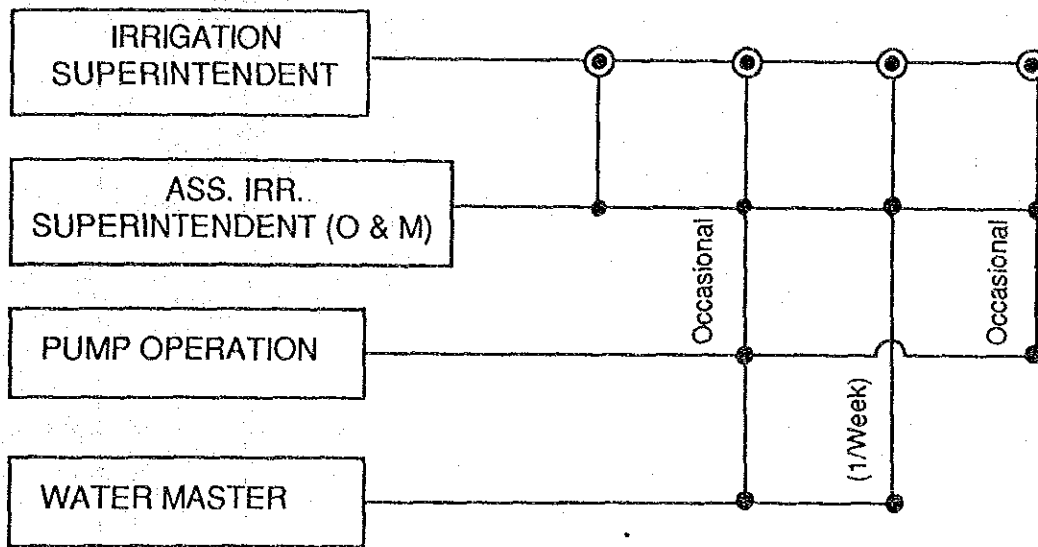


Fig. 2.1 MEETING SYSTEM FOR O&M (BONGA PUMP #1, #2 & #3)

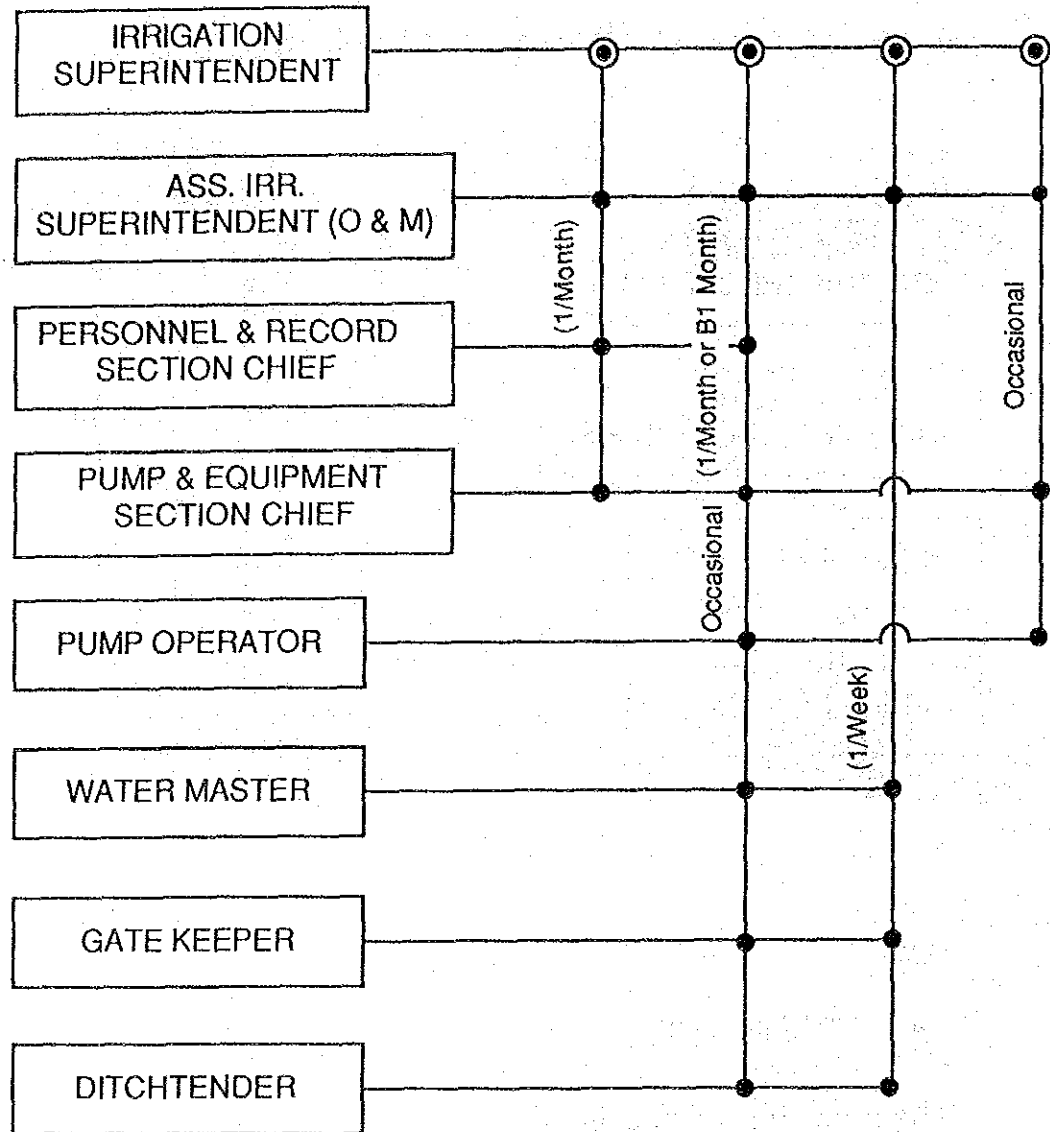


⊙ : Chairman

● : Attendant

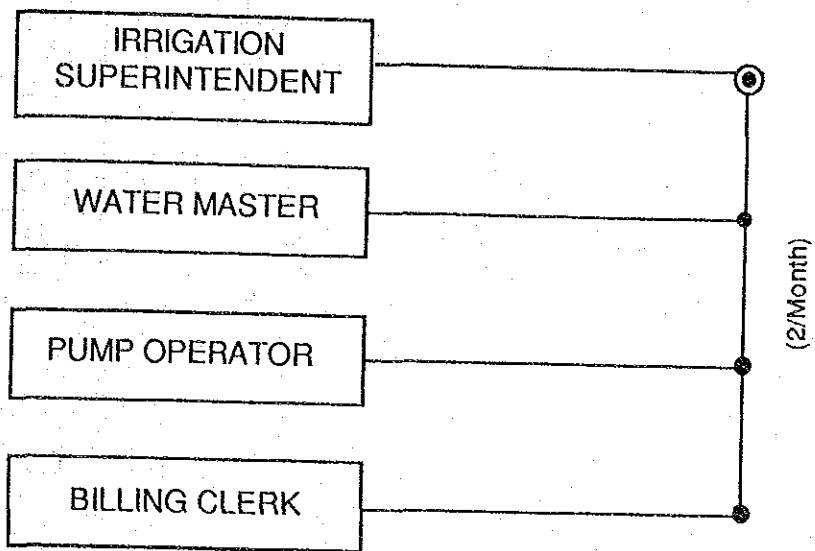
(1/Week) : Frequency of Meeting

Fig. 2.2 MEETING SYSTEM FOR O&M (ALCALA AMULUNG)



⊙ : Chairman  
 ● : Attendant  
 (1/Week) : Frequency of Meeting

Fig. 2.3 MEETING SYSTEM FOR O&M (LIBMANAN-CABUSAO)

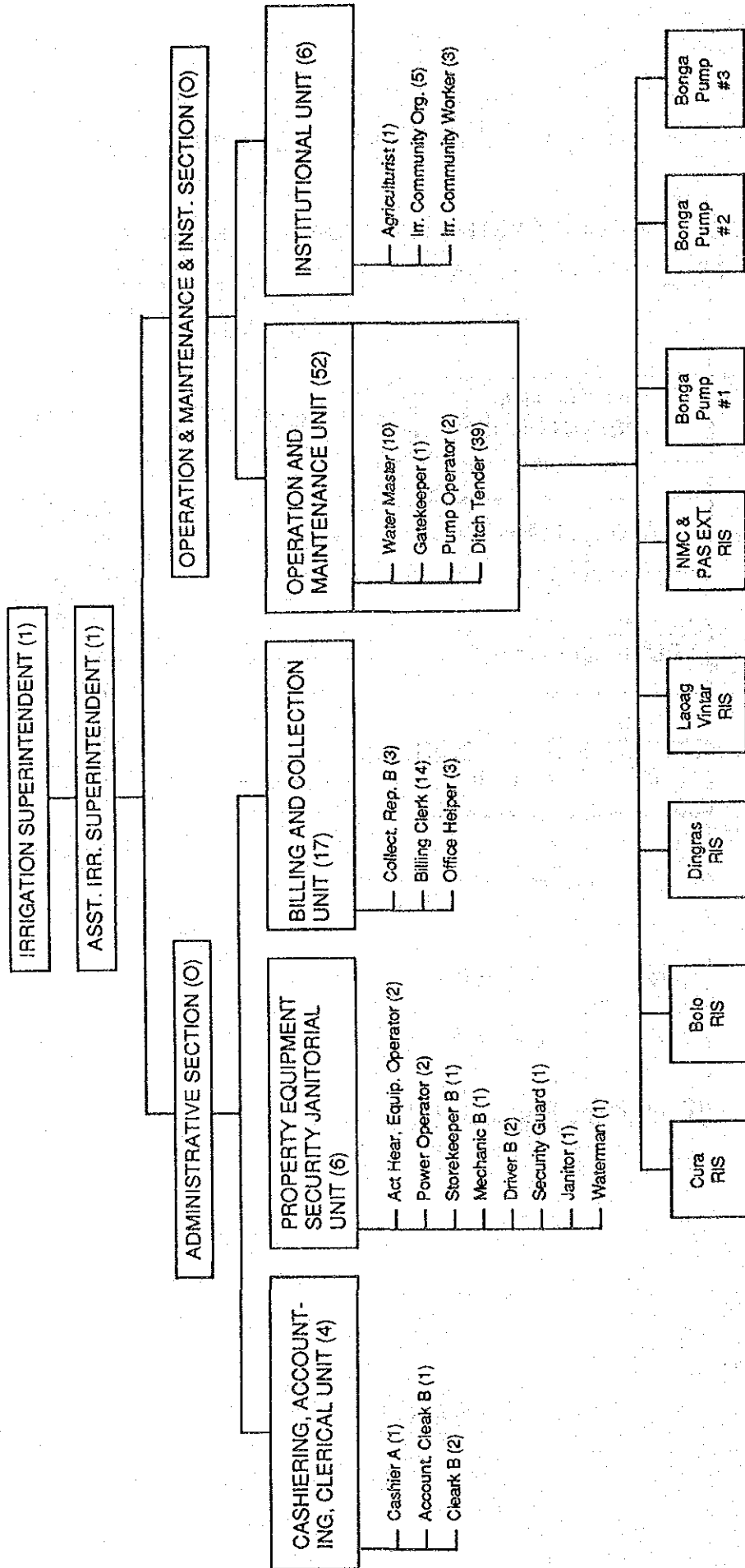


⊙ : Chairman

● : Attendant

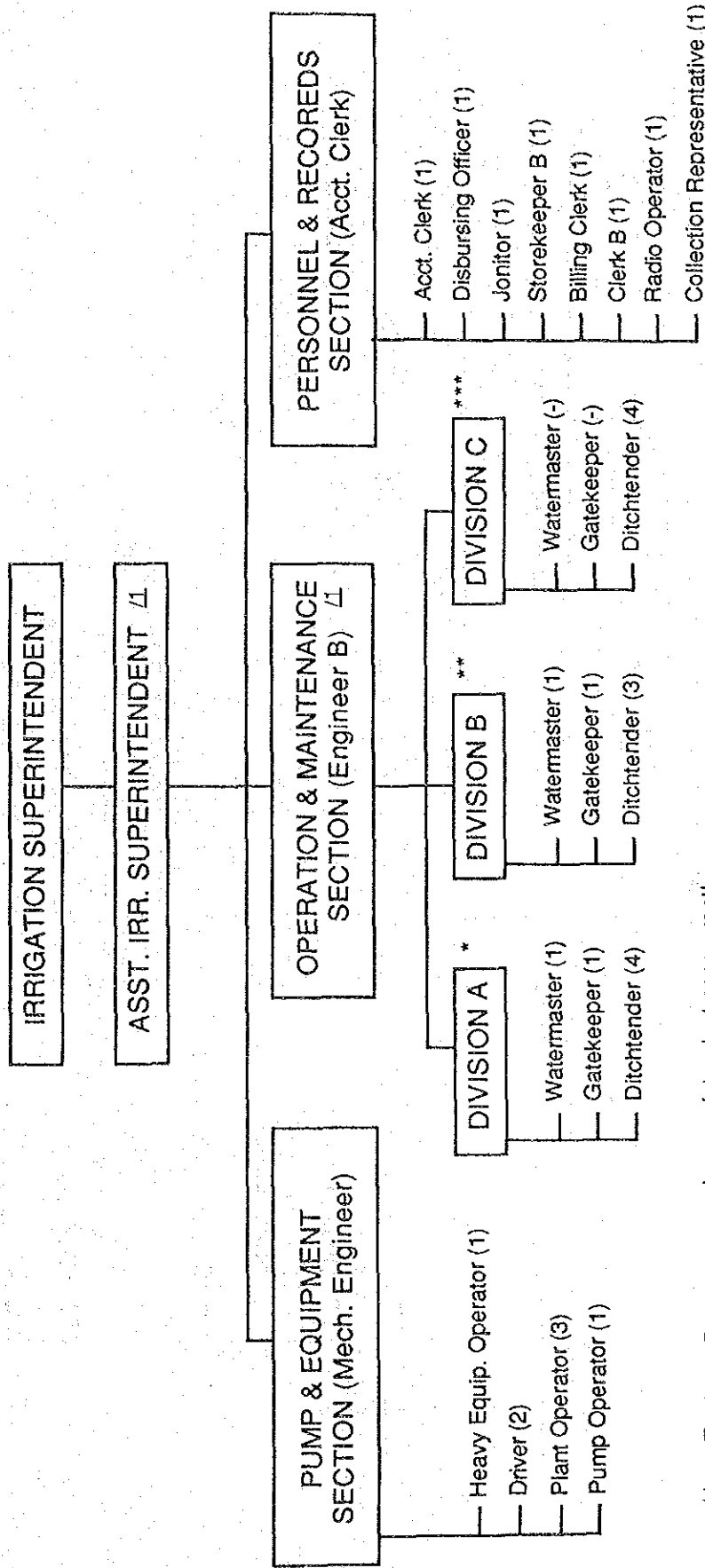
(2/Month) : Frequency of Meeting

Fig. 4.1 ORGANIZATION CHART OF ILOCOS NORTE IRRIGATION SERVICE OFFICE IN 1988  
(BONGA PUMP #1, #2 & #3)



Remark: ( ) indicates number of staff

Fig. 4.2 ORGANIZATION CHART OF IGUIG, ALCALA-AMULUNG  
PUMP IRRIGATION SYSTEM OFFICE IN 1988



△ Engineer B acts as asst. in superintendent concurrently

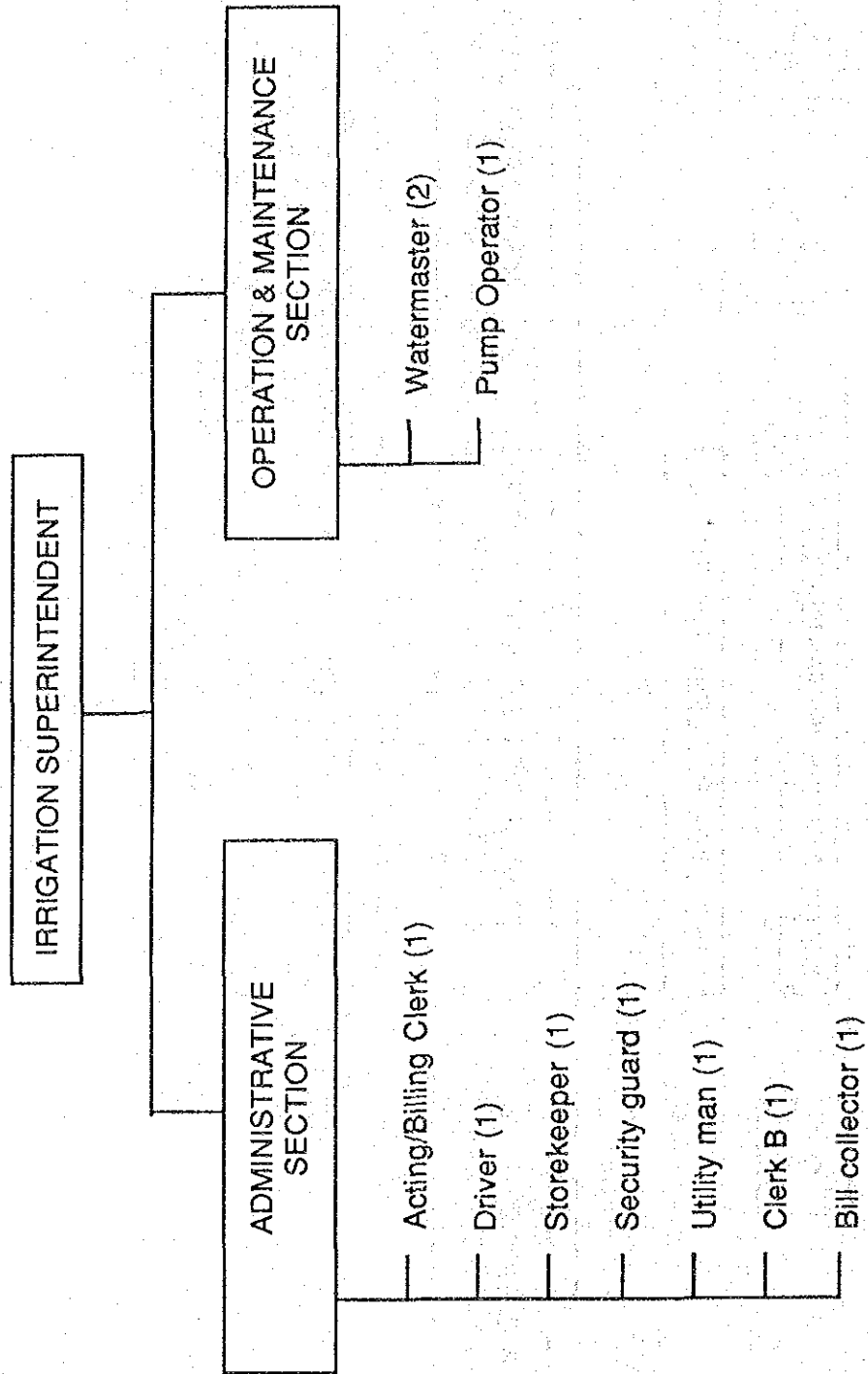
( ) Indicates number of Staff

\* Amulung area

\*\* Alcala area

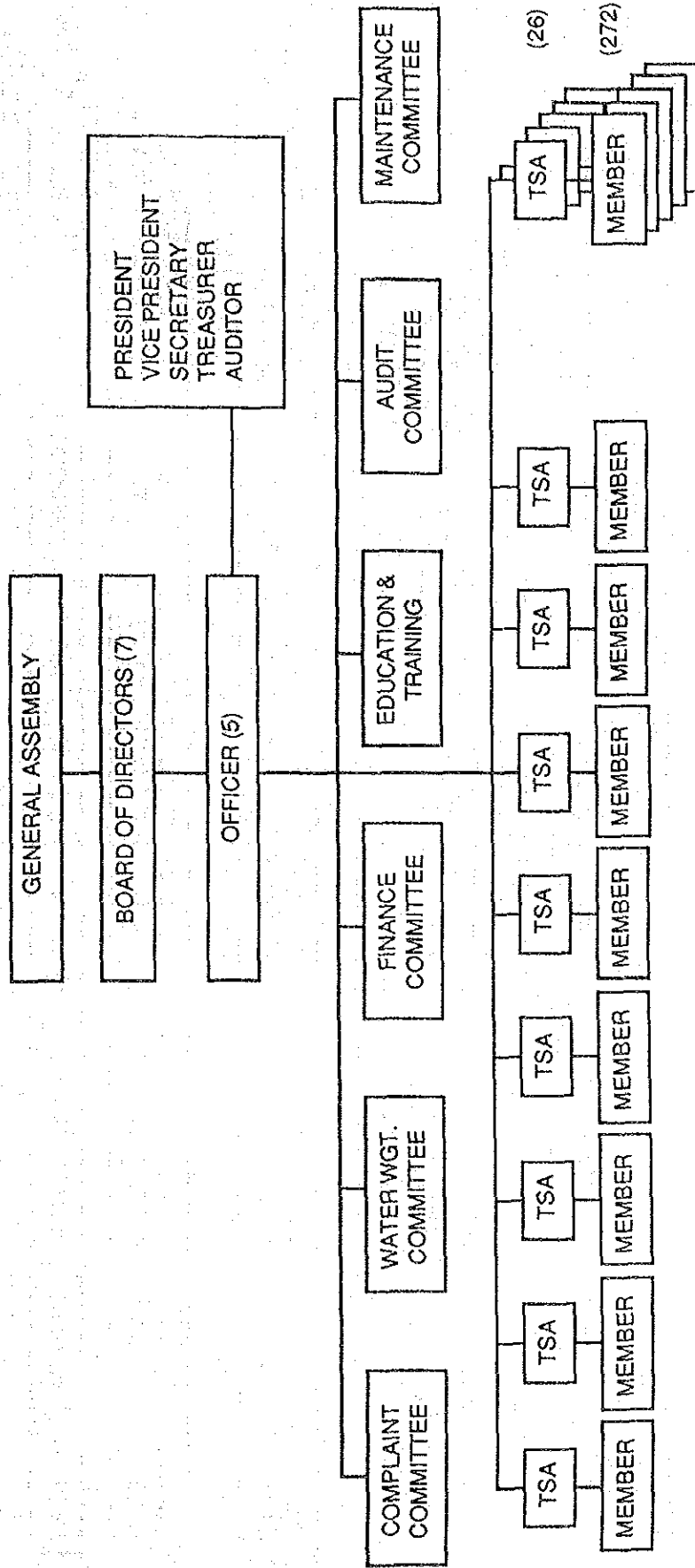
\*\*\* Iguig area

Fig. 4.3 ORGANIZATION CHART OF LIBMANAN-CABUSAO  
PUMP IRRIGATION SYSTEM OFFICE IN 1988



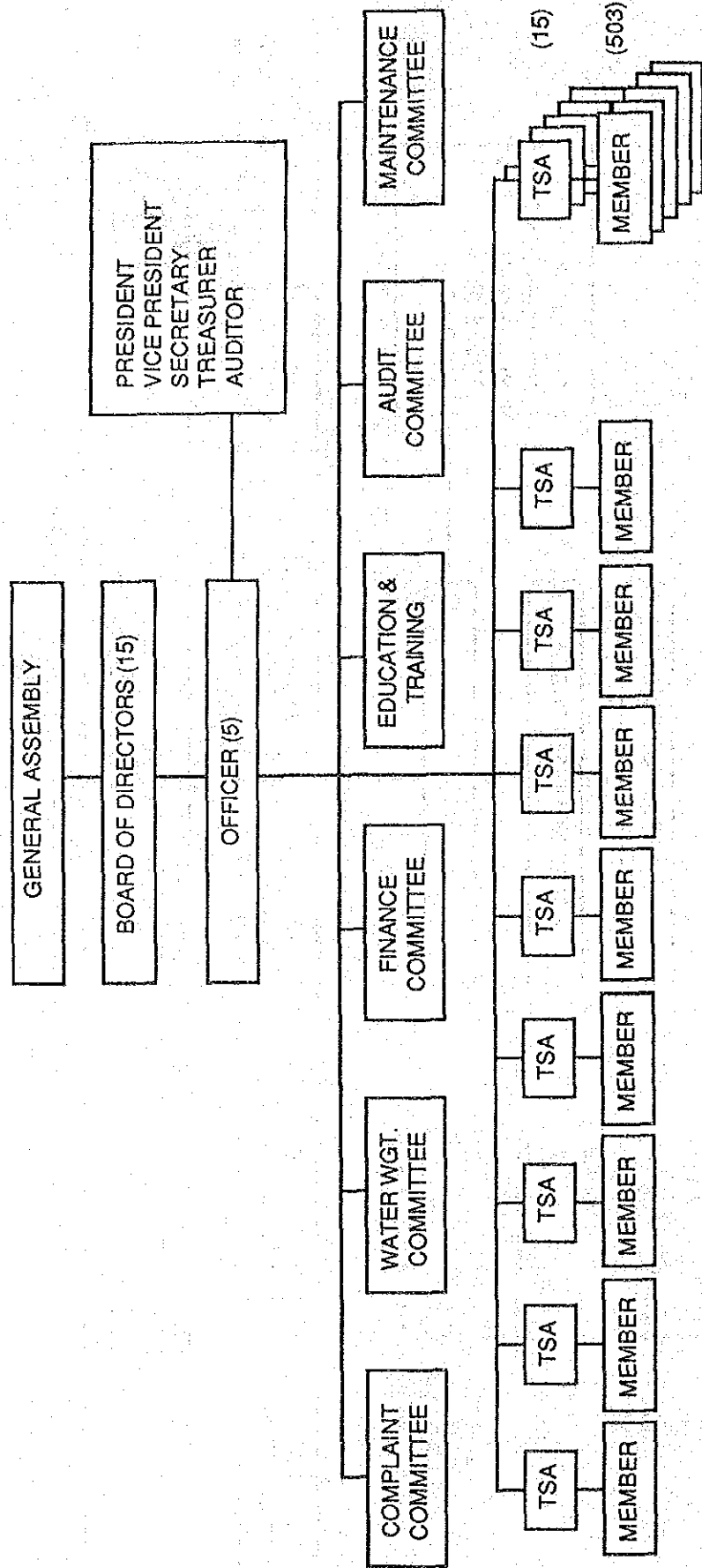
( ) indicates number of staff

Fig. 4.4 ORGANIZATION CHART OF SARRAT-SAN NICOLAS IA  
(BONGA PUMP #1)



TSA : Tertiary Service Area (as same as Farmers Irrigators Group)

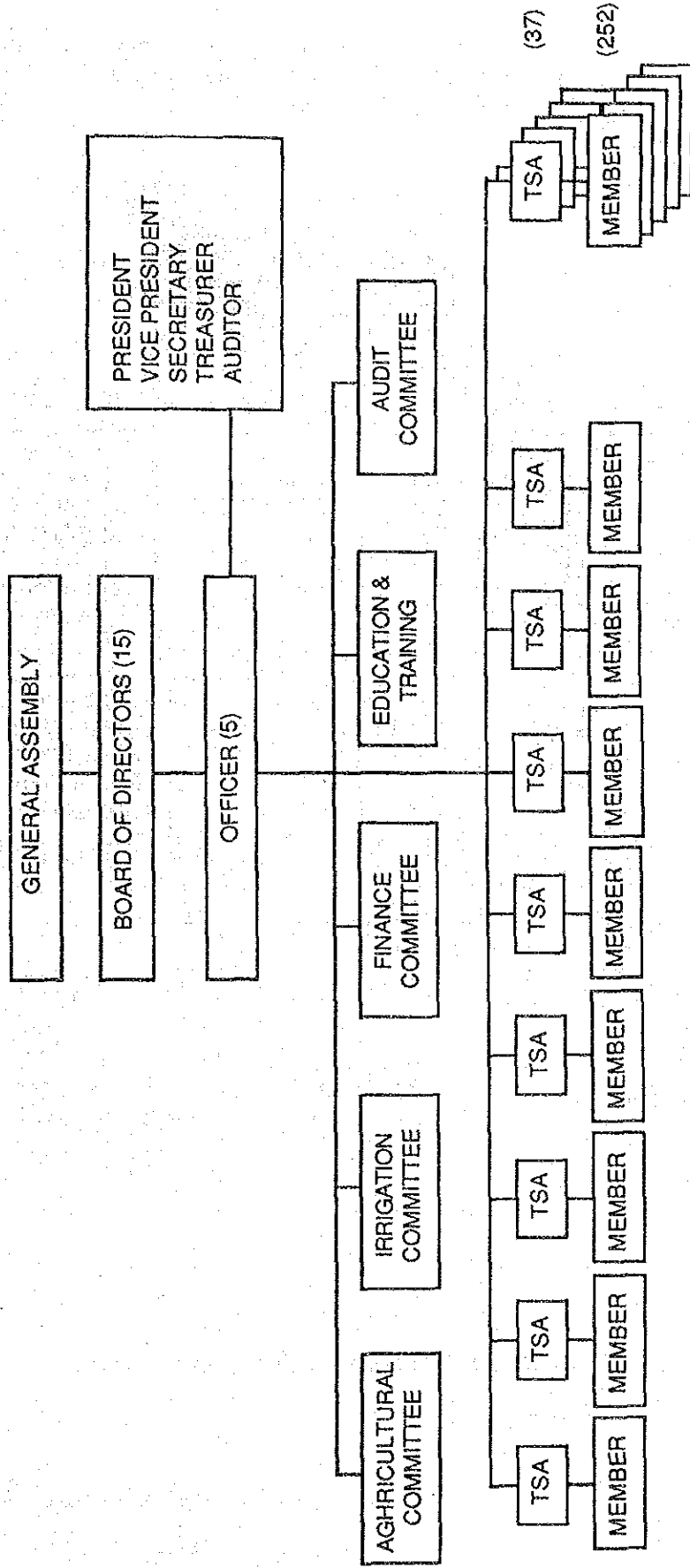
Fig. 4.5 ORGANIZATION CHART OF SAN NICOLAS LAOAG IA  
(BONGA PUMP #2)



TSA : Tertiary Service Area (as same as Farmers Irrigators Group)

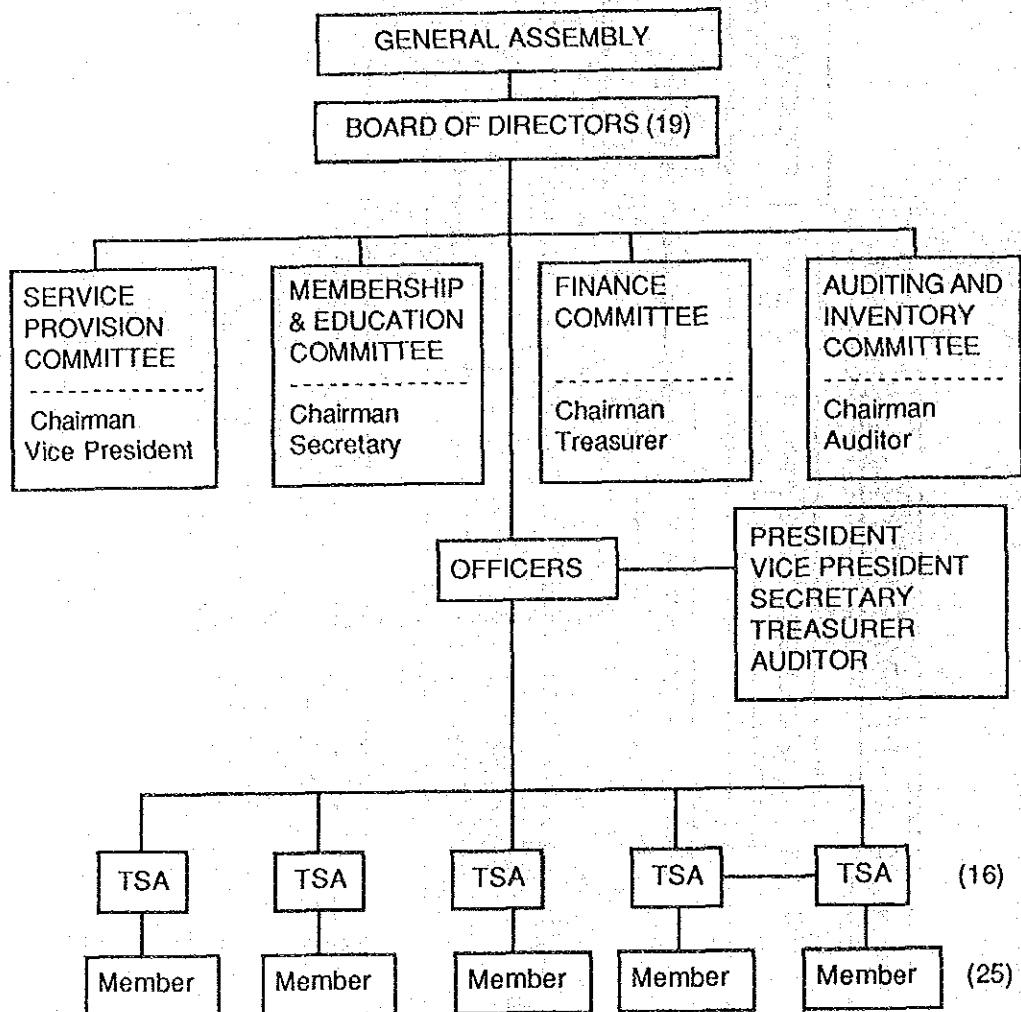


Fig. 4.6 ORGANIZATION CHART OF WESTERN IA  
(BONGA PUMP #3)



