

10 COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

10.2 Assumption for Cost Estimates

10.2.1 Unit Construction Cost

(1) Calculation method

The base information in previous PW4SP, such as bill of quantities and unit cost of respective component facilities was fully utilized, which was referred to the standards of relevant sector agencies. Escalation rates experienced between 1995 and 1997 in terms of major construction materials and equipment rental were studied using NSO statistics (wholesale price index). Market prices of these items were also canvassed to compare with calculated prices in 1997 from those in 1995 in application of the escalation rates.

In general, escalated prices meet canvassed prices in most of the materials. Escalation rates between 1995 and 1997 were employed in round figures. Some of them (water closet, etc.) were, however, replaced by current price due to considerable increase in the last two years.

The Table 10.2.1 shows the prices of the major materials by facility.

Table 10.2.1 Price of Major Materials by Facility

	Water Supply			Sanitation			Projection by major materials			Canvassed/collected price			Remarks Compared with (2), (3)	
	L-I	L-II	L-III	ST/PT	Flush type	VTP/Pit	NSO wholesale price index		Escalation	Price		(2) DPWH		(3) CIA
							1995	1997		1995	(1) 1997			
1. Sand, stone, gravel Sand Gravel	*	*	*	*	*	*	311.6	343.5	0.050	1995	304	335	350	Almost same with (2),(3)
2. Cement	*	*	*	*	*	*	197.4	200.1	0.007	1995	117	119	126	- do -
3. Fuel and Lubricant	*	*	*	*	*	*	601.6	694.0	0.074	1995	1,100	1,269	1,306	- do -
4. Metal pipe 100m/m x 3m, casing 100m/m x 3m, screen	*	*	*	*	*	*	208.7	211.5	0.007	1995	2,625	2,660	2,763	price of casing is almost same with (2), screen is 20% lower than (7)
5. PVC pipe 63m/m pipe w/socket 1 1/2" elbow	*	*	*	*	*	*	199.2	221.1	0.054	1995	813	902	882	Price of PVC pipe is almost same with (2) and/or 25% higher than (3)
6. Reinforcing steel 12m/m x 6m 10m/m x 6m	*	*	*	*	*	*	201.4	207.4	0.015	1995	68	70	70	Same with (3)
7. Lumber	*	*	*	*	*	*	268.5	277.4	0.016	1995	49	50	49	
8. Paint Enamel, QDE	*	*	*	*	*	*	128.0	132.8	0.019	1995	266	276	275	Same with (3)
9. Machinery and equipment	*	*	*	*	*	*	254.8	254.8	0.000	1995				

L-I: Deep well/shallow well, L-II: Major materials are same as those of L-I spring development,
 ST: School toilet, PT: Public toilet, Flush type: Flush water sealed w/septic tank and Pour flush w/ double latrine,
 CIA: Construction Industry Authority of the Philippines

Table 10.2.2 (a) Unit Cost of Level I (Deep Well - 30m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,600
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	7	pcs.	2,894	20,258
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
2. Labor, Fuel, Lubricant and others				0
Well Drilling for 30 m depth at 200mm borehole	30	m	1,212	36,360
3. Freight Cost (11% of Materials)		L.S.		3,604
Sub-Total of B				72,729
C. Well Development		L.S.		5,500
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m GI Pipe with coupling	4	pcs.	1,880	7,520
(3) #10 Sieved Gravel	0.53	cu.m	959	508
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
Sub-Total of D-1				20,968
2. Labor (40% of D-1.)				8,387
3. Freight Cost (11% of Materials)		L.S.		2,307
Sub-Total of D				31,662
E. Indirect Cost				
Profit (10% of A, B, C & D)				11,349
VAT (10% of Profit & Labor)				5,610
Sub-Total of E				16,959
Total of Construction Cost (A+B+C+D+E)				130,450
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
Sub-Total of F				6,744
GRAND TOTAL				137,194
SAY				137,200

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.2 (b) Unit Cost of Level I (Deep Well, Natural Gravel Pack - 30m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,600
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	7	pcs.	2,894	20,258
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
2. Labor, Fuel, Lubricant and others				0
Well Drilling for 30 m depth at 150mm borehole	30	m	935	28,050
3. Freight Cost (11% of Materials)		L.S.		3,604
Sub-Total of B				64,419
C. Well Development		L.S.		5,500
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m GI Pipe with coupling	4	pcs.	1,880	7,520
(3) #10 Sieved Gravel	0	cu.m	959	0
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
Sub-Total of D-1				20,460
2. Labor (40% of D-1.)				8,184
3. Freight Cost (11% of Materials)		L.S.		2,251
Sub-Total of D				30,895
E. Indirect Cost				
Profit (10% of A, B, C & D)				10,441
VAT (10% of Profit & Labor)				4,668
Sub-Total of E				15,109
Total of Construction Cost (A+B+C+D+E)				119,523
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
Sub-Total of F				6,744
GRAND TOTAL				126,267
SAY				126,300

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.3 (a) Unit Cost of Level I (Deep Well - 50m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,600
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	14	pcs.	2,894	40,516
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
2. Labor, Fuel, Lubricant and others				0
Well Drilling for 50 m depth at 200mm borehole	50	m	1,212	60,600
3. Freight Cost (11% of Materials)		L.S.		5,833
Sub-Total of B				119,456
C. Well Development		L.S.		5,500
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m GI Pipe with coupling	6	pcs.	1,880	11,280
(3) #10 Sieved Gravel	1.0	cu.m	959	959
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
Sub-Total of D-1				25,179
2. Labor (40% of D-1.)				10,072
3. Freight Cost (11% of Materials)		L.S.		2,770
Sub-Total of D				38,021
E. Indirect Cost				
Profit (10% of A, B, C and D)				16,658
VAT (10% of Profit & Labor)				5,135
Sub-Total of E				21,793
Total of Construction Cost (A+B+C+D+E)				188,370
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
Sub-Total of F				6,744
GRAND TOTAL				195,114
SAY				195,100

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.3 (b) Unit Cost of Level I (Deep Well, Natural Gravel Pack - 50m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,600
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	14	pcs.	2,894	40,516
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
2. Labor, Fuel, Lubricant and others				0
Well Drilling for 500 m depth at 150mm borehole	50	m	935	46,750
3. Freight Cost (11% of Materials)		L.S.		5,833
Sub-Total of B				105,606
C. Well Development		L.S.		5,500
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m GI Pipe with coupling	6	pcs.	1,880	11,280
(3) #10 Sieved Gravel	0	cu.m	959	0
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
Sub-Total of D-1				24,220
2. Labor (40% of D-1.)				9,688
3. Freight Cost (11% of Materials)		L.S.		2,664
Sub-Total of D				36,572
E. Indirect Cost				
Profit (10% of A, B, C and D)				15,128
VAT (10% of Profit & Labor)				4,886
Sub-Total of E				20,014
Total of Construction Cost (A+B+C+D+E)				171,292
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
Sub-Total of F				6,744
GRAND TOTAL				178,036
SAY				178,000

Note: L.S. - Lamp Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.4 (a) Unit Cost of Level I (Deep Well - 70m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,600
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	21	pcs.	2,894	60,774
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
2. Labor, Fuel, Lubricant and others				0
Well Drilling for 70 m depth at 200mm borehole	70	m	1,212	84,840
3. Freight Cost (11% of Materials)		L.S.		8,061
Sub-Total of B				166,182
C. Well Development		L.S.		5,500
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m GI Pipe with coupling	9	pcs.	1,880	16,920
(3) #10 Sieved Gravel	1.5	cu.m	959	1,439
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
Sub-Total of D-1				31,299
2. Labor (40% of D-1.)				12,519
3. Freight Cost (11% of Materials)		L.S.		3,443
Sub-Total of D				47,261
E. Indirect Cost				
Profit (10% of A, B, C and D)				22,254
VAT (10% of Profit & Labor)				6,306
Sub-Total of E				28,560
Total of Construction Cost (A+B+C+D+E)				251,103
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
Sub-Total of F				6,744
GRAND TOTAL				257,847
SAY				257,800

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.4 (b) Unit Cost of Level I (Deep Well, Natural Gravel Pack - 70m Depth)
(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,600
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	21	pcs.	2,894	60,774
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
2. Labor, Fuel, Lubricant and others				0
Well Drilling for 70 m depth at 150mm borehole	70	m	935	65,450
3. Freight Cost (11% of Materials)		L.S.		8,061
Sub-Total of B				146,792
C. Well Development		L.S.		5,500
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m GI Pipe with coupling	9	pcs.	1,880	16,920
(3) #10 Sieved Gravel	0.0	cu.m	959	0
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
Sub-Total of D-1				29,860
2. Labor (40% of D-1.)				11,944
3. Freight Cost (11% of Materials)		L.S.		3,285
Sub-Total of D				45,089
E. Indirect Cost				
Profit (10% of A, B, C and D)				20,098
VAT (10% of Profit & Labor)				5,947
Sub-Total of E				26,045
Total of Construction Cost (A+B+C+D+E)				227,026
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
Sub-Total of F				6,744
GRAND TOTAL				233,770
SAY				233,800

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.5 Unit Cost of Level I (Deep Well Rehabilitation)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,600
B. Well Rehabilitation				
1. Materials				
(1) Cylinder Pump Set	1	set	9,922	9,922
(2) Cement for Surface Sealing	4	bags	128	512
(3) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (4' x 8' x 1/4")	1	pc.	275	275
5) Form Lumber (2" x 3" x 6")	6	pcs.	49	294
6) Nail	1	kg.	35	35
Sub-Total of B-1				12,733
2. Labor (40% of B-1)				5,093
3. Freight Cost (11% of Materials)				1,401
Sub-Total of B				19,227
C. Well Development		L.S.		7,100
D. Indirect Cost				
Profit (10% of A, B & C)				2,993
VAT (10% of Profit & Labor)				1,519
Sub-Total of D				4,512
Total of Construction Cost (A+B+C+D)				34,439
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		1,200
2. Supervision		L.S.		720
3. Water Quality Analysis		L.S.		1,244
Sub-Total of E				3,164
GRAND TOTAL				37,603
SAY				37,600

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.6 Unit Cost of Level I (Shallow Well - 18m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		1,200
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 63mm x 6m PVC Pipe with socket	2	pcs.	896	1,792
(2) 63mm x 3m PVC Pipe with plug	1	pc.	452	452
(3) 63mm PVC Socket	1	pc.	99	99
(4) 63mm x 3m PVC Screen	1	pc.	1,433	1,433
2. Labor, Fuel, Lubricant and others				
Well Drilling for 18 m depth at 150mm borehole	18	m	573	10,314
3. Freight Cost (11% of Materials)		L.S.		415
Sub-Total of B				14,505
C. Well Development		L.S.		600
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) 50mm Jetmatic Handpump	1	set	2,623	2,623
(2) 50mm x 1m GI Pipe (Sch. 40)	1	pc.	110	110
(3) #10 Sieved Gravel	0.1	cu.m	959	96
(4) Coarse Sand	0.07	cu.m	335	23
(5) Cement for Sanitary Seal	1	bag	128	128
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	1	cu.m	424	424
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800 mm)	1	pc.	49	49
6) Nail	1	kg.	35	35
Sub-Total of D-1				4,610
2. Labor (40% of D-1.)				1,844
3. Freight Cost (11% of Materials)		L.S.		507
Sub-Total of D				6,961
E. Indirect Cost				
Profit (10% of A, B, C & D)				2,327
VAT (10% of Profit & Labor)				1,449
Sub-Total of E				3,776
Total of Construction Cost (A+B+C+D+E)				27,042
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		2,200
2. Construction Supervision		L.S.		1,650
3. Water Quality Analysis		L.S.		1,244
Sub-Total of F				5,094
GRAND TOTAL				32,136
SAY				32,100

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.7 Unit Cost of Level I (Spring Development)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,600
B. Construction of Spring Box				
1. Materials		L.S.		30,700
2. Labor (35% of 1.)		L.S.		10,745
3. Freight Cost (11% of Materials)		L.S.		3,377
Sub-Total of B				44,822
C. Installation of Pipelines & Fittings				
1. Transmission Main				
(1) Materials				
1) 25mm dia. GI Pipe	330	pcs.	400	132,000
2) 25mm dia. Tee	1	no.	163	163
3) 25mm dia. Coupling	26	cans	23	598
4) 25mm dia. Elbow (90 deg.)	3	nos.	23	69
5) 25mm dia. Elbow (45 deg.)	1	pc.	23	23
6) 25mm dia. Gate Valve	2	pcs.	250	500
7) 13mm dia. x 1m Stand Pipe	1	pc.	103	103
8) 13mm x 25mm GI Nipple	1	pc.	72	72
9) 13mm dia. Union Patente	3	pcs.	35	105
10) 25mm x 13mm dia. Reducing Socket	2	pcs.	72	144
11) 13mm dia. GI Elbow (90 deg.)	2	pcs.	14	28
12) 25mm x 13mm dia. Socket Adaptor	2	pcs.	72	144
13) 13mm dia. GI Gate Valve	2	pcs.	253	506
14) 13mm dia. Brass Faucet	2	pcs.	45	90
Sub-Total of Materials				134,455
(2) Labor (35% of Material Cost)		L.S.		47,059
(3) Freight Cost (11% of Materials)		L.S.		14,790
Sub-Total of C				196,304
D. Indirect Cost				
1. Transmission Main				
(1) Profit (10% of C)				19,630
(2) VAT (10% of Profit and Labor)				6,669
2. Source Facilities				
(1) Profit (10% of A, B)				4,842
(2) VAT (10% of Profit and Labor)				1,559
Sub-Total of D				32,700
Total Construction Cost (A+B+C+D)				277,426
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering and RWSA Formation				2,200
2. Supervision				13,200
3. Water Quality Analysis				1,244
Sub-Total of E				16,644
GRAND TOTAL				294,070
SAY				294,100

