991	1998	2005	2012	

15 Year Items	Years of Installation					Years of Replacement				
1. Wells and Pumps	1984	1985	1986	1987		1999	2000	2001	2002	
2. Meters	1984					1999				

ECONOMIC TABLE 6-B

ILOCOS NORTE WATER SUPPLY PROJECT
LIFE EXPECTANCY AND REPLACEMENT SCHEDULES
P x 1,000

Value with CONVERSION B

Components	Life Expectancy of Components				
	7 Years	15 Years	50 Years	Infinite	Total
1. Vehicles	205				205
2. Chlorinator	129				129
3. Wells and Pumps		3,473			3,473
4. Meters		169			169
5. Distribution System			22,958		22,958
6. Transmission System			13,136		13,136
7. Fire Hydrants			2,582		2,582
8. Reservoirs			3,562		3,562
9. Valves			1,562		1,562
10. I/G			858		858
11. Service Connection			7,522		7,522
12. Land				190	190

7 Year Items	Years of Installation				Years of Replacement				
	1984	1985	1986	1987	1991	1998			
1. Vehicles	1984				1991	1998			
2. Chlorinator	1984				1991	1998			

15 Year Items	Years of Installation				Years of Replacement				
	1984	1985	1986	1987	1999	2000	2001	2002	
1. Wells and Pumps	1984				1999	2000	2001	2002	
2. Meters	1984				1999				

ECONOMIC TABLE 6-C
ILOCOS NORTE WATER SUPPLY PROJECT
LIFE EXPECTANCY AND REPLACEMENT SCHEDULES
P x 1,000

Value of CONVERSION C

Components	Life Expectancy of Components				
	7 Years	15 Years	50 Years	Infinite	Total
1. Vehicles	236				236
2. Chlorinator	159				159
3. Wells and Pumps		4,477			4,477
4. Meters		208			208
5. Distribution System			29,005		29,005
6. Transmission System			16,205		16,205
7. Fire Hydrants			3,263		3,263
8. Reservoirs			5,098		5,098
9. Valves			1,970		1,970
10. I/G			1,148		1,148
11. Service Connection			9,267		9,267
12. Land				200	200

7 Year Items	Years of Installation					Years of Replacement				
	1984					1991	1998			
1. Vehicles	1984					1991	1998			
2. Chlorinator	1984					1991	1998			

15 Year Items	Years of Installation					Years of Replacement				
	1984	1985	1986	1987		1999	2000	2001	2002	
1. Wells and Pumps	1984					1999	2000	2001	2002	
2. Meters	1984					1999				

ECONOMIC TABLE 7-0
ILOCOS NORTE WATER SUPPLY PROJECT
 CALCULATION OF SALVAGE VALUES
 ₱ x 1,000

Value without CONVERSION

Components	Base Year Value	Percentage of Base Year Value	31st Year Salvage Base Year Values
Infinite Life, Year Purchased			
1984	200	75%	150
50 Year Life, Year Constructed			
1 1984	26,981	42%	11,332
2 1985	15,464	44%	6,804
3 1986	8,467	46%	3,895
4 1987	2,004	48%	962
5 1988	3,924	50%	1,962
15 Year Life, Year of Replacement			
1 1999	1,132	7%	79
2 2000	645	13%	84
3 2001	1,201	20%	240
4 2002	1,069	27%	289
7 Year Life, Years of Final Replacement			
1 2012	340	86%	292
Total	61,427		26,089

ECONOMIC TABLE 7-A
 ILOCOS NORTE WATER SUPPLY PROJECT
 CALCULATION OF SALVAGE VALUES
 P x 1,000

Value with CONVERSION A

Components	Base Year Value	Percentage of Base Year Value	31st Year Salvage Base Year Values
Infinite Life, Year Purchased			
1984	190	75%	143
50 Year Life, Year Constructed			
1 1984	29,983	42%	12,593
2 1985	16,399	44%	7,216
3 1986	8,787	46%	4,042
4 1987	2,042	48%	980
5 1988	4,089	50%	2,045
15 Year Life, Year of Replacement			
1 1984	1,213	7%	85
2 1985	679	13%	88
3 1986	1,263	20%	253
4 1987	1,125	27%	304
7 Year Life, Years of Final Replacement			
1 1984	389	86%	335
Total	66,159		28,084