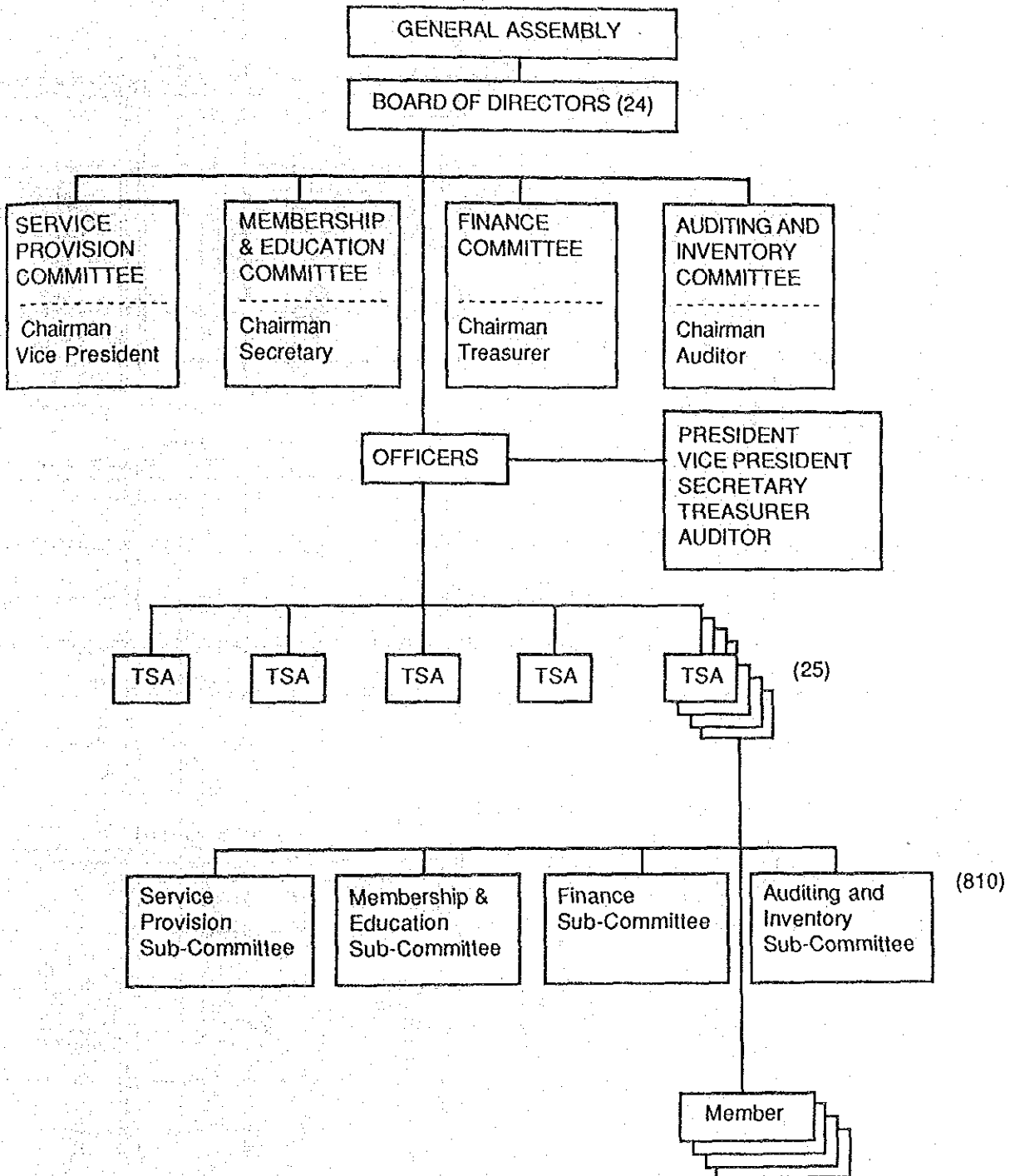
TSA : Tertiary Service Area (as same as Farmers Irrigators Group)

Fig. 4.7 ORGANIZATION CHART OF AMALIA IA  
(ALCALA - AMULUNG)



TSA : Tertiary Service Area (as same as Farmer's Irrigators Group)

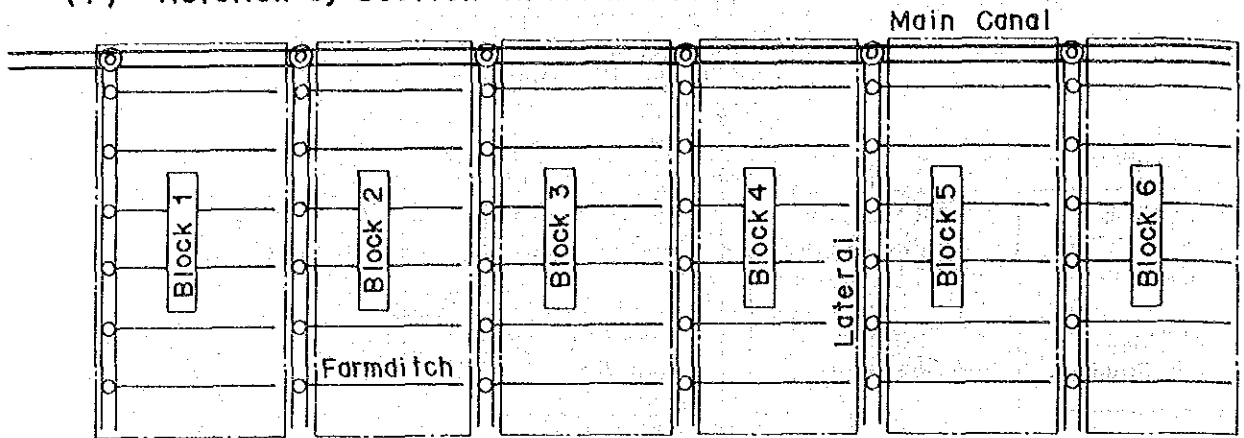
Fig. 4.8 ORGANIZATION CHART OF SOLANA CAGAYAN RIVER IA (SOLANA)



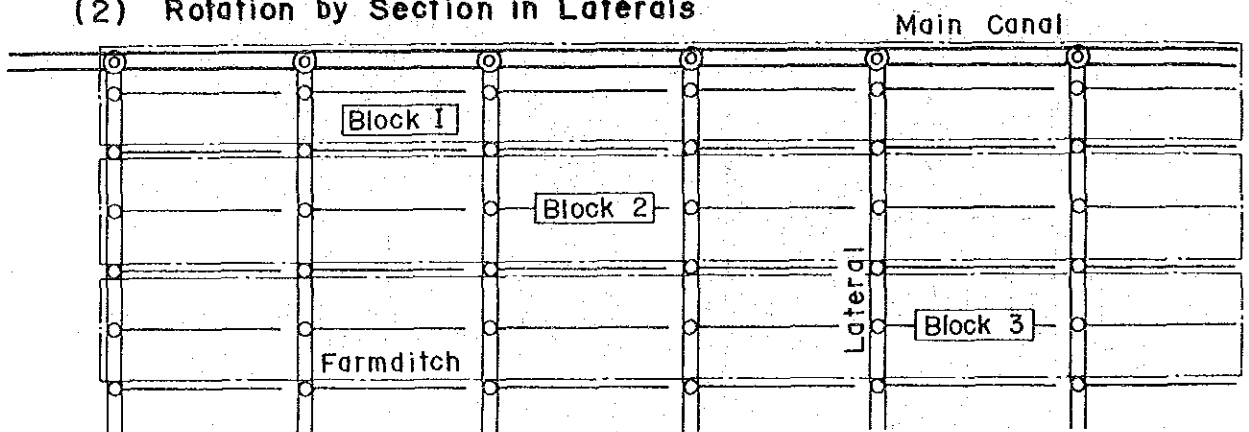
TSA: Tertiary Service Area (as same as Farmer's Irrigators Group)

Fig. 6.1 SCHEMATIC ILLUSTRATION OF WATER DISTRIBUTION

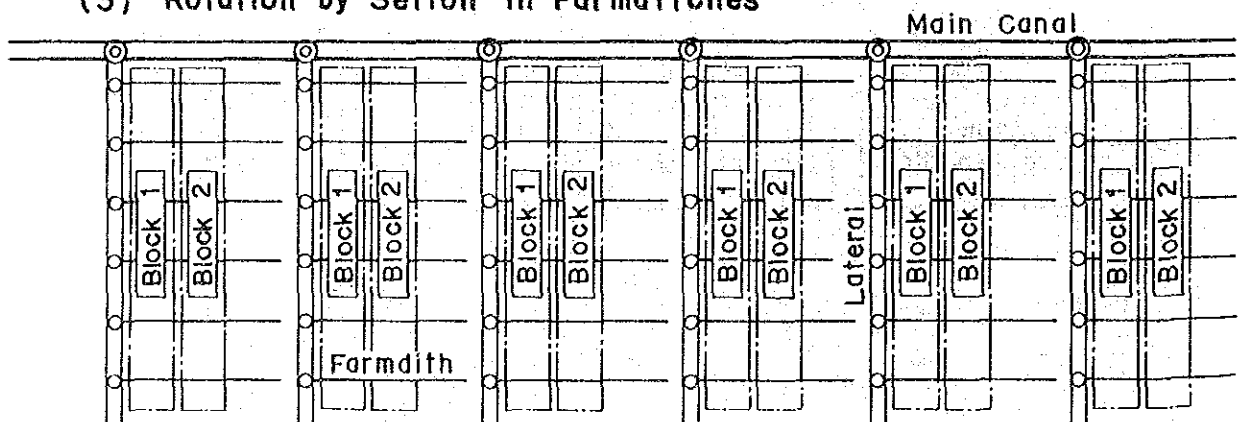
(1) Rotation by Section in Main Canal



(2) Rotation by Section in Laterals



(3) Rotation by Section in Farmditches



**LEGEND**

- ⊙ : Headgate
- : Turnout
- ▭ : Limits of rotation block

WATER REQUIREMENTS OF IMPROVED VARIETIES OF RICE

(Unit: mm/day)

Region No.	1		2		3		4		5		6		7		9		11		12	
	Textural Class	Medium	Fine	Medium	Fine	Medium	Fine	Medium	Fine	Medium	Fine	Medium	Fine	Medium	Fine	Medium	Fine	Medium	Fine	Medium
<b>I. WET SEASON</b>																				
1. Et	6.07-6.33	5.93	5.15-6.52	4.74	4.91-5.88	4.96	5.62	3.79	-	4.89-5.23	4.33-5.76	5.25	4.44-4.81	3.51-5.99						
2. P	1.49-3.35	0.92	1.29-3.31	1.03	1.09-1.36	1.47	1.45	2.46	-	1.07-1.13	1.55	1.28	1.38-1.61	1.04-4.47						
3. Et+P	7.56-9.68	6.85	6.44-9.83	5.77	6.00-7.24	6.43	7.07	6.25	-	5.96-6.36	5.88-7.31	6.53	5.82-6.42	4.55-10.46						
4. Epan	5.04-5.10	5.04	4.27-5.84	4.77	4.75-4.91	4.30	4.44	3.09	-	3.66-3.83	3.99-4.17	5.25	3.56-4.83	4.89						
<b>II. DRY SEASON</b>																				
1. Et	6.42-7.25	6.99-7.38	4.61-5.32	4.70-5.71	6.08	5.30	-	6.32-6.57	5.31-5.60	5.99-6.09	4.52-4.61	5.96-6.53	5.39	5.13-7.03						
2. P	1.45-1.54	1.34-2.02	1.78-2.16	0.84-0.99	1.04	1.80	-	3.43-4.60	0.68-1.06	0.87-1.41	1.44	1.27-1.60	1.50	3.55						
3. Et+P	7.87-8.79	8.33-9.40	6.39-7.48	5.54-6.70	7.12	7.10	-	9.75-11.17	5.99-6.66	6.86-7.50	5.96-6.05	7.23-8.13	6.89	8.68-10.58						
4. Epan	6.23-6.85	5.93-6.20	3.86-4.76	4.81-4.86	4.18	3.79	-	-	4.18	4.54-4.69	4.13-5.20	5.14-5.17	5.04	-						

LEGEND:

Et = Evapo-transpiration

P = Percolation

Et+P = Crop Water Requirement

Epan = Evaporation from Class A Pan

NATIONAL AVERAGE

	Et		P		Et + P		Epan	
	Medium	Fine	Medium	Fine	Medium	Fine	Medium	Fine
Wet Season =	4.89-5.45	1.41-2.2	1.21-1.34	6.30-7.66	6.10-6.79	4.39-4.65		
Dry Season =	5.59-6.07	1.83-2.1	1.14-1.41	7.42-8.19	6.73-7.48	4.71-4.99		

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IR-105	Operation and Maintenance Plan for Iguig, Alcala-Amulung Pump Irrigation System for '87,	O & M Office	
IR-106	Operation and Maintenance Plan for Solana-Tuguegarao Pump Irrigation System for '83, '84, '86, '87	O & M Office	
IR-107	Operation and Maintenance Plan for MARIIS-III for '87	O & M Office	
IR-108	Operation and Maintenance Plan for MARIIS-IV for '86, '87	O & M Office	
IR-109	Operation and Maintenance Plan for Bonga Pump NO.1,2 and 3 for '83, '84, '85, '86, '87	O & M Office	
IR-110	Operation and Maintenance Plan for UPRIIS-IV for '82, '83, '84, '85 '86, '87	O & M Office	
IR-111	Operation and Maintenance Plan for AMRIS-IV for '82, '83, '84, '85 '86, '87	O & M Office	
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IR-113	Operation and Maintenance Plan for Sta. Cruz River Irrigation System for '82, '84, '85, '86, '87	O & M Office	

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IR-115	Operation and Maintenance Plan for Libmanan-Cabusao Pump Irrigation System for '82, '83, '84, '85, '87	O & M Office	
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IR-117	M-Curve for Solana-Tuguegarao Pump Irrigation System for '84, '85, '86, '87	O & M Office	
IR-118	M-Curve for Bonga Pump NIO.1, 2 and 3 for '83, '84, '85, '86, '87	O & M Office	
IR-119	M-Curve for Sta. Maria Mayor River Irrigation System for '85	O & M Office	
IR-120	M-Curve for Sta. Cruz River Irrigation System for '82, '83, '84, '85, '86, '87	O & M Office	
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IR-129	Actually Irrigated Area By Turnout for MARIIS Pump #1, #2 & #3	O & M Office	

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IR-132	Actually Irrigated Area By Turnout for Libmanan Cabusao Pump Irrigation System	O & M Office	
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IR-134	Weekly Farming Activities for Iguig, Alcala-Amulung Pump Irrigation System	O & M Office	
IR-135	Weekly Farming Activities for Solana Pump Irrigation System	O & M Office	
IR-136	Weekly Farming Activities for MARIIS Pump #1, #2, #3	O & M Office	
IR-137	Weekly Farming Activities for Penaranda Pump Irrigation System	O & M Office	
IR-138	Weekly Farming Activities for Cabuyao East Pump Irrigation System	O & M Office	
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**ANNEX-F**

**PROJECT COST AND IMPLEMENTATION  
SCHEDULE FOR THE PUMP SYSTEMS**





ANNEX - F

PROJECT COST AND IMPLEMENTATION SCHEDULE  
FOR THE PUMP SYSTEMS

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## 1. ORGANIZATION FOR THE PROJECT IMPLEMENTATION

The implementation of the Project will be administrated by the National Irrigation Administration (NIA). It will be responsible for design, construction works and supervision of the Project. A special project group will be organized under the Assistant Administrator for Systems Operation and Equipment Management, who will be responsible for executing overall project works, and will undertake coordinating works among relevant government agencies in connection with implementation of the Project. The new project execution office will not be established in the field, but the relevant Regional Irrigation Office will act as the field offices.

During the implementation of the Project, the status of the six (6) systems will be changed into the project, and will be under the administration of the NIA headquarters.

After the completion of the Project, the Bonga Pump #1, #2 and #3 projects will be turned over to the Ilocos Norte Irrigation Service office for their operation and maintenance, the Alcala-Amulung project to the Iguig-Alcala Amulung Pump Irrigation System office, and the Libmanan Cabusao project to the Libmanan-Cabusao Pump Irrigation System office. While the Solana project will be directly turned over to the Irrigator's Association.

## 2. IMPLEMENTATION PLAN

The project implementation is broadly divided into two categories. The first category would cover detailed design, preparatory works for financial arrangement for the implementation and training for both O&M staff and farmers. The second category would consist of the construction works. It is assumed that, taking the financial arrangement for detail design and implementation into account, the project implementation be commenced in 1990, and that all the construction works be executed on the contract basis.

One (1) year would be allotted for the detailed design works and succeeding two (2) years would be allocated for the construction works assuming that construction works for all the six (6) systems be executed simultaneously.

The construction works will consist of; i) procurement and replacement of pumping facilities, ii) procurement and installation of substations and transmission line in case direct tapping of electric power by the "direct NIA-NAPOCOR system" is adopted, or procurement and installation of additional substations at the existing Cooperative's substations in case direct tapping by the "Tripartite system" is adopted, iii) rehabilitation and/or improvement of irrigation and drainage facilities, and iv) procurement of O&M equipment.

The work items (i), (iii) and (iv) of the above would be administrated and supervised by NIA, while the work (ii) would be entrusted to NAPOCOR or relevant Cooperatives for construction, the cost for which would be financed by NIA.

It is the basic consideration for implementing the Project that interruption of irrigation during the implementation period should be minimized. Replacement of the pumping facilities would be made during the irrigation cutoff period in the third year. Rehabilitation and/or improvement of irrigation and drainage facilities would be carried mainly during dry seasons of the second and third years.

### 3. COST ESTIMATE

#### 3.1 Basic Conditions and Assumption of the Cost Estimate

Estimation of the construction cost for the six (6) systems has been made in terms of project cost. The project cost comprises; i) direct construction cost, ii) procurement costs for pump, electric, and operation and maintenance equipment, iii) compensation cost, iv) cost for training for O&M staff and farmers, v) engineering cost, vi) administration cost, and vii) physical contingency.

The direct construction cost is estimated on the basis of the preliminary design and the standard unit costs at a price level of April 1988. The standard unit costs are determined referring to those used for on-going projects as well as those employed in the feasibility study of similar irrigation projects in the country. The major standard unit costs employed in the current study are shown in Table 3.1.

Assuming that pump, electric, and operation and maintenance equipment be imported, procurement costs for the equipment are primarily estimated by the foreign currency then converted into local currency with a conversion rate of: Peso 21.0 = US\$ 1.00 = Yen = 135.0.

Engineering cost includes cost for engineering services for detail design and supervisory works for the construction of the Project. Administration cost covers the cost for Government's administration and overhead needed for the project implementation. The engineering and administration costs are assumed to be 10% of the sum of the direct construction, procurement, compensation, and training costs, and 5% of the same, respectively.

The physical contingency is assumed to be 10% of the sum of the items (i) to (vi) mentioned above.

All the project costs are expressed in peso currency at a price level of April 1988. The project cost is divided into foreign and local currency components. The foreign currency component covers i) procurement costs for construction equipment and machinery, ii) procurement costs for pump, electric, and O&M equipment, iii) construction materials to be imported, and vi) expenses and fees for consultants, etc.

#### 3.2 Estimate of the Project Cost

Based on the conditions and assumptions mentioned above, the project cost for each of the systems have been estimated for the following four (4) cases:

- i) Case-1 ; Firmed-up service area, power supply from NAPOCOR
- ii) Case-2 ; Maximum service area, power supply from NAPOCOR
- iii) Case-3 ; Firmed-up service area, power supply from NAPOCOR
- iv) Case-4 ; Maximum service area, power supply from NAPOCOR

Summary of the project costs is as follows:

Summary of Total Cost

(Unit: 1,000 Peso)

Name of Project	Case-1	Case-2	Case-3	Case-4
	Firmed-up Direct Tapping	Maximum Direct Tapping	Firmed-up Indirect Tapping	Maximum Indirect Tapping
Bonga #1	20,984	25,288	15,122	19,430
Bonga #2	30,874	30,874	23,545	23,545
Bonga #3	14,375	14,375	12,911	12,911
Alcala	25,364	30,100	25,364	30,100
Solana	50,246	76,627	42,443	68,658
Libmanan	58,302	63,596	45,918	51,215
<b>Total</b>	<b>200,145</b>	<b>240,860</b>	<b>165,303</b>	<b>205,859</b>

The project cost for each of the systems is indicated in Table 3.2. The cost breakdown for; i) cost for improvement of pumping facilities and power supply system, ii) cost for irrigation and drainage facilities, iii) cost for O&M equipment and monitoring and communication facilities, and iv) cost for training program are shown in Tables 3.3 to 3.6.

### 3.3 Estimate of the Fund Requirement

The fund requirement for the project implementation has been estimated by adding price contingency to the project cost. The price contingency is based on annual price escalation rates of 5.0% for foreign currency component and 10.0% for the local currency component.

The fund requirement for each of the systems is summarized in Table 3.7. Annual disbursement schedule for each of the systems is shown in Table 3.8.

### 3.4 Operation, Maintenance and Replacement Costs

#### 3.4.1 Operation and Maintenance Costs

The annual operation and maintenance costs (O&M costs) for the project comprise personnel expenses, pump energy cost, fuel and lubricant cost and other expenses. The personal expenses include salary and labor wages which are estimated on the basis of institutional improvement plan of the system office, maintenance plan of the irrigation and drainage facilities and reinforcement plan of O&M equipment. The pump energy cost are based on required power for diverting water requirement (average for ten years) under proposed cropping patterns and average power rates. The power rates adopted are  $P = 1.15/\text{kwh}$  in case of direct tapping from NAPOCOR and  $P = 2.10/\text{kwh}$  in case of power supply from the Cooperative. The fuel and lubricant costs are estimated on the basis of the required operating hours of the proposed operation and maintenance equipment.

The annual O&M costs have been estimated for the following four (4) cases for each of the systems, and tabulated in Table 3.9 :

- Case-1 ; Firmed-up service area, direct power supply from NAPOCOR
- Case-2 ; Maximum service area, direct power supply from NAPOCOR
- Case-3 ; Firmed-up service area, power supply from Cooperative
- Case-4 ; Maximum service area, power supply from Cooperative

### 3.4.2 Replacement Costs

Some of the project facilities such as mechanical and electrical works are required to replace at a certain interval within the anticipated project life since their durable years are shorter than the project life. The work items in need of replacement during project life are listed in Table 3.1 in ANNEX-C IRRIGATION AND DRAINAGE. Replacement costs required for each of the systems are shown in Table 3.10.

Table 3.1 LIST OF UNIT COST

Item	Unit	Unit price (Peso)		
		F/C	L/C	Total
1. Earth Works				
Canal Excavation	m <sup>3</sup>	11	10	21
Structure Excavation	m <sup>3</sup>	12	18	30
Compacted Fill with Hauling	m <sup>3</sup>	30	20	50
Back Fill with Compaction	m <sup>3</sup>	8	17	25
2. Construction of On-farm Facilities				
Farm Ditch	m	2	7	9
Farm Drain	m	2	6	8
3. Road Surfacing	m <sup>3</sup>	50	33	83
4. Concrete Works				
Concrete for Structure	m <sup>3</sup>	1,000	1,500	2,500
Concrete Lining	m <sup>3</sup>	460	690	1,150
5. Concrete Demolition	m <sup>3</sup>	60	240	300
6. Rubble Masonry	m <sup>3</sup>	260	390	650
7. R. C. Pipe	m	294	196	490
8. Gates	kg	72	31	103
9. Staff Gauge	unit	0	200	200
10. Land Acquisiton	m <sup>2</sup>	0	5	5



Table 3.2 (1/2) SUMMARY OF PROJECT COST (Direct tapping)

(Unit: 1,000 Peso)

	Improvement of pumping facilities including power supply system		Improvement of Irrigation & Drainage Facilities		Reinforcement of O&M Equipment		Improvement of Monitoring & Communication Facilities		Training Programme		Sub Administration		Engineering and Administration		Sub Physical Contingency		Grand Total		
<b>Firmed-up service area (Case-1)</b>																			
Bonga #1	12,700	1,699	1,914	0	275	16,588	2,488	19,076	1,908	20,984									
Bonga #2	17,293	3,614	3,014	0	484	24,405	3,662	28,067	2,807	30,874									
Bonga #3	7,966	2,494	877	0	27	11,364	1,704	13,068	1,307	14,375									
Alcala	0	15,471	4,114	0	465	20,050	3,008	23,058	2,306	25,364									
Solana	23,964	10,028	5,516	0	211	39,719	5,959	45,678	4,568	50,246									
Libmanan	16,625	24,433	4,687	120	222	46,087	6,914	53,001	5,301	58,302									
<b>Total</b>	<b>78,548</b>	<b>57,739</b>	<b>20,122</b>	<b>120</b>	<b>1,684</b>	<b>158,213</b>	<b>23,735</b>	<b>181,948</b>	<b>18,197</b>	<b>200,145</b>									
<b>Maximum service area (Case-2)</b>																			
Bonga #1	13,117	4,549	1,914	0	412	19,992	2,997	22,989	2,299	25,288									
Bonga #2	17,293	3,614	3,014	0	484	24,405	3,662	28,067	2,807	30,874									
Bonga #3	7,966	2,494	877	0	27	11,364	1,704	13,068	1,307	14,375									
Alcala	0	18,911	4,281	0	601	23,793	3,570	27,363	2,737	30,100									
Solana	32,096	22,568	5,516	0	394	60,574	9,086	69,660	6,967	76,627									
Libmanan	16,625	28,477	4,687	120	364	50,273	7,541	57,814	5,782	63,596									
<b>Total</b>	<b>87,097</b>	<b>80,613</b>	<b>20,289</b>	<b>120</b>	<b>2,282</b>	<b>190,401</b>	<b>28,560</b>	<b>218,961</b>	<b>21,899</b>	<b>240,860</b>									

Table 3.2 (2/2) SUMMARY OF PROJECT COST (Indirect tapping)

(Unit: 1,000 Peso)

	Improvement of pumping facilities including power supply system		Improvement of Irrigation & Drainage Facilities		Reinforcement of O&M Equipment		Improvement of Monitoring & Communication Facilities		Training Programme		Sub Administration		Engineering and Administration		Sub Total		Physical Contingency		Grand Total		
<b>Firmed-up service area (Case-3)</b>																					
Bonga #1	8,067	1,699	1,914	0	275	11,955	1,792	13,747	1,375	15,122											
Bonga #2	11,501	3,614	3,014	0	484	18,613	2,792	21,405	2,140	23,545											
Bonga #3	6,808	2,494	877	0	27	10,206	1,530	11,736	1,175	12,911											
Alcala	0	15,471	4,114	0	465	20,050	3,008	23,058	2,306	25,364											
Solana	17,796	10,028	5,516	0	211	33,551	5,032	38,583	3,860	42,443											
Libmanan	6,838	24,433	4,687	120	222	36,300	5,444	41,744	4,174	45,918											
<b>Total</b>	<b>51,010</b>	<b>57,739</b>	<b>20,122</b>	<b>120</b>	<b>1,684</b>	<b>130,675</b>	<b>19,598</b>	<b>150,273</b>	<b>15,030</b>	<b>165,303</b>											
<b>Maximum service area (Case-4)</b>																					
Bonga #1	8,484	4,549	1,914	0	412	15,359	2,304	17,663	1,767	19,430											
Bonga #2	11,501	3,614	3,014	0	484	18,613	2,792	21,405	2,140	23,545											
Bonga #3	6,808	2,494	877	0	27	10,206	1,530	11,736	1,175	12,911											
Alcala	0	18,911	4,281	0	601	23,793	3,570	27,363	2,737	30,100											
Solana	25,798	22,568	5,516	0	394	54,276	8,140	62,416	6,242	68,658											
Libmanan	6,838	28,477	4,687	120	364	40,486	6,073	46,559	4,656	51,215											
<b>Total</b>	<b>59,429</b>	<b>80,613</b>	<b>20,289</b>	<b>120</b>	<b>2,282</b>	<b>162,733</b>	<b>24,409</b>	<b>187,142</b>	<b>18,717</b>	<b>205,859</b>											

Table 3.3

## COST FOR IMPROVEMENT OF PUMPING FACILITIES

(Unit :1000 Pesos)

Name of System	Pump Equipment	Electric Equipment	Transmission Line	Sub Station	Total
<b>Case 1 : Direct Tapping, Firmed-up Service Area</b>					
Bonga Pump #1	4,947	3,120	528	4,105	12,700
Bonga Pump #2	7,857	3,644	660	5,132	17,293
Bonga Pump #3	3,783	3,025	132	1,026	7,966
Alcala-Amulung	0	0	0	0	0
Solana	13,757	2,888	120	6,279	23,044
Libmanan Cabusao	2,421	4,417	0	9,787	16,625
<b>Case-2 : Direct Tapping, Maximum Service Area</b>					
Bonga Pump #1	5,347	3,137	528	4,105	13,117
Bonga Pump #2	7,857	3,644	660	5,132	17,293
Bonga Pump #3	3,783	3,025	132	1,026	7,966
Alcala-Amulung	0	0	0	0	0
Solana	20,952	3,747	120	6,365	31,184
Libmanan Cabusao	2,421	4,417	0	9,787	16,625
<b>Case - 3 : Indirect Tapping, Firmed-up Service Area</b>					
Bonga Pump #1	4,947	3,120	0	0	8,067
Bonga Pump #2	7,857	3,644	0	0	11,501
Bonga Pump #3	3,783	3,025	0	0	6,808
Alcala-Amulung	0	0	0	0	0
Solana	13,757	4,039	0	0	17,796
Libmanan Cabusao	2,421	4,417	0	0	6,838
<b>Case - 4 : Indirect Tapping, Maximum Service Area</b>					
Bonga Pump #1	5,347	3,137	0	0	8,484
Bonga Pump #2	7,857	3,644	0	0	11,501
Bonga Pump #3	3,783	3,025	0	0	6,808
Alcala-Amulung	0	0	0	0	0
Solana	20,952	4,864	0	0	25,816
Libmanan Cabusao	2,421	4,417	0	0	6,838

Table 3.4 COST FOR IMPROVEMENT OF IRRI. &amp; DRAINAGE FACILITIES

	(Unit: 1,000 Peso)					
	Irrigation System	Drainage System	Service & Access Road	On-farm Facilities	Protection Work(*)	Total
Firmed-up service area (Case-1,3)						
Bonga #1	349	871	179	300	0	1,699
Bonga #2	1,389	1,566	0	659	0	3,614
Bonga #3	1,229	753	173	137	202	2,494
Alcala	12,774	1,624	0	1,073	0	15,471
Solana	7,887	1,072	0	1,069	0	10,028
Libmanan	16,071	5,682	1,556	1,124	0	24,433
Total	39,699	11,568	1,908	4,362	202	57,739
Maximum service area (Case-2,4)						
Bonga #1	2,544	1,351	235	419	0	4,549
Bonga #2	1,389	1,566	0	659	0	3,614
Bonga #3	1,229	753	173	137	202	2,494
Alcala	15,652	1,624	0	1,635	0	18,911
Solana	17,286	2,574	0	2,708	0	22,568
Libmanan	17,988	6,854	1,746	1,889	0	28,477
Total	56,088	14,722	2,154	7,447	202	80,613
Remarks:	*;Protection work for Pumping station					

Table 3.5 COST FOR REINFORCEMENT OF O & M EQUIPMENT

(Unit : 1000 Pesos)

Name of System	Heavy Equipment	Light Equipment	Miscellaneous Equipment	Spare-Parts *(1)	Spare-Parts *(2)	Total
<b>(1) Firmed-up Service Area (Case-1 &amp; -3)</b>						
Bonga Puap #1	894	506	128	216	170	1,914
Bonga Puap #2	1,409	797	202	337	269	3,014
Bonga Puap #3	407	231	59	102	78	877
Alcala Amulung	867	1,834	376	411	626	4,114
Solana	2,960	1,504	376	676	0	5,516
Libmanan Cabusao	2,960	360	496	504	487	4,807
<b>(2) Maximum Service Area (Case-2 &amp; -4)</b>						
Bonga Pump #1	894	506	128	216	170	1,914
Bonga Pump #2	1,409	797	202	337	269	3,014
Bonga Pump #3	407	231	59	102	78	877
Alcala Amulung	867	1,834	376	411	793	4,281
Solana	2,960	1,504	376	676	0	5,516
Libmanan Cabusao	2,960	360	496	504	487	4,807

Remark : \*(1) for Proposed equipment.