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.8 Unit Cost of Level II (600 Service Population)

				(Cost: Peso)	
Description	Quantity	Unit	Unit Cost	Cost	
A. Mobilization/Demobilization		I.S.		3,300	
B. Construction of Spring Box					
1. Materials		I.S.		39,900	
2. Labor (35% of 1.)		I.S.		13,965	
3. Freight Cost (11% of Materials)		I.S.		4,389	
Sub-Total of B				58,254	
C. Installation of Pipelines & Fittings					
1. Transmission Main					
(1) Materials					
1) 63mm dia. PVC Pipe (Class 12.5 with pusher type socket)	330	pcs.	890	295,680	
2) 63mm dia. Tee	1	no.	97	97	
3) Solvent Cement	26	cans	50	1,300	
4) 63mm dia. x 150mm Nipple	3	nos.	149	447	
5) 63mm dia. Union Patente	1	pc.	190	190	
6) 63mm dia. x 50mm dia. Reducing Socket	2	pcs.	115	230	
7) 63mm dia. Elbow (90 deg.)	1	pc.	83	83	
8) 63mm dia. Elbow (45 deg.)	1	pc.	82	82	
9) 63mm dia. Gate Valve	3	pcs.	841	2,523	
Sub-Total of Materials				300,632	
(2) Labor (35% of Material Cost)		I.S.		105,221	
(3) Freight Cost (11% of Materials)		I.S.		33,070	
Sub-Total of Transmission Main				438,923	
2. Distribution Pipeline					
(1) Materials					
1) 50mm dia. PVC Pipe (Class 12.5 with pusher type socket)	20	pcs.	496	9,920	
2) 38mm dia. PVC Pipe (Class 12.5 with pusher type socket)	30	pcs.	330	9,900	
3) 20mm dia. PVC Pipe (Class 40 with pusher type socket)	10	pcs.	110	1,100	
4) 13mm dia. x 1 m Stand Pipe	10	pcs.	103	1,030	
5) Solvent Cement	4	cans	50	200	
6) Fittings					
a. 50mm dia. x 150mm PVC Nipple	3	pcs.	137	411	
b. 32mm dia. x 150mm PVC Nipple	3	pcs.	83	249	
c. 13mm dia. x 150mm GI Nipple	40	pcs.	27	1,080	
d. 50mm dia. Union Patente	1	pc.	179	179	
e. 32mm dia. Union Patente	2	pcs.	78	156	
f. 13mm dia. Union Patente	10	pcs.	27	270	
g. 50mm dia. x 32mm dia. Reducing Socket	6	pcs.	99	594	
h. 32mm dia. x 20mm dia. Reducing Socket	10	pcs.	77	770	
i. 20mm dia. x 13mm dia. Reducing Socket	10	pcs.	60	600	
j. 50mm dia. PVC Elbow (90 deg.)	2	pcs.	74	148	
k. 13mm dia. GI Elbow (90 deg.)	20	pcs.	14	280	
l. 20mm dia. x 13mm dia. Socket Adaptor	10	pcs.	45	450	
m. 50mm dia. GI Gate Valve	2	pcs.	739	1,478	
n. 32mm dia. GI Gate Valve	2	pcs.	418	836	
o. 13mm dia. GI Gate Valve	24	pcs.	253	6,072	
p. 13mm dia. Brass Faucet	24	pcs.	45	1,080	
q. 50mm dia. Tee	4	pcs.	143	572	
r. 32mm dia. Tee	6	pcs.	121	726	
s. Water Meter	24	pcs.	826	19,824	
t. Water Meter Box	24	pcs.	1,212	29,088	
Sub-Total of Materials				87,013	
(2) Labor (35% of Material Cost)				30,455	
(3) Freight Cost (11% of Materials)				9,571	
Sub-Total of Distribution Pipeline				127,039	
Sub-Total of C				565,962	

Table 10.2.8 Unit Cost of Level II (600 Service Population)

Sheet-2

Description	Quantity	Unit	(Cost: Peso)	
			Unit Cost	Cost
D. Indirect Cost				
1. Transmission Main				
(1) Profit (10% of C-1)				43,892
(2) VAT (10% of Profit and Labor)				14,911
2. Source Facilities and Distribution Pipeline				
(1) Profit (10% of A, B, C-2)				18,859
(2) VAT (10% of Profit and Labor)				6,328
Sub-Total of D				83,990
Total Construction Cost (A+B+C+D)				711,506
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering and RWSA Formation				2,200
2. Supervision				13,200
3. Water Quality Analysis				1,244
Sub-Total of E				16,644
Total Estimated Cost				728,150
Unit Cost per Person Served				1,214
				1,220

Note: L.S. - Lamp Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.9 Unit Cost of Level III (5,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		330,000
B. Spring/Deep Well Source Development and Storage				
1. Spring Development/Deep Well	1	No.	1,770,000	1,770,000
2. Intake Box/Deep Well Pump	1	No.	632,000	632,000
3. Chlorinator House & Equipment	1	L.S.		480,000
4. Storage Tank (250 cu.m)	1	No.	1,200,000	1,200,000
Sub-Total of B				4,082,000
C. Transmission Main				
1. 160mm dia.	500	L.M.	1,234	617,000
Sub-Total of C				617,000
D. Distribution Main				
1. 160mm dia.	1,000	L.M.	1,234	1,234,000
2. 110mm dia.	3,000	L.M.	1,019	3,057,000
3. 90mm dia.	3,000	L.M.	639	1,917,000
4. 75mm dia.	5,000	L.M.	595	2,975,000
Sub-Total of D				9,183,000
E. Service Connections	1,000	Nos.	2,138	2,138,000
F. Miscellaneous				
1. Vehicle	1	No.	606,000	606,000
2. Office & Workshop Bldg.	1	No.	606,000	606,000
3. Office Equipment		L.S.		110,000
4. Tools and Spare Parts		L.S.		110,000
Sub-Total of F				1,432,000
Total Direct Cost (A+B+C+D+E+F)				17,782,000
G. Indirect Cost (25% of Direct Cost)				4,445,500
Total Estimated Cost				22,227,500
Unit Cost per Person Served				
For New Construction				4,446
For Expansion of Existing System (Exclude F.)				4,500
				4,088
				4,100

Note: L.S. - Lump Sum

Cost of spring development includes additional transmission main, but it shall be confirmed by survey in the implementation stage.

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.10 Unit Cost of Level III (10,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		330,000
B. Spring/Deep Well Source Development and Storage				
1. Spring Development/Deep Well	1	No.	1,770,000	1,770,000
2. Intake Box/Deep Well Pump	1	No.	632,000	632,000
3. Chlorinator House & Equipment	1	L.S.		480,000
4. Storage Tank (250 cu.m)	1	No.	1,200,000	1,200,000
Sub-Total of B				4,082,000
C. Transmission Main				
1. 160mm dia.	500	L.M.	1,234	617,000
Sub-Total of C				617,000
D. Distribution Main				
1. 160mm dia.	2,000	L.M.	1,234	2,468,000
2. 110mm dia.	5,000	L.M.	1,019	5,095,000
3. 90mm dia.	6,000	L.M.	639	3,834,000
4. 75mm dia.	8,000	L.M.	595	4,760,000
Sub-Total of D				16,157,000
E. Service Connections	2,000	Nos.		3,880,000
F. Miscellaneous				
1. Vehicle	1	No.	606,000	606,000
2. Office & Workshop Bldg.	1	No.	606,000	606,000
3. Office Equipment		L.S.		110,000
4. Tools and Spare Parts		L.S.		110,000
Sub-Total of F				1,432,000
Total Direct Cost (A+B+C+D+E+F)				26,498,000
G. Indirect Cost (25% of Direct Cost)				6,624,500
Total Estimated Cost				33,122,500
Unit Cost per Person Served				
For New Construction				3,312
For Expansion of Existing System (Exclude F.)				3,400
				3,133
				3,200

Note: L.S. - Lump Sum

Cost of spring development includes additional transmission main, but it shall be confirmed by survey in the implementation stage.

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.11 Unit Cost of Level III (15,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		330,000
B. Spring/Deep Well Source Development and Storage				
1. Spring Development/Deep Well	2	No.	1,770,000	3,540,000
2. Intake Box/Deep Well Pump	2	No.	632,000	1,264,000
3. Chlorinator House & Equipment	2	L.S.		480,000
4. Storage Tank (250 cu.m)	2	No.	1,200,000	1,200,000
Sub-Total of B				6,484,000
C. Transmission Main				
1. 160mm dia.	1,000	L.M.	1,234	1,234,000
Sub-Total of C				1,234,000
D. Distribution Main				
1. 160mm dia.	3,000	L.M.	1,234	3,702,000
2. 110mm dia.	7,000	L.M.	1,019	7,133,000
3. 90mm dia.	9,000	L.M.	639	5,751,000
4. 75mm dia.	11,000	L.M.	595	6,545,000
Sub-Total of D				23,131,000
E. Service Connections	3,000	Nos.		5,820,000
F. Miscellaneous				
1. Vehicle	1	No.	606,000	606,000
2. Office & Workshop Bldg.	1	No.	606,000	606,000
3. Office Equipment		L.S.		110,000
4. Tools and Spare Parts		L.S.		110,000
Sub-Total of F				1,432,000
Total Direct Cost (A+B+C+D+E+F)				38,431,000
G. Indirect Cost (25% of Direct Cost)				9,607,750
Total Estimated Cost				48,038,750
Unit Cost per Person Served				
For New Construction				3,203
For Expansion of Existing System (Exclude F.)				3,300
				3,083
				3,100

Note: L.S. - Lump Sum

Cost of spring development includes additional transmission main, but it shall be confirmed by survey in the implementation stage.

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.12 Unit Cost of Flush Water Sealed with Septic Tank Toilet

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Demolition		L.S.		1,000
B. Earthwork				
1. Materials				
(1) Gravel Fill	1	cu.m.	424	424
Sub-Total of B-1				424
2. Labor				
(1) Excavation	6	cu.m.	131	786
(2) Backfill	2	cu.m.	119	238
(3) Gravel Fill	1	cu.m.	155	155
Sub-Total of B-2				1,179
Sub-Total of B				1,603
C. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 16 - 2" x 8" x 6' Coco Lumber	128	bd.ft	8	1,024
(2) 10mm dia x 6.0m Rebar	3	pcs.	54	162
(3) #16 Tie Wire	0.5	kg.	54	27
(4) Cement	10	bags	128	1,280
(5) Sand	1.5	cu.m.	335	503
(6) Gravel	2	cu.m.	424	848
(7) Stone Lining with Mortar		L.S.		1,115
Sub-Total of C-1				4,959
2. Labor (30% of C-1)				1,488
Sub-Total of C				6,447
D. Carpentry Work				
1. Materials				
(1) Nipa	60	pcs.	2	120
(2) 1.5m x 1.8m, amakan	3	pcs.	70	210
(3) 2x 3 x 10' Coco Lumber	20	bd.ft	10	200
(4) 2 x 2 x 10' Coco Lumber	33.3	bd.ft	10	333
(5) 3" dia. Bamboo	3	lights	20	60
(6) Assorted CWN	4	kgs.	40	160
(7) Rattan wire	20	pcs.	1	20
Sub-Total of C-1				1,103
2. Labor (30% of C-1)				331
Sub-Total of C				1,434
E. Plumbing				
1. Materials				
(1) Water Closet	1	set	4,500	4,500
(2) Water line and sanitary fixtures		L.S.		1,500
Sub-Total of E-1				6,000
2. Labor (30% of E-1)				1,800
Sub-Total of E				7,800
F. Transportation Cost (excluding indigenous materials)		L.S.		500
G. Indirect Cost				
Profit (10% of A - F)				1,878
VAT (10% of Profit & Labor)				668
Sub-Total of F				2,546
Total of Construction Cost (A+B+C+D+E+F+G)				21,330 21,300

Source: DOH standard price in 1993

Cost adjusted to 1997 Price Level

Table 10.2.13 Unit Cost of Pour Flush with Double Pit Latrine

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Earthwork				
1. Materials				
(1) Gravel Fill	1	cu.m.	424	424
Sub-Total of A-1				424
2. Labor				
(1) Excavation	6	cu.m.	131	786
(2) Backfill	2	cu.m.	119	238
(3) Gravel Fill	1	cu.m.	155	155
Sub-Total of A-2				1,179
Sub-Total of A				1,603
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 16 - 2" x 8" x 6' Coco Lumber	128	bd.ft	8	1,024
(2) 10mm dia x 6.0m Rebar	3	pcs.	54	162
(3) #16 Tie Wire	0.5	kg.	54	27
(4) Cement	10	bags	128	1,280
(5) Sand	1.5	cu.m.	335	503
(6) Gravel	2	cu.m.	424	848
(7) Stone Lining with Mortar		L.S.		1,115
Sub-Total of B-1				4,959
2. Labor (25% of B-1)				1,240
Sub-Total of B				6,199
C. Carpentry Work				
1. Materials				
(1) Nipa	60	pcs	2	120
(2) 1.5m x 1.8m, amakan	3	pcs	70	210
(3) 2 x 3 x 10' Coco Lumber	20	bdft	10	200
(4) 2 x 2 x 10' Coco Lumber	33.3	bdft	10	333
(5) 3" dia. Bamboo	3	lights	20	60
(6) Assorted CWN	4	kgs.	40	160
(7) Rattan wire	20	pcs	1	20
(8) Pale (medium)	1	pc.	190	190
(9) 3" dia. PVC x 3m	1	pc.	180	180
(10) 3" dia. PVC Elbow	2	pcs	15	30
(11) PVC solvent	1	pint	50	50
(12) Ga. 31 x 8" plain Gi sht.	1	sht.	200	200
Sub-Total of C-1				1,753
2. Labor (25% of C-1)				438
Sub-Total of C				2,191
D. Plumbing				
1. Material				
(1) Toilet Bowl-Squat Type	1	pc.	603	603
(2) 75mm dia x 6.0m PVC Pipe	1	pc.	142	142
Sub-Total of D-1				745
2. Labor (25% of D-1)				186
Sub-Total of D				931
E. Transportation Cost (excluding indigenous materials)		L.S.		300
F. Indirect Cost				
Profit (10% of A - D)				1,311
VAT (10% of Profit & Labor)				435
Sub-Total of F				1,746
Total Construction Cost (A+B+C+D+E+F)				12,970
			Say	13,000