ECONOMIC TABLE 7-B
ILOCOS NORTE WATER SUPPLY PROJECT
 CALCULATION OF SALVAGE VALUES
 P x 1,000

Value with CONVERSION B

Components	Base Year Value	Percentage of Base Year Value	31st Year Salvage Base Year Values
Infinite Life, Year Purchased			
1984	190	75%	143
50 Year Life, Year Constructed			
1 1984	25,316	42%	10,633
2 1985	14,021	44%	6,169
3 1986	7,542	46%	3,469
4 1987	1,781	48%	855
5 1988	3,524	50%	1,762
15 Year Life, Year of Replacement			
1 1984	1,029	7%	72
2 1985	578	13%	75
3 1986	1,077	20%	215
4 1987	958	27%	259
7 Year Life, Years of Final Replacement			
1 1984	334	86%	287
Total	56,350		23,939

ECONOMIC TABLE 7-C
ILOCOS NORTE WATER SUPPLY PROJECT
 CALCULATION OF SALVAGE VALUES
 P x 1,000

Value with CONVERSION C

Components	Base Year Value	Percentage of Base Year Value	31st Year Salvage Base Year Values
Infinite Life, Year Purchased			
1984	200	75%	150
50 Year Life, Year Constructed			
1 1984	31,648	42%	13,292
2 1985	17,843	44%	7,851
3 1986	9,712	46%	4,468
4 1987	2,265	48%	1,087
5 1988	4,488	50%	2,244
15 Year Life, Year of Replacement			
1 1984	1,316	7%	92
2 1985	745	13%	97
3 1986	1,388	20%	278
4 1987	1,236	27%	334
7 Year Life, Years of Final Replacement			
1 1984	395	86%	340
Total	71,236		30,233

ECONOMIC TABLE 8-0
 ILOCOS NORTE WATER SUPPLY PROJECT
 SUMMARY OF ALL PROJECT COSTS
 Costs as of July 1, 1981 in 1,000 Pesos

Value without CONVERSION

Year	Cost of Facilities	Net O & M	Replace-ment Costs	Total	Salvage	Net Cost
1982						
1983	6,429	37		6,466		
1984	29,296	151		29,447		
1985	16,537	334		16,871		
1986	10,096	536		10,632		
1987	3,395	805		4,200		
1988	4,246	1,014		5,260		
1989		1,260		1,260		
1990		1,567		1,567		
1991		1,912	340	2,252		
1992		2,375		2,375		
1993		3,005		3,005		
1994		3,005		3,005		
1995		3,005		3,005		
1996		3,005		3,005		
1997		3,005		3,005		
1998		3,005	340	3,345		
1999		3,005	1,132	4,137		
2000		3,005	645	3,650		
2001		3,005	1,201	4,206		
2002		3,005	1,069	4,074		
2003		3,005		3,005		
2004		3,005		3,005		
2005		3,005	340	3,345		
2006		3,005		3,005		
2007		3,005		3,005		
2008		3,005		3,005		
2009		3,005		3,005		
2010		3,005		3,005		
2011		3,005		3,005		
2012		3,005	340	3,345		
Total	69,999	70,091	5,407	145,497	(26,089)	119,408

ECONOMIC TABLE 8-A

ILOCOS NORTE WATER SUPPLY PROJECT
SUMMARY OF ALL PROJECT COSTS
Costs as of July 1, 1981 in 1,000 Pesos