\*(2) for Existing equipment

Miscellaneous equipment cost covers maintenance tools, measurement instrument, minor equipment, communication equipment, etc.

Table 3.6 COST FOR TRAINING PROGRAMME

(Unit: 1,000 Peso)

	O&M Staff			Farmers			Grand total
	Trainee	Trainer	Sub-total	Trainee	Trainer	Sub-total	
Firmed-up service area (Case-1,3)							
Bonga #1	3.4	3.7	7.1	255.6	12.1	267.7	274.8
Bonga #2	3.4	3.7	7.1	454.7	21.8	476.5	483.6
Bonga #3	3.4	3.7	7.1	18.9	0.6	19.5	26.6
Alcala	16.9	5.6	22.5	423.0	19.4	442.4	464.9
Solana	0.0	0.0	0.0	201.6	9.7	211.3	211.3
Libmanan	20.3	5.6	25.9	188.8	7.3	196.1	222.0
Total	47.4	22.3	69.7	1,542.6	70.9	1,613.5	1,683.2
Maximum service area (Case-2,4)							
Bonga #1	3.4	3.7	7.1	386.9	18.2	405.1	412.2
Bonga #2	3.4	3.7	7.1	454.7	21.8	476.5	483.6
Bonga #3	3.4	3.7	7.1	18.9	1.2	20.1	27.2
Alcala	16.9	5.6	22.5	551.7	26.6	578.3	600.8
Solana	0.0	0.0	0.0	375.8	18.2	394.0	394.0
Libmanan	25.4	5.6	31.0	317.5	15.7	333.2	364.2
Total	52.5	22.3	74.8	2,105.5	101.7	2,207.2	2,282.0

Table 3.7 FUND REQUIREMENT

(Unit: 1,000 Peso)

	1st. Year		2nd. Year		3rd. Year		Total					
	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount			
Case-1	10,837	6,139	16,976	141,467	26,067	167,534	22,734	36,237	58,971	175,038	68,443	243,481
Case-2	12,463	8,366	20,829	159,002	36,596	195,598	30,020	48,458	78,478	201,485	93,420	294,905
Case-3	8,525	5,928	14,453	107,875	25,948	133,823	21,456	32,703	54,159	137,856	64,579	202,435
Case-4	10,142	8,153	18,295	125,248	36,478	161,726	28,735	44,917	73,652	164,125	89,548	253,673

Remarks: F/C : Foreign currency

L/C : Local currency

Case-1; Direct tapping, Firmed-up service area

Case-2; Direct tapping, Maximum service area

Case-3; Indirect tapping, Firmed-up service area

Case-4; Indirect tapping, Maximum service area

Table 3.8 (1/4) DISBURSEMENT SCHEDULE (Case-1)

(Unit: 1,000 Peso)

Cost Item	1st. Year			2nd. Year			3rd. Year			Total		
	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount
<b>Bonga #1</b>												
1. Pump, Power supply	0	0	0	11,765	0	11,765	0	935	935	11,765	935	12,700
2. Irrig. & drainage facilities	0	0	0	322	527	849	323	527	850	645	1,054	1,699
3. O/M equipment	0	0	0	1,914	0	1,914	0	0	0	1,914	0	1,914
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	275	275	0	0	0	0	0	0	0	275	275
6. Sub-total (1.+2.+3.+4.+5.)	0	275	275	14,001	527	14,528	323	1,462	1,785	14,324	2,264	16,588
7. Engineering and administration	1,074	170	1,244	537	85	622	537	85	622	2,148	340	2,488
8. Sub-total (6.+7.)	1,074	445	1,519	14,538	612	15,150	860	1,547	2,407	16,472	2,604	19,076
9. Physical contingency (10% of 8.)	107	45	152	1,454	61	1,515	86	155	241	1,647	261	1,908
10. Sub-total (8.+9.)	1,181	490	1,671	15,992	673	16,665	946	1,702	2,648	18,119	2,865	20,984
11. Price contingency	121	103	224	2,521	223	2,744	204	790	994	2,846	1,116	3,962
12. Total (10.+11.)	1,302	593	1,895	18,513	896	19,409	1,150	2,492	3,642	20,965	3,981	24,946
<b>Bonga #2</b>												
1. Pump, Power supply	0	0	0	16,091	0	16,091	0	1,202	1,202	16,091	1,202	17,293
2. Irrig. & drainage facilities	0	0	0	670	1,137	1,807	670	1,137	1,807	1,340	2,274	3,614
3. O/M equipment	0	0	0	3,014	0	3,014	0	0	0	3,014	0	3,014
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	484	484	0	0	0	0	0	0	0	484	484
6. Sub-total (1.+2.+3.+4.+5.)	0	484	484	19,775	1,137	20,912	670	2,339	3,009	20,445	3,960	24,405
7. Engineering and administration	1,533	297	1,830	767	149	916	767	149	916	3,067	595	3,662
8. Sub-total (6.+7.)	1,533	781	2,314	20,542	1,286	21,828	1,437	2,488	3,925	23,512	4,555	28,067
9. Physical contingency (10% of 8.)	153	78	231	2,054	129	2,183	144	249	393	2,351	456	2,807
10. Sub-total (8.+9.)	1,686	859	2,545	22,596	1,415	24,011	1,581	2,737	4,318	25,863	5,011	30,874
11. Price contingency	173	180	353	3,562	468	4,030	341	1,270	1,611	4,076	1,918	5,994
12. Total (10.+11.)	1,859	1,039	2,898	26,158	1,883	28,041	1,922	4,007	5,929	29,939	6,929	36,868
<b>Bonga #3</b>												
1. Pump, Power supply	0	0	0	7,500	0	7,500	0	466	466	7,500	466	7,966
2. Irrig. & drainage facilities	0	0	0	573	673	1,246	574	674	1,248	1,147	1,347	2,494
3. O/M equipment	0	0	0	877	0	877	0	0	0	877	0	877
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	27	27	0	0	0	0	0	0	0	27	27
6. Sub-total (1.+2.+3.+4.+5.)	0	27	27	8,950	673	9,623	574	1,140	1,714	9,524	1,840	11,364
7. Engineering and administration	714	138	852	357	69	426	357	69	426	1,428	276	1,704
8. Sub-total (6.+7.)	714	165	879	9,307	742	10,049	931	1,209	2,140	10,952	2,116	13,068
9. Physical contingency (10% of 8.)	71	17	88	931	74	1,005	93	121	214	1,095	212	1,307
10. Sub-total (8.+9.)	785	182	967	10,238	816	11,054	1,024	1,330	2,354	12,047	2,328	14,375
11. Price contingency	80	38	118	1,614	270	1,884	221	617	838	1,915	925	2,840
12. Total (10.+11.)	865	220	1,085	11,852	1,086	12,938	1,245	1,947	3,192	13,962	3,253	17,215
<b>Alcala</b>												
1. Pump, Power supply	0	0	0	0	0	0	0	0	0	0	0	0
2. Irrig. & drainage facilities	0	0	0	3,261	4,474	7,735	3,262	4,474	7,736	6,523	8,948	15,471
3. O/M equipment	0	0	0	4,114	0	4,114	0	0	0	4,114	0	4,114
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	465	465	0	0	0	0	0	0	0	465	465
6. Sub-total (1.+2.+3.+4.+5.)	0	465	465	7,375	4,474	11,849	3,262	4,474	7,736	10,637	9,413	20,050
7. Engineering and administration	798	706	1,504	399	353	752	399	353	752	1,596	1,412	3,008
8. Sub-total (6.+7.)	798	1,171	1,969	7,774	4,827	12,601	3,661	4,827	8,488	12,233	10,825	23,058
9. Physical contingency (10% of 8.)	80	117	197	777	483	1,260	366	483	849	1,223	1,083	2,306
10. Sub-total (8.+9.)	878	1,288	2,166	8,551	5,310	13,861	4,027	5,310	9,337	13,456	11,908	25,364
11. Price contingency	90	270	360	1,348	1,758	3,106	868	2,464	3,332	2,306	4,492	6,798
12. Total (10.+11.)	968	1,558	2,526	9,899	7,068	16,967	4,895	7,774	12,669	15,762	16,400	32,162
<b>Solana</b>												
1. Pump, Power supply	0	0	0	22,704	0	22,704	0	1,260	1,260	22,704	1,260	23,964
2. Irrig. & drainage facilities	0	0	0	2,061	2,952	5,013	2,062	2,953	5,015	4,123	5,905	10,028
3. O/M equipment	0	0	0	5,516	0	5,516	0	0	0	5,516	0	5,516
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	211	211	0	0	0	0	0	0	0	211	211
6. Sub-total (1.+2.+3.+4.+5.)	0	211	211	30,281	2,952	33,233	2,062	4,213	6,275	32,343	7,376	39,719
7. Engineering and administration	2,426	553	2,979	1,213	277	1,490	1,213	277	1,490	4,852	1,107	5,959
8. Sub-total (6.+7.)	2,426	764	3,190	31,494	3,229	34,723	3,275	4,490	7,765	37,195	8,483	45,678
9. Physical contingency (10% of 8.)	243	76	319	3,149	323	3,472	328	449	777	3,720	848	4,568
10. Sub-total (8.+9.)	2,669	840	3,509	34,643	3,552	38,195	3,603	4,939	8,542	40,915	9,331	50,246
11. Price contingency	274	176	450	5,461	1,176	6,637	776	2,292	3,068	6,511	3,644	10,155
12. Total (10.+11.)	2,943	1,016	3,959	40,104	4,728	44,832	4,379	7,231	11,610	47,426	12,975	60,401
<b>Libmanan</b>												
1. Pump, Power supply	0	0	0	15,794	0	15,794	0	831	831	15,794	831	16,625
2. Irrig. & drainage facilities	0	0	0	5,642	6,574	12,216	5,642	6,575	12,217	11,284	13,149	24,433
3. O/M equipment	0	0	0	4,687	0	4,687	0	0	0	4,687	0	4,687
4. Monitor'g & communication facilit.	0	0	0	120	0	120	0	0	0	120	0	120
5. Training programme	0	222	222	0	0	0	0	0	0	0	222	222
6. Sub-total (1.+2.+3.+4.+5.)	0	222	222	26,243	6,574	32,817	5,642	7,406	13,048	31,885	14,202	46,087
7. Engineering and administration	2,391	1,065	3,456	1,196	533	1,729	1,196	533	1,729	4,783	2,131	6,914
8. Sub-total (6.+7.)	2,391	1,287	3,678	27,439	7,107	34,546	6,838	7,939	14,777	36,668	16,333	53,001
9. Physical contingency (10% of 8.)	239	129	368	2,744	711	3,455	684	794	1,478	3,667	1,634	5,301
10. Sub-total (8.+9.)	2,630	1,416	4,046	30,183	7,818	38,001	7,522	8,733	16,255	40,335	17,967	58,302
11. Price contingency	270	297	567	4,758	2,588	7,346	1,621	4,053	5,674	6,649	6,938	13,587
12. Total (10.+11.)	2,900	1,713	4,613	34,941	10,406	45,347	9,143	12,786	21,929	46,984	24,905	71,889
<b>Grand total</b>	<b>10,837</b>	<b>6,139</b>	<b>16,976</b>	<b>141,467</b>	<b>26,067</b>	<b>167,534</b>	<b>22,734</b>	<b>36,237</b>	<b>58,971</b>	<b>175,038</b>	<b>68,443</b>	<b>243,481</b>

Remarks: Price escalation (per annum)- 5.0 % in F/C  
10.0 % in L/C

(Price level: as of 1988)

F/C : Foreign currency

L/C : Local currency

Case-1: Direct tapping, Firmed-up service area



Table 3.8 (2/4) DISBURSEMENT SCHEDULE (Case-2)

(Unit: 1,000 Peso)

Cost item	1st. Year			2nd. Year			3rd. Year			Total		
	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount
<b>Bonga #1</b>												
1. Pump, Power supply	0	0	0	12,191	0	12,191	0	926	926	12,191	926	13,117
2. Irri. & drainage facilities	0	0	0	937	1,337	2,274	937	1,338	2,275	1,874	2,675	4,549
3. O/M equipment	0	0	0	1,914	0	1,914	0	0	0	1,914	0	1,914
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	412	412	0	0	0	0	0	0	0	412	412
6. Sub-total (1.+2.+3.+4.+5.)	0	412	412	15,042	1,337	16,379	937	2,264	3,201	15,979	4,013	19,992
7. Engineering and administration	1,198	301	1,499	599	150	749	599	150	749	2,396	601	2,997
8. Sub-total (6.+7.)	1,198	713	1,911	15,641	1,487	17,128	1,536	2,414	3,950	18,375	4,614	22,989
9. Physical contingency (10% of 8.)	120	71	191	1,564	149	1,713	154	241	395	1,838	461	2,299
10. Sub-total (8.+9.)	1,318	784	2,102	17,205	1,636	18,841	1,690	2,655	4,345	20,213	5,075	25,288
11. Price contingency	135	165	300	2,712	542	3,254	364	1,232	1,596	3,211	1,939	5,150
12. Total (10.+11.)	1,453	949	2,402	19,917	2,178	22,095	2,054	3,887	5,941	23,424	7,014	30,438
<b>Bonga #2</b>												
1. Pump, Power supply	0	0	0	16,091	0	16,091	0	1,202	1,202	16,091	1,202	17,293
2. Irri. & drainage facilities	0	0	0	670	1,137	1,807	670	1,137	1,807	1,340	2,274	3,614
3. O/M equipment	0	0	0	3,014	0	3,014	0	0	0	3,014	0	3,014
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	484	484	0	0	0	0	0	0	0	484	484
6. Sub-total (1.+2.+3.+4.+5.)	0	484	484	19,775	1,137	20,912	670	2,339	3,009	20,445	3,960	24,405
7. Engineering and administration	1,533	297	1,830	767	149	916	767	149	916	3,067	595	3,662
8. Sub-total (6.+7.)	1,533	781	2,314	20,542	1,286	21,828	1,437	2,488	3,925	23,512	4,555	28,067
9. Physical contingency (10% of 8.)	153	78	231	2,054	129	2,183	144	249	393	2,351	456	2,807
10. Sub-total (8.+9.)	1,686	859	2,545	22,596	1,415	24,011	1,581	2,737	4,318	25,863	5,011	30,874
11. Price contingency	173	180	353	3,562	468	4,030	341	1,270	1,611	4,076	1,918	5,994
12. Total (10.+11.)	1,859	1,039	2,898	26,158	1,883	28,041	1,922	4,007	5,929	29,939	6,929	36,868
<b>Bonga #3</b>												
1. Pump, Power supply	0	0	0	7,500	0	7,500	0	466	466	7,500	466	7,966
2. Irri. & drainage facilities	0	0	0	573	673	1,246	574	674	1,248	1,147	1,347	2,494
3. O/M equipment	0	0	0	877	0	877	0	0	0	877	0	877
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	27	27	0	0	0	0	0	0	0	27	27
6. Sub-total (1.+2.+3.+4.+5.)	0	27	27	8,950	673	9,623	574	1,140	1,714	9,524	1,840	11,364
7. Engineering and administration	714	138	852	357	69	426	357	69	426	1,428	276	1,704
8. Sub-total (6.+7.)	714	165	879	9,307	742	10,049	931	1,209	2,140	10,952	2,116	13,068
9. Physical contingency (10% of 8.)	71	17	88	931	74	1,005	93	121	214	1,095	212	1,307
10. Sub-total (8.+9.)	785	182	967	10,238	816	11,054	1,024	1,330	2,354	12,047	2,328	14,375
11. Price contingency	80	38	118	1,614	270	1,884	221	617	838	1,915	925	2,840
12. Total (10.+11.)	865	220	1,085	11,852	1,086	12,938	1,245	1,947	3,192	13,962	3,253	17,215
<b>Alcala</b>												
1. Pump, Power supply	0	0	0	0	0	0	0	0	0	0	0	0
2. Irri. & drainage facilities	0	0	0	3,961	5,494	9,455	3,961	5,495	9,456	7,922	10,989	18,911
3. O/M equipment	0	0	0	4,281	0	4,281	0	0	0	4,281	0	4,281
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	601	601	0	0	0	0	0	0	0	601	601
6. Sub-total (1.+2.+3.+4.+5.)	0	601	601	8,242	5,494	13,736	3,961	5,495	9,456	12,203	11,590	23,793
7. Engineering and administration	915	869	1,784	458	435	893	458	435	893	1,831	1,739	3,570
8. Sub-total (6.+7.)	915	1,470	2,385	8,700	5,929	14,629	4,419	5,930	10,349	14,034	13,329	27,363
9. Physical contingency (10% of 8.)	92	147	239	870	593	1,463	442	593	1,035	1,404	1,333	2,737
10. Sub-total (8.+9.)	1,007	1,617	2,624	9,570	6,522	16,092	4,861	6,523	11,384	15,438	14,662	30,100
11. Price contingency	103	340	443	1,508	2,159	3,667	1,048	3,027	4,075	2,659	5,526	8,185
12. Total (10.+11.)	1,110	1,957	3,067	11,078	8,681	19,759	5,909	9,550	15,459	18,097	20,188	38,285
<b>Solana</b>												
1. Pump, Power supply	0	0	0	30,430	0	30,430	0	1,666	1,666	30,430	1,666	32,096
2. Irri. & drainage facilities	0	0	0	4,644	6,640	11,284	4,644	6,640	11,284	9,288	13,280	22,568
3. O/M equipment	0	0	0	5,516	0	5,516	0	0	0	5,516	0	5,516
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	394	394	0	0	0	0	0	0	0	394	394
6. Sub-total (1.+2.+3.+4.+5.)	0	394	394	40,590	6,640	47,230	4,644	8,306	12,950	45,234	15,340	60,574
7. Engineering and administration	3,393	1,151	4,544	1,696	575	2,271	1,696	575	2,271	6,785	2,301	9,086
8. Sub-total (6.+7.)	3,393	1,545	4,938	42,286	7,215	49,501	6,340	8,881	15,221	52,019	17,641	69,660
9. Physical contingency (10% of 8.)	339	155	494	4,229	722	4,951	634	888	1,522	5,202	1,765	6,967
10. Sub-total (8.+9.)	3,732	1,700	5,432	46,515	7,937	54,452	6,974	9,769	16,743	57,221	19,406	76,627
11. Price contingency	383	357	740	7,332	2,627	9,959	1,503	4,534	6,037	9,218	7,518	16,736
12. Total (10.+11.)	4,115	2,057	6,172	53,847	10,564	64,411	8,477	14,303	22,780	66,439	26,924	93,363
<b>Libmanan</b>												
1. Pump, Power supply	0	0	0	15,794	0	15,794	0	831	831	15,794	831	16,625
2. Irri. & drainage facilities	0	0	0	6,526	7,712	14,238	6,526	7,713	14,239	13,052	15,425	28,477
3. O/M equipment	0	0	0	4,687	0	4,687	0	0	0	4,687	0	4,687
4. Monitor'g & communication facilit.	0	0	0	120	0	120	0	0	0	120	0	120
5. Training programme	0	364	364	0	0	0	0	0	0	0	364	364
6. Sub-total (1.+2.+3.+4.+5.)	0	364	364	27,127	7,712	34,839	6,526	8,544	15,070	33,653	16,620	50,273
7. Engineering and administration	2,524	1,247	3,771	1,262	623	1,885	1,262	623	1,885	5,048	2,493	7,541
8. Sub-total (6.+7.)	2,524	1,611	4,135	28,389	8,335	36,724	7,788	9,167	16,955	38,701	19,113	57,814
9. Physical contingency (10% of 8.)	252	161	413	2,839	834	3,673	779	917	1,696	3,870	1,912	5,782
10. Sub-total (8.+9.)	2,776	1,772	4,548	31,228	9,169	40,397	8,567	10,084	18,651	42,571	21,025	63,596
11. Price contingency	285	372	657	4,922	3,035	7,957	1,846	4,680	6,526	7,053	8,087	15,140
12. Total (10.+11.)	3,061	2,144	5,205	36,150	12,204	48,354	10,413	14,764	25,177	49,624	29,112	78,736
<b>Grand total</b>	<b>12,463</b>	<b>8,366</b>	<b>20,829</b>	<b>159,002</b>	<b>36,596</b>	<b>195,598</b>	<b>30,020</b>	<b>48,458</b>	<b>78,478</b>	<b>201,485</b>	<b>93,420</b>	<b>294,905</b>

Remarks: Price escalation (per annum)- 5.0 % in F/C  
10.0 % in L/C

(Price level: as of 1988)

F/C : Foreign currency  
L/C : Local currency

Case-2; Direct tapping, Maximum service area

Table 3.8 (3/4) DISBURSEMENT SCHEDULE (Case-3)

(Unit: 1,000 Peso)

Cost item	1st. Year			2nd. Year			3rd. Year			Total		
	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount
<b>Bonga #1</b>												
1. Pump, Power supply	0	0	0	7,634	0	7,634	0	433	433	7,634	433	8,067
2. Irrig. & drainage facilities	0	0	0	322	527	849	323	527	850	645	1,054	1,699
3. O/M equipment	0	0	0	1,914	0	1,914	0	0	0	1,914	0	1,914
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	275	275	0	0	0	0	0	0	0	275	275
6. Sub-total (1.+2.+3.+4.+5.)	0	275	275	9,870	527	10,397	323	960	1,283	10,193	1,762	11,955
7. Engineering and administration	764	132	896	382	66	448	382	66	448	1,528	264	1,792
8. Sub-total (6.+7.)	764	407	1,171	10,252	593	10,845	705	1,026	1,731	11,721	2,026	13,747
9. Physical contingency (10% of 8.)	76	41	117	1,025	59	1,084	71	103	174	1,172	203	1,375
10. Sub-total (8.+9.)	840	448	1,288	11,277	652	11,929	776	1,129	1,905	12,893	2,229	15,122
11. Price contingency	86	94	180	1,778	216	1,994	167	524	691	2,031	834	2,865
12. Total (10.+11.)	926	542	1,468	13,055	868	13,923	943	1,653	2,596	14,924	3,063	17,987
<b>Bonga #2</b>												
1. Pump, Power supply	0	0	0	10,926	0	10,926	0	575	575	10,926	575	11,501
2. Irrig. & drainage facilities	0	0	0	670	1,137	1,807	670	1,137	1,807	1,340	2,274	3,614
3. O/M equipment	0	0	0	3,014	0	3,014	0	0	0	3,014	0	3,014
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	484	484	0	0	0	0	0	0	0	484	484
6. Sub-total (1.+2.+3.+4.+5.)	0	484	484	14,610	1,137	15,747	670	1,712	2,382	15,280	3,333	18,613
7. Engineering and administration	1,146	250	1,396	573	125	698	573	125	698	2,292	500	2,792
8. Sub-total (6.+7.)	1,146	734	1,880	15,183	1,262	16,445	1,243	1,837	3,080	17,572	3,833	21,405
9. Physical contingency (10% of 8.)	115	73	188	1,518	126	1,644	124	184	308	1,757	383	2,140
10. Sub-total (8.+9.)	1,261	807	2,068	16,701	1,388	18,089	1,367	2,021	3,388	19,329	4,216	23,545
11. Price contingency	129	169	298	2,632	459	3,091	295	938	1,233	3,056	1,566	4,622
12. Total (10.+11.)	1,390	976	2,366	19,333	1,847	21,180	1,662	2,959	4,621	22,385	5,782	28,167
<b>Bonga #3</b>												
1. Pump, Power supply	0	0	0	6,468	0	6,468	0	340	340	6,468	340	6,808
2. Irrig. & drainage facilities	0	0	0	573	673	1,246	574	674	1,248	1,147	1,347	2,494
3. O/M equipment	0	0	0	877	0	877	0	0	0	877	0	877
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	27	27	0	0	0	0	0	0	0	27	27
6. Sub-total (1.+2.+3.+4.+5.)	0	27	27	7,918	673	8,591	574	1,014	1,588	8,492	1,714	10,206
7. Engineering and administration	637	129	766	318	64	382	318	64	382	1,273	257	1,530
8. Sub-total (6.+7.)	637	156	793	8,236	737	8,973	892	1,078	1,970	9,765	1,971	11,736
9. Physical contingency (10% of 8.)	64	16	80	824	74	898	89	108	197	977	198	1,175
10. Sub-total (8.+9.)	701	172	873	9,060	811	9,871	981	1,186	2,167	10,742	2,169	12,911
11. Price contingency	72	36	108	1,428	268	1,696	211	550	761	1,711	854	2,565
12. Total (10.+11.)	773	208	981	10,488	1,079	11,567	1,192	1,736	2,928	12,453	3,023	15,476
<b>Alcala</b>												
1. Pump, Power supply	0	0	0	0	0	0	0	0	0	0	0	0
2. Irrig. & drainage facilities	0	0	0	3,261	4,474	7,735	3,262	4,474	7,736	6,523	8,948	15,471
3. O/M equipment	0	0	0	4,114	0	4,114	0	0	0	4,114	0	4,114
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	465	465	0	0	0	0	0	0	0	465	465
6. Sub-total (1.+2.+3.+4.+5.)	0	465	465	7,375	4,474	11,849	3,262	4,474	7,736	10,637	9,413	20,050
7. Engineering and administration	798	706	1,504	399	353	752	399	353	752	1,596	1,412	3,008
8. Sub-total (6.+7.)	798	1,171	1,969	7,774	4,827	12,601	3,661	4,827	8,488	12,233	10,825	23,058
9. Physical contingency (10% of 8.)	80	117	197	777	483	1,260	366	483	849	1,223	1,083	2,306
10. Sub-total (8.+9.)	878	1,288	2,166	8,551	5,310	13,861	4,027	5,310	9,337	13,456	11,908	25,364
11. Price contingency	90	270	360	1,348	1,758	3,106	868	2,464	3,332	2,306	4,492	6,798
12. Total (10.+11.)	968	1,558	2,526	9,899	7,068	16,967	4,895	7,774	12,669	15,762	16,400	32,162
<b>Solana</b>												
1. Pump, Power supply	0	0	0	16,906	0	16,906	0	890	890	16,906	890	17,796
2. Irrig. & drainage facilities	0	0	0	2,061	2,952	5,013	2,062	2,953	5,015	4,123	5,905	10,028
3. O/M equipment	0	0	0	5,516	0	5,516	0	0	0	5,516	0	5,516
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	211	211	0	0	0	0	0	0	0	211	211
6. Sub-total (1.+2.+3.+4.+5.)	0	211	211	24,483	2,952	27,435	2,062	3,843	5,905	26,545	7,006	33,551
7. Engineering and administration	1,991	525	2,516	995	263	1,258	995	263	1,258	3,981	1,051	5,032
8. Sub-total (6.+7.)	1,991	736	2,727	25,478	3,215	28,693	3,057	4,106	7,163	30,526	8,057	38,583
9. Physical contingency (10% of 8.)	199	74	273	2,548	322	2,870	306	411	717	3,053	807	3,860
10. Sub-total (8.+9.)	2,190	810	3,000	28,026	3,537	31,563	3,363	4,517	7,880	33,579	8,864	42,443
11. Price contingency	224	170	394	4,418	1,171	5,589	725	2,096	2,821	5,367	3,437	8,804
12. Total (10.+11.)	2,414	980	3,394	32,444	4,708	37,152	4,088	6,613	10,701	38,946	12,301	51,247
<b>Libmanan</b>												
1. Pump, Power supply	0	0	0	6,496	0	6,496	0	342	342	6,496	342	6,838
2. Irrig. & drainage facilities	0	0	0	5,642	6,574	12,216	5,642	6,575	12,217	11,284	13,149	24,433
3. O/M equipment	0	0	0	4,687	0	4,687	0	0	0	4,687	0	4,687
4. Monitor'g & communication facilit.	0	0	0	120	0	120	0	0	0	120	0	120
5. Training programme	0	222	222	0	0	0	0	0	0	0	222	222
6. Sub-total (1.+2.+3.+4.+5.)	0	222	222	16,945	6,574	23,519	5,642	6,917	12,559	22,587	13,713	36,300
7. Engineering and administration	1,694	1,028	2,722	847	514	1,361	847	514	1,361	3,388	2,056	5,444
8. Sub-total (6.+7.)	1,694	1,250	2,944	17,792	7,088	24,880	6,489	7,431	13,920	25,975	15,769	41,744
9. Physical contingency (10% of 8.)	169	125	294	1,779	709	2,488	649	743	1,392	2,597	1,577	4,174
10. Sub-total (8.+9.)	1,863	1,375	3,238	19,571	7,797	27,368	7,138	8,174	15,312	28,572	17,346	45,918
11. Price contingency	191	289	480	3,085	2,581	5,666	1,538	3,794	5,332	4,814	6,664	11,478
12. Total (10.+11.)	2,054	1,664	3,718	22,656	10,378	33,034	8,676	11,968	20,644	33,386	24,010	57,396
<b>Grand total</b>	<b>8,525</b>	<b>5,928</b>	<b>14,453</b>	<b>107,875</b>	<b>25,948</b>	<b>133,823</b>	<b>21,456</b>	<b>32,703</b>	<b>54,159</b>	<b>137,856</b>	<b>64,579</b>	<b>202,435</b>

Remarks: Price escalation (per annum)-

5.0 % in F/C

10.0 % in L/C

(Price level: as of 1988)

F/C ; Foreign currency

L/C ; Local currency

Case-3; Indirect tapping, Firmed-up service area

Table 3.8 (4/4) DISBURSEMENT SCHEDULE (Case-4)

(Unit: 1,000 Peso)