Note: L.S. - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.14 Unit Construction Cost of Ventilated Improved Pit Latrine

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Earthwork				
1. Materials				
(1) Gravel Fill	0.5	cu.m.	424	212
Sub-Total of A-1				212
2. Labor				
(1) Excavation	3	cu.m.	131	393
(2) Backfill	1	cu.m.	119	119
(3) Gravel Fill	0.5	cu.m.	155	78
Sub-Total of A-2				590
Sub-Total of A				802
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 8 - 2" x 8" x 6' Coco Lumber	64	bd.ft	8	512
(2) 10mm dia x 6.0m Rebar	2	pcs.	54	108
(3) #16 Tie Wire	0.5	kg.	54	27
(4) Cement	4	bags	128	512
(5) Sand	0.5	cu.m	335	168
(6) Gravel	0.5	cu.m	424	212
(7) Stone Lining with Mortar		L.S.		1,075
Sub-total of B-1				2,614
2. Labor (25% of B-1)				653
Sub-Total of B				3,267
C. Carpentry Work				
1. Materials				
(1) Nipa	60	pcs	2	120
(2) 1.5m x 1.8m, amakan	3	pcs	70	210
(3) 2 x 3 x 10' Coco Lumber	20	bdft	10	200
(4) 2 x 2 x 10' Coco Lumber	33.3	bdft	10	333
(5) 3" dia. Bamboo	3	lights	20	60
(6) Assorted CWN	4	kgs.	40	160
(7) Rattan wire	20	pcs	1	20
(8) 3 x 3" hinges	2	pc.	30	60
Sub-Total of C-1				1,163
2. Labor (25% of C-1)				291
Sub-Total of C				1,454
D. Plumbing				
1. Material				
(1) 50mm dia. PVC Pipe	1	pc.	71	71
(2) Fly Screen		L.S.		55
Sub-Total of D-1				126
2. Labor (25% of D-1)				38
Sub-Total of D				164
E. Transportation Cost (excluding indigenous materials)		L.S.		150
F. Indirect Cost				
Profit (10% of A - E)				584
VAT (10% of Profit & Labor)				216
Sub-Total of F				800
Total Construction Cost (A+B+C+D+E+F)			Say	6,636
				6,600

Note: L.S. - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.15 Unit Construction Cost of Pit Latrine

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Earthwork				
1. Materials				
(1) Gravel Fill	0.3	cu.m.	424	127
Sub-Total of A-1				127
2. Labor				
(1) Excavation	2	cu.m.	131	262
(2) Backfill	0.6	cu.m.	119	71
(3) Gravel Fill	0.3	cu.m.	155	47
Sub-Total of A-2				380
Sub-Total of A				507
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 8 - 2" x 8" x 6' Coco Lumber	38	bd.ft	8	304
(2) 10mm dia x 6.0m Rebar	1	pcs.	54	54
(3) #16 Tie Wire	0.5	kg.	54	27
(4) Cement	3	bags	128	384
(5) Sand	0.3	cu.m	335	101
(6) Gravel	0.3	cu.m	424	127
(7) Stone Lining with Mortar		L.S.		650
Sub-total of B-1				1,647
2. Labor (25% of B-1)				412
Sub-Total of B				2,059
C. Carpentry Work				
1. Materials				
(1) Nipa	30	pcs.	2	60
(2) 1.0m x 1.8m, amakan	3	pcs.	70	210
(3) 2x 3 x 10' Coco Lumber	14	bd.ft	10	140
(4) 2 x 2 x 10' Coco Lumber	24	bd.ft	10	240
(5) 3" dia. Bamboo	3	lights	20	60
(6) Assorted CWN	3	kgs.	40	120
(7) Rattan wire	14	pcs.	1	14
(8) 3 x 3" hinges	2	pcs.	30	60
Sub-Total of C-1				904
2. Labor (25% of C-1)				226
Sub-Total of C				1,130
D. Transportation Cost (excluding indigenous materials)		L.S.		150
E. Indirect Cost				
Profit (10% of A -D)				370
VAT (10% of Profit & Labor)				154
Sub-Total of E				524
Total Construction Cost (A+B+C+D+E)			Say	4,370
				4,400

Note: L.S. - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.16 Unit Cost of School Toilet

Sheet-1

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization and Demobilization		L.S.		5,500
B. Earthwork				
1. Materials				
(1) Gravel Fill	3.00	cu.m	424	1,272
Sub-Total of B-1				1,272
2. Labor				
(1) Excavation	15.88	cu.m	131	2,080
(2) Backfill	4.97	cu.m	119	591
(3) Gravel Fill	3.00	cu.m	155	465
Sub-Total of B-2				3,137
Sub-Total of B				4,409
C. Concrete Work				
1. Materials				
(1) Cement	61.00	bags	128	7,808
(2) Sand	4.00	cu.m	335	1,340
(3) Gravel	8.00	cu.m	424	3,392
(4) Rebars: 12mm dia x 6m	38.00	pcs.	74	2,812
10mm dia x 6m	57.00	pcs.	54	3,078
(5) #16 Tie Wire	8.00	kgs.	54	432
(6) Formworks:				
1/4" Plywood	6.00	pcs.	446	2,676
2"x2"x10" (Coco Lumber)	200.00	bd.ft.	8	1,600
Sub-Total of C-1				23,138
2. Labor (30% of C-1)		L.S.		6,941
Sub-Total of C				30,079
D. Masonry Work				
1. Materials				
(1) 6" CHB	800.00	pcs.	6	4,800
(2) 4" CHB	260.00	pcs.	5	1,300
(3) Cement	97.00	bags	128	12,416
(5) Sand	10.00	cu.m	335	3,350
(6) Rebars: 12mm dia x 6m	30.00	pcs.	74	2,220
10mm dia x 6m	11.00	pcs.	54	594
(7) #16 Tie Wire	4.00	kgs.	54	216
(8) Scaffolding:				
2"x4"x8" = 10 pcs. (Coco Lumber)	53.33	bf.	8	427
Sub-Total of D-1				25,323
2. Labor (30% of D-1)		L.S.		7,597
Sub-Total of D				32,920
E. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (1 = 10')	20.00	pcs.	290	5,800
(2) GA #24 Pln. GI Flashing	3.00	pcs.	280	840
(3) GA #24 Pln. GI Gutter (Pre-Fab)	9.00	pcs.	280	2,520
(4) Umbrella Nails 2 - 1/2"	12.00	kgs.	46	552
(5) Rafter - 2"x5"x18' = 5 pcs.	75.00	bf.	33	2,475
(6) Purlins - 2"x2"x12' = 18 pcs.	72.00	bf.	33	2,376
(7) WD Cleats - 2"x2"x10" = 6 pcs.	20.00	bf.	33	660

Table 10.2.16 Unit Cost of School Toilet

Sheet-2

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(8) Nailers - 2"x2"x1012' = 30 pcs.	120.00	bf.	33	3,960
- 2"x2"x10' = 36 pcs.	120.00	bf.	33	3,960
(9) Fascia Board				
1"x12"x12' = 4 pcs.	48.00	bf.	33	1,584
1"x12"x18' = 2 pcs.	36.00	bf.	33	1,188
(10) Wood Plate				
2"x4"x20' = 2 pcs.	26.66	bf.	33	880
(11) 1/4" Thk. Mar. Plywood 4'x8'	14.00	pcs.	30	420
(12) C.W.N. Assorted	15.00	kgs.	30	450
(13) 3" dia x 3m Downspout (PVC)	3.00	pcs.	85	255
(14) 3" dia Elbow (PVC)	2.00	pcs.	15	30
(15) 3" dia Coupling (PVC)	1.00	pcs.	14	14
(16) Ceiling Vent				
1"x1"x8' = 4 pcs.	2.67	bf.	27	72
(17) Screen (1/8"x1/8")	1.00	yd.	85	85
Sub-Total of E-1				28,121
2. Labor (30% of E-1)		L.S.		8,436
Sub-Total of E				36,557
F. Carpentry Work				
1. Materials				
(1) D - 1 Hollow Core Tanguile Flush Type Door w/ Louver (.80x2.20)	2.00	sets	1,514	3,028
(2) D - 2 Hollow Core Tanguile Flush Type Door (.60x2.10)	1.00	sets	1,136	1,136
(3) D - 3 Louver Door (.60x1.40)	5.00	sets	947	4,735
(4) Door Jambs (Apitong)				
2"x6"x14" = 1 pc.	14.00	bf.	33	462
2"x6"x10" = 2 pcs.	20.00	bf.	33	660
2"x6"x10" = 1 pc.	18.00	bf.	33	594
2"x4"x12" = 5 pcs.	40.00	bf.	33	1,320
(7) Wooden Jalousie Window With 5 Blades (.40x.50)	14.00	set	316	4,424
(8) Window Jambs (Apitong)				
2"x6"x16" = 5 pcs.	80.00	bf.	33	2,640
2"x6"x14" = 1 pc.	14.00	bf.	33	462
2"x6"x10" = 1 pc.	10.00	bf.	33	330
(9) Cabinet				
3/4"x4'x8' = 1 pc. (plyboard)	1.00	pc.	821	821
Sub-Total of F-1				20,612
2. Labor (30% of F-1)		L.S.		6,184
Sub-Total of F				26,796
G. Tile Work				
1. Materials				
(1) 4 - 1/4"x4 - 1/4" Glazed Tiles	1,950.00	pcs.	4	7,800
(2) 0.10x0.20m Floor Tiles	900.00	pcs.	7	6,300
(3) Cement	4.00	bags	128	512
(4) White Cement	1.00	bag	693	693
Sub-Total of G-1				15,305

Table 10.2.16 Unit Cost of School Toilet

Sheet-3

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
2. Labor (30% of G-1)		L.S.		4,592
Sub-Total of G				19,897
II. Plumbing Work				
I. Materials				
(1) Toilet Bowl - Squat Type	3.00	sets	657	1,971
(2) Toilet Bowl-Sit Type	2.00	sets	657	1,314
(3) Lavatory	2.00	sets	3,000	6,000
(4) 4" dia x 3m PVC San. Pipe	4.00	pcs.	164	656
(5) 3" dia x 3m PVC San. Pipe	7.00	pcs.	92	644
(6) 1 1/2" dia x 3m PVC San. Pipe	4.00	pcs.	58	232
(7) 2" dia. x 3m PVC San. Pipe	2.00	pcs.	55	110
(8) 6" x 4" Floor Drain	5.00	pcs.	92	460
(9) 2" dia. Elbow PVC	4.00	pcs.	7	28
(10) 4" dia WYB PVC	2.00	pcs.	27	54
(11) 4" dia. x 3" dia. WYB PVC	12.00	pcs.	33	396
(12) 4" dia. x 2" dia. TEE PVC	2.00	pcs.	34	68
(13) 4" dia. TEE PVC	3.00	pcs.	34	102
(14) 1 1/2" dia. WYB PVC	1.00	pcs.	13	13
(15) 4" dia. Clean Out PVC	3.00	pcs.	38	114
(16) 3" dia. Clean Out PVC	1.00	pcs.	30	30
(17) Faucet	3.00	pcs.	55	165
(18) 3" dia. x 2" dia. WYB PVC	2.00	pcs.	27	54
(19) 1 1/2" dia. Elbow PVC	6.00	pcs.	14	84
(20) PVC Cement	1.00	can	133	133
(21) 2" dia. PVC San. Pipe x 3m	2.00	pcs.	87	174
(22) 4" dia. x 2" dia. TEE	2.00	pcs.	23	46
(23) Check Valve 1 1/2"	1.00	pcs.	200	200
(24) 4" P-Trap	5.00	pcs.	72	360
Sub-Total of H-1				13,408
2. Labor (30% of H-1)		L.S.		4,022
Sub-Total of H				17,430
I. Painting				
1. Materials				
(1) Acrylic, Semi Gloss	8.00	gals.	276	2,208
(2) Concrete Sealer	4.00	gals.	218	872
(3) Acri Color: Wood	4.00	gals.	84	336
(4) Enamel, QDE	6.00	gals.	282	1,692
(5) Wood Putty	1.00	gals.	320	320
(6) Paint Thinner	1.00	gals.	63	63
(7) Tinting Color	4.00	pint	42	168
(8) Sand Paper (Assorted)	15.00	pcs.	7	105
(9) Miscellaneous		L.S.		1,060
(10) Roof Paint (green, ready-mix)	2.00	gals.	298	596
Sub-Total of I-1				7,420
2. Labor (30% of I-1)		L.S.		2,226
Sub-Total of I				9,646