Value with CONVERSION A

Year	Cost of Facilities	Net O & M	Replacement Costs	Total	Salvage	Net Cost
1982						
1983	7,264	37		7,301		
1984	32,501	151		32,652		
1985	17,562	334		17,896		
1986	10,534	536		11,070		
1987	3,531	805		4,336		
1988	4,453	1,014		5,467		
1989		1,260		1,260		
1990		1,567		1,567		
1991		1,912	389	2,301		
1992		2,375		2,375		
1993		3,005		3,005		
1994		3,005		3,005		
1995		3,005		3,005		
1996		3,005		3,005		
1997		3,005		3,005		
1998		3,005	389	3,394		
1999		3,005	1,213	4,218		
2000		3,005	679	3,684		
2001		3,005	1,263	4,268		
2002		3,005	1,125	4,130		
2003		3,005		3,005		
2004		3,005		3,005		
2005		3,005	389	3,394		
2006		3,005		3,005		
2007		3,005		3,005		
2008		3,005		3,005		
2009		3,005		3,005		
2010		3,005		3,005		
2011		3,005		3,005		
2012		3,005	389	3,394		
Total	75,845	70,091	5,836	151,772	(28,084)	123,688

ECONOMIC TABLE 8-B

ILOCOS NORTE WATER SUPPLY PROJECT
 SUMMARY OF ALL PROJECT COSTS
 Costs as of July 1, 1981 in 1,000 Pesos

Value with CONVERSION B

Year	Cost of Facilities	Net O & M	Replacement Costs	Total	Salvage	Net Cost
1982						
1983	6,300	37		6,337		
1984	27,499	151		27,650		
1985	15,018	334		15,352		
1986	9,038	536		9,574		
1987	3,055	805		3,860		
1988	3,840	1,014		4,854		
1989		1,260		1,260		
1990		1,567		1,567		
1991		1,912	334	2,246		
1992		2,375		2,375		
1993		3,005		3,005		
1994		3,005		3,005		
1995		3,005		3,005		
1996		3,005		3,005		
1997		3,005		3,005		
1998		3,005	334	3,339		
1999		3,005	1,029	4,034		
2000		3,005	578	3,583		
2001		3,005	1,077	4,082		
2002		3,005	958	3,963		
2003		3,005		3,005		
2004		3,005		3,005		
2005		3,005	334	3,339		
2006		3,005		3,005		
2007		3,005		3,005		
2008		3,005		3,005		
2009		3,005		3,005		
2010		3,005		3,005		
2011		3,005		3,005		
2012		3,005	334	3,339		
Total	64,750	70,091	4,978	139,819	(23,939)	115,880

ECONOMIC TABLE 8-C
ILOCOS NORTE WATER SUPPLY PROJECT
SUMMARY OF ALL PROJECT COSTS
Costs as of July 1, 1981 in 1,000 Pesos

Value with CONVERSION C

Year	Cost of Facilities	Net O & M	Replacement Costs	Total	Salvage	Net Cost
1982						
1983	7,393	37		7,430		
1984	34,299	151		34,450		
1985	19,080	334		19,414		
1986	11,592	536		12,128		
1987	3,872	805		4,677		
1988	4,858	1,014		5,872		
1989		1,260		1,260		
1990		1,567		1,567		
1991		1,912	395	2,307		
1992		2,375		2,375		
1993		3,005		3,005		
1994		3,005		3,005		
1995		3,005		3,005		
1996		3,005		3,005		
1997		3,005		3,005		
1998		3,005	395	3,400		
1999		3,005	1,316	4,321		
2000		3,005	745	3,750		
2001		3,005	1,388	4,393		
2002		3,005	1,236	4,241		
2003		3,005		3,005		
2004		3,005		3,005		
2005		3,005	395	3,400		
2006		3,005		3,005		
2007		3,005		3,005		
2008		3,005		3,005		
2009		3,005		3,005		
2010		3,005		3,005		
2011		3,005		3,005		
2012		3,005	395	3,400		
Total	81,094	70,091	6,265	157,450	(30,233)	127,217

ECONOMIC TABLE 9

ILOCOS NORTE WATER SUPPLY PROJECT
BENEFITS AT 1981 PRICES
(P x 1,000)