Cost item	1st. Year			2nd. Year			3rd. Year			Total		
	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount	F/C	L/C	Amount
<b>Bonga #1</b>												
1. Pump, Power supply	0	0	0	8,060	0	8,060	0	424	424	8,060	424	8,484
2. Irri. & drainage facilities	0	0	0	937	1,337	2,274	937	1,338	2,275	1,874	2,675	4,549
3. O/M equipment	0	0	0	1,914	0	1,914	0	0	0	1,914	0	1,914
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	412	412	0	0	0	0	0	0	0	412	412
6. Sub-total (1.+2.+3.+4.+5.)	0	412	412	10,911	1,337	12,248	937	1,762	2,699	11,848	3,511	15,359
7. Engineering and administration	889	263	1,152	444	132	576	444	132	576	1,777	527	2,304
8. Sub-total (6.+7.)	889	675	1,564	11,355	1,469	12,824	1,381	1,894	3,275	13,625	4,038	17,663
9. Physical contingency (10% of 8.)	89	68	157	1,136	147	1,283	138	189	327	1,363	404	1,767
10. Sub-total (8.+9.)	978	743	1,721	12,491	1,616	14,107	1,519	2,083	3,602	14,988	4,442	19,430
11. Price contingency	100	156	256	1,969	535	2,504	327	967	1,294	2,396	1,658	4,054
12. Total (10.+11.)	1,078	899	1,977	14,460	2,151	16,611	1,846	3,050	4,896	17,384	6,100	23,484
<b>Bonga #2</b>												
1. Pump, Power supply	0	0	0	10,926	0	10,926	0	575	575	10,926	575	11,501
2. Irri. & drainage facilities	0	0	0	670	1,137	1,807	670	1,137	1,807	1,340	2,274	3,614
3. O/M equipment	0	0	0	3,014	0	3,014	0	0	0	3,014	0	3,014
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	484	484	0	0	0	0	0	0	0	484	484
6. Sub-total (1.+2.+3.+4.+5.)	0	484	484	14,610	1,137	15,747	670	1,712	2,382	15,280	3,333	18,613
7. Engineering and administration	1,146	250	1,396	573	125	698	573	125	698	2,292	500	2,792
8. Sub-total (6.+7.)	1,146	734	1,880	15,183	1,262	16,445	1,243	1,837	3,080	17,572	3,833	21,405
9. Physical contingency (10% of 8.)	115	73	188	1,518	126	1,644	124	184	308	1,757	383	2,140
10. Sub-total (8.+9.)	1,261	807	2,068	16,701	1,388	18,089	1,367	2,021	3,388	19,329	4,216	23,545
11. Price contingency	129	169	298	2,632	459	3,091	295	938	1,233	3,056	1,566	4,622
12. Total (10.+11.)	1,390	976	2,366	19,333	1,847	21,180	1,662	2,959	4,621	22,385	5,782	28,167
<b>Bonga #3</b>												
1. Pump, Power supply	0	0	0	6,468	0	6,468	0	340	340	6,468	340	6,808
2. Irri. & drainage facilities	0	0	0	573	673	1,246	574	674	1,248	1,147	1,347	2,494
3. O/M equipment	0	0	0	877	0	877	0	0	0	877	0	877
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	27	27	0	0	0	0	0	0	0	27	27
6. Sub-total (1.+2.+3.+4.+5.)	0	27	27	7,918	673	8,591	574	1,014	1,588	8,492	1,714	10,206
7. Engineering and administration	637	129	766	318	64	382	318	64	382	1,273	257	1,530
8. Sub-total (6.+7.)	637	156	793	8,236	737	8,973	892	1,078	1,970	9,765	1,971	11,736
9. Physical contingency (10% of 8.)	64	16	80	824	74	898	89	108	197	977	198	1,175
10. Sub-total (8.+9.)	701	172	873	9,060	811	9,871	981	1,186	2,167	10,742	2,169	12,911
11. Price contingency	72	36	108	1,428	268	1,696	211	550	761	1,711	854	2,565
12. Total (10.+11.)	773	208	981	10,488	1,079	11,567	1,192	1,736	2,928	12,453	3,023	15,476
<b>Aicala</b>												
1. Pump, Power supply	0	0	0	0	0	0	0	0	0	0	0	0
2. Irri. & drainage facilities	0	0	0	3,961	5,494	9,455	3,961	5,495	9,456	7,922	10,989	18,911
3. O/M equipment	0	0	0	4,281	0	4,281	0	0	0	4,281	0	4,281
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	601	601	0	0	0	0	0	0	0	601	601
6. Sub-total (1.+2.+3.+4.+5.)	0	601	601	8,242	5,494	13,736	3,961	5,495	9,456	12,203	11,590	23,793
7. Engineering and administration	915	869	1,784	458	435	893	458	435	893	1,831	1,739	3,570
8. Sub-total (6.+7.)	915	1,470	2,385	8,700	5,929	14,629	4,419	5,930	10,349	14,034	13,329	27,363
9. Physical contingency (10% of 8.)	92	147	239	870	593	1,463	442	593	1,035	1,464	1,333	2,737
10. Sub-total (8.+9.)	1,007	1,617	2,624	9,570	6,522	16,092	4,861	6,523	11,384	15,438	14,662	30,100
11. Price contingency	103	340	443	1,508	2,159	3,667	1,048	3,027	4,075	2,659	5,526	8,185
12. Total (10.+11.)	1,110	1,957	3,067	11,078	8,681	19,759	5,909	9,550	15,459	18,097	20,188	38,285
<b>Solana</b>												
1. Pump, Power supply	0	0	0	24,508	0	24,508	0	1,290	1,290	24,508	1,290	25,798
2. Irri. & drainage facilities	0	0	0	4,644	6,640	11,284	4,644	6,640	11,284	9,288	13,280	22,568
3. O/M equipment	0	0	0	5,516	0	5,516	0	0	0	5,516	0	5,516
4. Monitor'g & communication facilit.	0	0	0	0	0	0	0	0	0	0	0	0
5. Training programme	0	394	394	0	0	0	0	0	0	0	394	394
6. Sub-total (1.+2.+3.+4.+5.)	0	394	394	34,668	6,640	41,308	4,644	7,930	12,574	39,312	14,964	54,276
7. Engineering and administration	2,948	1,122	4,070	1,474	561	2,035	1,474	561	2,035	5,896	2,244	8,140
8. Sub-total (6.+7.)	2,948	1,516	4,464	36,142	7,201	43,343	6,118	8,491	14,609	45,208	17,208	62,416
9. Physical contingency (10% of 8.)	295	152	447	3,614	720	4,334	612	849	1,461	4,521	1,721	6,242
10. Sub-total (8.+9.)	3,243	1,668	4,911	39,756	7,921	47,677	6,730	9,340	16,070	49,729	18,929	68,658
11. Price contingency	332	350	682	6,267	2,622	8,889	1,450	4,335	5,785	8,049	7,307	15,356
12. Total (10.+11.)	3,575	2,018	5,593	46,023	10,543	56,566	8,180	13,675	21,855	57,778	26,236	84,014
<b>Libmanan</b>												
1. Pump, Power supply	0	0	0	6,496	0	6,496	0	342	342	6,496	342	6,838
2. Irri. & drainage facilities	0	0	0	6,526	7,712	14,238	6,526	7,713	14,239	13,052	15,425	28,477
3. O/M equipment	0	0	0	4,687	0	4,687	0	0	0	4,687	0	4,687
4. Monitor'g & communication facilit.	0	0	0	120	0	120	0	0	0	120	0	120
5. Training programme	0	364	364	0	0	0	0	0	0	0	364	364
6. Sub-total (1.+2.+3.+4.+5.)	0	364	364	17,829	7,712	25,541	6,526	8,055	14,581	24,355	16,131	40,486
7. Engineering and administration	1,827	1,210	3,037	913	605	1,518	913	605	1,518	3,653	2,420	6,073
8. Sub-total (6.+7.)	1,827	1,574	3,401	18,742	8,317	27,059	7,439	8,660	16,099	28,008	18,551	46,559
9. Physical contingency (10% of 8.)	183	157	340	1,874	832	2,706	744	866	1,610	2,801	1,855	4,656
10. Sub-total (8.+9.)	2,010	1,731	3,741	20,616	9,149	29,765	8,183	9,526	17,709	30,809	20,406	51,215
11. Price contingency	206	364	570	3,250	3,028	6,278	1,763	4,421	6,184	5,219	7,813	13,032
12. Total (10.+11.)	2,216	2,095	4,311	23,866	12,177	36,043	9,946	13,947	23,893	36,028	28,219	64,247
<b>Grand total</b>	<b>10,142</b>	<b>8,153</b>	<b>18,295</b>	<b>125,248</b>	<b>36,478</b>	<b>161,726</b>	<b>28,735</b>	<b>44,917</b>	<b>73,652</b>	<b>164,125</b>	<b>89,548</b>	<b>253,673</b>

Remarks: Price escalation (per annum)- 5.0 % in F/C  
10.0 % in L/C

(Price level: as of 1988)

F/C : Foreign currency  
L/C : Local currency  
Case-4: Indirect tapping, Maximum service area

Table 3.9(1/4) ANNUAL OPERATION AND MAINTENANCE COSTS

Case-1 : Direct Tapping, Firmed-up Service Area

Unit : 1000 pesos

	BONGA #1	BONGA #2	BONGA #3	ALCALA- ANULUNG	LIMANAN- SOLANA(1)	LIMANAN- CABUSAO(1)
<b>I. O &amp; M COST (Peso)</b>						
Salaries	66.5	78.6	60.5	123.0		52.0
Wage	8.5	0.0	8.3	168.7	220.0	106.5
Cost of living allowance	25.2	32.1	23.5	197.8		136.0
Representative allowance	0.4	0.8	0.3	6.1		3.2
Food subsidy	6.2	6.7	6.3	49.3		63.0
Medical allowance	7.7	11.5	8.5	72.1		22.2
Government shares	4.8	8.2	4.0	7.7		5.9
Other costs	20.3	26.8	17.6	144.8		89.5
sub-total	139.6	164.7	129.0	769.5	220.0	478.3
Travel expense	1.0	1.0	1.0	7.0	1.0	9.0
Supplies/material	14.9	33.7	10.1	82.6	55.0	91.9
Oil and maintenance for pump facilities	13.4	19.2	11.3	50.3	27.7	42.0
Maintenance for substation and transmission line	7.7	9.7	1.9	9.0	10.8	16.3
Power energy cost	424.2	774.5	263.6	3,012.9	1,848.5	1,354.9
Oil and maintenance for O & M equipment	24.9	57.8	16.6	53.3	69.4	88.5
sub-total	486.1	895.9	304.5	3,215.1	2,012.4	1,602.6
<b>TOTAL COST</b>	<b>625.7</b>	<b>1,060.6</b>	<b>433.5</b>	<b>3,984.6</b>	<b>2,232.4</b>	<b>2,080.9</b>
<b>O &amp; M COST PER HA</b>	<b>2.1</b>	<b>1.6</b>	<b>2.1</b>	<b>2.4</b>	<b>2.0</b>	<b>1.1</b>

Table 3.9(2/4) ANNUAL OPERATION AND MAINTENANCE COSTS

Case-2 : Direct Tapping, Maximum Service Area

Unit ; 1000 pesos

	BONGA #1	BONGA #2	BONGA #3	ALCALA- ANULUNG	LIBMANAN- SOLANA(1)	CABUSAO(1)
<b>1. O &amp; M COST (Peso)</b>						
Salaries	66.5	78.6	60.5	123.0		52.0
Wage	8.5	0.0	8.3	168.7	392.0	130.3
Cost of living allowance	25.2	32.1	23.5	197.8		155.8
Representative allowance	0.4	0.8	0.3	6.1		3.2
Food subsidy	6.2	6.7	6.3	49.3		68.7
Medical allowance	7.7	11.5	8.5	72.1		29.4
Government shares	4.8	8.2	4.0	7.7		6.7
Other costs	20.3	26.8	17.6	144.8		104.1
sub-total	139.6	164.7	129.0	769.5	392.0	550.2
Travel expense	1.0	1.0	1.0	7.0	1.0	9.0
Supplies/material	21.3	33.7	10.1	107.9	98.0	154.3
Oil and maintenance for pump facilities	14.1	19.2	11.3	50.4	41.2	42.0
Maintenance for substation and transmission line	7.7	9.7	1.9	9.0	10.8	16.3
Power energy cost	591.5	774.5	263.6	3,930.2	3,323.3	2,126.6
Oil and maintenance for O & M equipment	36.6	57.8	16.6	70.1	86.7	118.0
sub-total	672.2	895.9	304.5	4,174.6	3,561.0	2,466.2
<b>TOTAL COST</b>	<b>811.8</b>	<b>1,060.6</b>	<b>433.5</b>	<b>4,944.1</b>	<b>3,953.0</b>	<b>3,016.4</b>
<b>O &amp; M COST PER HA</b>	<b>1.9</b>	<b>1.6</b>	<b>2.1</b>	<b>2.3</b>	<b>2.0</b>	<b>1.0</b>

Table 3.9(3/4) ANNUAL OPERARION AND MAINTENANCE COSTS

Case-3 : Indirect Tapping, Firmed-up Service Area

Unit : 1000 pesos

	BONGA #1	BONGA #2	BONGA #3	ALCALA- ANULUNG SOLANA(1)	LIBMANAN- CABUSAO(1)
1. O & M COST (Peso)					
Salaries	66.5	78.6	60.5	-	52.0
Wage	8.5	0.0	8.3	-	106.5
Cost of living allowance	25.2	32.1	23.5	-	136.0
Representative allowance	0.4	0.8	0.3	-	3.2
Food subsidy	6.2	6.7	6.3	-	63.0
Medical allowance	7.7	11.5	8.5	-	22.2
Government shares	4.8	8.2	4.0	-	5.9
Other costs	20.3	26.8	17.6	-	89.5
sub-total	139.6	164.7	129.0	-	478.3
Travel expense	1.0	1.0	1.0	-	9.0
Supplies/material	14.9	33.7	10.1	-	91.9
Oil and maintenance for pump facilities	13.4	19.2	11.3	-	42.0
Maintenance for substation and transmission line	0.0	0.0	0.0	-	0.0
Power energy cost	774.6	1,414.3	481.4	-	2,474.2
Oil and maintenance for O & M equipment	24.9	57.8	16.6	-	88.5
sub-total	828.8	1,526.0	520.4	-	2,705.6
TOTAL COST	968.4	1,690.7	649.4	-	3,183.9
O & M COST PER HA	3.2	2.5	3.2	-	1.7

Table 3.9(4/4) ANNUAL OPERARION AND MAINTENANCE COSTS

Case-4 : Indirect Tapping, Maximum Service Area

Unit ; 1000 pesos

	BONGA #1	BONGA #2	BONGA #3	ALCALA- ANULUNG SOLANA(1)	LTBNANAN- CABUSAO(1)	
1. O & M COST (Peso)						
Salaries	66.5	78.6	60.5	123.0	52.0	
Wage	8.5	0.0	8.3	168.7	130.3	
Cost of living allowance	25.2	32.1	23.5	197.8	155.8	
Representative allowance	0.4	0.8	0.3	6.1	3.2	
Food subsidy	6.2	6.7	6.3	49.3	68.7	
Medical allowance	7.7	11.5	8.5	72.1	29.4	
Government shares	4.8	8.2	4.0	7.7	6.7	
Other costs	20.3	26.8	17.6	144.8	104.1	
sub-total	139.6	164.7	129.0	769.5	550.2	
Travel expense	1.0	1.0	1.0	7.0	9.0	
Supplies/material	21.3	33.7	10.1	107.9	154.3	
Oil and maintenance for pump facilities	14.1	19.2	11.3	50.4	42.0	
Maintenance for substation and transmission line	0.0	0.0	0.0	9.0	0.0	
Power energy cost	1,080.0	1,414.3	481.4	4,101.1	3,883.3	
Oil and maintenance for O & M equipment	36.6	57.8	16.6	70.1	118.0	
sub-total	1,153.0	1,526.0	520.4	4,345.5	4,206.6	
TOTAL COST	1,292.6	1,690.7	649.4	5,115.0	4,756.8	
O & M COST PER HA	3.0	2.5	3.2	2.4	1.5	

Table 3.10 REPLACEMENT COST

(Unit : 1000 pesos)

Name of System	Pump Equipment(15)†		(35) †	(35) †	Substation(35)†		O&M Equipment(10)†		Gate (25) †	
	A ††	B †††	Electric Equipment	Transmission Line	A ††	B †††	A ††	B †††	A ††	B †††
Case - 1 : Direct Tapping, Firmed-up Service Area										
Bonga Pump #1	4,947	0	3,120	528	4,105	0	1,914	1,035	12	74
Bonga Pump #2	7,857	0	3,644	660	5,132	0	3,014	2,400	0	148
Bonga Pump #3	3,783	0	3,025	132	1,026	0	877	703	0	197
Alcala Anulung	0	78,120	4,417 †††	0	0	4,893	4,114	5,008	43	37
Solana	13,757	0	3,177	120	6,910	0	5,516	0	56	154
Libmanan Cabusao	2,421	20,760	4,417	0	9,787	0	4,807	3,898	68	499
Case - 2 : Direct Tapping, Maximum Service Area										
Bonga Pump #1	5,347	0	3,137	528	4,105	0	1,914	1,366	12	191
Bonga Pump #2	7,857	0	3,644	660	5,132	0	3,014	2,152	0	148
Bonga Pump #3	3,783	0	3,025	132	1,026	0	877	621	0	198
Alcala Anulung	0	78,120	4,417 †††	0	0	4,893	4,281	6,349	49	37
Solana	20,952	0	4,114	120	6,910	0	5,516	0	155	247
Libmanan Cabusao	2,421	20,760	4,417	0	9,787	0	4,807	3,898	43	633
Case - 3 : Indirect Tapping, Firmed Area										
Bonga Pump #1	4,947	0	3,120	0	0	0	1,914	1,035	12	74
Bonga Pump #2	7,857	0	3,644	0	0	0	3,014	2,400	0	148
Bonga Pump #3	3,783	0	3,025	0	0	0	877	703	0	197
Alcala Anulung	-	78,120	-	-	-	-	-	-	-	-
Solana	13,757	0	4,039	0	0	0	5,516	0	56	154
Libmanan Cabusao	2,421	20,760	4,417	0	0	0	4,807	3,898	68	499
Case - 4 : Indirect Tapping, Maximum Service Area										
Bonga Pump #1	5,347	0	3,137	0	0	0	1,914	1,366	12	191
Bonga Pump #2	7,857	0	3,644	0	0	0	3,014	2,152	0	148
Bonga Pump #3	3,783	0	3,025	0	0	0	877	621	0	198
Alcala Anulung	-	-	-	-	-	-	-	-	-	-
Solana	20,852	0	4,864	0	0	0	5,516	0	155	247
Libmanan Cabusao	2,421	20,760	4,417	0	0	0	4,807	3,898	43	633

† † Average Durable Year



**ANNEX-G**

**PROJECT EVALUATION**



ANNEX -- G

PROJECT EVALUATION

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## 1. GENERAL

The project evaluation has involved making an assessment of project feasibility in view of economic, financial and socio-economic aspect.

The economic feasibility was first evaluated by calculating the economic internal rate of return (EIRR). Sensitivity analysis was also made in order to elucidate the economic viability of the project against the changes in the benefit and project cost.

Financial evaluation was carried out by analyzing the effect of the project on the farms' economy for average farmers, systems' finance and by preparing the repayment schedule of the project cost.

The socio-economic impact from the implementation of the project was also briefly studied.

## 2. ECONOMIC EVALUATION

### 2.1 General

The economic feasibility of the Improvement of Operation and Maintenance in Pumping Irrigation Systems was assessed through the economic internal rate of return (EIRR). A sensitivity analysis was also made assuming adverse changes in project benefit and project cost over-runs.

### 2.2 Basic Assumption for Economic Evaluation

The economic evaluation was made on the basis of the following basic assumptions:

- 1) The economic useful life of the project is 50 years.
- 2) All prices are expressed in 1988 constant prices.
- 3) The exchange rate of US\$ 1.00 = Peso 21.0 = Yen 135 is applied.
- 4) The construction period is three (3) years including one (1) year for preparatory works and detailed design.
- 5) A standard conversion rate (SCR) of 0.83 computed by National Economic and Development Authority (NEDA) is applied to economic prices of non-tradable goods and services.
- 6) The price contingency (10% for local currency component and 5% for foreign currency component) and transfer payments (10% for value-added tax) are excluding from the economic project cost.
- 7) Cost of unskilled labor is evaluated taking account of shadow wage rate (SWR) of 0.6 computed by NEDA.

### 2.3 Economic Benefit

Economic farm gate prices of tradable agricultural commodities such as rice, corn, fertilizers were estimated on the basis of the projected world market prices of the World Bank in the long range for the period of 1985 to 1995. The World Bank forecast prices of tradable commodities were adjusted to 1988 constant price using the manufacturing unit value (MUV) of 1.403. Economic farm gate prices of other tradable commodities were valued at their financial prices. On the other hand, economic farm gate prices of non-tradable agricultural commodities were estimated by applying the Standard Conversion Rate (SCR) of 0.83. Economic farm gate price of unskilled labor was evaluated taking into account the Shadow Wage Rate (SWR) of 0.6. Details are given in "Annex-G Agriculture and Agro-economy".

Irrigation benefit to be expected is defined as the difference of primary profit from crops between future with and without project conditions. On the basis of the estimated production cost and gross income, primary profit per ha of crop was calculated both under with and without project conditions as shown in Annex-G. Applying the primary profit per crop estimated to crop area, the total primary profits accrued from agricultural production by the project were estimated both under with and without project conditions. Based on this result the irrigation benefit was calculated as shown in Annex-G and summarized below.

(Unit: 1,000 Pesos)

Crops	Bonga #1	Bonga* #2	Bonga #3	Alcala- Amulung	Alcala-** Amulung	Solana	Libmanan- Cabusao
Firmed-up Service Area							
With project	7,561	16,700	4,938	40,748	40,748	27,143	41,809
Without project	1,575	4,111	1,127	22,000	7,852	5,376	9,184
Increment	5,985	12,589	3,811	18,748	32,896	21,767	32,625
Maximum Service Area							
With project	10,755	16,700	4,938	53,229	53,229	48,363	70,174
Without project	2,252	4,111	1,127	24,405	10,257	9,579	10,968
Increment	8,503	12,589	3,811	28,824	42,972	38,784	59,206

Remark : \* = The maximum service area cannot be demarcated due lack of data. In this study the maximum service area was assumed to be the firmed-up service area.

\*\* = After expiration of useful life of pump equipment

The irrigation benefit is expected to increase year by year and will reach the full benefit in and after 5th year after the completion of irrigation facilities. The expected irrigation benefit during build-up period is assumed as follows:

(Unit: %)

Year in Order	Rate to the Full Benefit
1	40
2	55
3	70
4	85
5	100

The irrigation benefit flow of the six (6) pump systems is shown in Table 2.1. Irrigation benefit will be born from the end of 1993 and will gradually increase to attain its maximum in 1997.

#### 2.4 Economic Cost

The economic project cost was estimated in "Annex-F Project Cost and Implementation Schedule for the Pump Systems" and applying transfer payment of 0.9 and SCR of 0.83 to local currency component of the financial project cost. The economic construction cost is summarized as follows:

(Unit: 1,000 Peso)

Cost Component	Financial Cost		Economic Cost	
	Direct*	Indirect**	Direct*	Indirect**
<b>Firmed-up Service Area</b>				
Bonga #1	24,946	17,987	20,230	14,558
Bonga #2	36,868	28,167	29,607	22,478
Bonga #3	17,215	15,476	13,786	12,363
Alcala-Amulung	32,162	-	22,350	-
Solana	60,401	51,247	47,884	40,200
Libmanan-Cabusao	71,889	57,396	53,756	41,530
<b>Maximum Service Area</b>				
Bonga #1	30,438	23,484	24,005	18,306
Bonga #2	36,868	28,167	29,607	22,478
Bonga #3	17,215	15,476	13,786	12,363
Alcala-Amulung	38,285	-	26,391	-
Solana	93,363	84,014	71,717	63,869
Libmanan-Cabusao	78,736	64,247	58,277	46,053

Remarks: \* = Electric power for pump operation depends on NAPOCOR  
 \*\* = Electric power for pump operation depends on the local electricity cooperatives

The annual financial operation and maintenance (O&M) costs and the replacement costs for irrigation facilities, pump and O&M equipments are given in Annex-F in detail. The economic annual O&M cost was estimated by applying SCR of 0.83 to personal expenses, travel expense and local materials of financial annual O&M cost. The economic annual O&M cost was estimated as shown below:

(Unit: 1,000 Peso)

Cost Component	Financial Cost		Economic Cost	
	Direct	Indirect	Direct	Indirect
<b>Firmed-up Service Area</b>				
Bonga #1	626	968	599	942
Bonga #2	1,061	1,691	1,027	1,657
Bonga #3	434	649	410	626
Alcala-Amulung	3,985	-	3,839	-
Solana	2,232	3,749	2,186	3,702
Libmanan-Cabusao	2,081	3,184	1,982	3,085
<b>Maximum Service Area</b>				
Bonga #1	812	1,293	784	1,265
Bonga #2	-	-	-	-
Bonga #3	434	649	410	626
Alcala-Amulung	4,944	-	4,794	-
Solana	3,953	6,688	3,870	6,604
Libmanan-Cabusao	3,016	4,757	2,895	4,636

Pump and electrical equipments, gates, sub-station, O&M equipments, etc. should be replaced at a certain period within the project life. These facilities were assumed to be imported and then the economic replacement cost of them was estimated to be same as the financial replacement cost. The useful life of them is shown below:



Item	(Unit: year)	
	Useful Life	
1) Irrigation Facilities	25	
2) Pump Facilities		
Pump equipment	15	
Electric equipment	35	
3) Sub-station	35	
4) O&M Equipment	10	
5) Communication Equipment	10	
6) Monitoring Equipment	10	

According to the implementation schedule of the project proposed in Annex-F and works quantities, the flow of the economic project cost, operation and maintenance cost and replacement cost were estimated as shown in Table 2.1.

## 2.5 Economic Evaluation

The economic internal rate of return (EIRR) was calculated from the economic project benefits and costs flows for each system in Table 2.1. The results are as follows:

System	(Unit: %)	
	EIRR	
	Direct	Indirect
Firmed-up Service Area		
Bonga #1	16.5	19.6
Bonga #2	22.2	25.4
Bonga #3	15.6	15.9
Alcala-Amulung	26.8	-
Solana	23.9	25.0
Libmanan-Cabusao	26.1	29.4
Maximum Service Area		
Bonga #1	19.4	22.1
Bonga #2	22.2	25.4
Bonga #3	15.6	15.9
Alcala-Amulung	33.7	-
Solana	27.4	27.4
Libmanan-Cabusao	39.5	44.1

The results indicate that all the systems are economically feasible and the EIRR of the maximum service area shows higher figure than that of the firmed-up service area.

A sensitivity analysis of the maximum service area was carried out to evaluate the soundness of the project against possible adverse changes in the future for the following three (3) cases:

- Case 1 : Cost overrun by 10%
- Case 2 : Reduction of irrigation benefit by 10% due to unexpected decrease in forecasted prices of agricultural output
- Case 3 : Combined effect of Case 1 and Case 2

The results of sensitivity analysis are presented below:

(Unit: %)				
Cost Component	Base Case	Case 1	Case 2	Case 3
<b>Direct Tapping</b>				
Bonga #1	19.4	17.8	17.6	16.1
Bonga #2	22.2	20.4	20.3	18.6
Bonga #3	15.6	14.2	14.1	12.7
Alcala-Amulung	33.7	30.1	29.8	26.5
Solana	27.4	25.3	25.1	23.1
Libmanan-Cabusao	39.5	36.7	36.4	33.7
<b>Indirect Tapping</b>				
Bonga #1	22.1	20.1	19.9	18.1
Bonga #2	25.4	23.3	23.0	21.0
Bonga #3	15.9	14.3	14.2	12.6
Alcala-Amulung	-	-	-	-
Solana	27.4	25.1	24.8	22.6
Libmanan-Cabusao	44.1	40.8	40.4	37.4

### 3. FINANCIAL ANALYSIS

#### 3.1 General

Financial evaluation of the project was made by the analysis of the farmers' economy for an average farmer, the systems' finance and the assessment for repayment of the fund requirement.

Farmers' economic analysis was conducted to assess whether the project will have sufficient incentive to the farmers in the systems and will bring enough income increase in the farmer's economy. Assessment of the irrigation fee in each system was also made briefly.

The financial statement of each pump system was evaluated on the basis of the expected annual direct revenue and operation and maintenance (O&M) cost.

In succession, repayment analysis was made on the basis of the expected direct revenue and the estimated fund requirement with the assumed terms of the finance.

#### 3.2 Farm Budget Analysis and Capacity to Pay

In order to evaluate the project from the financial aspect of the farmers, the farmers' economic analyses on an average farm size of farmer were made under both with and without project conditions. The payment capacity is recognized as the ability of the project benefited farmers to bear the expenses required for annual O&M cost of the systems as well as for repayment of the fund requirement.

After implementation of the project, the project will provide bases for introduction of improved irrigation farming through year round irrigation. As a result, increase of unit yield of crops and cropping intensity will be much expected under the with project condition. Under such situation, drastic increase on farm income under the with project condition can be expected in the farmers in each pump system. On the other hand, substantial increase on farm income will not be expected under the without project condition.

Net farm income of an average farm under the with project condition will be expected to become about 2.0 and 4.5 times of that of the farmers under the without project conditions due mainly to increase in yield of crops and cropping intensity by implementation of the project. Annual net reserve or capacity to pay of an average farm under both with and without project conditions in each pump system are summarized as follows:

(Unit: 1,000 Pesos)

	Bonga #1	Bonga #2	Bonga #3	Alcala- Amulung	Solana	Libmanan- Cabusao
Family Size	4.9	5.1	5.1	5.4	5.6	5.8
Farm Size (ha)	0.21	0.27	0.49	0.82	0.99	2.04
Tenurial Status	Owner	Tenant	Tenant	Owner	Tenant	Tenant
With Project Condition						
Net income	16.6	18.3	22.3	22.0	26.2	40.1
farm income	8.9	9.8	15.1	17.7	21.0	36.8
non-farm income	7.7	8.5	7.2	4.3	5.2	3.4
Living expense	13.6	14.6	15.3	17.7	15.9	18.9
Tenant fee/Land tax	0.0	1.8	3.2	0.1	3.7	2.8
Net reserve	2.9	1.9	3.8	4.1	6.6	18.5
Without Project Condition						
Net income	12.8	14.2	13.5	12.7	13.7	14.0
farm income	4.5	4.6	5.4	7.2	6.9	8.2
non-farm income	8.3	9.6	8.0	5.5	6.8	5.8
Living expense	11.9	13.6	10.8	12.5	12.7	12.3
Tenant fee/Land tax	0.0	0.4	0.7	0.0	0.8	1.7
Net reserve	0.9	0.2	2.0	0.1	0.1	0.0

The project will bring about a great improvement in farm economy and these increased net reserves will offer incentive to farmers in each pump system. In addition substantial capacity to pay will enable them to pay irrigation fee. The project could be justified from the farmer's viewpoint.

### 3.3 Repayment Capability

The financial evaluation of the project was made by examining the repayment capacity for the fund requirement of the project. In examining the repayment capability, it was assumed that the capital required for the project implementation would be arranged under the following conditions:

- 1) The foreign currency portion will be financed by the Government through a financing institution at an assumed interest rate of 2.7% per annum for a repayment period of 30 years including a grace period of 10 years.
- 2) The local currency portion will be financed by the Government from its own resources with no interest and 25 years repayment period.
- 3) Irrigation fee assumed to apply present irrigation fee with 100% collection efficiency.

The cash flow statement of each pump system for the maximum service area with both direct and indirect tapping from NAPOCOR was prepared under above conditions as shown in Table 3.1. The cash flow statements of each of the pump systems indicate that repayment of the fund requirement under the above loan condition could not be realized without subsidy. The estimated accumulated balance of the revenue and outgoings in the 30th year of each pump system is summarized as follows:

(Unit: 1,000 Peso)

System	Accumulated Balance			
	Direct		Indirect	
Bonga #1	- 37,343	(- 3,246)	- 40,318	(- 3,505)
Bonga #2	- 37,393	(- 2,055)	- 41,877	(- 2,301)
Bonga #3	- 24,338	(- 4,462)	- 27,640	(- 5,068)
Alcala-Amulung	- 221,694	(- 3,805)	-	(-)
Solana	- 6,915	(- 130)	- 67,051	(- 1,267)
Libmanan-Cabusao	- 76,237	(- 915)	- 101,918	(- 1,224)

Remark: () = equivalent Peso/ha/year.

Furthermore, analysis of the repayment capability of each pump system was made on the basis of following conditions:

- 1) The repayment of the fund requirement will be made by the Government.
- 2) Irrigation fee assumed to apply present irrigation fee with 100% collection efficiency.

The cash flow statement of each pump system under above conditions is given in Table 3.2 and the estimated accumulated balance in the 30th year of each pump system is summarized as follows:

(Unit: 1,000 Peso)

System	Accumulated Balance			
	Direct		Indirect	
Bonga #1	5,060	(440)	- 7,927	(- 689)
Bonga #2	14,705	(808)	- 2,305	(- 127)
Bonga #3	- 29	(- 5)	- 5,834	(- 1,070)
Alcala-Amulung	- 173,692	(- 2,981)	-	(-)
Solana	120,593	(2,279)	46,748	(883)
Libmanan-Cabusao	28,252	(339)	- 18,755	(- 225)

Remark: () = equivalent Peso/ha/year

All the systems except the Bonga #3 and Alcala-Amulung systems indicate that the direct revenue from the farmers covers the annual cost of the system in case of direct tapping from NAPOCOR. However, in case of indirect tapping, all the systems except the Solana system shows deficit even the fund requirement of the project is covered by the Government.