Table 10.2.16 Unit Cost of School Toilet

Sheet-4

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
J. Electrical Work				
1. Materials				
(1) 40 Watts Flourescent Lamp	2.00	sets	270	540
(2) Elect. Wire TW #12	24.00	M	7	168
(3) Elect. Conduit - 1/2" dia x 10"	4.00	pcs.	82	328
(4) Entrance Cap. 1/2" dia	1.00	pc.	30	30
(5) Switch Outlet, Flush Type	2.00	pcs.	41	82
(6) Utility Box 2"x3"	2.00	pcs.	7	14
(7) Porcelain Receptacle 2" dia	2.00	pcs.	7	14
(8) Safety Switch 60A, 250V	1.00	set	519	519
(9) Electrical Tape	1.00	roll	23	23
Sub-Total of J-1				1,718
2. Labor (30% of J-1)		L.S.		515
Sub-Total of J				2,233
K. Hardware				
1. Materials				
(1) 3"x3" Butt Hinges (Loose Pin)	10.00	pcs.	15	150
(2) 4"x4" Butt Hinges (Loose Pin)	12.00	pcs.	19	228
(3) Door Lockset (Schlage US)	3.00	pcs.	481	1,443
(4) Barrel Bolt (4")	5.00	pcs.	42	210
(5) Cabinet Pull (4")	5.00	pcs.	7	35
(6) Water Storage Cover				
Checkered Plate 1/4" thick				
1.44x0.645 w/ L bar & flat bar	1.00	set	1,043	1,043
0.645x0.633 w/ L bar & flat bar	2.00	set	588	1,176
(7) Padlock	1.00	pcs.	401	401
Sub-Total of K-1				4,686
2. Labor (30% of K-1)		L.S.		1,406
Sub-Total of K				6,092
L. Septic Tank and Sewage Basin				
1. Materials				
(1) 4" CHB	180.00	pcs.	5	900
(2) Cement	18.00	bags	128	2,304
(3) Sand	1.50	cu.m	335	503
(4) Gravel	1.00	cu.m	424	424
(5) Rebars: 10mm dia x 6m	29.00	pcs.	74	2,146
(6) #16 Tire Wire	2.00	kgs.	54	108
(7) Formworks: Coco Lumber				
2"x3"x10" = 12 pcs.	60.00	bf.	8	480
1/4" plywood ord. 4'x8'	2.00	pcs.	446	892
C.W.N. (Assorted)	2.00	kgs.	31	62
Sub-Total of L-1				7,819
2. Labor (30% of L-1)		L.S.		2,346
Sub-Total of L				10,165

Table 10.2.16 Unit Cost of School Toilet

Sheet-5

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
M. Shallow Well (18 depth)				
a. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 63mm x 6m PVC Pipe with socket	2.00	pcs.	896	1,792
(2) 63mm x 3m PVC Pipe with plug	1.00	pc.	452	452
(3) 63mm PVC Socket	1.00	pc.	99	99
(4) 63mm x 3m PVC Screen	1.00	pc.	1,433	1,433
Sub-Total of M-a-1				3,776
2. Labor, Fuel, Lubricant and others Well Drilling for 18m depth at 150mm borehole	18.00	m	573	10,314
Sub-Total of M-a				14,090
b. Well Development		L.S.		550
c. Gravel Packing, Installation of Hand-Pump and Construction of Platform				
1. Materials				
(1) 50mm Jetmatic Handpump	1.00	set	2,623	2,623
(2) 50mm x 1m GI Pipe (Sch. 40)	1.00	pc.	82	82
(3) #10 Sieved Gravel	0.10	cu.m	959	96
(4) Coarse Sand	0.07	cu.m	474	33
(5) Cement for Sanitary Seal	1.00	bag	128	128
(6) Pump Base and Platform				
1) Cement	4.00	bags	128	512
2) Gravel	1.00	cu.m	424	424
3) Sand	1.00	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1.00	pc.	446	446
5) Form Lumber (50mmx75mmx1,800mm)	1.00	pc.	49	49
6) Nail	1.00	kg.	31	31
Sub-Total of M-c-1				4,759
2. Labor (40% of M-c-1)		L.S.		1,904
Sub-Total of M-c				6,663
Sub-Total of M				21,303
N. Freight Cost (11% of Materials for A - M excluding sand and gravel)		L.S.		16,081
O. Indirect Cost				
Profit (10% of A - N)				23,911
VAT (10% of Profit & Labor)				7,322
Sub-Total of O				31,233
Total of Construction Cost (A to O)				270,340
P. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		2,200
2. Construction Supervision		L.S.		1,600
Sub-Total of P				3,800
GRAND TOTAL				274,140
			Say	274,100

Source: DOH standard price in 1993.

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.17 Unit Cost of Public Toilet

Sheet-1

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization and Demobilization (2.4% of B - M)		L.S.		6,800
B. Earthwork				
1. Materials				
(1) Gravel Fill	3.00	cu.m	424	1,272
Sub-Total of B-1				1,272
2. Labor				
(1) Excavation	15.88	cu.m	131	2,080
(2) Backfill	4.97	cu.m	119	591
(3) Gravel Fill	3.00	cu.m	155	465
Sub-Total of B-2				3,137
Sub-Total of B				4,409
C. Concrete Work				
1. Materials				
(1) Cement	61.00	bags	128	7,808
(2) Sand	4.00	cu.m	335	1,340
(3) Gravel	8.00	cu.m	424	3,392
(4) Rebars: 12mm dia x 6m	38.00	pcs.	74	2,812
10mm dia x 6m	57.00	pcs.	52	2,964
(5) #16 Tie Wire	8.00	kgs.	52	416
(6) Formworks:				
1/4" Plywood	6.00	pcs.	446	2,676
2"x2"x10" (Coco Lumber)	200.00	bd.ft.	8	1,600
Sub-Total of C-1				23,008
2. Labor (30% of C-1)				6,902
Sub-Total of C				29,910
D. Masonry Work				
1. Materials				
(1) 6" CHB	800.00	pcs.	6	4,800
(2) 4" CHB	260.00	pcs.	5	1,300
(3) Cement	97.00	bags	128	12,416
(5) Sand	10.00	cu.m	335	3,350
(6) Rebars: 12mm dia x 6m	30.00	pcs.	74	2,220
10mm dia x 6m	11.00	pcs.	54	594
(7) #16 Tie Wire	4.00	kgs.	54	216
(8) Scaffolding:				
2"x4"x8" = 10 pcs. (Coco Lumber)	53.33	bf.	8	427
Sub-Total of D-1				25,323
2. Labor (30% of D-1)				7,597
Sub-Total of D				32,920
E. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (1 = 10')	20.00	pcs.	290	5,800
(2) GA #24 Pln. GI Flashing	3.00	pcs.	280	840
(3) GA #24 Pln. GI Gutter (Pre-Fab)	9.00	pcs.	280	2,520
(4) Umbrella Nails 2 - 1/2"	12.00	kgs.	46	552
(5) Rafter - 2"x5"x18' = 5 pcs.	75.00	bf.	33	2,475

Table 10.2.17 Unit Cost of Public Toilet

Sheet-2

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(6) Purlins - 2"x2"x12' = 18 pcs.	72.00	bf.	33	2,376
(7) WD Cleats - 2"x2"x10" = 6 pcs.	20.00	bf.	33	660
(8) Nailers - 2"x2"x1012' = 30 pcs.	120.00	bf.	33	3,960
- 2"x2"x10' = 36 pcs.	120.00	bf.	33	3,960
(9) Fascia Board				
1"x12"x12' = 4 pcs.	48.00	bf.	33	1,584
1"x12"x18' = 2 pcs.	36.00	bf.	33	1,188
(10) Wood Plate				
2"x4"x20' = 2 pcs.	26.66	bf.	33	880
(11) 1/4" Thk. Mar. Plywood 4'x8'	14.00	pcs.	479	6,706
(12) C.W.N. Assorted	15.00	kgs.	30	450
(13) 3" dia x 3m Downspout (PVC)	3.00	pcs.	85	255
(14) 3" dia Elbow (PVC)	2.00	pcs.	15	30
(15) 3" dia Coupling (PVC)	1.00	pcs.	14	14
(16) Ceiling Vent, 1"x1"x8', 4 pcs.	2.67	bf.	27	72
(17) Screen (1/8"x1/8")	1.00	yd.	85	85
Sub-Total of E-1				34,407
2. Labor (30% of E-1)				10,322
Sub-Total of E				44,729
F. Carpentry Work				
1. Materials				
(1) D - 1 Hollow Core Tanguile Flush Type Door w/ Louver (.80x2.20)	2.00	sets	1,514	3,028
(2) D - 2 Hollow Core Tanguile Flush Type Door (.60x2.10)	1.00	sets	1,136	1,136
(3) D - 3 Louver Door (.60x1.40)	5.00	sets	947	4,735
(4) Door Jambs (Apitong)				
2"x6"x14" = 1 pc.	14.00	bf.	33	462
2"x6"x10" = 2 pcs.	20.00	bf.	33	660
2"x6"x10" = 1 pc.	18.00	bf.	33	594
2"x4"x12" = 5 pcs.	40.00	bf.	33	1,320
(7) Wooden Jalousie Window With 5 Blades (.40x.50)	14.00	set		4,172
(8) Window Jambs (Apitong)				
2"x6"x16" = 5 pcs.	80.00	bf.	33	2,640
2"x6"x14" = 1 pc.	14.00	bf.	33	462
2"x6"x10" = 1 pc.	10.00	bf.	33	330
(9) Cabinet				
3/4"x4"x8' = 1 pc. (plyboard)	1.00	pc.	821	821
Sub-Total of F-1				20,360
2. Labor (30% of F-1)				6,108
Sub-Total of F				26,468
G. Tile Work				
1. Materials				
(1) 4 - 1/4"x4 - 1/4" Glazed Tiles	1,950	pcs.	4	7,800
(2) 0.10x0.20m Floor Tiles	900.00	pcs.	7	6,300
(3) Cement	4.00	bags	128	512

Table 10.2.17 Unit Cost of Public Toilet

Sheet-3

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(4) White Cement	1.00	bag	693	693
(5) Tiles Fittings		L.S.		5,280
Sub-Total of G-1				20,585
2. Labor (30% of G-1)				6,176
Sub-Total of G				26,761
II. Plumbing Work				
1. Materials				
(1) Urinal	3.00	sets	1,171	3,513
(2) Toilet Bowl- Squat Type	6.00	sets	657	3,942
(3) 4" dia x 3m PVC San. Pipe	6.00	pes.	164	984
(4) 3" dia x 3m PVC San. Pipe	4.00	pes.	92	368
(5) 2" dia x 3m PVC San. Pipe	3.00	pes.	55	165
(6) 3/4" dia x 6m G.I. Pipe Sch. 40	5.00	pes.	269	1,345
(7) 1/2" dia x 6m G.I. Pipe Sch. 40	1.00	pes.	197	197
(8) 4"x4" WYE PVC	1.00	pes.	27	27
(9) 3" dia Elbow PVC	10.00	pes.	33	330
(10) 3" dia 45 degrees Bend PVC	2.00	pes.	27	54
(11) 2" dia Elbow PVC	6.00	pes.	7	42
(12) 2" dia 45 degrees Bend PVC	2.00	pes.	22	44
(13) 1/2" dia Elbow G.I.	5.00	pes.	11	55
(14) 4" dia 3" dia WYE PVC	8.00	pes.	44	352
(15) 3/4" dia TEE G.I.	7.00	pes.	44	308
(16) 1/2" dia TEE G.I.	5.00	pes.	22	110
(17) 4" dia x 2" dia TEE PVC	6.00	pes.	44	264
(18) 4" dia Clean Out PVC	3.00	pes.	38	114
(19) 2" dia Clean Out PVC	1.00	pes.	27	27
(20) Faucet	10.00	pes.	55	550
(21) 3" dia x 2" dia Elbow Reducer PVC	1.00	pes.	30	30
(22) 3" dia x 2" dia WYE PVC	3.00	pes.	27	81
(23) 2" dia x 2" dia WYE PVC	3.00	pes.	16	48
(24) PVC Cement	1.00	can	133	133
(25) 4" dia x 2" dia WYE PVC	2.00	pes.	44	88
(26) Gate Valve 3/4" dia	1.00	pes.	133	133
(27) Gate Valve 1/2" dia	1.00	pes.	105	105
(28) Water Meter 3/4" dia	1.00	pes.	1,390	1,390
(29) 3/4" dia x 1/2" dia Elbow Reducer G.I.	1.00	pes.	15	15
Sub-Total of II-1				14,814
2. Labor (30% of II-1)				4,444
Sub-Total of II				19,258
I. Painting				
1. Materials				
(1) Acrylic, Semi Gloss	8.00	gals.	276	2,208
(2) Concrete Sealer	4.00	gals.	218	872
(3) Acri Color: Wood	4.00	gals.	84	336
(4) Enamel, QDE	6.00	gals.	282	1,692
(5) Wood Putty	1.00	gals.	320	320
(6) Paint Thinner	1.00	gals.	63	63

Table 10.2.17 Unit Cost of Public Toilet

Sheet-4

(Cost: Pcs)