Year	Volume	Qualitative	Fire Loss Reduction	Total	National Interest Adjustment
1982					
1983					
1984	411	472	111	994	1,193
1985	666	945	147	1,758	2,110
1986	1,724	1,417	184	3,325	3,990
1987	2,875	1,417	231	4,523	5,428
1988	3,670	1,417	274	5,361	6,433
1989	4,551	1,417	320	6,288	7,546
1990	5,509	1,417	379	7,305	8,766
1991	6,449	1,417	442	8,308	9,970
1992	7,226	1,417	535	9,178	11,014
1993	7,925	1,417	665	10,007	12,008
1994	7,925	1,417	665	10,007	12,008
1995	7,925	1,417	665	10,007	12,008
1996	7,925	1,417	665	10,007	12,008
1997	7,925	1,417	665	10,007	12,008
1998	7,925	1,417	665	10,007	12,008
1999	7,925	1,417	665	10,007	12,008
2000	7,925	1,417	665	10,007	12,008
2001	7,925	1,417	665	10,007	12,008
2002	7,925	1,417	665	10,007	12,008
2003	7,925	1,417	665	10,007	12,008
2004	7,925	1,417	665	10,007	12,008
2005	7,925	1,417	665	10,007	12,008
2006	7,925	1,417	665	10,007	12,008
2007	7,925	1,417	665	10,007	12,008
2008	7,925	1,417	665	10,007	12,008
2009	7,925	1,417	665	10,007	12,008
2010	7,925	1,417	665	10,007	12,008
2011	7,925	1,417	665	10,007	12,008
2012	7,925	1,417	665	10,007	12,008
Total	191,581	39,676	15,923	247,180	296,610

ECONOMIC TABLE 10-0

ILOCOS NORTE WATER SUPPLY PROJECT
INTERNAL RATE OF RETURN COMPUTATION

Cost Value without CONVERSION

Year	Total Cost	Total Benefit	Net Benefit	Present Net Benefit
1982				
1983	6,466	-	-6,466	-6,466
1984	29,447	1,193	-28,254	-25,687
1985	16,871	2,110	-14,761	-12,200
1986	10,632	3,990	-6,642	-4,991
1987	4,200	5,428	1,228	839
1988	5,260	6,423	1,173	728
1989	1,260	7,546	6,286	3,549
1990	1,567	8,766	7,199	3,695
1991	2,252	9,970	7,718	3,602
1992	2,375	11,014	8,639	3,665
1993	3,005	12,008	9,003	3,472
1994	3,005	12,008	9,003	3,157
1995	3,005	12,008	9,003	2,870
1996	3,005	12,008	9,003	2,609
1997	3,005	12,008	9,003	2,372
1998	3,345	12,008	8,663	2,075
1999	4,137	12,008	7,871	1,714
2000	3,650	12,008	8,358	1,655
2001	4,206	12,008	7,802	1,404
2002	4,074	12,008	7,934	1,298
2003	3,005	12,008	9,003	1,339
2004	3,005	12,008	9,003	1,218
2005	3,345	12,008	8,663	1,065
2006	3,005	12,008	9,003	1,006
2007	3,005	12,008	9,003	915
2008	3,005	12,008	9,003	832
2009	3,005	12,008	9,003	756
2010	3,005	12,008	9,003	688
2011	3,005	12,008	9,003	625
2012	3,345	12,008	34,752*	2,193*
Salvage(-)	26,089			
Total	119,408	296,610	177,202	-3