#### 4. SOCIO-ECONOMIC IMPACT OF THE PROJECT

In addition to direct benefit counted in the economic evaluation, various secondary and intangible benefit and/or favorable socio-economic impacts are expected from the implementation of the project. The major socio-economic impacts are described hereunder.

##### 1) Increase of employment opportunity

It is estimated that the project will generate employment opportunities totaling about 0.9 million man-days of unskilled laborers during the construction period. Most of the manpower will be supplied from the farmers in and around the project area. Furthermore, the employee will be able to gain more experience and skillfulness in the various working fields. These accumulation of experiences would be very useful for O&M work of the farmers. In addition the project creates a demand for farm labor requirement accrued from increased farming activities due to intensive use of the land. The incremental farm requirement is estimated at 1.1 million man-days annually. The ratio of labor absorbed in farming activities to total available labor force will be expected to increase from 3.4% at present condition to about 7.1% under the with project condition.

##### 2) Increase of production of agricultural crops

The project will increase agricultural production of paddy (40,560 tons) which will play an important role in self sufficiency in the project area and supply to the shortage area of food grain such as Region IV. Furthermore increase of the such crop production will much give profits to rice millers and merchants with respect to processing and marketing costs.

##### 3) Increase of farmer's income

The farmer's income will be expected to improve considerably due to production increase of mainly rice. The net farm income will become about 2.0 to 4.5 times of that at present, which will function to provide motive power in improvement of living standard of the farmers as well as of regional economic development.

##### 4) Improvement of local transportation

The local transportation will be much improved by the construction of operation and maintenance road along the irrigation canals. The expanded road system will not only enhance the economic activities but also contribute to inter-regional accessibility and communication.

##### 5) Use of fertilizer and chemicals

After the implementation of the project, improved farming practices will be done by the farmers. The dosage of fertilizers and agro-chemicals will increase. The use of fertilizers and chemicals will be carefully made under the guidance of Department of Agriculture and would thus involve minimal environmental impact. In this connection organophosphorus and organochlorine insecticides such as Metacid, Thimet, Dimecron, Sedrin,

Chlorodane and BHC having high toxicity would be replaced by low-toxic insecticides.

Table 2.1 (1/11) COSTS AND BENEFITS FLOW

Bonga #1 Pump System  
 Firmed-up Service Area  
 Direct Tapping

Year	Cost			Benefit	
	Capital	O & M	Replacement	Total	B/C
1	1,247	0	0	1,247	0
2	18,285	0	0	18,285	0
3	2,218	0	0	2,218	0
4	0	589	1,003	1,592	2,394
5	0	589	0	589	3,782
6	0	589	0	589	4,190
7	0	589	0	589	5,007
8	0	589	0	589	5,985
9	0	589	0	589	5,985
10	0	589	0	589	5,985
11	0	589	0	589	5,985
12	0	589	1,914	2,503	5,985
13	0	589	0	589	5,985
14	0	589	1,634	2,223	5,985
15	0	589	0	589	5,985
16	0	589	0	589	5,985
17	0	589	4,947	5,536	5,985
18	0	589	0	589	5,985
19	0	589	0	589	5,985
20	0	589	0	589	5,985
21	0	589	0	589	5,985
22	0	589	1,914	2,503	5,985
23	0	589	0	589	5,985
24	0	589	1,035	1,624	5,985
25	0	589	0	589	5,985
26	0	589	0	589	5,985
27	0	589	0	589	5,985
28	0	589	0	589	5,985
29	0	589	0	589	5,985
30	0	589	0	589	5,985
31	0	589	0	589	5,985
32	0	589	6,861	7,450	5,985
33	0	589	0	589	5,985
34	0	589	1,035	1,624	5,985
35	0	589	0	589	5,985
36	0	589	0	589	5,985
37	0	589	7,843	8,432	5,985
38	0	589	0	589	5,985
39	0	589	0	589	5,985
40	0	589	0	589	5,985
41	0	589	0	589	5,985
42	0	589	1,914	2,503	5,985
43	0	589	0	589	5,985
44	0	589	1,035	1,624	5,985
45	0	589	0	589	5,985
46	0	589	0	589	5,985
47	0	589	4,947	5,536	5,985
48	0	589	0	589	5,985
49	0	589	0	589	5,985
50	0	589	0	589	5,985

Year	Cost		Benefit	
	Discount Rate (%)	Benefit	Cost	B/C
1	19.0	19,022	19,015	1.03
2	16.0	19,431	18,950	1.03
3	16.2	19,243	18,886	1.02
4	16.3	19,057	18,823	1.01
5	16.4	18,873	18,760	1.01
6	16.5	18,692	18,698	1.00
7	16.6	18,514	18,636	0.99
8	16.7	18,338	18,575	0.99
9	16.8	18,164	18,515	0.98
10	16.9	17,993	18,455	0.97
11	17.0	17,824	18,396	0.97
12	17.1	17,657	18,337	0.96
13	17.2	17,493	18,279	0.96
14	17.3	17,331	18,221	0.95
15	17.4	17,171	18,164	0.95
16	17.5	17,012	18,107	0.94

Bonga #1 Pump System  
 Maximum Service Area  
 Direct Tapping

Year	Cost			Benefit	
	Capital	O & M	Replacement	Total	B/C
1	18,427	0	0	18,427	0
2	3,674	0	0	3,674	0
3	0	784	1,366	2,150	2,461
4	0	784	0	784	4,677
5	0	784	0	784	7,952
6	0	784	0	784	11,228
7	0	784	0	784	14,503
8	0	784	0	784	17,779
9	0	784	0	784	21,054
10	0	784	0	784	24,329
11	0	784	0	784	27,604
12	0	784	1,914	2,698	27,604
13	0	784	0	784	27,604
14	0	784	1,366	2,150	27,604
15	0	784	0	784	27,604
16	0	784	0	784	27,604
17	0	784	5,347	6,131	27,604
18	0	784	0	784	27,604
19	0	784	0	784	27,604
20	0	784	0	784	27,604
21	0	784	0	784	27,604
22	0	784	1,914	2,698	27,604
23	0	784	0	784	27,604
24	0	784	1,366	2,150	27,604
25	0	784	0	784	27,604
26	0	784	0	784	27,604
27	0	784	0	784	27,604
28	0	784	0	784	27,604
29	0	784	0	784	27,604
30	0	784	0	784	27,604
31	0	784	0	784	27,604
32	0	784	7,261	8,045	27,604
33	0	784	0	784	27,604
34	0	784	1,366	2,150	27,604
35	0	784	0	784	27,604
36	0	784	0	784	27,604
37	0	784	7,770	8,554	27,604
38	0	784	0	784	27,604
39	0	784	0	784	27,604
40	0	784	0	784	27,604
41	0	784	0	784	27,604
42	0	784	1,914	2,698	27,604
43	0	784	0	784	27,604
44	0	784	1,366	2,150	27,604
45	0	784	0	784	27,604
46	0	784	0	784	27,604
47	0	784	5,347	6,131	27,604
48	0	784	0	784	27,604
49	0	784	0	784	27,604
50	0	784	0	784	27,604

Year	Cost		Benefit	
	Discount Rate (%)	Benefit	Cost	B/C
1	19.0	21,126	20,667	1.02
2	16.0	20,943	20,607	1.02
3	16.2	20,762	20,547	1.01
4	16.3	20,583	20,488	1.00
5	16.4	20,407	20,429	1.00
6	16.5	20,232	20,371	0.99
7	16.6	20,060	20,313	0.99
8	16.7	19,890	20,255	0.99
9	16.8	19,721	20,198	0.99
10	16.9	19,555	20,142	0.99
11	17.0	19,391	20,086	0.99
12	17.1	19,228	20,030	0.96
13	17.2	19,068	19,975	0.95
14	17.3	18,909	19,920	0.95
15	17.4	18,752	19,865	0.94
16	17.5	18,598	19,811	0.94



Table 2.1 (2/11) COSTS AND BENEFITS FLOW

Bonga #1 Pump System  
 Filled-up Service Area  
 Indirect Mapping

Year	Cost			Benefit		
	Capital	O & M	Replacement	Total	B/C	B-C
1	1,175	0	0	1,175	0	0
2	11,764	0	0	11,764	0	0
3	1,619	0	0	1,619	0	0
4	0	942	1,035	1,977	2,394	3,401
5	0	942	0	942	3,292	4,677
6	0	942	0	942	4,190	5,952
7	0	942	0	942	5,087	7,228
8	0	942	0	942	5,985	8,503
9	0	942	0	942	6,882	9,778
10	0	942	0	942	7,780	11,053
11	0	942	0	942	8,678	12,328
12	0	942	1,914	2,856	9,575	13,603
13	0	942	0	942	10,473	14,878
14	0	942	1,035	1,977	11,370	16,153
15	0	942	0	942	12,268	17,428
16	0	942	0	942	13,165	18,703
17	0	942	4,947	5,889	14,063	20,000
18	0	942	0	942	14,960	21,275
19	0	942	0	942	15,858	22,550
20	0	942	0	942	16,755	23,825
21	0	942	0	942	17,653	25,100
22	0	942	1,914	2,856	18,550	26,375
23	0	942	0	942	19,448	27,650
24	0	942	1,035	1,977	20,345	28,925
25	0	942	0	942	21,243	30,200
26	0	942	0	942	22,140	31,475
27	0	942	0	942	23,038	32,750
28	0	942	0	942	23,935	34,025
29	0	942	0	942	24,833	35,300
30	0	942	0	942	25,730	36,575
31	0	942	0	942	26,628	37,850
32	0	942	6,881	7,823	27,525	39,125
33	0	942	0	942	28,423	40,400
34	0	942	1,035	1,977	29,320	41,675
35	0	942	0	942	30,218	42,950
36	0	942	0	942	31,115	44,225
37	0	942	3,130	4,072	32,013	45,500
38	0	942	0	942	32,910	46,775
39	0	942	0	942	33,808	48,050
40	0	942	0	942	34,705	49,325
41	0	942	0	942	35,603	50,600
42	0	942	1,914	2,856	36,500	51,875
43	0	942	0	942	37,398	53,150
44	0	942	1,035	1,977	38,295	54,425
45	0	942	0	942	39,193	55,700
46	0	942	0	942	40,090	56,975
47	0	942	4,947	5,889	41,000	58,250
48	0	942	0	942	41,900	59,525
49	0	942	0	942	42,800	60,800
50	0	942	0	942	43,700	62,075

Year	Cost			Benefit		
	Capital	O & M	Replacement	Total	B/C	B-C
1	1,532	0	0	1,532	0	0
2	13,698	0	0	13,698	0	0
3	3,075	0	0	3,075	0	0
4	0	1,265	1,366	2,631	3,401	3,401
5	0	1,265	0	1,265	4,677	5,952
6	0	1,265	0	1,265	5,952	7,228
7	0	1,265	0	1,265	7,228	8,503
8	0	1,265	0	1,265	8,503	9,778
9	0	1,265	0	1,265	9,778	11,053
10	0	1,265	0	1,265	11,053	12,328
11	0	1,265	1,914	3,179	13,603	14,878
12	0	1,265	0	1,265	15,153	17,428
13	0	1,265	1,366	2,631	18,050	20,000
14	0	1,265	0	1,265	19,325	22,575
15	0	1,265	0	1,265	20,600	25,150
16	0	1,265	5,347	6,612	26,375	28,725
17	0	1,265	0	1,265	28,150	31,300
18	0	1,265	0	1,265	29,425	33,875
19	0	1,265	0	1,265	30,700	36,450
20	0	1,265	0	1,265	31,975	39,025
21	0	1,265	1,914	3,179	40,900	41,600
22	0	1,265	0	1,265	42,175	44,175
23	0	1,265	0	1,265	43,450	46,750
24	0	1,265	1,366	2,631	48,025	50,325
25	0	1,265	0	1,265	49,300	52,900
26	0	1,265	0	1,265	50,575	55,475
27	0	1,265	0	1,265	51,850	58,050
28	0	1,265	0	1,265	53,125	60,625
29	0	1,265	0	1,265	54,400	63,200
30	0	1,265	0	1,265	55,675	65,775
31	0	1,265	0	1,265	56,950	68,350
32	0	1,265	7,261	8,526	62,025	72,925
33	0	1,265	0	1,265	63,300	75,500
34	0	1,265	1,366	2,631	65,925	79,075
35	0	1,265	0	1,265	67,200	81,650
36	0	1,265	0	1,265	68,475	84,225
37	0	1,265	3,137	4,402	70,025	86,800
38	0	1,265	0	1,265	71,300	89,375
39	0	1,265	0	1,265	72,575	91,950
40	0	1,265	0	1,265	73,850	94,525
41	0	1,265	0	1,265	75,125	97,100
42	0	1,265	1,914	3,179	78,275	100,675
43	0	1,265	0	1,265	79,550	103,250
44	0	1,265	1,366	2,631	81,125	105,825
45	0	1,265	0	1,265	82,400	108,400
46	0	1,265	0	1,265	83,675	110,975
47	0	1,265	5,347	6,612	86,025	114,550
48	0	1,265	0	1,265	87,300	117,125
49	0	1,265	0	1,265	88,575	119,700
50	0	1,265	0	1,265	89,850	122,275

Bonga #1 Pump System  
 Maximum Service Area  
 Indirect Mapping

Year	Cost			Benefit		
	Capital	O & M	Replacement	Total	B/C	B-C
1	1,532	0	0	1,532	0	0
2	13,698	0	0	13,698	0	0
3	3,075	0	0	3,075	0	0
4	0	1,265	1,366	2,631	3,401	3,401
5	0	1,265	0	1,265	4,677	5,952
6	0	1,265	0	1,265	5,952	7,228
7	0	1,265	0	1,265	7,228	8,503
8	0	1,265	0	1,265	8,503	9,778
9	0	1,265	0	1,265	9,778	11,053
10	0	1,265	0	1,265	11,053	12,328
11	0	1,265	1,914	3,179	13,603	14,878
12	0	1,265	0	1,265	15,153	17,428
13	0	1,265	1,366	2,631	18,050	20,000
14	0	1,265	0	1,265	19,325	22,575
15	0	1,265	0	1,265	20,600	25,150
16	0	1,265	5,347	6,612	26,375	28,725
17	0	1,265	0	1,265	28,150	31,300
18	0	1,265	0	1,265	29,425	33,875
19	0	1,265	0	1,265	30,700	36,450
20	0	1,265	0	1,265	31,975	39,025
21	0	1,265	1,914	3,179	40,900	41,600
22	0	1,265	0	1,265	42,175	44,175
23	0	1,265	0	1,265	43,450	46,750
24	0	1,265	1,366	2,631	48,025	50,325
25	0	1,265	0	1,265	49,300	52,900
26	0	1,265	0	1,265	50,575	55,475
27	0	1,265	0	1,265	51,850	58,050
28	0	1,265	0	1,265	53,125	60,625
29	0	1,265	0	1,265	54,400	63,200
30	0	1,265	0	1,265	55,675	65,775
31	0	1,265	0	1,265	56,950	68,350
32	0	1,265	7,261	8,526	62,025	72,925
33	0	1,265	0	1,265	63,300	75,500
34	0	1,265	1,366	2,631	65,925	79,075
35	0	1,265	0	1,265	67,200	81,650
36	0	1,265	0	1,265	68,475	84,225
37	0	1,265	3,137	4,402	70,025	86,800
38	0	1,265	0	1,265	71,300	89,375
39	0	1,265	0	1,265	72,575	91,950
40	0	1,265	0	1,265	73,850	94,525
41	0	1,265	0	1,265	75,125	97,100
42	0	1,265	1,914	3,179	78,275	100,675
43	0	1,265	0	1,265	79,550	103,250
44	0	1,265	1,366	2,631	81,125	105,825
45	0	1,265	0	1,265	82,400	108,400
46	0	1,265	0	1,265	83,675	110,975
47	0	1,265	5,347	6,612	86,025	114,550
48	0	1,265	0	1,265	87,300	117,125
49	0	1,265	0	1,265	88,575	119,700
50	0	1,265	0	1,265	89,850	122,275

Year	Cost			Benefit		
	Capital	O & M	Replacement	Total	B/C	B-C
1	1,532	0	0	1,532	0	0
2	13,698	0	0	13,698	0	0
3	3,075	0	0	3,075	0	0
4	0	1,265	1,366	2,631	3,401	3,401
5	0	1,265	0	1,265	4,677	5,952
6	0	1,265	0	1,265	5,952	7,228
7	0	1,265	0	1,265	7,228	8,503
8	0	1,265	0	1,265	8,503	9,778
9	0	1,265	0	1,265	9,778	11,053
10	0	1,265	0	1,265	11,053	12,328
11	0	1,265	1,914	3,179	13,603	14,878
12	0	1,265	0	1,265	15,153	17,428
13	0	1,265	1,366	2,631	18,050	20,000
14	0	1,265	0	1,265	19,325	22,575
15	0	1,265	0	1,265	20,600	25,150
16	0	1,265	5,347	6,612	26,375	28,725
17	0	1,265	0	1,265	28,150	31,300
18	0	1,265	0	1,265	29,425	33,875
19	0	1,265	0	1,265	30,700	36,450
20	0	1,265	0	1,265	31,975	39,025
21	0	1,265	1,914	3,179	40,900	41,600
22	0	1,265	0	1,265	42,175	44,175
23	0	1,265	0	1,265	43,450	46,750
24	0	1,265	1,366	2,631	48,025	50,325
25	0	1,265	0	1,265	49,300	52,900
26	0	1,265	0	1,265	50,575	55,475
27	0	1,265	0	1,265	51,850	58,050
28	0	1,265	0	1,265	53,125	60,625
29	0	1,265	0	1,265	54,400	63,200
30						

Table 2.1 (3/11) COSTS AND BENEFITS FLOW

Bonza #2 Pump System  
Firm-up Service Area  
Direct Tapping

Year	Cost			Benefit	Total	B/C
	Capital	O & M	Replacement			
1	2,328	0	0	0	2,328	0
2	23,653	0	0	0	23,653	0
3	3,826	0	0	0	3,826	0
4	0	1,027	2,152	5,036	3,179	5.036
5	0	1,027	0	6,924	1,027	6.924
6	0	1,027	0	8,812	1,027	8.812
7	0	1,027	0	10,701	1,027	10.701
8	0	1,027	0	12,589	1,027	12.589
9	0	1,027	0	14,478	1,027	14.478
10	0	1,027	0	16,366	1,027	16.366
11	0	1,027	0	18,255	1,027	18.255
12	0	1,027	0	20,143	1,027	20.143
13	0	1,027	0	22,032	1,027	22.032
14	0	1,027	0	23,920	1,027	23.920
15	0	1,027	0	25,809	1,027	25.809
16	0	1,027	0	27,697	1,027	27.697
17	0	1,027	7,857	32,585	8,884	32.585
18	0	1,027	0	34,473	1,027	34.473
19	0	1,027	0	36,362	1,027	36.362
20	0	1,027	0	38,250	1,027	38.250
21	0	1,027	0	40,139	1,027	40.139
22	0	1,027	3,014	45,027	4,041	45.027
23	0	1,027	2,152	50,915	5,179	50.915
24	0	1,027	0	52,803	1,027	52.803
25	0	1,027	0	54,692	1,027	54.692
26	0	1,027	0	56,580	1,027	56.580
27	0	1,027	0	58,469	1,027	58.469
28	0	1,027	0	60,357	1,027	60.357
29	0	1,027	0	62,246	1,027	62.246
30	0	1,027	0	64,134	1,027	64.134
31	0	1,027	0	66,023	1,027	66.023
32	0	1,027	10,871	76,911	11,898	76.911
33	0	1,027	0	78,800	1,027	78.800
34	0	1,027	0	80,688	1,027	80.688
35	0	1,027	2,152	85,576	3,179	85.576
36	0	1,027	0	87,465	1,027	87.465
37	0	1,027	9,436	97,353	10,463	97.353
38	0	1,027	0	99,241	1,027	99.241
39	0	1,027	0	101,130	1,027	101.130
40	0	1,027	0	103,018	1,027	103.018
41	0	1,027	0	104,907	1,027	104.907
42	0	1,027	0	106,795	1,027	106.795
43	0	1,027	3,014	111,683	4,041	111.683
44	0	1,027	0	113,572	1,027	113.572
45	0	1,027	2,152	118,460	3,179	118.460
46	0	1,027	0	120,348	1,027	120.348
47	0	1,027	0	122,237	1,027	122.237
48	0	1,027	7,857	133,125	8,884	133.125
49	0	1,027	0	135,013	1,027	135.013
50	0	1,027	0	136,902	1,027	136.902

Year	Cost			Benefit	Total	B/C
	Capital	O & M	Replacement			
1	2,328	0	0	0	2,328	0
2	23,653	0	0	0	23,653	0
3	3,826	0	0	0	3,826	0
4	0	1,027	2,152	5,036	3,179	5.036
5	0	1,027	0	6,924	1,027	6.924
6	0	1,027	0	8,812	1,027	8.812
7	0	1,027	0	10,701	1,027	10.701
8	0	1,027	0	12,589	1,027	12.589
9	0	1,027	0	14,478	1,027	14.478
10	0	1,027	0	16,366	1,027	16.366
11	0	1,027	0	18,255	1,027	18.255
12	0	1,027	0	20,143	1,027	20.143
13	0	1,027	0	22,032	1,027	22.032
14	0	1,027	0	23,920	1,027	23.920
15	0	1,027	0	25,809	1,027	25.809
16	0	1,027	0	27,697	1,027	27.697
17	0	1,027	7,857	32,585	8,884	32.585
18	0	1,027	0	34,473	1,027	34.473
19	0	1,027	0	36,362	1,027	36.362
20	0	1,027	0	38,250	1,027	38.250
21	0	1,027	0	40,139	1,027	40.139
22	0	1,027	3,014	45,027	4,041	45.027
23	0	1,027	2,152	50,915	5,179	50.915
24	0	1,027	0	52,803	1,027	52.803
25	0	1,027	0	54,692	1,027	54.692
26	0	1,027	0	56,580	1,027	56.580
27	0	1,027	0	58,469	1,027	58.469
28	0	1,027	0	60,357	1,027	60.357
29	0	1,027	0	62,246	1,027	62.246
30	0	1,027	0	64,134	1,027	64.134
31	0	1,027	0	66,023	1,027	66.023
32	0	1,027	10,871	76,911	11,898	76.911
33	0	1,027	0	78,800	1,027	78.800
34	0	1,027	0	80,688	1,027	80.688
35	0	1,027	2,152	85,576	3,179	85.576
36	0	1,027	0	87,465	1,027	87.465
37	0	1,027	9,436	97,353	10,463	97.353
38	0	1,027	0	99,241	1,027	99.241
39	0	1,027	0	101,130	1,027	101.130
40	0	1,027	0	103,018	1,027	103.018
41	0	1,027	0	104,907	1,027	104.907
42	0	1,027	0	106,795	1,027	106.795
43	0	1,027	3,014	111,683	4,041	111.683
44	0	1,027	0	113,572	1,027	113.572
45	0	1,027	2,152	118,460	3,179	118.460
46	0	1,027	0	120,348	1,027	120.348
47	0	1,027	0	122,237	1,027	122.237
48	0	1,027	7,857	133,125	8,884	133.125
49	0	1,027	0	135,013	1,027	135.013
50	0	1,027	0	136,902	1,027	136.902

Bonza #2 Pump System  
Firm-up Service Area  
Direct Tapping

Year	Cost			Benefit	Total	B/C
	Capital	O & M	Replacement			
1	2,328	0	0	0	2,328	0
2	23,653	0	0	0	23,653	0
3	3,826	0	0	0	3,826	0
4	0	1,027	2,152	5,036	3,179	5.036
5	0	1,027	0	6,924	1,027	6.924
6	0	1,027	0	8,812	1,027	8.812
7	0	1,027	0	10,701	1,027	10.701
8	0	1,027	0	12,589	1,027	12.589
9	0	1,027	0	14,478	1,027	14.478
10	0	1,027	0	16,366	1,027	16.366
11	0	1,027	0	18,255	1,027	18.255
12	0	1,027	0	20,143	1,027	20.143
13	0	1,027	0	22,032	1,027	22.032
14	0	1,027	0	23,920	1,027	23.920
15	0	1,027	0	25,809	1,027	25.809
16	0	1,027	0	27,697	1,027	27.697
17	0	1,027	7,857	32,585	8,884	32.585
18	0	1,027	0	34,473	1,027	34.473
19	0	1,027	0	36,362	1,027	36.362
20	0	1,027	0	38,250	1,027	38.250
21	0	1,027	0	40,139	1,027	40.139
22	0	1,027	3,014	45,027	4,041	45.027
23	0	1,027	2,152	50,915	5,179	50.915
24	0	1,027	0	52,803	1,027	52.803
25	0	1,027	0	54,692	1,027	54.692
26	0	1,027	0	56,580	1,027	56.580
27	0	1,027	0	58,469	1,027	58.469
28	0	1,027	0	60,357	1,027	60.357
29	0	1,027	0	62,246	1,027	62.246
30	0	1,027	0	64,134	1,027	64.134
31	0	1,027	0	66,023	1,027	66.023
32	0	1,027	10,871	76,911	11,898	76.911
33	0	1,027	0	78,800	1,027	78.800
34	0	1,027	0	80,688	1,027	80.688
35	0	1,027	2,152	85,576	3,179	85.576
36	0	1,027	0	87,465	1,027	87.465
37	0	1,027	9,436	97,353	10,463	97.353
38	0	1,027	0	99,241	1,027	99.241
39	0	1,027	0	101,130	1,027	101.130
40	0	1,027	0	103,018	1,027	103.018
41	0	1,027	0	104,907	1,027	104.907
42	0	1,027	0	106,795	1,027	106.795
43	0	1,027	3,014	111,683	4,041	111.683
44	0	1,027	0	113,572	1,027	113.572
45	0	1,027	2,152	118,460	3,179	118.460
46	0	1,027	0	120,348	1,027	120.348
47	0	1,027	0	122,237	1,027	122.237
48	0	1,027	7,857	133,125	8,884	133.125
49	0	1,027	0	135,013	1,027	135.013
50	0	1,027	0	136,902	1,027	136.902

Year	Cost			Benefit	Total	B/C
	Capital	O & M	Replacement			
1	2,328	0	0	0	2,328	0
2	23,653	0	0	0	23,653	0
3	3,826	0	0	0	3,826	0
4	0	1,027	2,152	5,036	3,179	5.036
5	0	1,027	0	6,924	1,027	6.924
6	0	1,027	0	8,812	1,027	8.812
7	0	1,027	0	10,701	1,027	10.701
8	0	1,027	0	12,589	1,027	12.589
9	0	1,027	0	14,478	1,027	14.478
10	0	1,027	0	16,366	1,027	16.366
11	0	1,027	0	18,255	1,027	18.255
12	0	1,027	0	20,143	1,027	20.143
13	0	1,027	0	22,032	1,027	22.032
14	0	1,027	0	23,920	1,027	23.920
15	0	1,027	0	25,809	1,027	25.809
16	0	1,027	0	27,697	1,027	27.697
17	0	1,027	7,857	32,585	8,884	32.585
18	0	1,027	0	34,473	1,027	34.473
19	0	1,027	0	36,362	1,027	36.362
20	0	1,027	0	38,250	1,027	38.250
21	0	1,027	0	40,139	1,027	40.139
22	0	1,027	3,014	45,027	4,041	45.027
23	0	1,027	2,152	50,915	5,179	50.915
24	0	1,027	0	52,803	1,027	52.803
25	0	1,027	0	54,692	1,027	54.692
26	0	1,027	0	56,580	1,027	



Table 2.1 (5/11) COSTS AND BENEFITS FLOW

Year	Cost			Benefit	
	Capital	O & M	Replacement	Total	B/C
1	0	0	0	0	0
2	10,847	0	0	10,847	0
3	2,018	0	0	2,018	0
4	0	410	621	1,031	1.524
5	0	410	0	410	2,096
6	0	410	0	410	2,668
7	0	410	0	410	3,239
8	0	410	0	410	3,811
9	0	410	0	410	4,383
10	0	410	0	410	4,955
11	0	410	0	410	5,527
12	0	410	877	1,287	6,100
13	0	410	0	410	6,672
14	0	410	621	1,031	7,244
15	0	410	0	410	7,816
16	0	410	0	410	8,388
17	0	410	3,783	4,193	8,960
18	0	410	0	410	9,532
19	0	410	0	410	10,104
20	0	410	0	410	10,676
21	0	410	0	410	11,248
22	0	410	877	1,287	11,820
23	0	410	0	410	12,392
24	0	410	621	1,031	12,964
25	0	410	0	410	13,536
26	0	410	0	410	14,108
27	0	410	0	410	14,680
28	0	410	0	410	15,252
29	0	410	0	410	15,824
30	0	410	0	410	16,396
31	0	410	0	410	16,968
32	0	410	4,183	4,593	17,540
33	0	410	0	410	18,112
34	0	410	621	1,031	18,684
35	0	410	0	410	19,256
36	0	410	0	410	19,828
37	0	410	6,886	7,296	20,400
38	0	410	0	410	20,972
39	0	410	0	410	21,544
40	0	410	0	410	22,116
41	0	410	0	410	22,688
42	0	410	877	1,287	23,260
43	0	410	0	410	23,832
44	0	410	621	1,031	24,404
45	0	410	0	410	24,976
46	0	410	0	410	25,548
47	0	410	3,783	4,193	26,120
48	0	410	0	410	26,692
49	0	410	0	410	27,264
50	0	410	0	410	27,836

Bonga #2 Pump System  
Firm-up Service Area  
Direct Tapping

(Unit: Thousands Pesos)

Year	Cost			Benefit	
	Capital	O & M	Replacement	Total	B/C
1	0	0	0	0	0
2	10,847	0	0	10,847	0
3	2,018	0	0	2,018	0
4	0	410	621	1,031	1.04
5	0	410	0	410	1.04
6	0	410	0	410	1.03
7	0	410	0	410	1.02
8	0	410	0	410	1.02
9	0	410	0	410	1.01
10	0	410	0	410	1.00
11	0	410	0	410	0.99
12	0	410	877	1,287	0.99
13	0	410	0	410	0.98
14	0	410	621	1,031	0.98
15	0	410	0	410	0.97
16	0	410	0	410	0.96
17	0	410	3,783	4,193	0.96
18	0	410	0	410	0.95
19	0	410	0	410	0.95
20	0	410	0	410	0.95
21	0	410	0	410	0.95
22	0	410	877	1,287	0.95
23	0	410	0	410	0.95
24	0	410	621	1,031	0.95
25	0	410	0	410	0.95
26	0	410	0	410	0.95
27	0	410	0	410	0.95
28	0	410	0	410	0.95
29	0	410	0	410	0.95
30	0	410	0	410	0.95
31	0	410	0	410	0.95
32	0	410	4,183	4,593	0.95
33	0	410	0	410	0.95
34	0	410	621	1,031	0.95
35	0	410	0	410	0.95
36	0	410	0	410	0.95
37	0	410	6,886	7,296	0.95
38	0	410	0	410	0.95
39	0	410	0	410	0.95
40	0	410	0	410	0.95
41	0	410	0	410	0.95
42	0	410	877	1,287	0.95
43	0	410	0	410	0.95
44	0	410	621	1,031	0.95
45	0	410	0	410	0.95
46	0	410	0	410	0.95
47	0	410	3,783	4,193	0.95
48	0	410	0	410	0.95
49	0	410	0	410	0.95
50	0	410	0	410	0.95

Bonga #2 Pump System  
Firm-up Service Area  
Direct Tapping

(Unit: Thousands Pesos)