Description	Quantity	Unit	Unit Cost	Cost
(7) Tinting Color	4.00	pint	42	168
(8) Sand Paper (Assorted)	15.00	pcs.	7	105
(9) Miscellaneous		L.S.		1,066
(10) Roof Paint (green, ready-mix)	2.00	gals.	298	596
Sub-Total of I-1				7,426
2. Labor (30% of I-1)				2,228
Sub-Total of I				9,654
J. Electrical Work				
1. Materials				
(1) 40 Watts Fluorescent Lamp	2.00	sets	270	540
(2) Elect. Wire TW #12	24.00	M	7	168
(3) Elect. Conduit - 1/2" dia x 10"	4.00	pcs.	82	328
(4) Entrance Cap. 1/2" dia	1.00	pc.	30	30
(5) Switch Outlet, Flush Type	2.00	pcs.	41	82
(6) Utility Box 2"x3"	2.00	pcs.	7	14
(7) Porcelain Receptacle 2" dia	2.00	pcs.	7	14
(8) Safety Switch 60A, 250V	1.00	set	519	519
(9) Electrical Tape	1.00	roll	23	23
Sub-Total of J-1				1,718
2. Labor (30% of J-1)				515
Sub-Total of J				2,233
K. Hardware				
1. Materials				
(1) 3"x3" Butt Hinges (Loose Pin)	10.00	pcs.	15	150
(2) 4"x4" Butt Hinges (Loose Pin)	12.00	pcs.	19	228
(3) Door Lockset (Schlage US)	3.00	pcs.	481	1,443
(4) Barrel Bolt (4")	5.00	pcs.	42	210
(5) Cabinet Pull (4")	5.00	pcs.	7	35
(6) Water Storage Cover Checkered Plate 1/4" thick 1.44x0.633 w/ L bar & flat bar	1.00	set	1,043	1,043
(7) 0.645x0.633 w/ L bar & flat bar	2.00	set	588	1,176
(8) Padlock	1.00	pcs.	401	401
Sub-Total of K-1				4,636
2. Labor (30% of K-1)				1,406
Sub-Total of K				6,092
L. Septic Tank and Sewage Basin				
1. Materials				
(1) 4" CHB	180.00	pcs.	5	900
(2) Cement	18.00	bags	128	2,304
(3) Sand	1.50	cu.m	335	503
(4) Gravel	1.00	cu.m	424	424
(5) Rebars: 10mm dia x 6m	29.00	pcs.	74	2,146
(6) #16 Tire Wire	2.00	kgs.	54	108

Table 10.2.17 Unit Cost of Public Toilet

Sheet-5

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(7) Formworks: Coco Lumber				
2"x3"x10' = 12 pcs.	60.00	bf.	8	480
1/4" plywood ord. 4'x8'	2.00	pcs.	446	892
C.W.N. (Assorted)	2.00	kgs.	31	62
Sub-Total of L-1				7,819
2. Labor (30% of L-1)				2,346
Sub-Total of L.				10,165
M. Concrete Water Tank (Elevated)				
1. Earth Work				
(1) Materials				
1) Gravel Fill	1.00	cu.m	424	424
Sub-Total of M-1 (1)				424
(2) Labor				
1) Excavation	14.70	cu.m	131	1,926
2) Backfill	13.08	cu.m	119	1,557
3) Gravel Fill	1.00	cu.m	155	155
Sub-Total of M-1 (2)				3,637
Sub-Total of M-1				4,061
2. Materials				
(1) Cement	62.00	bags	128	7,936
(2) Sand	4.50	cu.m	335	1,508
(3) Gravel	8.00	cu.m	424	3,392
(4) Rebars: 12mm dia x 6m	160.00	pcs.	54	8,640
(5) #16 Tie Wire	4.00	kgs.	54	216
(6) Formworks:				
1/4" plywood	12.00	pcs.	446	5,352
2"x3"x16' = 60 pcs.	480.00	bf.	8	3,840
(7) C.W.N. (Assorted)	5.00	kgs.	31	155
Sub-Total of M-2				43,222
3. Labor (30% of M-2)				12,967
Sub-Total of M				60,250
N. Freight Cost (11% of Materials for A - M excluding sand and gravel)				20,841
O. Indirect Cost				
Profit (10% of A - M)				30,049
VAT (10% of Profit & Labor)				9,783
Sub-Total of O				39,832
Total of Construction Cost (A to O)				340,321
P. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		2,200
2. Construction Supervision		L.S.		1,600
Sub-Total of P				3,800
GRAND TOTAL				344,121
			Say	344,100

Source: DOH standard price in 1993.

Unit Cost: Adjusted to 1997 Price Level

10.2.2 Unit Cost of Equipment

Unit cost (CIF Manila) of equipment was referred to the market price in 1997 as follows.

(1) Medium size rotary drilling rig

Type: Truck-mounted top head drive mud circulation type

Rated drilling capacity: 150 m depth for ϕ 250 mm bore hole

Equipment composition:

One unit of truck-mounted drilling rig

Each one set of operating accessories, drilling tools, casing tools and fishing tools

One set of spare parts (equivalent to 10% of above equipment/tool cost)

Unit cost: Peso 32,314,000 per set

(2) Medium size percussion drilling equipment

Type: Truck-mounted cable percussion type

Rated drilling capacity: 150 m depth for ϕ 250 mm bore hole

Equipment composition:

One unit of truck-mounted drilling rig

Each one set of operating accessories, drilling tools, pipe handling tools and fishing tools

One set of spare parts (equivalent to 10% of above equipment/tool cost)

Unit cost: Peso 25,582,000 per set

(3) Well rehabilitation equipment

Equipment composition:

One unit of diesel engine driven air compressor (7.5 kg/sq.cm, 500 liter/min.)

One set of air hose and hose fittings

Unit cost: Peso 280,000 per set

(4) Service truck

Type: Diesel engine driven 4 tons truck equipped with crane

Unit cost: Peso 1,200,000 per unit

(5) Support vehicle

Type: Diesel engine driven pick-up truck with electric winch

Unit cost: Peso 590,000 per unit

(6) Refuse collection truck

Type: Closed type compactor truck with 5 cu.m of payload capacity

Unit cost: Peso 2,057,000 per unit including spare parts

(7) Maintenance tools

One set of maintenance tools for O&M of Level I facility shall be provided to respective municipality.

Unit cost: Peso 10,000 per unit

(8) Water quality testing kits

One set of water quality testing kits for O&M of Level I facility shall be provided to respective municipality.

Type: Ammonia testing kit

Unit cost: Peso 15,300 per unit

10.2.2 Cost of Laboratory and Equipment

Required cost for new laboratory including building/facility and instruments/chemicals and additional cost for upgrading of existing laboratory are shown in Table 10.2.18 and Table 10.2.19, respectively.

Table 10.2.18 Cost for New Laboratory

Item	Unit	Unit Cost (Pesos)	Qty.	Amount (Pesos)
1. Building				
New Building	m ²	15,000	57	855,000
2. Instruments				
Turbidity meter	set	35,000	1	35,000
Color meter	set	9,800	1	9,800
pH/Residual chlorine cheker	set	15,000	1	15,000
Incubator	set	100,000	1	100,000
Refrigerator	set	25,000	2	50,000
Sterilizer	set	50,000	1	50,000
Water quality testing kits	set	300,000	1	300,000
Electric stove	set	1,000	1	1,000
Range hood	set	10,000	1	10,000
Sub-total				570,800
3. Accessories				
Sink	L.S.			
Working table	L.S.			
Shelf	L.S.			
Office desk	L.S.			
Chair	L.S.			
Sub-total				60,000
4. Glassware/Chemicals				
Glassware/Chemicals	L.S.			100,000
Total				1,585,800

Table 10.2.19 Cost for Upgrading Laboratory

Item	Unit	Unit Cost (Pesos)	Qty.	Amount (Pesos)
1. Instruments				
Turbidity meter	set	35,000	1	35,000
Color meter	set	9,800	1	9,800
pH/Residual chlorine cheker	set	15,000	1	15,000
Incubator	set	100,000	0	0
Refrigerator	set	25,000	1	25,000
Sterilizer	set	50,000	0	0
Water quality testing kits	set	300,000	1	300,000
Electric stove	set	1,000	1	1,000
Range hood	set	10,000	1	10,000
Sub-total				395,800
2. Glassware/Chemicals				
Glassware/Chemicals	L.S.			50,000
Total				445,800

10.3 Cost of required Facilities and Equipment

10.3.1 Cost of Required Facilities

Table 10.3.1 Construction Cost of Water Supply Facilities Required for Phase I (2003)

Unit: P 1,000 Pesos

Name of Municipality	Urban Water Supply		Rural Water Supply										Grand Total	
	Level III	Level II	New System					Level I Rehabilitation	Subtotal	Total	Level I Rehabilitation	Total		
			Deep Well		Shallow Well	Spring Dev.	Subtotal							
			30 m	50 m										70 m
Alegria		5,309										5,309	5,309	5,309
Bacuaug	19,393	4,494											4,494	23,887
Basilisa (Rizal)	14,009					5,714	5,882		11,596				11,596	25,604
Burgos	1,849													1,849
Cagadianao	17,901					738	882		1,621				1,621	19,521
Claver	7,322						294		294		26		320	7,642
Dapa	5,638					353	294		647		8		655	6,292
Del Carmen		634	1,350			96	294		1,740		38		2,412	2,412
Dinagat		5,622											5,622	5,622
General Luna	5,261	659											659	5,919
Gigaquit	9,569			383		225	294		902		8		910	10,479
Libjo (Albor)	6,503					32	588		620		79		699	7,202
Loreto	730													730
Mairit	15,080					4,048	882		5,412		60		5,472	20,552
Maimono	18,807	639											639	19,446
Pilar	594								1,485		41		2,243	2,837
Placer						128	588		2,202				455	455
San Benito	2,813					161	294		455				455	455
San Francisco (Anao-Aon)	308	1,271				161	294		1,335		30		1,565	4,377
San Isidro		4,209											4,209	4,209
San Jose	19,187					1,637	1,765		3,402				3,402	22,589
Santa Monica (Sapao)	5,170					161	294		455				455	455
Sison	819					417	294		711				711	1,530
Surigao City (Capital)														
Tagana-An	450													450
Tubajon	4,523					867	882		1,749				1,749	6,272
Tubod														
Provincial Total	155,922	22,838	3,915	383	4,048	11,171	13,823	33,340	290	56,468	212,390			

Table 10.3.2 Construction Cost of Water Supply Facilities Required for Phase II (2010)

Unit: P 1,000 Pesos

Name of Municipality	Urban Water Supply Level III	Rural Water Supply										Grand Total		
		New System											Level I Rehabilitation	Total
		Level I												
		Deep Well		Shallow Well		Spring Dev.		Subtotal						
30 m	50 m	70 m	Shallow Well	Spring Dev.	Subtotal	Level I Rehabilitation	Total							
Alegria	17,211												17,211	
Bacuag	10,722												10,722	
Basilisa (Rizal)	5,601			3,980	5,882	9,862							9,862	
Burgos	7,396			96		96							96	
Cagdianao	4,526			610	882	1,492							1,492	
Claver	23,322			64	294	358						94	452	
Dapa	29,347			353	294	647						8	655	
Del Carmen	17,501	3,240		321	294	3,855						90	3,945	
Dinagat	11,948												11,948	
General Luna	17,810	1,890		610		2,500						53	2,553	
Gigaquit	13,300	1,534		995	294	2,823						30	2,853	
Libjo (Albor)	8,909			64	588	652						169	822	
Loreto	20,771	1,215				1,215						34	1,249	
Mamit	18,688			5,060	642	6,584						75	6,660	
Malimono	4,764												4,764	
Pilar	10,279	2,295		193	588	3,076						64	3,140	
Placer	52,421			1,252	294	1,546							1,546	
San Benito	5,629	810		96	294	1,200						23	1,223	
San Francisco (Anao-Aon)	12,292	270		64		334						8	342	
San Isidro	9,783	270		482		752						8	759	
San Jose	30,198			899	1,765	2,663							2,663	
Santa Monica (Sapao)	2,457			610	294	904							904	
Sison	8,385		192	417		609						4	613	
Socorro	29,565			1,059	294	1,353							1,353	
Surigao City (Capital)	119,417	3,240		1,091		4,331						90	4,422	
Tagana-An	20,528	540		642		1,182						15	1,197	
Tubajon	5,223			578	882	1,460							1,460	
Tubod	54												54	
Provincial Total	518,047	13,770	1,725	5,060	15,119	49,497	13,823	763	50,260	568,307				

Table 10.3.3 Cost for Sanitation Facilities Required for Phase I (2003)