Rate of Return = 0.10

ECONOMIC TABLE 10-A

ILOCOS NORTE WATER SUPPLY PROJECT
INTERNAL RATE OF RETURN COMPUTATIONCost Value with CONVERSION A

Year	Total Cost	Total Benefit	Net Benefit	Present Benefit
1982				
1983	7,301	-	-7,301	-7,301
1984	32,652	1,193	-31,459	-28,822
1985	17,896	2,110	-15,786	-13,250
1986	11,070	3,990	-7,080	-5,444
1987	4,336	5,428	1,092	769
1988	5,467	6,433	966	624
1989	1,260	7,546	6,286	3,717
1990	1,567	8,766	7,199	3,900
1991	2,301	9,970	7,669	3,806
1992	2,375	11,014	8,639	3,928
1993	3,005	12,008	9,003	3,751
1994	3,005	12,008	9,003	3,436
1995	3,005	12,008	9,003	3,148
1996	3,005	12,008	9,003	2,884
1997	3,005	12,008	9,003	2,642
1998	3,394	12,008	8,614	2,316
1999	4,218	12,008	7,790	1,919
2000	3,684	12,008	8,324	1,879
2001	4,268	12,008	7,740	1,601
2002	4,130	12,008	7,878	1,492
2003	3,005	12,008	9,003	1,563
2004	3,005	12,008	9,003	1,432
2005	3,394	12,008	8,614	1,255
2006	3,005	12,008	9,003	1,202
2007	3,005	12,008	9,003	1,101
2008	3,005	12,008	9,003	1,009
2009	3,005	12,008	9,003	924
2010	3,005	12,008	9,003	847
2011	3,005	12,008	9,003	776
2012	3,394	12,008	36,698*	2,896*
Salvage (-)	28,084			
Total	123,688	296,610	172,922	0

* Values include salvage.

Rate of Return = 0.09

ECONOMIC TABLE 10-B

ILOCOS NORTE WATER SUPPLY PROJECT
INTERNAL RATE OF RETURN COMPUTATION

Cost Value with CONVERSION B

Year	Total Cost	Total Benefit	Net Benefit	Present Benefit
1982				
1983	6,337	-	-6,337	-6,337
1984	27,650	1,193	-26,457	-23,879
1985	15,352	2,110	-13,242	-10,787
1986	9,574	3,990	-5,584	-4,106
1987	3,860	5,428	1,568	1,041
1988	4,854	6,433	1,579	946
1989	1,260	7,546	6,286	3,398
1990	1,567	8,766	7,199	3,513
1991	2,246	9,970	7,724	3,402
1992	2,375	11,014	8,639	3,434
1993	3,005	12,008	9,003	3,230
1994	3,005	12,008	9,003	2,915
1995	3,005	12,008	9,003	2,631
1996	3,005	12,008	9,003	2,375
1997	3,005	12,008	9,003	2,143
1998	3,339	12,008	8,669	1,863
1999	4,034	12,008	7,974	1,547
2000	3,583	12,008	8,425	1,475
2001	4,082	12,008	7,926	1,252
2002	3,963	12,008	8,045	1,147
2003	3,005	12,008	9,003	1,159
2004	3,005	12,008	9,003	1,046
2005	3,339	12,008	8,669	909
2006	3,005	12,008	9,003	852
2007	3,005	12,008	9,003	769
2008	3,005	12,008	9,003	694
2009	3,005	12,008	9,003	626
2010	3,005	12,008	9,003	565
2011	3,005	12,008	9,003	510
2012	3,339	12,008	32,608*	1,668*
Salvage (-)	23,939			
Total	115,880	296,610	180,730	1

* Values include salvage.