Table 2.3 (6/11) COSTS AND BENEFITS FLOW

Year	Cost (Unit: Thousands Pesos)				Benefit
	Capital	O & M	Replacement	Total	
1	9,666	0	0	9,666	0
2	1,867	0	0	1,867	0
3	0	626	621	1,247	1,524
4	0	626	0	626	2,086
5	0	626	0	626	2,668
6	0	626	0	626	3,239
7	0	626	0	626	3,811
8	0	626	0	626	4,383
9	0	626	0	626	4,955
10	0	626	0	626	5,527
11	0	626	0	626	6,099
12	0	626	877	1,503	6,671
13	0	626	0	626	7,243
14	0	626	621	1,247	7,815
15	0	626	0	626	8,387
16	0	626	0	626	8,959
17	0	626	3,783	4,409	9,531
18	0	626	0	626	10,103
19	0	626	0	626	10,675
20	0	626	0	626	11,247
21	0	626	0	626	11,819
22	0	626	877	1,503	12,391
23	0	626	0	626	12,963
24	0	626	621	1,247	13,535
25	0	626	0	626	14,107
26	0	626	0	626	14,679
27	0	626	0	626	15,251
28	0	626	0	626	15,823
29	0	626	0	626	16,395
30	0	626	0	626	16,967
31	0	626	0	626	17,539
32	0	626	4,183	4,809	18,111
33	0	626	0	626	18,683
34	0	626	621	1,247	19,255
35	0	626	0	626	19,827
36	0	626	0	626	20,399
37	0	626	3,025	3,651	20,971
38	0	626	0	626	21,543
39	0	626	0	626	22,115
40	0	626	0	626	22,687
41	0	626	0	626	23,259
42	0	626	877	1,503	23,831
43	0	626	0	626	24,403
44	0	626	621	1,247	24,975
45	0	626	0	626	25,547
46	0	626	0	626	26,119
47	0	626	3,783	4,409	26,691
48	0	626	0	626	27,263
49	0	626	0	626	27,835
50	0	626	0	626	28,407

Bonga #3 Pump System  
Maximum Service Area  
Indirect Tapping

(Unit: Thousands Pesos)

Year	Cost			Benefit	B/C
	Capital	O & M	Replacement		
1	9,666	0	0	9,666	0
2	1,867	0	0	1,867	0
3	0	626	621	1,247	1,524
4	0	626	0	626	2,086
5	0	626	0	626	2,668
6	0	626	0	626	3,239
7	0	626	0	626	3,811
8	0	626	0	626	4,383
9	0	626	0	626	4,955
10	0	626	0	626	5,527
11	0	626	0	626	6,099
12	0	626	877	1,503	6,671
13	0	626	0	626	7,243
14	0	626	621	1,247	7,815
15	0	626	0	626	8,387
16	0	626	0	626	8,959
17	0	626	3,783	4,409	9,531
18	0	626	0	626	10,103
19	0	626	0	626	10,675
20	0	626	0	626	11,247
21	0	626	0	626	11,819
22	0	626	877	1,503	12,391
23	0	626	0	626	12,963
24	0	626	621	1,247	13,535
25	0	626	0	626	14,107
26	0	626	0	626	14,679
27	0	626	0	626	15,251
28	0	626	0	626	15,823
29	0	626	0	626	16,395
30	0	626	0	626	16,967
31	0	626	0	626	17,539
32	0	626	4,183	4,809	18,111
33	0	626	0	626	18,683
34	0	626	621	1,247	19,255
35	0	626	0	626	19,827
36	0	626	0	626	20,399
37	0	626	3,025	3,651	20,971
38	0	626	0	626	21,543
39	0	626	0	626	22,115
40	0	626	0	626	22,687
41	0	626	0	626	23,259
42	0	626	877	1,503	23,831
43	0	626	0	626	24,403
44	0	626	621	1,247	24,975
45	0	626	0	626	25,547
46	0	626	0	626	26,119
47	0	626	3,783	4,409	26,691
48	0	626	0	626	27,263
49	0	626	0	626	27,835
50	0	626	0	626	28,407

Bonga #3 Pump System  
Maximum Service Area  
Indirect Tapping

(Unit: Thousands Pesos)

Year	Cost			Benefit	B/C
	Capital	O & M	Replacement		
1	9,666	0	0	9,666	0
2	1,867	0	0	1,867	0
3	0	626	621	1,247	1,524
4	0	626	0	626	2,086
5	0	626	0	626	2,668
6	0	626	0	626	3,239
7	0	626	0	626	3,811
8	0	626	0	626	4,383
9	0	626	0	626	4,955
10	0	626	0	626	5,527
11	0	626	0	626	6,099
12	0	626	877	1,503	6,671
13	0	626	0	626	7,243
14	0	626	621	1,247	7,815
15	0	626	0	626	8,387
16	0	626	0	626	8,959
17	0	626	3,783	4,409	9,531
18	0	626	0	626	10,103
19	0	626	0	626	10,675
20	0	626	0	626	11,247
21	0	626	0	626	11,819
22	0	626	877	1,503	12,391
23	0	626	0	626	12,963
24	0	626	621	1,247	13,535
25	0	626	0	626	14,107
26	0	626	0	626	14,679
27	0	626	0	626	15,251
28	0	626	0	626	15,823
29	0	626	0	626	16,395
30	0	626	0	626	16,967
31	0	626	0	626	17,539
32	0	626	4,183	4,809	18,111
33	0	626	0	626	18,683
34	0	626	621	1,247	19,255
35	0	626	0	626	19,827
36	0	626	0	626	20,399
37	0	626	3,025	3,651	20,971
38	0	626	0	626	21,543
39	0	626	0	626	22,115
40	0	626	0	626	22,687
41	0	626	0	626	23,259
42	0	626	877	1,503	23,831
43	0	626	0	626	24,403
44	0	626	621	1,247	24,975
45	0	626	0	626	25,547
46	0	626	0	626	26,119
47	0	626	3,783	4,409	26,691
48	0	626	0	626	27,263
49	0	626	0	626	27,835
50	0	626	0	626	28,407

Bonga #3 Pump System  
Maximum Service Area  
Indirect Tapping

(Unit: Thousands Pesos)

Table 2.1 (7/11) COSTS AND BENEFITS FLOW

Alcides-Nulung Pump System  
Finned-up Service Area  
Direct Tapping

(Unit : thousands Pesos)

Year	Capital	O & M Cost	Replacement	Total	Benefit
1	1,840	0	0	1,840	0
2	12,517	0	0	12,517	0
3	7,993	0	0	7,993	0
4	0	3,839	5,008	8,847	7,499
5	0	3,839	0	3,839	10,311
6	0	3,839	0	3,839	13,154
7	0	3,839	78,120	81,959	27,962
8	0	3,839	0	3,839	32,896
9	0	3,839	0	3,839	32,896
10	0	3,839	0	3,839	32,896
11	0	3,839	0	3,839	32,896
12	0	3,839	4,114	7,953	32,896
13	0	3,839	5,008	8,847	32,896
14	0	3,839	0	3,839	32,896
15	0	3,839	0	3,839	32,896
16	0	3,839	0	3,839	32,896
17	0	3,839	0	3,839	32,896
18	0	3,839	0	3,839	32,896
19	0	3,839	0	3,839	32,896
20	0	3,839	0	3,839	32,896
21	0	3,839	0	3,839	32,896
22	0	3,839	82,224	86,073	32,896
23	0	3,839	0	3,839	32,896
24	0	3,839	5,008	8,847	32,896
25	0	3,839	0	3,839	32,896
26	0	3,839	0	3,839	32,896
27	0	3,839	9,310	13,140	32,896
28	0	3,839	0	3,839	32,896
29	0	3,839	0	3,839	32,896
30	0	3,839	0	3,839	32,896
31	0	3,839	0	3,839	32,896
32	0	3,839	4,114	7,953	32,896
33	0	3,839	0	3,839	32,896
34	0	3,839	5,008	8,847	32,896
35	0	3,839	0	3,839	32,896
36	0	3,839	78,120	81,959	32,896
37	0	3,839	0	3,839	32,896
38	0	3,839	0	3,839	32,896
39	0	3,839	0	3,839	32,896
40	0	3,839	0	3,839	32,896
41	0	3,839	0	3,839	32,896
42	0	3,839	4,114	7,953	32,896
43	0	3,839	0	3,839	32,896
44	0	3,839	5,008	8,847	32,896
45	0	3,839	0	3,839	32,896
46	0	3,839	0	3,839	32,896
47	0	3,839	0	3,839	32,896
48	0	3,839	0	3,839	32,896
49	0	3,839	0	3,839	32,896
50	0	3,839	0	3,839	32,896

Alcides-Nulung Pump System  
Maximum Service Area  
Direct Tapping

(Unit : thousands Pesos)

Year	Capital	O & M Cost	Replacement	Total	Benefit
1	2,215	0	0	2,215	0
2	14,442	0	0	14,442	0
3	9,734	0	0	9,734	0
4	0	4,794	6,349	11,143	11,590
5	0	4,794	0	4,794	15,853
6	0	4,794	0	4,794	20,177
7	0	4,794	78,120	82,914	36,596
8	0	4,794	0	4,794	42,972
9	0	4,794	0	4,794	42,972
10	0	4,794	0	4,794	42,972
11	0	4,794	0	4,794	42,972
12	0	4,794	4,281	9,075	42,972
13	0	4,794	0	4,794	42,972
14	0	4,794	6,349	11,143	42,972
15	0	4,794	0	4,794	42,972
16	0	4,794	0	4,794	42,972
17	0	4,794	0	4,794	42,972
18	0	4,794	0	4,794	42,972
19	0	4,794	0	4,794	42,972
20	0	4,794	0	4,794	42,972
21	0	4,794	0	4,794	42,972
22	0	4,794	82,401	87,195	42,972
23	0	4,794	0	4,794	42,972
24	0	4,794	6,349	11,143	42,972
25	0	4,794	0	4,794	42,972
26	0	4,794	0	4,794	42,972
27	0	4,794	9,310	14,104	42,972
28	0	4,794	0	4,794	42,972
29	0	4,794	0	4,794	42,972
30	0	4,794	0	4,794	42,972
31	0	4,794	0	4,794	42,972
32	0	4,794	4,281	9,075	42,972
33	0	4,794	0	4,794	42,972
34	0	4,794	6,349	11,143	42,972
35	0	4,794	0	4,794	42,972
36	0	4,794	0	4,794	42,972
37	0	4,794	78,120	82,914	42,972
38	0	4,794	0	4,794	42,972
39	0	4,794	0	4,794	42,972
40	0	4,794	0	4,794	42,972
41	0	4,794	0	4,794	42,972
42	0	4,794	4,281	9,075	42,972
43	0	4,794	0	4,794	42,972
44	0	4,794	6,349	11,143	42,972
45	0	4,794	0	4,794	42,972
46	0	4,794	0	4,794	42,972
47	0	4,794	0	4,794	42,972
48	0	4,794	0	4,794	42,972
49	0	4,794	0	4,794	42,972
50	0	4,794	0	4,794	42,972

Year	Discount Rate (%)	Benefit	Cost	B/C
1	33.0	32,791	23,209	1.02
2	33.1	32,577	23,087	1.01
3	33.2	32,365	22,965	1.01
4	33.3	32,155	22,844	1.01
5	33.4	31,946	22,724	1.01
6	33.5	31,739	22,604	1.00
7	33.6	31,534	22,486	1.00
8	33.7	31,331	22,367	1.00
9	33.8	31,129	22,250	1.00
10	33.9	30,929	22,133	0.99
11	34.0	30,731	22,017	0.99
12	34.1	30,534	21,902	0.99
13	34.2	30,339	21,787	0.99
14	34.3	30,145	21,673	0.98
15	34.4	29,953	21,559	0.98
16	34.5	29,763	21,447	0.98

Year	Discount Rate (%)	Benefit	Cost	B/C
1	26.0	40,141	39,223	1.02
2	26.1	39,838	38,948	1.02
3	26.2	39,538	38,673	1.02
4	26.3	39,241	38,400	1.01
5	26.4	38,946	38,128	1.01
6	26.5	38,655	37,857	1.01
7	26.6	38,367	37,588	1.00
8	26.7	38,082	37,321	1.00
9	26.8	37,799	37,056	1.00
10	26.9	37,519	36,792	0.99
11	27.0	37,242	36,529	0.99
12	27.1	36,968	36,268	0.99
13	27.2	36,696	36,008	0.99
14	27.3	36,427	35,749	0.98
15	27.4	36,160	35,491	0.98
16	27.5	35,897	35,234	0.98

Table 2.1 (B/11) COSTS AND BENEFITS FLOW

Solana Pump System  
Firm-up Service Area  
Direct Tapping

Year	Cost (Unit: Thousands Pases)			Benefit
	Capital	O & M	Replacement	
1	3,236	0	0	3,236
2	37,296	0	0	37,296
3	7,092	0	0	7,092
4	0	2,186	0	2,186
5	0	2,186	0	2,186
6	0	2,186	0	2,186
7	0	2,186	0	2,186
8	0	2,186	0	2,186
9	0	2,186	0	2,186
10	0	2,186	0	2,186
11	0	2,186	0	2,186
12	0	2,186	0	2,186
13	0	2,186	0	2,186
14	0	2,186	0	2,186
15	0	2,186	0	2,186
16	0	2,186	0	2,186
17	0	2,186	0	2,186
18	0	2,186	0	2,186
19	0	2,186	0	2,186
20	0	2,186	0	2,186
21	0	2,186	0	2,186
22	0	2,186	0	2,186
23	0	2,186	0	2,186
24	0	2,186	0	2,186
25	0	2,186	0	2,186
26	0	2,186	0	2,186
27	0	2,186	0	2,186
28	0	2,186	0	2,186
29	0	2,186	0	2,186
30	0	2,186	0	2,186
31	0	2,186	0	2,186
32	0	2,186	0	2,186
33	0	2,186	0	2,186
34	0	2,186	0	2,186
35	0	2,186	0	2,186
36	0	2,186	0	2,186
37	0	2,186	0	2,186
38	0	2,186	0	2,186
39	0	2,186	0	2,186
40	0	2,186	0	2,186
41	0	2,186	0	2,186
42	0	2,186	0	2,186
43	0	2,186	0	2,186
44	0	2,186	0	2,186
45	0	2,186	0	2,186
46	0	2,186	0	2,186
47	0	2,186	0	2,186
48	0	2,186	0	2,186
49	0	2,186	0	2,186
50	0	2,186	0	2,186

Solana Pump System  
Maximum Service Area  
Direct Tapping

Year	Cost (Unit: Thousands Pases)			Benefit
	Capital	O & M	Replacement	
1	5,002	0	0	5,002
2	52,444	0	0	52,444
3	14,271	0	0	14,271
4	0	3,870	0	3,870
5	0	3,870	0	3,870
6	0	3,870	0	3,870
7	0	3,870	0	3,870
8	0	3,870	0	3,870
9	0	3,870	0	3,870
10	0	3,870	0	3,870
11	0	3,870	0	3,870
12	0	3,870	0	3,870
13	0	3,870	0	3,870
14	0	3,870	0	3,870
15	0	3,870	0	3,870
16	0	3,870	0	3,870
17	0	3,870	0	3,870
18	0	3,870	0	3,870
19	0	3,870	0	3,870
20	0	3,870	0	3,870
21	0	3,870	0	3,870
22	0	3,870	0	3,870
23	0	3,870	0	3,870
24	0	3,870	0	3,870
25	0	3,870	0	3,870
26	0	3,870	0	3,870
27	0	3,870	0	3,870
28	0	3,870	0	3,870
29	0	3,870	0	3,870
30	0	3,870	0	3,870
31	0	3,870	0	3,870
32	0	3,870	0	3,870
33	0	3,870	0	3,870
34	0	3,870	0	3,870
35	0	3,870	0	3,870
36	0	3,870	0	3,870
37	0	3,870	0	3,870
38	0	3,870	0	3,870
39	0	3,870	0	3,870
40	0	3,870	0	3,870
41	0	3,870	0	3,870
42	0	3,870	0	3,870
43	0	3,870	0	3,870
44	0	3,870	0	3,870
45	0	3,870	0	3,870
46	0	3,870	0	3,870
47	0	3,870	0	3,870
48	0	3,870	0	3,870
49	0	3,870	0	3,870
50	0	3,870	0	3,870

Discount Rate (%)	Benefit	Cost	B/C
23.0	39,017	37,315	1.05
23.1	38,720	37,217	1.04
23.2	38,426	37,119	1.04
23.3	38,135	37,022	1.03
23.4	37,847	36,926	1.02
23.5	37,562	36,831	1.02
23.6	37,280	36,738	1.01
23.7	37,001	36,641	1.01
23.8	36,725	36,547	1.00
23.9	36,452	36,454	1.00
24.0	36,181	36,361	1.00
24.1	35,913	36,269	0.99
24.2	35,648	36,178	0.99
24.3	35,385	36,087	0.98
24.4	35,125	35,997	0.98
24.5	34,868	35,908	0.97

Discount Rate (%)	Benefit	Cost	B/C
23.0	52,444	51,753	1.04
23.1	52,149	51,658	1.04
23.2	51,856	51,564	1.03
23.3	51,565	51,471	1.02
23.4	51,276	51,379	1.02
23.5	50,989	51,288	1.01
23.6	50,704	51,197	1.01
23.7	50,421	51,107	1.00
23.8	50,140	51,017	1.00
23.9	49,861	50,928	0.99
24.0	49,584	50,840	0.99
24.1	49,309	50,752	0.98
24.2	49,036	50,665	0.98
24.3	48,765	50,579	0.97
24.4	48,496	50,493	0.97
24.5	48,229	50,408	0.97

Table 2.1 (B/11) COSTS AND BENEFITS FLOW

Solaris Pump System  
Piped-up Service Area  
Indirect Tapping

Year	Cost			Total	Benefit
	Capital	O & M	Replacement		
1	2,793	0	2,793	0	0
2	30,568	0	0	30,568	0
3	6,707	0	0	6,707	0
4	0	3,702	0	3,702	6,707
5	0	3,702	0	3,702	11,972
6	0	3,702	0	3,702	15,277
7	0	3,702	0	3,702	18,582
8	0	3,702	0	3,702	21,887
9	0	3,702	0	3,702	25,192
10	0	3,702	0	3,702	28,497
11	0	3,702	0	3,702	31,802
12	0	3,702	5,516	9,218	35,107
13	0	3,702	0	3,702	38,412
14	0	3,702	0	3,702	41,717
15	0	3,702	0	3,702	45,022
16	0	3,702	0	3,702	48,327
17	0	3,702	13,787	17,489	51,632
18	0	3,702	0	3,702	54,937
19	0	3,702	0	3,702	58,242
20	0	3,702	0	3,702	61,547
21	0	3,702	0	3,702	64,852
22	0	3,702	5,516	9,218	68,157
23	0	3,702	0	3,702	71,462
24	0	3,702	0	3,702	74,767
25	0	3,702	0	3,702	78,072
26	0	3,702	0	3,702	81,377
27	0	3,702	0	3,702	84,682
28	0	3,702	0	3,702	87,987
29	0	3,702	0	3,702	91,292
30	0	3,702	0	3,702	94,597
31	0	3,702	0	3,702	97,902
32	0	3,702	19,273	22,975	101,207
33	0	3,702	0	3,702	104,512
34	0	3,702	0	3,702	107,817
35	0	3,702	0	3,702	111,122
36	0	3,702	0	3,702	114,427
37	0	3,702	4,039	7,741	117,732
38	0	3,702	0	3,702	121,037
39	0	3,702	0	3,702	124,342
40	0	3,702	0	3,702	127,647
41	0	3,702	0	3,702	130,952
42	0	3,702	5,516	9,218	134,257
43	0	3,702	0	3,702	137,562
44	0	3,702	0	3,702	140,867
45	0	3,702	0	3,702	144,172
46	0	3,702	0	3,702	147,477
47	0	3,702	13,757	17,459	150,782
48	0	3,702	0	3,702	154,087
49	0	3,702	0	3,702	157,392
50	0	3,702	0	3,702	160,697

Solaris Pump System  
Maximum Service Area  
Indirect Tapping

Year	Cost			Total	Benefit
	Capital	O & M	Replacement		
1	4,433	0	0	4,433	0
2	45,673	0	0	45,673	0
3	13,707	0	0	13,707	0
4	0	6,604	0	6,604	15,514
5	0	6,604	0	6,604	21,321
6	0	6,604	0	6,604	27,128
7	0	6,604	0	6,604	32,935
8	0	6,604	0	6,604	38,742
9	0	6,604	0	6,604	44,549
10	0	6,604	0	6,604	50,356
11	0	6,604	0	6,604	56,163
12	0	6,604	5,516	12,120	61,970
13	0	6,604	0	6,604	67,777
14	0	6,604	0	6,604	73,584
15	0	6,604	0	6,604	79,391
16	0	6,604	0	6,604	85,198
17	0	6,604	0	6,604	91,005
18	0	6,604	20,952	27,556	96,812
19	0	6,604	0	6,604	102,619
20	0	6,604	0	6,604	108,426
21	0	6,604	0	6,604	114,233
22	0	6,604	5,516	12,120	120,040
23	0	6,604	0	6,604	125,847
24	0	6,604	0	6,604	131,654
25	0	6,604	0	6,604	137,461
26	0	6,604	0	6,604	143,268
27	0	6,604	0	6,604	149,075
28	0	6,604	0	6,604	154,882
29	0	6,604	0	6,604	160,689
30	0	6,604	0	6,604	166,496
31	0	6,604	0	6,604	172,303
32	0	6,604	26,466	33,070	178,110
33	0	6,604	0	6,604	183,917
34	0	6,604	0	6,604	189,724
35	0	6,604	0	6,604	195,531
36	0	6,604	0	6,604	201,338
37	0	6,604	4,864	11,468	207,145
38	0	6,604	0	6,604	212,952
39	0	6,604	0	6,604	218,759
40	0	6,604	0	6,604	224,566
41	0	6,604	0	6,604	230,373
42	0	6,604	0	6,604	236,180
43	0	6,604	5,516	12,120	241,987
44	0	6,604	0	6,604	247,794
45	0	6,604	0	6,604	253,601
46	0	6,604	0	6,604	259,408
47	0	6,604	0	6,604	265,215
48	0	6,604	20,952	27,556	271,022
49	0	6,604	0	6,604	276,829
50	0	6,604	0	6,604	282,636

Discount Rate (%)	Cost	Benefit	B/C
24.5	34,869	34,145	1.02
24.6	34,635	34,043	1.02
24.7	34,263	33,941	1.01
24.8	34,113	33,840	1.00
24.9	33,867	33,740	1.00
25.0	33,622	33,641	1.00
25.1	33,380	33,542	1.00
25.2	33,140	33,444	0.99
25.3	32,903	33,347	0.99
25.4	32,668	33,250	0.98
25.5	32,435	33,154	0.98
25.6	32,205	33,059	0.97
25.7	31,977	32,964	0.97
25.8	31,751	32,870	0.97
25.9	31,527	32,776	0.96
26.0	31,306	32,683	0.96

Discount Rate (%)	Cost	Benefit	B/C
26.5	33,963	31,933	1.04
26.6	33,489	31,785	1.03
26.7	33,119	31,637	1.03
26.8	32,754	31,491	1.02
26.9	32,391	31,345	1.02
27.0	32,032	31,200	1.02
27.1	31,677	31,056	1.01
27.2	31,325	30,914	1.01
27.3	30,976	30,772	1.00
27.4	30,630	30,630	1.00
27.5	30,287	30,490	1.00
27.6	29,948	30,351	0.99
27.7	29,612	30,212	0.99
27.8	29,278	30,074	0.98
27.9	28,948	29,937	0.98
28.0	28,621	29,801	0.98



Table 2.1 (10/11) COSTS AND BENEFITS FLOW

Libmanan-Cabusao Pump System  
Farmed-up Service Area  
Direct Tapping

Year	Cost			Benefit		
	Capital	O & M	Replacement	Total	Discount Rate (%)	B/C
1	3,688	0	0	3,688	0	0
2	16,023	0	0	16,023	0	0
3	14,045	0	0	14,045	0	0
4	0	1,982	26,760	28,742	13,050	0
5	0	1,982	3,898	5,880	17,944	0
6	0	1,982	0	1,982	22,838	0
7	0	1,982	0	1,982	27,731	0
8	0	1,982	0	1,982	32,625	0
9	0	1,982	0	1,982	37,519	0
10	0	1,982	0	1,982	42,413	0
11	0	1,982	0	1,982	47,307	0
12	0	1,982	4,807	6,789	52,201	0
13	0	1,982	0	1,982	57,095	0
14	0	1,982	3,898	5,880	61,989	0
15	0	1,982	0	1,982	66,883	0
16	0	1,982	0	1,982	71,777	0
17	0	1,982	2,421	4,403	76,671	0
18	0	1,982	0	1,982	81,565	0
19	0	1,982	20,760	22,742	86,459	0
20	0	1,982	0	1,982	91,353	0
21	0	1,982	0	1,982	96,247	0
22	0	1,982	4,807	6,789	101,141	0
23	0	1,982	0	1,982	106,035	0
24	0	1,982	0	1,982	110,929	0
25	0	1,982	3,898	5,880	115,823	0
26	0	1,982	0	1,982	120,717	0
27	0	1,982	0	1,982	125,611	0
28	0	1,982	0	1,982	130,505	0
29	0	1,982	0	1,982	135,399	0
30	0	1,982	0	1,982	140,293	0
31	0	1,982	0	1,982	145,187	0
32	0	1,982	7,228	9,210	150,081	0
33	0	1,982	0	1,982	154,975	0
34	0	1,982	20,760	22,742	159,869	0
35	0	1,982	3,898	5,880	164,763	0
36	0	1,982	0	1,982	169,657	0
37	0	1,982	14,204	16,186	174,551	0
38	0	1,982	0	1,982	179,445	0
39	0	1,982	0	1,982	184,339	0
40	0	1,982	0	1,982	189,233	0
41	0	1,982	0	1,982	194,127	0
42	0	1,982	4,807	6,789	199,021	0
43	0	1,982	0	1,982	203,915	0
44	0	1,982	0	1,982	208,809	0
45	0	1,982	3,898	5,880	213,703	0
46	0	1,982	0	1,982	218,597	0
47	0	1,982	2,421	4,403	223,491	0
48	0	1,982	0	1,982	228,385	0
49	0	1,982	0	1,982	233,279	0
50	0	1,982	0	1,982	238,173	0

Libmanan-Cabusao Pump System  
Maximum Service Area  
Direct Tapping

Year	Cost			Benefit		
	Capital	O & M	Replacement	Total	Discount Rate (%)	B/C
1	4,100	0	0	4,100	0	0
2	38,077	0	0	38,077	0	0
3	16,100	0	0	16,100	0	0
4	0	2,895	20,760	23,655	23,682	0
5	0	2,895	3,898	6,793	32,563	0
6	0	2,895	0	2,895	41,444	0
7	0	2,895	0	2,895	50,325	0
8	0	2,895	0	2,895	59,206	0
9	0	2,895	0	2,895	68,087	0
10	0	2,895	0	2,895	76,968	0
11	0	2,895	0	2,895	85,849	0
12	0	2,895	4,807	7,702	94,730	0
13	0	2,895	0	2,895	103,611	0
14	0	2,895	3,898	6,793	112,492	0
15	0	2,895	0	2,895	121,373	0
16	0	2,895	0	2,895	130,254	0
17	0	2,895	2,421	5,316	139,135	0
18	0	2,895	0	2,895	148,016	0
19	0	2,895	20,760	23,655	156,897	0
20	0	2,895	0	2,895	165,778	0
21	0	2,895	0	2,895	174,659	0
22	0	2,895	4,807	7,702	183,540	0
23	0	2,895	0	2,895	192,421	0
24	0	2,895	0	2,895	201,302	0
25	0	2,895	3,898	6,793	210,183	0
26	0	2,895	0	2,895	219,064	0
27	0	2,895	0	2,895	227,945	0
28	0	2,895	0	2,895	236,826	0
29	0	2,895	0	2,895	245,707	0
30	0	2,895	0	2,895	254,588	0
31	0	2,895	0	2,895	263,469	0
32	0	2,895	7,228	10,122	272,350	0
33	0	2,895	0	2,895	281,231	0
34	0	2,895	20,760	23,655	290,112	0
35	0	2,895	3,898	6,793	299,000	0
36	0	2,895	0	2,895	307,881	0
37	0	2,895	14,204	17,099	316,762	0
38	0	2,895	0	2,895	325,643	0
39	0	2,895	0	2,895	334,524	0
40	0	2,895	0	2,895	343,405	0
41	0	2,895	0	2,895	352,286	0
42	0	2,895	4,807	7,702	361,167	0
43	0	2,895	0	2,895	370,048	0
44	0	2,895	0	2,895	378,929	0
45	0	2,895	3,898	6,793	387,810	0
46	0	2,895	0	2,895	396,691	0
47	0	2,895	2,421	5,316	405,572	0
48	0	2,895	0	2,895	414,453	0
49	0	2,895	0	2,895	423,334	0
50	0	2,895	0	2,895	432,215	0

Year	Discount Rate (%)	Benefit		Cost	B/C
		Benefit	B/C		
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	13,050	1.03	38,281	1.283
5	0	17,944	1.03	39,564	1.305
6	0	22,838	1.02	38,133	1.017
7	0	27,731	1.02	38,057	0.885
8	0	32,625	1.02	37,980	0.754
9	0	37,519	1.01	37,903	0.625
10	0	42,413	1.01	37,826	0.496
11	0	47,307	1.01	37,749	0.369
12	0	52,201	1.01	37,673	0.243
13	0	57,095	1.00	37,597	0.118
14	0	61,989	1.00	37,521	0.000
15	0	66,883	0.99	37,446	-0.137
16	0	71,777	0.99	37,370	-0.275
17	0	76,671	0.99	37,295	-0.413
18	0	81,565	0.99	37,221	-0.551
19	0	86,459	0.98	37,146	-0.689

Year	Discount Rate (%)	Benefit		Cost	B/C
		Benefit	B/C		
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	23,682	1.03	38,281	1.03
5	0	32,563	1.03	39,564	1.03
6	0	41,444	1.02	38,133	1.02
7	0	50,325	1.02	38,057	1.02
8	0	59,206	1.02	37,980	1.02
9	0	68,087	1.01	37,903	1.01
10	0	76,968	1.01	37,826	1.01
11	0	85,849	1.01	37,749	1.01
12	0	94,730	1.01	37,673	1.01
13	0	103,611	1.00	37,597	1.00
14	0	112,492	1.00	37,521	1.00
15	0	121,373	0.99	37,446	0.99
16	0	130,254	0.99	37,370	0.99
17	0	139,135	0.99	37,295	0.99
18	0	148,016	0.99	37,221	0.99
19	0	156,897	0.98	37,146	0.98
20	0	165,778	0.98	37,071	0.98

Table 2.1 (11/11) COSTS AND BENEFITS FLOW

Libmanan-Cabusao Pump System  
 Flowed-up Service Area  
 Indirect Tapping

Year	Cost			Total	Benefit
	Capital	O & M	Replacement		
1	2,890	0	0	2,890	0
2	25,396	0	0	25,396	0
3	13,244	0	0	13,244	0
4	0	3,085	20,760	23,845	13,050
5	0	3,085	3,898	6,983	17,944
6	0	3,085	0	3,085	22,838
7	0	3,085	0	3,085	27,731
8	0	3,085	0	3,085	32,625
9	0	3,085	0	3,085	37,519
10	0	3,085	0	3,085	42,413
11	0	3,085	0	3,085	47,307
12	0	3,085	4,807	7,892	52,201
13	0	3,085	0	3,085	57,095
14	0	3,085	0	3,085	61,989
15	0	3,085	3,898	6,983	66,883
16	0	3,085	0	3,085	71,777
17	0	3,085	2,421	5,506	76,671
18	0	3,085	0	3,085	81,565
19	0	3,085	20,760	23,845	86,459
20	0	3,085	0	3,085	91,353
21	0	3,085	0	3,085	96,247
22	0	3,085	4,807	7,892	101,141
23	0	3,085	0	3,085	106,035
24	0	3,085	0	3,085	110,929
25	0	3,085	3,898	6,983	115,823
26	0	3,085	0	3,085	120,717
27	0	3,085	0	3,085	125,611
28	0	3,085	0	3,085	130,505
29	0	3,085	0	3,085	135,399
30	0	3,085	0	3,085	140,293
31	0	3,085	0	3,085	145,187
32	0	3,085	7,228	10,313	150,081
33	0	3,085	0	3,085	154,975
34	0	3,085	20,760	23,845	159,869
35	0	3,085	3,898	6,983	164,763
36	0	3,085	0	3,085	169,657
37	0	3,085	4,417	7,502	174,551
38	0	3,085	0	3,085	179,445
39	0	3,085	0	3,085	184,339
40	0	3,085	0	3,085	189,233
41	0	3,085	0	3,085	194,127
42	0	3,085	4,807	7,892	199,021
43	0	3,085	0	3,085	203,915
44	0	3,085	0	3,085	208,809
45	0	3,085	3,898	6,983	213,703
46	0	3,085	0	3,085	218,597
47	0	3,085	2,421	4,506	223,491
48	0	3,085	0	3,085	228,385
49	0	3,085	20,760	23,845	233,279
50	0	3,085	0	3,085	238,173