Unit: P. 1,000 Pesos

Name of Municipality	Urban Sanitation						Rural Sanitation						Total Public Investment Cost		
	Household Toilets			Public School Toilets	Sub-total of Public Investment	Total Construction Cost	Household Toilets			Public School Toilets	Sub-total of Construction Cost	Sub-total of Public Investment		Total Construction Cost	
	Flush	Pour Flush	VIP/Dry				Flush	Pour Flush	VIP/Dry						
Alegria	2,364		488	1,169	2,853	344	4,366	1,513	1,521	1,043	2,564	17	1,532	4,096	1,550
Bacuag	4,068		845	1,220	4,913	344	6,477	1,564		607	607		645	1,252	645
Basilisa (Rizal)	1,661	767	343	516	2,772	344	3,632	869	4,446	3,676	8,122	51	3,636	11,758	3,687
Burgos	1,214		251	553	1,465	344	2,018	553	39	99	138	0	167	305	168
Cagdianao	2,684	1,274	554	1,003	4,512	344	5,860	1,362	481	950	950	6	1,200	2,151	1,200
Claver			904	1,657	904	344	2,905	2,001		1,168	1,649		1,538	3,187	1,543
Dapa	5,943		1,228	2,654	7,170	344	9,825	2,654		733	733		1,087	1,819	1,087
Del Carmen			429	492	429	344	1,265	836	4,992	1,459	6,451	57	1,329	7,779	1,386
Dinagat		182	271	563	453	2	1,016	565	338	937	1,275	4	1,364	2,639	1,368
General Luna	2,471		508	966	2,979	688	4,633	1,654	637	1,294	1,931	7	1,751	3,682	1,759
Gigaquit	3,302		680	1,091	3,981	344	5,417	1,435		1,432	1,432		1,541	2,973	1,541
Libjo (Albora)	3,323		383	603	383	344	1,330	947	4,953	1,914	6,867	57	2,408	9,275	2,465
Loreto			686	864	4,009	344	5,217	1,208	2,548	498	3,036	29	425	3,461	454
Maimit	5,027		1,036	2,148	6,063	344	8,555	2,492		1,835	1,835		2,588	4,423	2,588
Malimono	3,216	39	667	1,455	3,922	344	5,721	1,800		1,129	1,129		1,585	2,714	1,585
Pilar			257	361	257	344	618	361	1,001	911	1,912	12	988	2,900	999
Placer			1,366	2,545	1,366	344	4,256	2,890	1,820	1,531	3,351	21	1,774	5,126	1,795
San Benito			244	541	244	344	785	541	2,184	376	2,560	25	613	3,173	638
San Francisco (Anaae-Ao)	2,194		455	842	2,649	344	3,835	1,186		990	990		1,313	2,303	1,313
San Isidro			198	410	198	344	952	754	2,028	614	2,642	23	964	3,605	987
San Jose	7,072		1,465	8,537		344	8,537		1,222	1,478	2,700	14	2,700		14
Santa Monica (Sapao)	873	416	185	1,474	1,474	5	2,098	628	1,417	772	2,189	16	859	3,048	875
Sison			356	625	356	344	1,325	969		944	944		1,352	2,296	1,352
Socorro			858	1,656	858	344	2,514	1,656	1,599	1,148	2,747	18	1,718	4,466	1,737
Surigao City (Capital)		36,231	7,399	16,223	43,630	417	59,852	16,639		5,973	5,973		8,621	14,594	8,621
Tagana-An			620	1,058	620	344	2,023	1,402		1,069	1,069		1,282	2,351	1,282
Tubajon			264	441	264	344	1,049	785	2,600	726	3,326	30	1,037	4,363	1,067
Tubod			191	279	191	344	815	624		1,333	1,333		1,624	2,957	1,624
Provincial Total	45,412	38,909	23,133	42,215	107,454	447	156,894	49,888	33,826	36,630	70,456	389	44,939	115,395	45,328

Table 10.3.4 Cost for Sanitation Facilities Required for Phase II (2010)

Unit: P. 1,000 Pesos

Name of Municipality	Urban Sanitation						Rural Sanitation						Total Public Investment Cost	Total Construction Cost	Public School Toilets	Sub-total of Public Investment	Total Public Investment Cost	
	Household Toilets			Public School Toilets	Sub-total of Public Investment	Total Public Investment Cost	Household Toilets			Urban Sewerage	Sub-total of Construction Cost	Sub-total of Public Investment						Total Construction Cost
	Flush	Pour Flush	VIP/Dry				Flush	Pour Flush	VIP/Dry									
Alegría	13,547	1,534		18	1,607	344	17,032	1,969	10,959		10,959	126	2,104	13,063	2,220			
Bacang	22,578	2,158		25	1,747	344	26,827	2,116	8,671	39,267	8,671	100	924	9,595	1,024			
Basistia (Rizal)	10,011	1,417		16	866		12,294	882	48,880		48,880	562	6,100	54,980	6,662			
Burgos	5,517				748		6,265	748	1,053		1,053	12	226	1,279	238			
Cagdianao	11,587				1,295		12,880	1,293	6,603		6,603	42	1,547	11,764	1,588			
Claver	23,238				2,305		25,543	2,305	10,179		10,179	117	2,140	12,319	2,257			
Dapa	25,177				3,350		28,526	3,350	6,390	45,859	5,460	63	1,372	6,832	1,434			
Del Carmen	10,309				794		11,103	794	7,488		7,488	86	1,744	9,232	1,830			
Dinagat	6,923				721	344	7,987	1,065	13,806		13,806	159	2,644	16,450	2,803			
General Luna	11,907	234		3	1,458		20,612	1,673	11,438		11,438	105	2,342	22,867	2,448			
Gigaquit	17,615	1,339		15	1,658		20,612	1,673	19,396		19,396	223	3,560	22,956	3,783			
Libjo (Albor)	9,436				891		10,327	891	4,472		4,472	51	601	5,073	652			
Loreto	15,357				1,220		16,577	1,220	13,632	43,092	9,178	106	3,303	26,113	3,409			
Mainit	24,218	481		6	2,741	344	27,784	3,091	6,968		6,968	80	2,090	9,058	2,170			
Malimono	13,696				1,917		15,613	1,917	10,335		10,335	119	1,531	11,866	1,650			
Pilar	6,880				558		7,438	558	7,163	61,035	11,183	82	2,578	20,924	2,661			
Placer	41,407				3,699	344	45,451	4,043	3,653		3,653	42	820	4,473	862			
San Benito	6,454				725		7,179	725	4,966		4,966	57	1,761	14,097	1,818			
San Francisco (Antao-Ao)	10,011				1,129	344	11,484	1,473	7,644		7,644	88	1,428	9,072	1,516			
San Isidro	5,666				607		6,273	607	15,756	60,780	15,756	181	15,756	15,756	181			
San Jose	34,165	689		8	405		34,854	406	1,917		1,917	88	1,244	10,818	1,332			
Santa Monica (Sapao)	4,367	130		1	972	344	4,991	406	7,412		7,412	65	2,107	15,187	2,172			
Sison	8,840				2,461		10,156	1,317	15,041		15,041	173	2,554	17,595	2,227			
Socorro	24,559				20,537		27,020	2,461	48,165		48,165	554	10,976	69,791	11,530			
Surigao City (Capital)	176,279	5,603		64	18,931	344	193,417	19,344	10,205		10,205	117	1,923	12,128	2,040			
Tagana-An	16,997				1,590		18,587	1,590	9,010		9,010	80	1,419	8,374	1,499			
Tubajon	5,943				604		6,547	604	85,605		85,605	52	2,305	15,838	2,357			
Tubod	4,026				396	344	4,766	740	316,758		316,758	3,643	63,481	465,844	67,124			
Provincial Total	566,708	13,585		156	57,113	3,097	640,503	60,366	562,655		562,655	3,643	63,481	465,844	67,124			

10.4 Costs of Sector Management

10.4.1 Breakdown of Community Development and Training Cost

Cost of community development and training was estimated at 12% of the total construction cost of Level I & II water supply facilities and public toilets and at 3% of the total construction cost of Level III water supply systems. This was formulated based on the following:

- (1) The 12% was derived on the basis of DILG's past experience in BWSA formation; and
- (2) The 3% was derived on the basis of LWUA's past experience in the institutional strengthening needs of W.Ds.

These ratios adopted for estimating community development and training cost will allow the province to meet with its needs for community development in the sector management. The following breakdown provides a view of the components under this category.

Table 10.4.1 Breakdown of Community Development and Training Cost

Component	% Share of Cost
1. Preparation for Training Activities	10
1.1 Transportation	1
1.2 Technical Assistance	1
1.3 Food	1
1.4 Supplies and Materials including Production of Training Kits	6
1.5 Generation of Training Aids	1
2. Conduct of Training Activities	53
2.1 Transportation	5
2.2 Food	12
2.3 Accommodation	33
2.4 Training Room Rental	1
2.5 Miscellaneous	2
3. Field Visits to Support BWSA Formation	37
3.1 Transportation	5
3.2 Food	15
3.3 Accommodation	12
3.4 Field	4
Total	100

11. FINANCIAL ARRANGEMENTS

11.3 Additional Funding Requirements

Percentages for Annual Investment

Percentages of annual investment for different fields of implementation activities are assumed for each sub-sector as general indication and summarized in Table 11.3.1. Assumptions on investment timing shall be subject to change, especially for individual projects depending on fund availability and relevant conditions such as land acquisition and institutional set-up.

Table 11.3.1 Percentages for Annual Investment

Sub-Sector	Component	1996	1997	1998	1999	2000	Total
Urban Water Supply	Level III System						
	Feasibility Study and Detail Design	50	50	0	0	0	100
	Construction & Supervision	0	20	30	30	20	100
	Institutional Development	30	20	20	20	10	100
Rural Water Supply	Level I Facility						
	Detail Design	50	50	0	0	0	100
	Construction & Supervision	0	20	30	30	20	100
	Institutional Development	30	30	20	10	10	100
	Level II System						
	Detail Design	100	0	0	0	0	100
	Construction & Supervision	50	50	0	0	0	100
	Institutional Development	50	50	0	0	0	100
Sanitation	Urban Household Toilet	12	22	22	22	22	100
	Rural Household Toilet	12	22	22	22	22	100
	Public School Toilet	12	22	22	22	22	100
	Public Toilet	12	22	22	22	22	100
	Disinfection of Level I Wells	12	22	22	22	22	100
	Detail Design	100	0	0	0	0	100
	Construction & Supervision	0	20	30	30	20	100
Institutional Development	30	30	20	10	10	100	

Note: Institutional development includes:

1. Capacity enhancement program
2. Community management program,
3. Health and hygiene education
4. Water quality surveillance, and
5. Administrative support.

Urban water supply:

- Engineering services for feasibility study and detailed design will be undertaken in the first two years.

- Construction work accompanied by supervisory services will be commenced partially in 2nd year and in full operation from 3rd year to 4th year.
- Community development will take place from the first year.

Rural water supply (Level I):

- Engineering services for detailed design will be undertaken during the first two years for Level I and completed within the first year for Level II.
- Construction work accompanied by supervisory services will be partially commenced from the first year and in full operation from 2nd year for Level I, while Level II will be completed within first two years.
- Community development and training will take place from the first year for Level I, while Level II will be completed within the first two years.

Sanitation:

- Engineering services for detailed design will be completed within the first year.
- Construction work accompanied by supervisory services will be partially commenced in the first year and in full operation from 2nd year.
- Community development and training will be in full operation from the first year.

11.4 Medium-Term Implementation Arrangements

11.4.2 Alternative Countermeasures

Comprehensive Investment Need Ranking for the Municipalities

Table 11.4.1 presents the comprehensive investment need ranking for the municipalities.

11.5 National Government Assisted Level I Water Supply and Sanitation Project

Presented in Table 11.5.1 are the available IRA for GOP-Assisted Level I Water Supply and Rural Sanitation Project for Eligible Municipalities. Allotment of IRA for rural water supply and rural sanitation comprise of provincial available IRA and municipal available IRA.

Table 11.5.2 presents the urban sanitation project for eligible municipalities while Table 11.5.3 presents the summary of the total available IRA for GOP-assisted Level I Water Supply and Sanitation project.

The FIRR for Level I water supply project is calculated using a discount rate of .09 percent, as presented in Table 11.5.4.

Table 11.6.1 presents the investment program of GOP-assisted Level I Watersupply and Sanitation Project.

O and M for Rural Water Supply

Table 11.6.2 shows the O and M cost for Level I facilities which include the reconstruction cost, rehabilitation cost and recurrent cost per household per year for O and M. Table 11.6.3 presents the O and M cost per HH per month by facility and proportion to monthly family income while Table 11.6.4 shows the family income.

O and M for Sanitation

Table 11.6.5 presents the O and M cost for rural sanitation while Table 11.6.6 presents the O and M cost for urban sanitation.