Rate of Return = 0.11

ECONOMIC TABLE 10-C

ILOCOS NORTE WATER SUPPLY PROJECT
INTERNAL RATE OF RETURN COMPUTATION

Cost Value with CONVERSION C

Year	Total Cost	Total Benefit	Net Benefit	Present Benefit
1982				
1983	7,430	-	-7,430	-7,430
1984	34,450	1,193	-33,257	-30,644
1985	19,414	2,110	-17,304	-14,692
1986	12,128	3,990	-8,138	-6,367
1987	4,677	5,428	751	541
1988	5,872	6,433	561	373
1989	1,260	7,546	6,286	3,847
1990	1,567	8,766	7,199	4,060
1991	2,307	9,970	7,663	3,982
1992	2,375	11,014	8,639	4,136
1993	3,005	12,008	9,003	3,972
1994	3,005	12,008	9,003	3,660
1995	3,005	12,008	9,003	3,372
1996	3,005	12,008	9,003	3,107
1997	3,005	12,008	9,003	2,863
1998	3,400	12,008	8,608	2,523
1999	4,321	12,008	7,687	2,076
2000	3,750	12,008	8,258	2,055
2001	4,393	12,008	7,615	1,746
2002	4,241	12,008	7,767	1,641
2003	3,005	12,008	9,003	1,752
2004	3,005	12,008	9,003	1,615
2005	3,400	12,008	8,608	1,423
2006	3,005	12,008	9,003	1,371
2007	3,005	12,008	9,003	1,263
2008	3,005	12,008	9,003	1,164
2009	3,005	12,008	9,003	1,073
2010	3,005	12,008	9,003	988
2011	3,005	12,008	9,003	911
2012	3,400	12,008	38,841*	3,620*
Salvage (-)	30,233			
Total	127,217	296,610	169,393	1

* Values include salvage.

Rate of Return = 0.09

政府補助金率算定のための財政分析資料

〔政府補助金率を一段階低い20%（対総投資額）とした場合の財政分析結果は非有意。〕

FINANCIAL TABLE 3

ILOCOS NORTE WATER SUPPLY PROJECT
 LOAN DISBURSEMENTS AND DEBT SERVICE
 (₱1,000's)

Year	Disbursement <u>1/</u>		Loans Outstanding		Interest Payments		Principal Payments <u>3/</u>	Total Debt Service
	Grant 20%	Loan 80%	Beginning	Ending	First Year <u>2/</u>	Later Years		
1981								
1982								
1983	1,867	7,468		7,804				
1984	9,797	39,187	7,804	49,456				
1985	6,185	24,740	49,456	79,754				
1986	4,242	16,968	79,754	104,663				
1987	1,598	6,393	104,663	120,761				
1988	2,233	8,931	120,761	140,962				
1989			140,962	140,637		12,687	325	13,012
1990			140,637	138,577		12,657	2,060	14,717
1991			138,577	135,254		12,472	3,323	15,795
1992			135,254	130,893		12,173	4,361	16,534
1993			130,893	125,862		11,780	5,031	16,811
1994			125,862	119,989		11,328	5,873	17,201
1995			119,989	114,116		10,799	5,873	16,672
1996			114,116	108,243		10,270	5,873	16,143
1997			108,243	102,370		9,742	5,873	15,615
1998			102,370	95,497		9,213	5,873	15,086

1/ From Financial Table 1.

2/ Disbursements assumed to be equally spread during year. Charge with 50 per cent of annual interest in first year.

3/ Principal payments made in equal yearly instalments.

4/ Interest capitalized during construction.

FINANCIAL TABLE 4
ILOCOS NORTE WATER SUPPLY PROJECT
CASH REQUIREMENTS PER REVENUE UNIT
(P1,000's)

Year	Debt Service	O & M	Total Costs	Estimated Reserves 1/	Cost With Reserves	Revenue Units 2/	Cost Per Revenue Unit 3/
1981		546	546		546	1,845	0.30
1982		668	668		668	2,081	0.32
1983		817	817		817	2,224	0.37
1984		1,113	1,113		1,113	2,412	0.46
1985		1,559	1,559		1,559	2,609	0.60
1986		2,131	2,131		2,131	3,117	0.68
1987		2,962	2,962		2,962	3,695	0.80
1988		3,817	3,817		3,817	4,077	0.94
1989	13,012	4,934	17,946	897	18,823	4,496	4.19
1990	14,717	6,333	21,050	1,053	22,103	4,995	4.43
1991	15,795	8,085	23,880	2,388	26,268	5,418	4.85
1992	16,534	10,546	27,080	2,708	29,788	5,746	5.18
1993	16,811	14,072	30,883	3,088	33,971	6,864	4.95
1994	17,201	15,480	32,681	3,268	35,949	6,864	5.24
1995	16,672	17,028	33,700	3,370	37,070	6,864	5.40
1996	16,143	18,730	34,873	3,487	38,313	6,864	5.58
1997	15,615	20,630	36,245	3,625	39,870	6,864	5.81
1998	15,086	22,664	37,750	3,775	41,525	6,864	6.05

1/ Reserve estimate equal to 10 per cent of total costs. (5 per cent for the first two years)

2/ Revenue units from Tables 9A, 9B and 9C.