Year	Cost			Total	Benefit
	Capital	O & M	Replacement		
1	3,303	0	0	3,303	0
2	27,451	0	0	27,451	0
3	15,299	0	0	15,299	0
4	0	4,636	20,760	25,396	23,682
5	0	4,636	3,898	8,534	32,520
6	0	4,636	0	4,636	41,444
7	0	4,636	0	4,636	50,368
8	0	4,636	0	4,636	59,292
9	0	4,636	0	4,636	68,216
10	0	4,636	0	4,636	77,140
11	0	4,636	0	4,636	86,064
12	0	4,636	4,807	9,443	95,011
13	0	4,636	0	4,636	103,958
14	0	4,636	0	4,636	112,905
15	0	4,636	3,898	8,534	121,852
16	0	4,636	0	4,636	130,799
17	0	4,636	2,421	7,057	139,746
18	0	4,636	0	4,636	148,693
19	0	4,636	20,760	25,396	157,640
20	0	4,636	0	4,636	166,587
21	0	4,636	0	4,636	175,534
22	0	4,636	4,807	9,443	184,481
23	0	4,636	0	4,636	193,428
24	0	4,636	0	4,636	202,375
25	0	4,636	3,898	8,534	211,322
26	0	4,636	0	4,636	220,269
27	0	4,636	0	4,636	229,216
28	0	4,636	0	4,636	238,163
29	0	4,636	0	4,636	247,110
30	0	4,636	0	4,636	256,057
31	0	4,636	0	4,636	265,004
32	0	4,636	7,228	11,864	273,951
33	0	4,636	0	4,636	282,898
34	0	4,636	20,760	25,396	291,845
35	0	4,636	3,898	8,534	300,792
36	0	4,636	0	4,636	309,739
37	0	4,636	4,417	9,053	318,686
38	0	4,636	0	4,636	327,633
39	0	4,636	0	4,636	336,580
40	0	4,636	0	4,636	345,527
41	0	4,636	0	4,636	354,474
42	0	4,636	4,807	9,443	363,421
43	0	4,636	0	4,636	372,368
44	0	4,636	0	4,636	381,315
45	0	4,636	3,898	8,534	390,262
46	0	4,636	0	4,636	399,209
47	0	4,636	2,421	7,057	408,156
48	0	4,636	0	4,636	417,103
49	0	4,636	20,760	25,396	426,050
50	0	4,636	0	4,636	435,000

Year	Cost			Total	Benefit
	Capital	O & M	Replacement		
1	3,303	0	0	3,303	0
2	27,451	0	0	27,451	0
3	15,299	0	0	15,299	0
4	0	4,636	20,760	25,396	23,682
5	0	4,636	3,898	8,534	32,520
6	0	4,636	0	4,636	41,444
7	0	4,636	0	4,636	50,368
8	0	4,636	0	4,636	59,292
9	0	4,636	0	4,636	68,216
10	0	4,636	0	4,636	77,140
11	0	4,636	0	4,636	86,064
12	0	4,636	4,807	9,443	95,011
13	0	4,636	0	4,636	103,958
14	0	4,636	0	4,636	112,905
15	0	4,636	3,898	8,534	121,852
16	0	4,636	0	4,636	130,799
17	0	4,636	2,421	7,057	139,746
18	0	4,636	0	4,636	148,693
19	0	4,636	20,760	25,396	157,640
20	0	4,636	0	4,636	166,587
21	0	4,636	0	4,636	175,534
22	0	4,636	4,807	9,443	184,481
23	0	4,636	0	4,636	193,428
24	0	4,636	0	4,636	202,375
25	0	4,636	3,898	8,534	211,322
26	0	4,636	0	4,636	220,269
27	0	4,636	0	4,636	229,216
28	0	4,636	0	4,636	238,163
29	0	4,636	0	4,636	247,110
30	0	4,636	0	4,636	256,057
31	0	4,636	0	4,636	265,004
32	0	4,636	7,228	11,864	273,951
33	0	4,636	0	4,636	282,898
34	0	4,636	20,760	25,396	291,845
35	0	4,636	3,898	8,534	300,792
36	0	4,636	0	4,636	309,739
37	0	4,636	4,417	9,053	318,686
38	0	4,636	0	4,636	327,633
39	0	4,636	0	4,636	336,580
40	0	4,636	0	4,636	345,527
41	0	4,636	0	4,636	354,474
42	0	4,636	4,807	9,443	363,421
43	0	4,636	0	4,636	372,368
44	0	4,636	0	4,636	381,315
45	0	4,636	3,898	8,534	390,262
46	0	4,636	0	4,636	399,209
47	0	4,636	2,421	7,057	408,156
48	0	4,636	0	4,636	417,103
49	0	4,636	20,760	25,396	426,050
50	0	4,636	0	4,636	435,000

Table 3.1 (1/11) CASH FLOW STATEMENT WLTH LOAN

Bonga #1 Pump System  
Direct Tapping

(Unit: 1,000 Pesos)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Total	Balance Accumulated	
	FC	LC	FC	LC	Interest	Principal	LC	Cost	FC	LC			Revenue
1	1,453	949	39	0	0	0	0	0	2,441	1,453	949	2,402	-39
2	19,917	2,178	577	0	0	0	0	0	22,672	19,917	2,178	22,095	-577
3	2,054	3,887	632	0	0	0	0	0	6,573	2,054	3,887	5,941	-632
4	0	0	632	0	0	281	812	1,366	3,091	0	0	1,491	-1,600
5	0	0	632	0	281	281	812	0	1,725	0	0	1,491	-234
6	0	0	632	0	281	281	812	0	1,725	0	0	1,491	-234
7	0	0	632	0	281	281	812	0	1,725	0	0	1,491	-234
8	0	0	632	0	281	281	812	0	1,725	0	0	1,491	-234
9	0	0	632	0	281	281	812	0	1,725	0	0	1,491	-234
10	0	0	632	0	281	281	812	0	1,725	0	0	1,491	-234
11	0	0	601	0	1,171	1,171	812	0	2,865	0	0	1,491	-1,374
12	0	0	569	0	1,171	1,171	812	1,914	4,747	0	0	1,491	-3,256
13	0	0	538	0	1,171	1,171	812	0	2,801	0	0	1,491	-1,310
14	0	0	506	0	1,171	1,171	812	1,366	4,136	0	0	1,491	-2,645
15	0	0	474	0	1,171	1,171	812	0	2,738	0	0	1,491	-1,247
16	0	0	443	0	1,171	1,171	812	0	2,706	0	0	1,491	-1,215
17	0	0	411	0	1,171	1,171	812	5,347	8,022	0	0	1,491	-6,531
18	0	0	379	0	1,171	1,171	812	0	2,643	0	0	1,491	-1,152
19	0	0	348	0	1,171	1,171	812	0	2,612	0	0	1,491	-1,121
20	0	0	316	0	1,171	1,171	812	0	2,580	0	0	1,491	-1,089
21	0	0	285	0	1,171	1,171	812	0	2,548	0	0	1,491	-1,057
22	0	0	253	0	1,171	1,171	812	1,914	4,431	0	0	1,491	-2,940
23	0	0	221	0	1,171	1,171	812	0	2,485	0	0	1,491	-994
24	0	0	190	0	1,171	1,171	812	1,366	3,819	0	0	1,491	-2,328
25	0	0	158	0	1,171	1,171	812	0	2,422	0	0	1,491	-931
26	0	0	126	0	1,171	1,171	812	0	2,390	0	0	1,491	-899
27	0	0	95	0	1,171	1,171	812	0	2,359	0	0	1,491	-868
28	0	0	63	0	1,171	1,171	812	0	2,327	0	0	1,491	-836
29	0	0	32	0	1,171	1,171	812	0	2,295	0	0	1,491	-804
30	0	0	0	0	1,171	1,171	812	0	1,983	0	0	1,491	-492

Remarks:

FC = Foreign Currency, LC = Local Currency  
Condition of Loan Repayment; Interest (%)  
Foreign Currency 2.7  
Local Currency 0.0

Grace Period  
10 years  
0 years

Repayment Period  
30 years (including grace period)  
25 years

Table 3.1 (2/11) CASH FLOW STATEMENT WLTH LOAN

Bonga #1 Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Interest Principal		Cash Outflow		O & M Replacement		Total		Cash Inflow		Total		Balance Accumulated
	FC	LC	FC	LC	FC	LC	FC	LC	Cost	Cost	FC	LC	FC	LC	Revenue	Total	
1	1,078	899	29	0	0	0	0	0	0	0	2,006	1,078	899	0	1,977	-29	-29
2	14,460	2,151	420	0	0	0	0	0	0	0	17,031	14,460	2,151	0	16,611	-420	-449
3	1,846	3,050	469	0	0	0	0	0	0	0	5,365	1,846	3,050	0	4,896	-469	-918
4	0	0	469	0	244	1,293	1,366	244	1,293	1,366	3,372	0	0	1,491	1,491	-1,881	-2,799
5	0	0	469	0	244	1,293	0	244	1,293	0	2,006	0	0	1,491	1,491	-515	-3,315
6	0	0	469	0	244	1,293	0	244	1,293	0	2,006	0	0	1,491	1,491	-515	-3,830
7	0	0	469	0	244	1,293	0	244	1,293	0	2,006	0	0	1,491	1,491	-515	-4,345
8	0	0	469	0	244	1,293	0	244	1,293	0	2,006	0	0	1,491	1,491	-515	-4,861
9	0	0	469	0	244	1,293	0	244	1,293	0	2,006	0	0	1,491	1,491	-515	-5,376
10	0	0	469	0	244	1,293	0	244	1,293	0	2,006	0	0	1,491	1,491	-515	-5,892
11	0	0	446	869	244	1,293	0	244	1,293	0	2,852	0	0	1,491	1,491	-1,361	-7,253
12	0	0	422	869	244	1,293	1,914	244	1,293	1,914	4,743	0	0	1,491	1,491	-3,252	-10,504
13	0	0	399	869	244	1,293	0	244	1,293	0	2,805	0	0	1,491	1,491	-1,314	-11,818
14	0	0	375	869	244	1,293	1,366	244	1,293	1,366	4,148	0	0	1,491	1,491	-2,657	-14,475
15	0	0	352	869	244	1,293	0	244	1,293	0	2,758	0	0	1,491	1,491	-1,267	-15,742
16	0	0	329	869	244	1,293	0	244	1,293	0	2,735	0	0	1,491	1,491	-1,244	-16,986
17	0	0	305	869	244	1,293	5,347	244	1,293	5,347	8,058	0	0	1,491	1,491	-6,567	-23,553
18	0	0	282	869	244	1,293	0	244	1,293	0	2,888	0	0	1,491	1,491	-1,197	-24,750
19	0	0	258	869	244	1,293	0	244	1,293	0	2,864	0	0	1,491	1,491	-1,173	-25,924
20	0	0	235	869	244	1,293	0	244	1,293	0	2,641	0	0	1,491	1,491	-1,150	-27,073
21	0	0	211	869	244	1,293	0	244	1,293	0	2,617	0	0	1,491	1,491	-1,126	-28,200
22	0	0	188	869	244	1,293	1,914	244	1,293	1,914	4,508	0	0	1,491	1,491	-3,017	-31,217
23	0	0	164	869	244	1,293	0	244	1,293	0	2,570	0	0	1,491	1,491	-1,079	-32,296
24	0	0	141	869	244	1,293	1,366	244	1,293	1,366	3,913	0	0	1,491	1,491	-2,422	-34,718
25	0	0	117	869	244	1,293	0	244	1,293	0	2,524	0	0	1,491	1,491	-1,033	-35,751
26	0	0	94	869	244	1,293	0	244	1,293	0	2,500	0	0	1,491	1,491	-1,009	-36,760
27	0	0	70	869	244	1,293	0	244	1,293	0	2,477	0	0	1,491	1,491	-986	-37,746
28	0	0	47	869	244	1,293	0	244	1,293	0	2,453	0	0	1,491	1,491	-962	-38,708
29	0	0	23	869	244	1,293	0	244	1,293	0	2,430	0	0	1,491	1,491	-939	-39,646
30	0	0	0	869	0	1,293	0	0	1,293	0	2,162	0	0	1,491	1,491	-671	-40,318

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment: Foreign Currency 2.7 Interest (%) 2.7 Grace Period 10 years Repayment Period 30 years (including grace period)  
 Local Currency 0.0 Interest (%) 0.0 Grace Period 0 years Repayment Period 25 years

Table 3.1 (3/11) CASH FLOW STATEMENT WITH LOAN

Bonga #2 Pump System  
Direct Tapping

(Unit: 1,000 Pesos)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated		
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC		Balance	
Order													
1	1,859	1,039	50	0	0	0	0	0	2,948	1,859	1,039	2,898	-50
2	26,158	1,883	756	0	0	0	0	0	28,797	26,158	1,883	28,041	-756
3	1,922	4,007	808	0	0	0	0	0	6,737	1,922	4,007	5,929	-808
4	0	0	808	0	277	1,061	2,152	0	4,299	0	0	2,359	-1,940
5	0	0	808	0	277	1,061	0	0	2,147	0	0	2,359	212
6	0	0	808	0	277	1,061	0	0	2,147	0	0	2,359	212
7	0	0	808	0	277	1,061	0	0	2,147	0	0	2,359	212
8	0	0	808	0	277	1,061	0	0	2,147	0	0	2,359	212
9	0	0	808	0	277	1,061	0	0	2,147	0	0	2,359	212
10	0	0	808	0	277	1,061	0	0	2,147	0	0	2,359	212
11	0	0	768	0	277	1,061	0	0	3,603	0	0	2,359	-1,244
12	0	0	728	0	277	1,061	3,014	0	6,577	0	0	2,359	-4,218
13	0	0	687	0	277	1,061	0	0	3,522	0	0	2,359	-1,163
14	0	0	647	0	277	1,061	2,152	0	5,634	0	0	2,359	-3,275
15	0	0	606	0	277	1,061	0	0	3,441	0	0	2,359	-1,082
16	0	0	566	0	277	1,061	0	0	3,401	0	0	2,359	-1,042
17	0	0	525	0	277	1,061	7,857	0	11,218	0	0	2,359	-8,859
18	0	0	485	0	277	1,061	0	0	3,320	0	0	2,359	-24,123
19	0	0	445	0	277	1,061	0	0	3,280	0	0	2,359	-921
20	0	0	404	0	277	1,061	0	0	3,239	0	0	2,359	-880
21	0	0	364	0	277	1,061	0	0	3,199	0	0	2,359	-840
22	0	0	323	0	277	1,061	3,014	0	6,172	0	0	2,359	-3,813
23	0	0	283	0	277	1,061	0	0	3,118	0	0	2,359	-759
24	0	0	243	0	277	1,061	2,152	0	5,230	0	0	2,359	-2,871
25	0	0	202	0	277	1,061	0	0	3,037	0	0	2,359	-678
26	0	0	162	0	277	1,061	0	0	2,997	0	0	2,359	-638
27	0	0	121	0	277	1,061	0	0	2,956	0	0	2,359	-597
28	0	0	81	0	277	1,061	0	0	2,916	0	0	2,359	-557
29	0	0	40	0	277	1,061	0	0	2,876	0	0	2,359	-517
30	0	0	0	0	277	1,061	0	0	2,558	0	0	2,359	-199

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment: Interest (%) 2.7  
 Foreign Currency 10 years  
 Local Currency 0 years  
 Repayment Period 30 years (including grace period)  
 25 years

Table 3.1 (4/11) CASH FLOW STATEMENT WITH LOAN

Bonga #2 Pump System  
Indirect tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated	
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC		
Order	Interest Principal		Principal		Cost		Cost		Revenue		Total	
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC		
1	1,390	976	38	0	0	0	2,404	1,390	976	0	2,366	-38
2	19,333	1,847	560	0	0	0	21,740	19,333	1,847	0	21,180	-560
3	1,662	2,959	604	0	0	0	5,225	1,662	2,959	0	4,621	-604
4	0	0	604	0	231	1,691	4,679	0	0	2,359	2,359	-2,320
5	0	0	604	0	231	1,691	2,527	0	0	2,359	2,359	-168
6	0	0	604	0	231	1,691	2,527	0	0	2,359	2,359	-168
7	0	0	604	0	231	1,691	2,527	0	0	2,359	2,359	-168
8	0	0	604	0	231	1,691	2,527	0	0	2,359	2,359	-168
9	0	0	604	0	231	1,691	2,527	0	0	2,359	2,359	-168
10	0	0	604	0	231	1,691	2,527	0	0	2,359	2,359	-168
11	0	0	574	1,119	231	1,691	3,616	0	0	2,359	2,359	-1,257
12	0	0	544	1,119	231	1,691	6,599	0	0	2,359	2,359	-4,240
13	0	0	514	1,119	231	1,691	3,555	0	0	2,359	2,359	-1,196
14	0	0	484	1,119	231	1,691	5,677	0	0	2,359	2,359	-3,318
15	0	0	453	1,119	231	1,691	3,495	0	0	2,359	2,359	-1,136
16	0	0	423	1,119	231	1,691	3,465	0	0	2,359	2,359	-1,106
17	0	0	393	1,119	231	1,691	7,857	11,291	0	2,359	2,359	-8,932
18	0	0	363	1,119	231	1,691	3,404	0	0	2,359	2,359	-1,045
19	0	0	332	1,119	231	1,691	3,374	0	0	2,359	2,359	-1,015
20	0	0	302	1,119	231	1,691	3,344	0	0	2,359	2,359	-985
21	0	0	272	1,119	231	1,691	3,314	0	0	2,359	2,359	-955
22	0	0	242	1,119	231	1,691	6,297	3,014	0	2,359	2,359	-3,938
23	0	0	212	1,119	231	1,691	3,253	0	0	2,359	2,359	-894
24	0	0	181	1,119	231	1,691	2,152	5,375	0	2,359	2,359	-3,016
25	0	0	151	1,119	231	1,691	3,193	0	0	2,359	2,359	-834
26	0	0	121	1,119	231	1,691	3,162	0	0	2,359	2,359	-803
27	0	0	91	1,119	231	1,691	3,132	0	0	2,359	2,359	-773
28	0	0	60	1,119	231	1,691	3,102	0	0	2,359	2,359	-743
29	0	0	30	1,119	231	1,691	3,072	0	0	2,359	2,359	-713
30	0	0	0	1,119	0	1,691	2,810	0	0	2,359	2,359	-41,877

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment: Interest (%) 2.7  
 Foreign Currency 10 years  
 Local Currency 0 years  
 Repayment Period 30 years (including grace period)  
 25 years

Table 3.1 (5/11) CASH FLOW STATEMENT WITH LOAN

Bonga #3 Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in Order	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated	
	FC	LC	FC	LC	Interest	Principal	Cost	Cost	Revenue	Total		
1	865	220	23	0	23	0	0	0	1,108	865	220	-23
2	11,852	1,086	343	0	343	0	0	0	13,281	11,852	1,086	-343
3	1,245	1,947	377	0	377	0	0	0	3,569	1,245	1,947	-377
4	0	0	377	0	377	0	434	621	1,562	0	0	-855
5	0	0	377	0	377	0	434	0	941	0	0	-234
6	0	0	377	0	377	0	434	0	941	0	0	-234
7	0	0	377	0	377	0	434	0	941	0	0	-234
8	0	0	377	0	377	0	434	0	941	0	0	-234
9	0	0	377	0	377	0	434	0	941	0	0	-234
10	0	0	377	0	377	0	434	0	941	0	0	-234
11	0	0	358	698	358	698	434	0	1,620	0	0	-234
12	0	0	339	698	339	698	434	877	2,478	0	0	-913
13	0	0	320	698	320	698	434	0	1,583	0	0	-876
14	0	0	302	698	302	698	434	621	2,185	0	0	-1,478
15	0	0	283	698	283	698	434	0	1,545	0	0	-838
16	0	0	264	698	264	698	434	0	1,526	0	0	-819
17	0	0	245	698	245	698	434	3,783	5,290	0	0	-4,583
18	0	0	226	698	226	698	434	0	1,488	0	0	-781
19	0	0	207	698	207	698	434	0	1,470	0	0	-763
20	0	0	188	698	188	698	434	0	1,451	0	0	-744
21	0	0	170	698	170	698	434	0	1,432	0	0	-725
22	0	0	151	698	151	698	434	877	2,290	0	0	-1,583
23	0	0	132	698	132	698	434	0	1,394	0	0	-687
24	0	0	113	698	113	698	434	621	1,996	0	0	-1,289
25	0	0	94	698	94	698	434	0	1,356	0	0	-649
26	0	0	75	698	75	698	434	0	1,338	0	0	-631
27	0	0	57	698	57	698	434	0	1,319	0	0	-612
28	0	0	38	698	38	698	434	0	1,300	0	0	-593
29	0	0	19	698	19	698	434	0	1,281	0	0	-574
30	0	0	0	698	0	698	434	0	1,132	0	0	-425

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment: Interest (%) 2.7  
 Foreign Currency 2.7  
 Local Currency 0.0  
 Grace Period 10 years  
 Repayment Period 30 years (including grace period)  
 25 years

Table 3.1 (6/11) CASH FLOW STATEMENT WLTH LOAN

Bonga #3 Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Total		Fund		Cash Inflow		Revenue	Total	Balance Accumulated	
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC				
Order				Interest Principal														Balance
1	773	208	21	0	0	0	0	0	0	1,002	773	208	0	981	0	0	-21	-21
2	10,488	1,079	304	0	0	0	0	0	0	11,871	10,488	1,079	0	11,567	0	0	-304	-325
3	1,192	1,736	336	0	0	0	0	0	0	3,264	1,192	1,736	0	2,928	0	0	-336	-661
4	0	0	336	0	121	649	621	649	621	1,727	0	0	0	707	707	0	-1,020	-1,681
5	0	0	336	0	121	649	649	649	649	1,106	0	0	0	707	707	0	-399	-2,080
6	0	0	336	0	121	649	649	649	649	1,106	0	0	0	707	707	0	-399	-2,480
7	0	0	336	0	121	649	649	649	649	1,106	0	0	0	707	707	0	-399	-2,879
8	0	0	336	0	121	649	649	649	649	1,106	0	0	0	707	707	0	-399	-3,278
9	0	0	336	0	121	649	649	649	649	1,106	0	0	0	707	707	0	-399	-3,677
10	0	0	336	0	121	649	649	649	649	1,106	0	0	0	707	707	0	-399	-4,076
11	0	0	319	623	121	649	0	649	0	1,712	0	0	0	707	707	0	-1,005	-5,081
12	0	0	303	623	121	649	877	649	877	2,572	0	0	0	707	707	0	-1,865	-6,946
13	0	0	286	623	121	649	621	649	621	1,678	0	0	0	707	707	0	-971	-7,918
14	0	0	269	623	121	649	621	649	621	2,283	0	0	0	707	707	0	-1,576	-9,493
15	0	0	252	623	121	649	621	649	621	1,645	0	0	0	707	707	0	-938	-10,431
16	0	0	235	623	121	649	0	649	0	1,628	0	0	0	707	707	0	-921	-11,352
17	0	0	219	623	121	649	3,783	649	3,783	5,394	0	0	0	707	707	0	-4,687	-16,039
18	0	0	202	623	121	649	0	649	0	1,594	0	0	0	707	707	0	-887	-16,926
19	0	0	185	623	121	649	0	649	0	1,577	0	0	0	707	707	0	-870	-17,797
20	0	0	168	623	121	649	0	649	0	1,561	0	0	0	707	707	0	-854	-18,651
21	0	0	151	623	121	649	0	649	0	1,544	0	0	0	707	707	0	-837	-19,487
22	0	0	134	623	121	649	877	649	877	2,404	0	0	0	707	707	0	-1,697	-21,185
23	0	0	118	623	121	649	621	649	621	1,510	0	0	0	707	707	0	-803	-21,988
24	0	0	101	623	121	649	621	649	621	2,114	0	0	0	707	707	0	-1,407	-23,395
25	0	0	84	623	121	649	621	649	621	1,477	0	0	0	707	707	0	-770	-24,165
26	0	0	67	623	121	649	621	649	621	1,460	0	0	0	707	707	0	-753	-24,918
27	0	0	50	623	121	649	621	649	621	1,443	0	0	0	707	707	0	-736	-25,654
28	0	0	34	623	121	649	621	649	621	1,426	0	0	0	707	707	0	-719	-26,373
29	0	0	17	623	121	649	621	649	621	1,409	0	0	0	707	707	0	-702	-27,075
30	0	0	0	623	0	649	0	649	0	1,272	0	0	0	707	707	0	-565	-27,640

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment; Interest (\$)  
 Foreign Currency 2.7  
 Local Currency 0.0  
 Grace Period 10 years  
 Repayment Period 30 years (including grace period)  
 0 years  
 25 years



Table 3.1 (7/11) CASH FLOW STATEMENT WITH LOAN

Alcala-Amulung Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated	
	FC	LC	FC	LC	FC	LC	Cost	Cost	Fund	Revenue	Total	Balance
Order												
1	1,110	1,957	0	0	0	0	0	0	1,110	1,957	0	3,067
2	11,078	8,681	0	0	0	0	0	0	11,078	8,681	0	19,759
3	5,909	9,550	489	0	0	0	0	0	5,909	9,550	0	15,459
4	0	0	489	0	808	4,944	6,349	0	0	0	5,665	-6,924
5	0	0	489	0	808	4,944	0	0	0	0	5,665	-575
6	0	0	489	0	808	4,944	0	0	0	0	5,665	-575
7	0	0	489	0	808	4,944	78,120	0	0	0	5,665	-78,595
8	0	0	489	0	808	4,944	0	0	0	0	5,665	-88,192
9	0	0	489	0	808	4,944	0	0	0	0	5,665	-88,767
10	0	0	489	0	808	4,944	0	0	0	0	5,665	-89,343
11	0	0	464	905	808	4,944	0	0	0	0	5,665	-90,798
12	0	0	440	905	808	4,944	4,281	0	0	0	5,665	-96,510
13	0	0	415	905	808	4,944	0	0	0	0	5,665	-105,648
14	0	0	391	905	808	4,944	6,349	0	0	0	5,665	-107,006
15	0	0	366	905	808	4,944	0	0	0	0	5,665	-108,340
16	0	0	342	905	808	4,944	0	0	0	0	5,665	-109,648
17	0	0	318	905	808	4,944	0	0	0	0	5,665	-110,933
18	0	0	293	905	808	4,944	0	0	0	0	5,665	-112,193
19	0	0	269	905	808	4,944	0	0	0	0	5,665	-113,429
20	0	0	244	905	808	4,944	0	0	0	0	5,665	-114,640
21	0	0	220	905	808	4,944	0	0	0	0	5,665	-115,828
22	0	0	195	905	808	4,944	82,401	0	0	0	5,665	-198,228
23	0	0	171	905	808	4,944	0	0	0	0	5,665	-199,390
24	0	0	147	905	808	4,944	6,349	0	0	0	5,665	-206,877
25	0	0	122	905	808	4,944	0	0	0	0	5,665	-207,991
26	0	0	98	905	808	4,944	0	0	0	0	5,665	-209,080
27	0	0	73	905	808	4,944	9,310	0	0	0	5,665	-219,455
28	0	0	49	905	808	4,944	0	0	0	0	5,665	-220,495
29	0	0	24	905	808	4,944	0	0	0	0	5,665	-221,511
30	0	0	0	905	0	4,944	0	0	0	0	5,665	-221,694

Remarks:

FC = Foreign Currency, LC = Local Currency

Condition of Loan Repayment:

Foreign Currency 2.7  
Local Currency 0.0

Interest (%)

10 years  
0 years

Grace Period

30 years (including grace period)  
25 years

Repayment Period

Table 3.1 (8/11) CASH FLOW STATEMENT WITH LOAN

Solana Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Interest Principal		O & M Replacement		Cash Inflow		Balance Accumulated
	FC	LC	FC	LC	FC	LC	FC	LC	Revenue	Total	
Order											
1	4,115	2,057	111	0	0	0	0	6,283	4,115	2,057	6,172
2	53,847	10,564	1,565	0	0	0	0	65,976	53,847	10,564	64,411
3	8,477	14,303	1,794	0	0	0	0	24,574	8,477	14,303	22,780
4	0	0	1,794	0	1,077	3,953	0	6,824	0	0	9,604
5	0	0	1,794	0	1,077	3,953	0	6,824	0	0	9,604
6	0	0	1,794	0	1,077	3,953	0	6,824	0	0	9,604
7	0	0	1,794	0	1,077	3,953	0	6,824	0	0	9,604
8	0	0	1,794	0	1,077	3,953	0	6,824	0	0	9,604
9	0	0	1,794	0	1,077	3,953	0	6,824	0	0	9,604
10	0	0	1,794	0	1,077	3,953	0	6,824	0	0	9,604
11	0	0	1,704	0	1,077	3,953	0	10,056	0	0	9,604
12	0	0	1,614	0	3,322	3,953	5,516	15,482	0	0	9,604
13	0	0	1,525	0	3,322	3,953	0	9,877	0	0	9,604
14	0	0	1,435	0	3,322	3,953	0	9,787	0	0	9,604
15	0	0	1,345	0	3,322	3,953	0	9,697	0	0	9,604
16	0	0	1,256	0	3,322	3,953	0	9,608	0	0	9,604
17	0	0	1,166	0	3,322	3,953	20,952	30,470	0	0	9,604
18	0	0	1,076	0	3,322	3,953	0	9,428	0	0	9,604
19	0	0	987	0	3,322	3,953	0	9,339	0	0	9,604
20	0	0	897	0	3,322	3,953	0	9,249	0	0	9,604
21	0	0	807	0	3,322	3,953	0	9,159	0	0	9,604
22	0	0	718	0	3,322	3,953	5,516	14,585	0	0	9,604
23	0	0	628	0	3,322	3,953	0	8,980	0	0	9,604
24	0	0	538	0	3,322	3,953	0	8,890	0	0	9,604
25	0	0	448	0	3,322	3,953	0	8,800	0	0	9,604
26	0	0	359	0	3,322	3,953	0	8,711	0	0	9,604
27	0	0	269	0	3,322	3,953	0	8,621	0	0	9,604
28	0	0	179	0	3,322	3,953	0	8,531	0	0	9,604
29	0	0	90	0	3,322	3,953	0	8,442	0	0	9,604
30	0	0	0	0	3,322	3,953	0	7,275	0	0	9,604

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment: Foreign Currency 2.7 Interest (%) 30 years (including grace period)  
 Local Currency 0.0 0 years 25 years