Table 11.4.1 Comprehensive Investment Need Ranking of the Municipalities

Name of Municipality	Evaluation Factor						Score by Sub-Sector						Weighted Score by Sub-Sector						Synthetic Investment Need Ranking			
	(% of Underserved and Unserved Population or Households)						Urban Water Supply		Rural Sanitation		Rural Sanitation		Urban Water Supply		Rural Water Supply		Urban Sanitation			Rural Sanitation		Total Weighted Score
	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Urban Sanitation	Rural Sanitation	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation				
Alegria	N.A.	14	23	39	39	39	0.39	0.20	0.60	0.40	0.40	0.10	0.05	0.15	0.10	0.05	0.10	0.10	0.40	22		
Bacuaug	N.A.	5	20	27	27	27	0.97	0.20	0.40	0.40	0.20	0.24	0.05	0.10	0.05	0.44	0.10	0.05	0.44	16		
Basista (Rural)	N.A.	100	42	31	31	31	1.00	1.00	1.00	0.40	0.40	0.25	0.25	0.25	0.10	0.10	0.10	0.85	1			
Burgos	N.A.	20	19	31	31	31	0.76	0.20	0.40	0.40	0.40	0.19	0.05	0.10	0.10	0.10	0.10	0.44	17			
Cagdianao	N.A.	60	50	26	26	26	1.00	0.80	1.00	0.20	0.20	0.20	0.20	0.25	0.05	0.75	0.05	0.75	4			
Claver	N.A.	28	10	32	32	32	0.76	0.20	1.00	0.40	0.40	0.19	0.05	0.25	0.10	0.59	0.10	0.59	8			
Dapa	N.A.	50	24	31	31	31	0.66	0.60	0.60	0.60	0.40	0.17	0.15	0.15	0.10	0.57	0.10	0.57	10			
Del Carmen	N.A.	38	4	51	51	51	0.32	0.40	0.20	0.80	0.80	0.08	0.10	0.05	0.20	0.43	0.20	0.43	19			
Dinagat	N.A.	4	32	35	35	35	0.32	0.20	0.80	0.40	0.40	0.08	0.05	0.20	0.10	0.43	0.10	0.43	18			
General Luna	N.A.	22	33	32	32	32	0.76	0.20	0.80	0.40	0.40	0.19	0.05	0.20	0.10	0.54	0.10	0.54	12			
Gigaquit	N.A.	27	29	25	25	25	0.90	0.20	0.60	0.20	0.20	0.23	0.05	0.15	0.05	0.48	0.10	0.48	14			
Libjo (Albor)	N.A.	36	4	46	46	46	1.00	0.40	0.20	0.60	0.60	0.25	0.10	0.05	0.15	0.55	0.10	0.55	11			
Lorito	N.A.	1	20	61	61	61	0.49	0.20	0.40	1.00	1.00	0.12	0.05	0.10	0.25	0.52	0.10	0.25	13			
Maimit	N.A.	47	27	18	18	18	0.93	0.60	0.60	0.20	0.20	0.23	0.15	0.15	0.05	0.58	0.10	0.58	9			
Mahirmon	N.A.	19	44	19	19	19	1.00	0.20	1.00	0.20	0.20	0.25	0.05	0.25	0.05	0.60	0.10	0.60	7			
Pilar	N.A.	46	12	37	37	37	0.49	0.60	0.40	0.40	0.40	0.12	0.15	0.10	0.10	0.47	0.10	0.47	15			
Placer	N.A.	20	12	35	35	35	0.39	0.20	0.40	0.40	0.40	0.10	0.05	0.10	0.10	0.35	0.10	0.35	26			
San Remito	N.A.	7	4	66	66	66	0.93	1.00	0.20	1.00	1.00	0.23	0.25	0.05	0.25	0.78	0.10	0.25	2			
San Francisco (Anao-Aon)	N.A.	9	33	27	27	27	0.49	0.20	0.80	0.20	0.20	0.12	0.05	0.20	0.05	0.42	0.10	0.42	20			
San Isidro	N.A.	29	4	49	49	49	0.60	0.20	0.20	0.60	0.60	0.15	0.05	0.05	0.15	0.40	0.10	0.40	22			
San Jose	N.A.	78	32	40	40	40	0.93	1.00	0.80	0.40	0.40	0.23	0.25	0.20	0.10	0.78	0.10	0.78	3			
Santa Monica (Sapao)	N.A.	30	49	42	42	42	0.20	1.00	1.00	0.60	0.60	0.25	0.25	0.25	0.15	0.70	0.10	0.70	6			
Sison	N.A.	4	4	17	17	17	0.93	0.20	0.20	0.20	0.20	0.23	0.05	0.05	0.05	0.38	0.10	0.38	24			
Socorro	N.A.	34	4	37	37	37	0.49	0.40	0.20	0.40	0.40	0.12	0.10	0.05	0.10	0.37	0.10	0.37	25			
Surigao City (Capital)	N.A.	0	44	20	20	20	0.23	0.20	1.00	0.20	0.20	0.06	0.05	0.25	0.05	0.41	0.10	0.41	21			
Tagana-An	N.A.	17	15	28	28	28	0.49	0.20	0.40	0.20	0.20	0.12	0.05	0.10	0.05	0.32	0.10	0.32	27			
Tubajon	N.A.	80	0	52	52	52	1.00	1.00	0.20	0.80	0.80	0.25	0.25	0.05	0.20	0.75	0.10	0.75	4			
Tubod	N.A.	0	3	23	23	23	0.20	0.20	0.20	0.20	0.20	0.05	0.05	0.05	0.05	0.20	0.05	0.20	28			
Provincial Total	N.A.	32	30	31	31	31																

Note:

(1) Scoring to Underserved and Unserved Percentage.

2) Assumed Weight by Sub-Sector for Synthetic Evaluation by Municipality.

Score	Range of Underserved and Unserved Percentage						Allocated Weight		
	61 < %	41 < %	21 < %	1 < %	0 < %	61 < %	0.25	0.25	0.25
1.0	61 < %	41 < %	21 < %	1 < %	0 < %	61 < %	0.25	0.25	0.25
0.8	51 < %	31 < %	11 < %	1 < %	0 < %	51 < %	0.25	0.25	0.25
0.6	41 < %	21 < %	1 < %	1 < %	0 < %	41 < %	0.25	0.25	0.25
0.4	31 < %	11 < %	1 < %	1 < %	0 < %	31 < %	0.25	0.25	0.25
0.2	1 < %	1 < %	1 < %	1 < %	0 < %	1 < %	0.25	0.25	0.25

Table 11.5.1 Available IRA for GOP-Assisted Level I Water and Rural Sanitation Project for Eligible Municipalities

Name of City or Municipality	Tri Nos. of Bgy. in Rural Area	Class	Rural Water Supply													Rural Sanitation										Sub-total Avail. IRA	
			Nos. of Related Bgy.	R. Water Supply		Number of LEVEL I Facilities			Prov. Avail. IRA	Mun. Avail. IRA	Sub-total Avail. IRA	No. of Related Bgy.	Rural Sanitation		Number of Toilets			Prov. Avail. IRA	Mun. Avail. IRA	Sub-total Avail. IRA							
				Allotment of IRA		Deep Wells	Shallow Wells	Spring					Total Related	Mun.	Mun.	Public	Bus Term.				Public School	Total Related					
				Prov.	Muni.																		Prov.	Mun.	Public		Bus Term.
Alorain	9	6th	0	1,536	1,973	0	0	0	0	0	0	0	0	0	0	0	0	378	457	6	6	6	378	457	834		
Bacang	6	6th	0	1,321	572	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Basilisa (Rizal)	24	5th	24	556	678	0	22	3	25	556	678	1,234	24	314	673	0	7	7	314	673	7	7	7	314	673	987	
Burgos	3	6th	3	146	25	0	1	0	1	146	25	170	3	1	109	0	1	1	1	109	1	1	1	1	109	109	
Cagdianao	9	5th	9	615	352	0	29	3	32	615	352	967	0	5	3	0	0	0	5	3	0	0	0	5	3	0	
Claver	9	5th	9	314	345	0	1	2	3	314	345	660	0	5	3	0	0	0	5	3	0	0	0	5	3	0	
Davao	12	5th	12	413	360	0	14	2	16	413	360	774	12	373	401	0	5	5	373	401	5	5	5	373	401	774	
Del Carmen	18	6th	18	1,172	2,699	16	6	3	25	1,172	2,699	3,871	0	44	39	0	0	0	44	39	0	0	0	44	39	0	
Dimagat	9	5th	0	1,618	2,450	0	0	0	0	0	0	0	0	9	302	425	0	4	4	302	425	4	4	302	425	727	
General Luna	13	6th	13	577	549	4	5	1	10	577	549	1,126	13	230	254	0	3	3	230	254	3	3	3	230	254	485	
Gigaquit	9	5th	9	625	561	4	15	2	21	625	561	1,186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lubio (Albion)	14	5th	14	488	394	0	0	0	0	0	0	397	14	749	747	0	11	11	749	747	11	11	11	749	747	1,496	
Loreto	5	5th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Maimit	17	5th	17	0	1,523	8	8	2	18	0	1,523	1,523	17	0	691	0	6	6	691	0	6	6	6	691	0	691	
Malimono	9	5th	0	306	96	0	0	0	0	0	0	0	0	9	301	144	0	4	4	301	144	4	4	301	144	445	
Pilar	11	6th	11	928	1,780	16	6	2	24	928	1,780	2,708	11	9	260	0	2	2	9	260	2	2	2	9	260	269	
Placer	15	5th	15	0	2,754	0	15	2	17	0	2,754	2,754	0	0	54	0	0	0	54	0	0	0	0	0	0	0	
San Benito	4	6th	4	708	917	10	6	2	18	708	917	1,625	0	25	11	0	0	0	25	11	0	0	0	0	0	0	
San Francisco (Anao-Ak)	7	6th	0	66	1,767	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
San Isidro	11	6th	0	1,246	2,206	0	0	0	0	0	0	0	0	0	22	12	0	0	22	12	0	0	0	0	0	0	
San Jose	8	6th	8	1,187	478	0	60	7	67	1,187	478	1,664	0	18	2	0	0	0	18	2	0	0	0	0	0	0	
Santa Monica (Sapao)	9	6th	9	0	850	0	10	1	11	0	850	850	9	0	730	0	2	2	0	730	0	2	2	0	730	730	
Sison	11	6th	0	0	0	0	0	0	0	0	0	0	11	0	119	0	1	1	0	119	0	1	1	0	119	119	
Socorro	11	5th	11	0	1,335	0	20	2	22	0	1,335	1,335	11	0	679	0	2	2	0	679	0	2	2	0	679	679	
Surigao City (Capital)	42	1st	0	0	16,420	12	16	3	0	0	0	0	0	0	0	13,727	0	12	12	0	0	0	0	0	0	0	
Tagna-An	10	6th	10	294	517	1	5	1	7	294	517	830	10	301	840	0	5	5	301	840	5	5	5	301	840	1,141	
Tubaton	7	6th	7	257	200	0	5	1	6	257	200	457	7	29	119	0	2	2	29	119	2	2	2	29	119	148	
Tubod	8	6th	0	0	0	0	0	0	0	0	0	0	8	0	1,842	0	5	5	0	1,842	0	5	5	0	1,842	1,842	
Total	320		203	14,372	41,820	71	245	43	328	7,927	16,204	24,131	177	3,100	22,433	0	78	78	66	2,986	66	78	66	2,986	8,490	11,476	
Total Available IRA Fund																											35,607

Table 11.5.3 Total Available IRA for GOP-Assisted Level 1 Water Supply and Sanitation Project

Name of City or Municipality	Water Supply		Sanitation		Total
	Rural	Urban	Rural	Urban	
Algebra	0	834	834	0	1,668
Bacuaug	0	210	0	0	210
Basilisa (Rural)	1,234	0	0	987	2,221
Buryos	170	0	0	109	279
Cagdianao	967	0	0	0	967
Claver	660	343	0	0	1,003
Dapa	774	0	0	774	1,548
Del Carmen	3,871	0	0	0	3,871
Dinagat	0	0	0	727	727
General Luna	1,126	622	485	0	2,233
Gigaquit	1,186	271	0	0	1,456
Libjo (Albor)	387	595	1,496	0	2,488
Loreto	0	0	0	0	0
Mainit	1,523	0	691	0	2,214
Mahimono	0	0	445	0	445
Pilar	2,708	0	269	0	2,977
Placer	2,754	0	0	0	2,754
San Benito	1,625	0	0	0	1,625
San Francisco (Anao)	0	496	0	0	496
San Isidro	0	0	0	0	0
San Jose	1,664	0	0	0	1,664
Santa Monica (Sapa)	850	712	0	730	2,293
Sison	0	381	119	0	500
Socorro	1,335	0	679	0	2,014
Surigao City (Capital)	0	0	0	0	0
Tajana-An	830	1,316	1,141	0	3,287
Tubajon	457	0	148	0	605
Tubod	0	909	1,842	0	2,751
Total	24,131	6,710	11,476	0	42,318

Table 11.5.2 Available IRA for GOP-Assisted Urban Sanitation Project for Eligible Municipalities

Name of City or Municipality	TU Nos. of Bgy. in Urban	Class	Non-Related		Urban Sanitation		Number of Toilets		Prov. Avail. IRA		Mun. Avail. IRA		Sub-total Avail. IRA
			Rev.	Rel.	Prov. Muni.	Muni. Mkt.	Public	Bus Term.	Public	School	Total	Related	
Algebra	3	6th	3	383	472	0	1	4	1	383	472	855	
Bacuaug	3	6th	3	166	46	0	1	0	1	166	44	210	
Basilisa (Rural)	3	5th	0	169	243	0	0	1	0	0	0	0	
Buryos	3	6th	0	220	359	0	0	2	0	0	0	0	
Cagdianao	5	5th	0	170	70	0	0	0	0	0	0	0	
Claver	5	5th	5	166	177	0	1	0	1	166	177	343	
Dapa	17	5th	0	798	978	0	0	13	0	0	0	0	
Del Carmen	2	6th	0	166	236	0	0	0	0	0	0	0	
Dinagat	3	5th	0	148	176	0	0	2	0	0	0	0	
General Luna	6	6th	6	257	365	1	0	2	1	257	365	622	
Gigaquit	4	5th	4	166	104	0	1	0	1	166	104	271	
Libjo (Albor)	2	5th	2	311	285	1	0	3	1	311	285	595	
Loreto	5	5th	0	0	1,128	0	0	0	0	0	0	0	
Mainit	4	5th	0	0	754	0	0	5	0	0	0	0	
Mahimono	5	5th	0	383	184	0	0	4	0	0	0	0	
Pilar	4	6th	0	0	92	0	0	1	0	0	0	0	
Placer	5	5th	0	0	886	0	0	0	0	0	0	0	
San Benito	2	6th	0	0	0	0	0	0	0	0	0	0	
San Francisco (Anao-An)	4	6th	4	18	478	0	1	0	1	18	478	496	
San Isidro	1	6th	0	166	180	0	0	0	0	0	0	0	
San Jose	4	6th	0	0	0	0	0	0	0	0	0	0	
Santa Monica (Sapa)	2	6th	2	0	712	0	1	1	1	0	712	712	
Sison	1	6th	1	166	215	0	1	1	1	166	215	381	
Socorro	2	5th	0	0	635	0	0	3	0	0	0	0	
Surigao City (Capital)	12	1st	0	0	28,068	0	0	22	0	0	0	0	
Tajana-An	4	6th	4	311	1,006	0	1	3	1	311	1,006	1,316	
Tubajon	2	6th	0	166	196	0	0	0	0	0	0	0	
Tubod	1	6th	1	0	909	0	1	1	1	0	909	909	
Total	114		35	4,332	38,953	2	9	68	11	1,944	4,766	6,710	
Total Available IRA Fund													6,710