3/ Revenue units divided into costs with reserves.

FINANCIAL TABLE 6 - A
 ILOCOS NORTE WATER SUPPLY PROJECT
 ILLUSTRATIVE CASH FLOW TABLE
 ₱1,000'S EXCEPT CHARGES PER UNIT

Year	Revenue Units <u>1/</u>	Charges Per Unit	Gross Revenues	Net Revenue <u>2/</u>		Basic Costs <u>3/</u>	Required Reserves <u>4/</u>	Total Costs <u>5/</u>	Net Income	
				%	Amount				Annual	Cumulative
1981	1,845	0.80	1,476	95	1,402	546		546	856	856
1982	2,081	0.80	1,665	95	1,582	668		668	914	1,770
1983	2,222	1.25	2,778	95	2,639	817		817	1,822	2,592
1984	2,426	1.90	4,609	96	4,425	1,113		1,113	3,312	6,904
1985	2,589	1.90	4,919	96	4,722	1,559		1,559	3,163	10,067
1986	3,117	2.45	7,637	96	7,331	2,131		2,131	5,200	15,267
1987	3,695	2.50	9,237	97	8,960	2,962		2,962	5,998	21,265
1988	4,077	2.80	11,416	97	11,074	3,817		3,817	7,257	28,522
1989	4,496	3.15	14,162	97	13,738	17,946	708	18,654	-4,916	23,606
1990	4,955	3.45	17,095	98	16,753	21,050	855	21,905	-5,152	18,454
1991	5,418	3.80	20,588	98	20,176	23,880	2,059	25,939	-5,763	12,691
1992	5,846	4.18	24,436	98	23,948	27,080	2,444	29,524	-5,576	7,115
1993	6,371	4.59	29,243	98	28,658	30,883	2,924	33,807	-5,149	1,966

1/ From Tables 9A, 9B and 9C.

2/ Gross revenues from water sales reduced by bad debt allowance.

3/ Total of project debt service, operation and maintenance costs.

4/ Ten percent of gross water sales, after completion of construction. (5 percent for the first two years)

5/ Includes the costs of replacing the first complement of project components with seven years of life expectancy.

FINANCIAL TABLE 6 - B

ILOCOS NORTE WATER SUPPLY PROJECT
ILLUSTRATIVE CASH FLOW TABLE
 ₱1,000's EXCEPT CHARGES PER UNIT

Year	Revenue Units <u>1/</u>	Charges Per Unit	Gross Revenues	Net Revenues <u>2/</u>		Basic Costs <u>3/</u>	Required Reserves <u>4/</u>	Total Costs <u>5/</u>	Net Income	
				%	Amount				Annual	Cumulative
1994	6,371	5.05	32,174	98	31,531	32,681	3,217	35,898	-4,367	-2,401
1995	6,371	5.50	35,041	98	34,340	33,700	3,504	37,204	-2,864	-5,265
1996	6,371	6.00	38,226	98	37,461	34,873	3,823	38,696	-1,235	-6,500
1997	6,371	6.00	38,226	98	37,461	36,245	3,823	40,068	-2,607	-9,107
1998	6,371	7.00	44,597	98	43,705	37,750	4,460	42,210	1,495	-7,612

1/ From Tables 9A, 9B and 9C.

2/ Gross revenues from water sales reduced by bad debt allowance.

3/ Total of project debt service, operation and maintenance costs.

4/ Ten percent of gross water sales, after completion of construction.

5/ Includes costs of replacing the first complement of project components with seven years of life expectancy.