Table 3.1 (9/11) CASH FLOW STATEMENT W/TH LOAN

Solana Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated			
	FC	LC	FC	LC	Interest	Principal	Cost	Cost	Revenue	Total	FC	LC		
1	3,575	2,018	97	0	0	0	0	0	5,690	3,575	2,018	0	5,593	-97
2	46,023	10,543	1,339	0	0	0	0	0	57,905	46,023	10,543	0	56,566	-1,436
3	8,180	13,675	1,560	0	0	0	0	0	23,415	8,180	13,675	0	21,855	-1,560
4	0	0	1,560	0	1,049	6,688	0	0	9,297	0	0	9,604	9,604	307
5	0	0	1,560	0	1,049	6,688	0	0	9,297	0	0	9,604	9,604	307
6	0	0	1,560	0	1,049	6,688	0	0	9,297	0	0	9,604	9,604	307
7	0	0	1,560	0	1,049	6,688	0	0	9,297	0	0	9,604	9,604	307
8	0	0	1,560	0	1,049	6,688	0	0	9,297	0	0	9,604	9,604	307
9	0	0	1,560	0	1,049	6,688	0	0	9,297	0	0	9,604	9,604	307
10	0	0	1,560	0	1,049	6,688	0	0	9,297	0	0	9,604	9,604	307
11	0	0	1,482	2,889	1,049	6,688	0	12,108	9,297	0	0	9,604	9,604	-2,504
12	0	0	1,404	2,889	1,049	6,688	5,516	17,546	9,297	0	0	9,604	9,604	-7,942
13	0	0	1,326	2,889	1,049	6,688	0	11,952	9,297	0	0	9,604	9,604	-2,348
14	0	0	1,248	2,889	1,049	6,688	0	11,874	9,297	0	0	9,604	9,604	-2,270
15	0	0	1,170	2,889	1,049	6,688	0	11,796	9,297	0	0	9,604	9,604	-2,192
16	0	0	1,092	2,889	1,049	6,688	0	11,718	9,297	0	0	9,604	9,604	-2,114
17	0	0	1,014	2,889	1,049	6,688	20,952	32,532	9,297	0	0	9,604	9,604	-22,988
18	0	0	936	2,889	1,049	6,688	0	11,562	9,297	0	0	9,604	9,604	-1,958
19	0	0	858	2,889	1,049	6,688	0	11,484	9,297	0	0	9,604	9,604	-1,880
20	0	0	780	2,889	1,049	6,688	0	11,406	9,297	0	0	9,604	9,604	-1,802
21	0	0	702	2,889	1,049	6,688	0	11,328	9,297	0	0	9,604	9,604	-1,724
22	0	0	624	2,889	1,049	6,688	5,516	16,766	9,297	0	0	9,604	9,604	-7,162
23	0	0	546	2,889	1,049	6,688	0	11,172	9,297	0	0	9,604	9,604	-1,568
24	0	0	468	2,889	1,049	6,688	0	11,094	9,297	0	0	9,604	9,604	-1,490
25	0	0	390	2,889	1,049	6,688	0	11,016	9,297	0	0	9,604	9,604	-1,412
26	0	0	312	2,889	1,049	6,688	0	10,938	9,297	0	0	9,604	9,604	-1,334
27	0	0	234	2,889	1,049	6,688	0	10,860	9,297	0	0	9,604	9,604	-1,256
28	0	0	156	2,889	1,049	6,688	0	10,782	9,297	0	0	9,604	9,604	-1,178
29	0	0	78	2,889	1,049	6,688	0	10,704	9,297	0	0	9,604	9,604	-1,100
30	0	0	0	2,889	0	6,688	0	9,577	9,297	0	0	9,604	9,604	-67,051

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment: Interest (%) 2.7  
 Foreign Currency 2.7  
 Local Currency 0.0  
 Grace Period 10 years  
 Repayment Period 30 years (including grace period)  
 25 years

Table 3.1 (10/11) CASH FLOW STATEMENT WITH LOAN

Libmanan-Cabusao Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated				
	FC	LC	FC	LC	Interest	Principal	Cost	Cost	Revenue	Total					
Order															
1	3,061	2,144	83	0	0	0	0	0	5,288	3,061	2,144	0	5,205	-83	
2	36,150	12,204	1,059	0	0	0	0	0	49,413	36,150	12,204	0	48,354	-1,059	
3	10,413	14,764	1,340	0	0	0	0	0	26,517	10,413	14,764	0	25,177	-1,340	
4	0	0	1,340	0	1,164	0	1,164	3,016	20,760	26,280	0	0	6,479	6,479	-19,801
5	0	0	1,340	0	1,164	0	1,164	3,016	3,898	9,418	0	0	6,479	6,479	-2,939
6	0	0	1,340	0	1,164	0	1,164	3,016	0	5,520	0	0	6,479	6,479	959
7	0	0	1,340	0	1,164	0	1,164	3,016	0	5,520	0	0	6,479	6,479	959
8	0	0	1,340	0	1,164	0	1,164	3,016	0	5,520	0	0	6,479	6,479	959
9	0	0	1,340	0	1,164	0	1,164	3,016	0	5,520	0	0	6,479	6,479	959
10	0	0	1,340	0	1,164	0	1,164	3,016	0	5,520	0	0	6,479	6,479	959
11	0	0	1,273	0	1,164	0	1,164	3,016	4,807	7,935	0	0	6,479	6,479	-1,456
12	0	0	1,206	0	1,164	0	1,164	3,016	0	12,675	0	0	6,479	6,479	-6,196
13	0	0	1,139	0	1,164	0	1,164	3,016	0	7,801	0	0	6,479	6,479	-1,322
14	0	0	1,072	0	1,164	0	1,164	3,016	0	7,734	0	0	6,479	6,479	-1,255
15	0	0	1,005	0	1,164	0	1,164	3,016	3,898	11,565	0	0	6,479	6,479	-5,086
16	0	0	938	0	1,164	0	1,164	3,016	0	7,600	0	0	6,479	6,479	-1,121
17	0	0	871	0	1,164	0	1,164	3,016	2,421	9,954	0	0	6,479	6,479	-3,475
18	0	0	804	0	1,164	0	1,164	3,016	0	7,466	0	0	6,479	6,479	-987
19	0	0	737	0	1,164	0	1,164	3,016	20,760	28,159	0	0	6,479	6,479	-21,680
20	0	0	670	0	1,164	0	1,164	3,016	0	7,332	0	0	6,479	6,479	-853
21	0	0	603	0	1,164	0	1,164	3,016	0	7,265	0	0	6,479	6,479	-786
22	0	0	536	0	1,164	0	1,164	3,016	4,807	12,005	0	0	6,479	6,479	-5,526
23	0	0	469	0	1,164	0	1,164	3,016	0	7,131	0	0	6,479	6,479	-652
24	0	0	402	0	1,164	0	1,164	3,016	0	7,064	0	0	6,479	6,479	-585
25	0	0	335	0	1,164	0	1,164	3,016	3,898	10,895	0	0	6,479	6,479	-4,416
26	0	0	268	0	1,164	0	1,164	3,016	0	6,930	0	0	6,479	6,479	-451
27	0	0	201	0	1,164	0	1,164	3,016	0	6,863	0	0	6,479	6,479	-384
28	0	0	134	0	1,164	0	1,164	3,016	0	6,796	0	0	6,479	6,479	-317
29	0	0	67	0	1,164	0	1,164	3,016	0	6,729	0	0	6,479	6,479	-250
30	0	0	0	0	0	0	0	3,016	0	5,497	0	0	6,479	6,479	-76,237

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment: Interest (%) 2.7 Grace Period 10 years Repayment Period 30 years (including grace period)  
 Foreign Currency 2.7  
 Local Currency 0.0

Table 3.1 (11/11) CASH FLOW STATEMENT WITH LOAN

Libmanan-Cabusao Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in Order	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Total	Fund		Cash Inflow		Balance Accumulated
	FC	LC	FC	LC	Interest	Principal	Cost	Cost		FC	LC	Revenue	Total	
1	2,216	2,095	60	0	0	0	0	0	4,371	2,216	2,095	0	4,311	-60
2	23,866	12,177	704	0	0	0	0	0	36,747	23,866	12,177	0	36,043	-764
3	9,946	13,947	973	0	0	0	0	0	24,866	9,946	13,947	0	23,893	-973
4	0	0	973	0	1,129	0	4,757	20,760	27,619	0	0	6,479	6,479	-21,140
5	0	0	973	0	1,129	0	4,757	3,898	10,757	0	0	6,479	6,479	-4,278
6	0	0	973	0	1,129	0	4,757	0	6,859	0	0	6,479	6,479	-380
7	0	0	973	0	1,129	0	4,757	0	6,859	0	0	6,479	6,479	-380
8	0	0	973	0	1,129	0	4,757	0	6,859	0	0	6,479	6,479	-380
9	0	0	973	0	1,129	0	4,757	0	6,859	0	0	6,479	6,479	-380
10	0	0	973	0	1,129	0	4,757	0	6,859	0	0	6,479	6,479	-380
11	0	0	924	1,801	1,129	1,801	4,757	0	8,611	0	0	6,479	6,479	-2,132
12	0	0	875	1,801	1,129	1,801	4,757	4,807	13,370	0	0	6,479	6,479	-6,891
13	0	0	827	1,801	1,129	1,801	4,757	0	8,514	0	0	6,479	6,479	-2,035
14	0	0	778	1,801	1,129	1,801	4,757	0	8,465	0	0	6,479	6,479	-1,986
15	0	0	730	1,801	1,129	1,801	4,757	3,898	12,315	0	0	6,479	6,479	-5,836
16	0	0	681	1,801	1,129	1,801	4,757	0	8,368	0	0	6,479	6,479	-1,889
17	0	0	632	1,801	1,129	1,801	4,757	2,421	10,740	0	0	6,479	6,479	-4,261
18	0	0	584	1,801	1,129	1,801	4,757	0	8,271	0	0	6,479	6,479	-1,792
19	0	0	535	1,801	1,129	1,801	4,757	20,760	28,982	0	0	6,479	6,479	-22,503
20	0	0	486	1,801	1,129	1,801	4,757	0	8,174	0	0	6,479	6,479	-1,695
21	0	0	438	1,801	1,129	1,801	4,757	0	8,125	0	0	6,479	6,479	-1,646
22	0	0	389	1,801	1,129	1,801	4,757	4,807	12,883	0	0	6,479	6,479	-6,404
23	0	0	340	1,801	1,129	1,801	4,757	0	8,028	0	0	6,479	6,479	-1,549
24	0	0	292	1,801	1,129	1,801	4,757	0	7,979	0	0	6,479	6,479	-1,500
25	0	0	243	1,801	1,129	1,801	4,757	3,898	11,828	0	0	6,479	6,479	-5,349
26	0	0	195	1,801	1,129	1,801	4,757	0	7,882	0	0	6,479	6,479	-1,403
27	0	0	146	1,801	1,129	1,801	4,757	0	7,833	0	0	6,479	6,479	-1,354
28	0	0	97	1,801	1,129	1,801	4,757	0	7,784	0	0	6,479	6,479	-1,305
29	0	0	49	1,801	1,129	1,801	4,757	0	7,736	0	0	6,479	6,479	-1,257
30	0	0	0	1,801	0	0	4,757	0	6,558	0	0	6,479	6,479	-101,918

Remarks: FC = Foreign Currency, LC = Local Currency  
 Condition of Loan Repayment: Interest (%) 2.7 Grace Period 10 years Repayment Period 30 years (including grace period)  
 Foreign Currency 2.7  
 Local Currency 0.0

Table 3.2 (1/11) CASH FLOW STATEMENT WLRH SUBSIDY

Bonga #1 Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Total		Cash Inflow		Balance Accumulated	
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC		Total
Order														
1	1,453	949	0	0	0	0	0	0	2,402	1,453	949	0	2,402	0
2	19,917	2,178	0	0	0	0	0	0	22,095	19,917	2,178	0	22,095	0
3	2,054	3,887	0	0	0	0	0	0	5,941	2,054	3,887	0	5,941	0
4	0	0	0	0	0	812	1,366	0	2,178	0	0	1,491	1,491	-687
5	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
6	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	671
7	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
8	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
9	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
10	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
11	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
12	0	0	0	0	0	812	1,914	0	2,726	0	0	1,491	1,491	-1,235
13	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
14	0	0	0	0	0	812	1,366	0	2,178	0	0	1,491	1,491	-687
15	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
16	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
17	0	0	0	0	0	812	5,347	0	6,159	0	0	1,491	1,491	-4,668
18	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	192
19	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	871
20	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
21	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
22	0	0	0	0	0	812	1,914	0	2,726	0	0	1,491	1,491	-1,235
23	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
24	0	0	0	0	0	812	1,366	0	2,178	0	0	1,491	1,491	-887
25	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
26	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
27	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
28	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
29	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
30	0	0	0	0	0	812	0	812	812	0	0	1,491	1,491	679
														5,060

Table 3.2 (2/11) CASH FLOW STATEMENT WLTH SUBSIDY

Bonga #1 Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated				
	FC	LC	Loan Repayment	Interest Principal	FC	LC	Fund	Revenue					
Order	FC	LC	FC	LC	FC	LC	FC	LC	Total				
1	1,078	899	0	0	0	0	1,977	1,078	899	0	1,977	0	0
2	14,460	2,151	0	0	0	0	16,611	14,460	2,151	0	16,611	0	0
3	1,846	3,050	0	0	0	0	4,896	1,846	3,050	0	4,896	0	0
4	0	0	0	0	1,293	1,366	2,659	0	0	1,491	1,491	-1,168	-970
5	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-772
6	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-574
7	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-376
8	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-178
9	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	20
10	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	218
11	0	0	0	0	1,293	1,914	3,207	0	0	1,491	1,491	-1,716	-1,498
12	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-1,300
13	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-2,468
14	0	0	0	0	1,293	1,366	2,659	0	0	1,491	1,491	198	-2,270
15	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-2,072
16	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-7,221
17	0	0	0	0	1,293	5,347	6,640	0	0	1,491	1,491	198	-7,023
18	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-6,825
19	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-6,627
20	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-6,429
21	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-8,145
22	0	0	0	0	1,293	1,914	3,207	0	0	1,491	1,491	198	-7,947
23	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-9,115
24	0	0	0	0	1,293	1,366	2,659	0	0	1,491	1,491	198	-8,917
25	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-8,719
26	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-8,521
27	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-8,323
28	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-8,125
29	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	-7,927
30	0	0	0	0	1,293	0	1,293	0	0	1,491	1,491	198	

Table 3.2 (3/11) CASH FLOW STATEMENT WITH SUBSIDY

Bonga #2 Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in Order	Capital Cost		Cash Outflow				O & M Replacement		Cash Inflow		Total	Balance Accumulated		
	FC	LC	Loan Repayment	Interest		Principal	Cost	Cost	Revenue	LC				
				FC	LC								FC	LC
1	1,859	1,039	0	0	0	0	0	2,898	1,859	1,039	0	2,898	0	
2	26,158	1,883	0	0	0	0	0	28,041	26,158	1,883	0	28,041	0	
3	1,922	4,007	0	0	0	0	0	5,929	1,922	4,007	0	5,929	0	
4	0	0	0	0	0	1,061	2,152	3,213	0	0	2,359	-854	2,359	-854
5	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
6	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
7	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
8	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
9	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
10	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
11	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
12	0	0	0	0	0	1,061	3,014	4,075	0	0	2,359	-1,716	2,359	-1,716
13	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
14	0	0	0	0	0	1,061	2,152	3,213	0	0	2,359	-854	2,359	-854
15	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
16	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
17	0	0	0	0	0	1,061	7,857	8,918	0	0	2,359	-6,559	2,359	-6,559
18	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
19	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
20	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
21	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
22	0	0	0	0	0	1,061	3,014	4,075	0	0	2,359	-1,716	2,359	-1,716
23	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
24	0	0	0	0	0	1,061	2,152	3,213	0	0	2,359	-854	2,359	-854
25	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
26	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
27	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
28	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
29	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298
30	0	0	0	0	0	1,061	0	1,061	0	0	2,359	1,298	2,359	1,298



Table 3.2 (4/11) CASH FLOW STATEMENT WLTH SUBSIDY

Bonga #2 Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated	
	FC	LC	FC	LC	Interest	Principal	Cost	Cost	Fund	Revenue		Balance
Order												
1	1,390	976	0	0	0	0	0	0	2,366	976	0	2,366
2	19,333	1,847	0	0	0	0	0	0	21,180	1,847	0	21,180
3	1,662	2,959	0	0	0	0	0	0	4,621	2,959	0	4,621
4	0	0	0	0	0	0	2,152	2,152	3,843	0	2,359	-1,484
5	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
6	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
7	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
8	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
9	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
10	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
11	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
12	0	0	0	0	1,691	0	3,014	3,014	4,705	0	2,359	846
13	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
14	0	0	0	0	1,691	0	2,152	2,152	3,843	0	2,359	-2,346
15	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
16	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
17	0	0	0	0	1,691	0	7,857	7,857	9,548	0	2,359	-7,189
18	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
19	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
20	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
21	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
22	0	0	0	0	1,691	0	3,014	3,014	4,705	0	2,359	-2,346
23	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
24	0	0	0	0	1,691	0	2,152	2,152	3,843	0	2,359	-1,484
25	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
26	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
27	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
28	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
29	0	0	0	0	1,691	0	0	0	1,691	0	2,359	668
30	0	0	0	0	1,691	0	0	0	1,691	0	2,359	-2,305

Table 3.2 (5/11) CASH FLOW STATEMENT WLTH SUBSIDY

Bonga #3 Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated Balance	
	FC	LC	FC	LC	Interest Principal	LC	Cost	Cost	Fund	Revenue		Total
Order												
1	865	220	0	0	0	0	0	0	865	220	1,085	0
2	11,852	1,086	0	0	0	0	0	0	11,852	1,086	12,938	0
3	1,245	1,947	0	0	0	0	0	0	1,245	1,947	3,192	0
4	0	0	0	0	0	0	434	621	1,055	0	707	-348
5	0	0	0	0	0	0	434	0	434	0	707	-75
6	0	0	0	0	0	0	434	0	434	0	707	198
7	0	0	0	0	0	0	434	0	434	0	707	471
8	0	0	0	0	0	0	434	0	434	0	707	744
9	0	0	0	0	0	0	434	0	434	0	707	1,017
10	0	0	0	0	0	0	434	0	434	0	707	1,290
11	0	0	0	0	0	0	434	0	434	0	707	1,563
12	0	0	0	0	0	0	877	0	1,311	0	707	959
13	0	0	0	0	0	0	434	0	434	0	707	-604
14	0	0	0	0	0	0	434	621	1,055	0	707	1,232
15	0	0	0	0	0	0	434	0	434	0	707	884
16	0	0	0	0	0	0	434	0	434	0	707	1,157
17	0	0	0	0	0	0	434	0	434	0	707	1,430
18	0	0	0	0	0	0	434	3,783	4,217	0	707	-2,080
19	0	0	0	0	0	0	434	0	434	0	707	-1,807
20	0	0	0	0	0	0	434	0	434	0	707	-1,534
21	0	0	0	0	0	0	434	0	434	0	707	-1,261
22	0	0	0	0	0	0	434	0	434	0	707	-988
23	0	0	0	0	0	0	434	877	1,311	0	707	-604
24	0	0	0	0	0	0	434	621	1,055	0	707	-1,319
25	0	0	0	0	0	0	434	0	434	0	707	-1,667
26	0	0	0	0	0	0	434	0	434	0	707	-1,394
27	0	0	0	0	0	0	434	0	434	0	707	-1,121
28	0	0	0	0	0	0	434	0	434	0	707	-848
29	0	0	0	0	0	0	434	0	434	0	707	-575
30	0	0	0	0	0	0	434	0	434	0	707	-302
												-29

Table 3.2 (6/11) CASH FLOW STATEMENT WLTH SUBSIDY

Bonga #3 Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated Balance	
	FC	LC	FC	LC	Interest Principal	Principal	Cost	Cost	Fund	Revenue		Total
Order	FC	LC	FC	LC	Interest Principal	Principal	Cost	Cost	FC	LC	Total	
1	773	208	0	0	0	0	0	0	981	208	0	
2	10,488	1,079	0	0	0	0	0	0	11,567	1,079	0	
3	1,192	1,736	0	0	0	0	0	0	2,928	1,736	0	
4	0	0	0	0	0	0	649	621	1,270	0	0	
5	0	0	0	0	0	0	649	0	649	0	0	
6	0	0	0	0	0	0	649	0	649	0	0	
7	0	0	0	0	0	0	649	0	649	0	0	
8	0	0	0	0	0	0	649	0	649	0	0	
9	0	0	0	0	0	0	649	0	649	0	0	
10	0	0	0	0	0	0	649	0	649	0	0	
11	0	0	0	0	0	0	649	0	649	0	0	
12	0	0	0	0	0	0	649	877	1,526	0	0	
13	0	0	0	0	0	0	649	0	649	0	0	
14	0	0	0	0	0	0	649	621	1,270	0	0	
15	0	0	0	0	0	0	649	0	649	0	0	
16	0	0	0	0	0	0	649	0	649	0	0	
17	0	0	0	0	0	0	649	3,783	4,432	0	0	
18	0	0	0	0	0	0	649	0	649	0	0	
19	0	0	0	0	0	0	649	0	649	0	0	
20	0	0	0	0	0	0	649	0	649	0	0	
21	0	0	0	0	0	0	649	0	649	0	0	
22	0	0	0	0	0	0	649	877	1,526	0	0	
23	0	0	0	0	0	0	649	621	1,270	0	0	
24	0	0	0	0	0	0	649	0	649	0	0	
25	0	0	0	0	0	0	649	0	649	0	0	
26	0	0	0	0	0	0	649	0	649	0	0	
27	0	0	0	0	0	0	649	0	649	0	0	
28	0	0	0	0	0	0	649	0	649	0	0	
29	0	0	0	0	0	0	649	0	649	0	0	
30	0	0	0	0	0	0	649	0	649	0	0	

Table 3.2 (7/11) CASH FLOW STATEMENT WITH SUBSIDY

Alcala-Amulung Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Cash Outflow				O & M Replacement Cost		Cash Inflow		Balance Accumulated
	FC	LC	Loan Repayment	Interest	Principal	FC	LC	FC	LC	Total	
Order											
1	1,110	1,957	0	0	0	0	0	3,067	1,110	1,957	0
2	11,078	8,681	0	0	0	0	0	19,759	11,078	8,681	0
3	5,909	9,550	0	0	0	0	0	15,459	5,909	9,550	0
4	0	0	0	0	0	4,944	6,349	11,293	0	0	5,665
5	0	0	0	0	0	4,944	0	4,944	0	0	5,665
6	0	0	0	0	0	4,944	0	4,944	0	0	5,665
7	0	0	0	0	0	4,944	78,120	83,064	0	0	5,665
8	0	0	0	0	0	4,944	0	4,944	0	0	5,665
9	0	0	0	0	0	4,944	0	4,944	0	0	5,665
10	0	0	0	0	0	4,944	0	4,944	0	0	5,665
11	0	0	0	0	0	4,944	0	4,944	0	0	5,665
12	0	0	0	0	0	4,944	4,281	9,225	0	0	5,665
13	0	0	0	0	0	4,944	0	4,944	0	0	5,665
14	0	0	0	0	0	4,944	6,349	11,293	0	0	5,665
15	0	0	0	0	0	4,944	0	4,944	0	0	5,665
16	0	0	0	0	0	4,944	0	4,944	0	0	5,665
17	0	0	0	0	0	4,944	0	4,944	0	0	5,665
18	0	0	0	0	0	4,944	0	4,944	0	0	5,665
19	0	0	0	0	0	4,944	0	4,944	0	0	5,665
20	0	0	0	0	0	4,944	0	4,944	0	0	5,665
21	0	0	0	0	0	4,944	0	4,944	0	0	5,665
22	0	0	0	0	0	4,944	82,401	87,345	0	0	5,665
23	0	0	0	0	0	4,944	0	4,944	0	0	5,665
24	0	0	0	0	0	4,944	6,349	11,293	0	0	5,665
25	0	0	0	0	0	4,944	0	4,944	0	0	5,665
26	0	0	0	0	0	4,944	0	4,944	0	0	5,665
27	0	0	0	0	0	4,944	9,310	14,254	0	0	5,665
28	0	0	0	0	0	4,944	0	4,944	0	0	5,665
29	0	0	0	0	0	4,944	0	4,944	0	0	5,665
30	0	0	0	0	0	4,944	0	4,944	0	0	5,665

Table 3-2 (8/11) CASH FLOW STATEMENT WLTH SUBSIDY

Solana Pump System  
Direct Tapping

(Unit: 1,000 Pesos)

Year in	Capital Cost		Cash Outflow		O & M Replacement		Cash Inflow		Balance Accumulated	
	FC	LC	Loan Repayment	Interest Principal	Cost	Cost	Fund	Revenue		Balance
Order	FC	LC	FC	Principal	Cost	Cost	FC	LC	Total	
1	4,115	2,057	0	0	0	0	4,115	2,057	6,172	0
2	53,847	10,564	0	0	0	0	53,847	10,564	64,411	0
3	8,477	14,303	0	0	0	0	8,477	14,303	22,780	0
4	0	0	0	0	3,953	0	3,953	0	9,604	5,651
5	0	0	0	0	3,953	0	3,953	0	9,604	5,651
6	0	0	0	0	3,953	0	3,953	0	9,604	5,651
7	0	0	0	0	3,953	0	3,953	0	9,604	5,651
8	0	0	0	0	3,953	0	3,953	0	9,604	5,651
9	0	0	0	0	3,953	0	3,953	0	9,604	5,651
10	0	0	0	0	3,953	0	3,953	0	9,604	5,651
11	0	0	0	0	3,953	0	3,953	0	9,604	5,651
12	0	0	0	0	3,953	5,516	9,469	0	9,604	135
13	0	0	0	0	3,953	0	3,953	0	9,604	5,651
14	0	0	0	0	3,953	0	3,953	0	9,604	5,651
15	0	0	0	0	3,953	0	3,953	0	9,604	5,651
16	0	0	0	0	3,953	0	3,953	0	9,604	5,651
17	0	0	0	0	3,953	20,952	24,905	0	9,604	-15,301
18	0	0	0	0	3,953	0	3,953	0	9,604	5,651
19	0	0	0	0	3,953	0	3,953	0	9,604	5,651
20	0	0	0	0	3,953	0	3,953	0	9,604	5,651
21	0	0	0	0	3,953	0	3,953	0	9,604	5,651
22	0	0	0	0	3,953	5,516	9,469	0	9,604	135
23	0	0	0	0	3,953	0	3,953	0	9,604	5,651
24	0	0	0	0	3,953	0	3,953	0	9,604	5,651
25	0	0	0	0	3,953	0	3,953	0	9,604	5,651
26	0	0	0	0	3,953	0	3,953	0	9,604	5,651
27	0	0	0	0	3,953	0	3,953	0	9,604	5,651
28	0	0	0	0	3,953	0	3,953	0	9,604	5,651
29	0	0	0	0	3,953	0	3,953	0	9,604	5,651
30	0	0	0	0	3,953	0	3,953	0	9,604	5,651

Table 3.2 (9/11) CASH FLOW STATEMENT WITH SUBSIDY

Solana Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in Order	Capital Cost		Loan Repayment		Cash Outflow		O & M Replacement Cost		Cash Inflow		Balance Accumulated Balance
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	
1	3,575	2,018	0	0	0	0	0	0	3,575	2,018	5,593
2	46,023	10,543	0	0	0	0	0	0	46,023	10,543	56,566
3	8,180	13,675	0	0	0	0	0	0	21,855	13,675	21,855
4	0	0	0	0	0	6,688	0	0	9,604	0	2,916
5	0	0	0	0	0	6,688	0	0	9,604	0	2,916
6	0	0	0	0	0	6,688	0	0	9,604	0	2,916
7	0	0	0	0	0	6,688	0	0	9,604	0	2,916
8	0	0	0	0	0	6,688	0	0	9,604	0	2,916
9	0	0	0	0	0	6,688	0	0	9,604	0	2,916
10	0	0	0	0	0	6,688	0	0	9,604	0	2,916
11	0	0	0	0	0	6,688	0	0	9,604	0	2,916
12	0	0	0	0	0	6,688	5,516	0	9,604	0	-2,600
13	0	0	0	0	0	6,688	0	0	9,604	0	2,916
14	0	0	0	0	0	6,688	0	0	9,604	0	2,916
15	0	0	0	0	0	6,688	0	0	9,604	0	2,916
16	0	0	0	0	0	6,688	0	0	9,604	0	2,916
17	0	0	0	0	0	6,688	20,952	0	9,604	0	-18,036
18	0	0	0	0	0	6,688	0	0	9,604	0	17,272
19	0	0	0	0	0	6,688	0	0	9,604	0	2,916
20	0	0	0	0	0	6,688	0	0	9,604	0	2,916
21	0	0	0	0	0	6,688	0	0	9,604	0	2,916
22	0	0	0	0	0	6,688	5,516	0	9,604	0	-2,600
23	0	0	0	0	0	6,688	0	0	9,604	0	2,916
24	0	0	0	0	0	6,688	0	0	9,604	0	2,916
25	0	0	0	0	0	6,688	0	0	9,604	0	2,916
26	0	0	0	0	0	6,688	0	0	9,604	0	2,916
27	0	0	0	0	0	6,688	0	0	9,604	0	2,916
28	0	0	0	0	0	6,688	0	0	9,604	0	2,916
29	0	0	0	0	0	6,688	0	0	9,604	0	2,916
30	0	0	0	0	0	6,688	0	0	9,604	0	2,916

Table 3.2 (10/11) CASH FLOW STATEMENT WLTH SUBSIDY

Libmanan-Cabusao Pump System  
Direct Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		Interest Principal		Cash Outflow		O & M Replacement		Total		Cash Inflow		Revenue	Total	Balance Accumulated	
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC				
Order																		
1	3,061	2,144	0	0	0	0	0	0	0	0	5,205	3,061	2,144	0	5,205	0	0	
2	36,150	12,204	0	0	0	0	0	0	0	0	48,354	36,150	12,204	0	48,354	0	0	
3	10,413	14,764	0	0	0	0	0	0	0	0	25,177	10,413	14,764	0	25,177	0	0	
4	0	0	0	0	3,016	20,760	0	0	0	0	23,776	0	0	6,479	6,479	-17,297	-17,297	
5	0	0	0	0	3,016	3,898	6,914	0	0	0	6,914	0	0	6,479	6,479	-435	-17,732	
6	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	-14,269	
7	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	-10,806	
8	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	-7,343	
9	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	-3,880	
10	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	-417	
11	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	3,046	
12	0	0	0	0	3,016	4,807	7,823	0	0	0	7,823	0	0	6,479	6,479	-1,344	1,702	
13	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	5,165	
14	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	8,628	
15	0	0	0	0	3,016	3,898	6,914	0	0	0	6,914	0	0	6,479	6,479	-435	8,193	
16	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	11,656	
17	0	0	0	0	3,016	2,421	5,437	0	0	0	5,437	0	0	6,479	6,479	1,042	12,698	
18	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	16,161	
19	0	0	0	0	3,016	20,760	23,776	0	0	0	23,776	0	0	6,479	6,479	-17,297	-1,136	
20	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	2,327	
21	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	5,790	
22	0	0	0	0	3,016	4,807	7,823	0	0	0	7,823	0	0	6,479	6,479	-1,344	4,446	
23	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	7,909	
24	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	11,372	
25	0	0	0	0	3,016	3,898	6,914	0	0	0	6,914	0	0	6,479	6,479	-435	10,937	
26	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	14,400	
27	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	17,863	
28	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	21,326	
29	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	24,789	
30	0	0	0	0	3,016	0	3,016	0	0	0	3,016	0	0	6,479	6,479	3,463	28,252	

Table 3.2 (11/11) CASH FLOW STATEMENT WLTH SUBSIDY

Libmanan-Cabusao Pump System  
Indirect Tapping

(Unit: 1,000 Peso)

Year in	Capital Cost		Loan Repayment		O & M Replacement Cost		Cash Outflow		Cash Inflow		Balance Accumulated	
	FC	LC	FC	LC	Cost	LC	Interest Principal	Principal	Fund	Revenue		Total
1	2,216	2,095	0	0	0	0	0	0	2,216	2,095	0	4,311
2	23,866	12,177	0	0	0	0	0	0	23,866	12,177	0	36,043
3	9,946	13,947	0	0	0	0	0	0	9,946	13,947	0	23,893
4	0	0	0	0	4,757	20,760	0	0	0	0	6,479	6,479
5	0	0	0	0	4,757	3,898	0	0	0	0	6,479	6,479
6	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
7	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
8	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
9	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
10	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
11	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
12	0	0	0	0	4,757	4,807	0	0	0	0	6,479	6,479
13	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
14	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
15	0	0	0	0	4,757	3,898	0	0	0	0	6,479	6,479
16	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
17	0	0	0	0	4,757	2,421	0	0	0	0	6,479	6,479
18	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
19	0	0	0	0	4,757	20,760	0	0	0	0	6,479	6,479
20	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
21	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
22	0	0	0	0	4,757	4,807	0	0	0	0	6,479	6,479
23	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
24	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
25	0	0	0	0	4,757	3,898	0	0	0	0	6,479	6,479
26	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
27	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
28	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
29	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479
30	0	0	0	0	4,757	0	0	0	0	0	6,479	6,479