Table 11.5.4 FIRR for Level 1 Water Supply

Unit: Pesos

Year	Nos. of Deep Well	Nos. of Shallow Well	Spring Dev't	Construction Cost	Rehab. And Replacement Cost	O&M Cost	Cash Outflow	No. of Households per Household	Water Rate Month per Household	Loans and Subsidies	Cash Inflow	Net Value
1	12	46	8	5,655,800		0	5,655,800	4,953	47	0	0	(5,655,800)
3	18	69	12	8,483,700		56,558	8,540,258	4,953	47		2,793,492	(5,746,766)
4	18	69	12	8,483,700		141,395	8,625,095	4,953	47		2,793,492	(5,831,603)
5	12	46	8	5,655,800		226,232	5,882,032	4,953	47		2,793,492	(3,088,540)
6						282,790	282,790	4,953	47		2,793,492	2,510,702
7						289,051	289,051	4,953	47		2,793,492	2,504,441
8						289,051	289,051	4,953	47		2,793,492	2,504,441
9						289,051	289,051	4,953	47		2,793,492	2,504,441
10						289,051	289,051	4,953	47		2,793,492	2,504,441
11						289,051	289,051	4,953	47		2,793,492	2,504,441
12					1,927,800	289,051	2,216,851	4,953	47		2,793,492	576,641
13					2,891,700	289,051	3,180,751	4,953	47		2,793,492	(387,259)
14					2,891,700	289,051	3,180,751	4,953	47		2,793,492	(387,259)
15					1,927,800	289,051	2,216,851	4,953	47		2,793,492	576,641
16						289,051	289,051	4,953	47		2,793,492	2,504,441
17						289,051	289,051	4,953	47		2,793,492	2,504,441
18						289,051	289,051	4,953	47		2,793,492	2,504,441
19						289,051	289,051	4,953	47		2,793,492	2,504,441
20						289,051	289,051	4,953	47		2,793,492	2,504,441

TOTAL 7,611,167
 FIRR 3.6%
 NPV 915,966

Discount Rate for NPV = 0.09 per year

Table 11.6.1 Investment Program of GOP-Assisted Level I Water Supply and Sanitation Project

Unit: Peso

Category	Total Amount	1st year	2nd year	3rd year	4th year	5th year
A. Const. & Civil Works						
1. Water Supply	28,095,300	0	5,619,060	8,428,590	8,428,590	5,619,060
2. Sanitation	22,296,900	0	4,459,380	6,689,070	6,689,070	4,459,380
3. Land Acquisition	1,840,000	0	368,000	552,000	552,000	368,000
B. Equip./Logistic Support	1,350,700	0	1,350,700	0	0	0
C. Consultancy Services						
1. Hydrogeological Survey	1,148,000	1,148,000	0	0	0	0
2. D/D and Const. Sv.	5,745,542	2,298,217	1,149,108	1,149,108	574,554	574,554
D. Institutional Devt.						
1. Capacity Enhanc. Prog.	3,200,000	960,000	960,000	640,000	320,000	320,000
2. Commu. Manag. Prog.	3,058,680	917,604	917,604	611,736	305,868	305,868
3. Health & Hygiene Educ.	511,200	153,360	153,360	102,240	51,120	51,120
4. Water Quality Surveil.	198,800	59,640	59,640	39,760	19,880	19,880
5. NGO Assistance	340,800	102,240	102,240	68,160	34,080	34,080
6. Administrative Support	1,200,000	360,000	360,000	240,000	120,000	120,000
E. Physical Contingency (10% of sub-total A+B+C+D)	6,898,592	599,906	1,549,909	1,852,066	1,709,516	1,187,194
Total (A+B+C+D+E+F)	75,884,514	6,598,967	17,049,002	20,372,731	18,804,678	13,059,136
F. Others						
1. Price Contingency	28,802,529	2,504,687	6,471,075	7,732,621	7,137,455	4,956,692
2. Value Added Tax (VAT)	2,598,348	225,954	583,772	697,579	643,888	447,156
Grand Total	107,285,391	9,329,608	24,103,848	28,802,931	26,586,021	18,462,984

Note: Item A includes equity of users.

O&M Cost for GOP Assisted Level I Water Supply Project

Table 11.6.2 O&M Cost for Level I Facilities

	Deep Well	Shallow Well	Spring Dev't
Nos. of Facilities to be Constructed	59	229	40
Nos. of HHs to be Served	891	3,458	604
Reconstruction Cost (Peso)			
Unit Cost	152,200	32,100	294,100
Ttl. Reconst. Cost	8,979,800	7,350,900	
Ttl. Reconst. Cost/year	448,990	735,090	
Cost per HH/year	504	213	
Rehabilitation Cost (Peso)			
Unit Cost	37,600		
Ttl. Rehab. Cost	2,218,400		
Ttl. Rehab. Cost/year	221,840		
Cost per HH/year	249		
Recurrent Cost for O&M (Peso)			
Cost per HH/year	100	50	50
O&M Cost Total (Peso)			
Cost per HH/year	853	263	50

Note: 1) Reconstruction of deep and shallow wells shall be conducted every 20 and 10 years, respectively.
Spring development is excluded due to more than 20 years facility life.
2) Rehabilitation is applicable to deep wells every 10 years.

Table 11.6.3 O&M Cost per HH/month by Facility and Proportion to Monthly Family Income

	Deep Well	Shallow Well	Spring Dev't
O&M Cost per HH/month	71	22	4
Proportion (Mean)	1.2%	0.4%	0.1%
Proportion (Median)	1.6%	0.5%	0.1%

Table 11.6.4 Family Income (Unit: Pesos)

Annual ¹⁾		Monthly ²⁾	
Mean	Median	Mean	Median
47,556	34,857	5,947	4,360

Note: 1) 1994 NSO Family Income and Expenditure Survey
2) Estimated value in 2003 applying 7% inflation rate/year

O&M Cost for GOP Assisted Sanitation Project

Table 11.6.5 O&M Cost for Rural Sanitation (Unit: Pesos)

Nos. of Facilities to be Constructed		Unit Construction Cost		Yearly O&M Cost
Public Toilets	School Toilets	Public Toilets	School Toilets	
0	66	344,100	274,100	904,530

Note: O&M cost includes the salaries of maintenance staff, cost of pumping sludge from septic tanks, and rehabilitation cost, which is assumed to be equivalent to 5% of construction cost.

Table 11.6.6 O&M Cost for Urban Sanitation (Unit: Pesos)

Nos. of Facilities to be Constructed		Unit Construction Cost		Yearly O&M Cost
Public Toilets	School Toilets	Public Toilets	School Toilets	
11	0	344,100	274,100	189,255



12. MONITORING FOR MEDIUM-TERM DEVELOPMENT PLAN

12.4 Evaluation of Plan Implementation and Updating the PW4SP

Table 12.4.1 Draft Formats for Annual Sector Performance Summary Report (Provincial and Municipal Levels)

Form P-1

Province of _____
 Provincial Water & Sanitation Monitoring System
 Annual Sector Performance Summary Report
 Period Covered : _____ to _____

I. Service Coverage

Municipality (1)	LAST YEAR				THIS YEAR			
	Population (2)	Persons with Safe Water & Sanitary Toilets (3)	Persons with Safe Water Only (4)	Persons with Sanitary Toilets Only (5)	Population (6)	Persons with Safe Water & Sanitary Toilets (7)	Persons with Safe Water Only (8)	Persons with Sanitary Toilets Only (9)
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
Total								
% Served								
Targets								

II. Sources & Uses of Capital Development Funds

Source of Fund (1)	Budget for Water Supply & Sanitation (2)	Actual Disbursement (3)	Uses of Funds								
			Water Source Development (4)	Water Supply Transmission (5)	Water Storage/Treatment & Distribution (6)	Household Toilets (7)	School Toilets (8)	Public Toilets (9)	Others (10)		
A. Local Funds.											
Provincial Funds											
Municipal Funds											
A.											
B.											
C.											
D.											
E.											
F.											
G.											
H.											
I.											
J.											
SUB-TOTAL											
B. National Funds											
DPWH											
DOH											
LWUA											
SUB-TOTAL											
C. External Funds											
NGO											
NGO											
NGO											
SUB-TOTAL											
TOTAL											

III. School Sanitation (Source, DECS)

School (Location) (1)	No. of Students Enrolled (2)	Water Supply Adequate? (Y/N) (3)	No. of Functioning Toilet Units (4)	Facility: Student Ratio (5)

IV. Incidence of Diarrhea (Source IPHO)

Month (1)	Last Year (2)	This Year (3)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

V. Water Resources: Report any major changes in the availability and quality of water in the province. Attach map.

VI. Unit Cost Summary : Based on projects actually implemented and paid for during the reporting period, indicate the following average unit costs

1. Shallow Well (w/o hand pump) = _____ / Meter Depth
2. Deep Well (w/o pump) = _____ / Meter Depth
3. Pipeline = _____ / meter
4. Storage Tanks =
5. Others,

Municipality of _____
 Provincial Water & Sanitation Monitoring System

Annual Sector Performance Summary Report

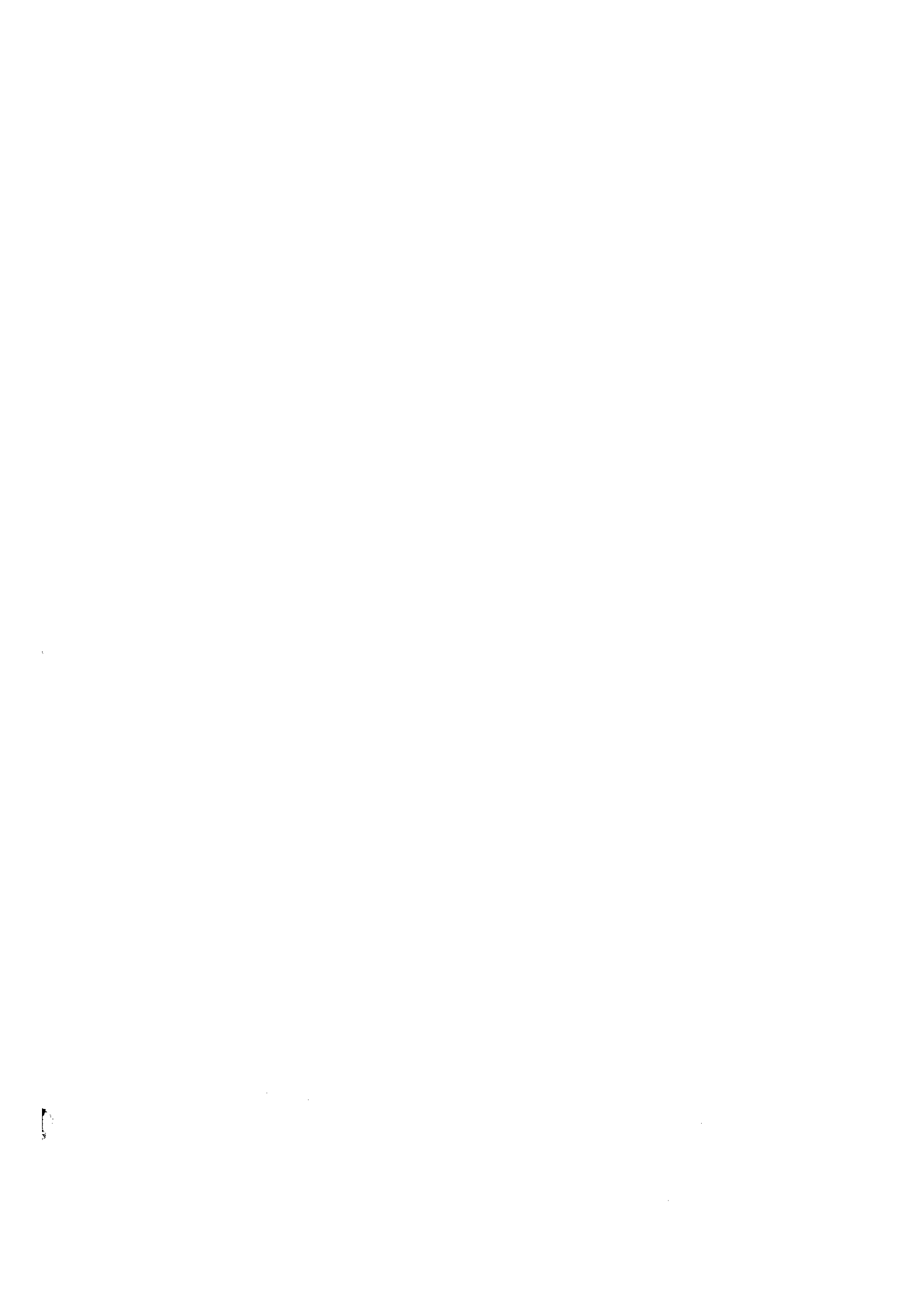
Period Covered : _____ to _____

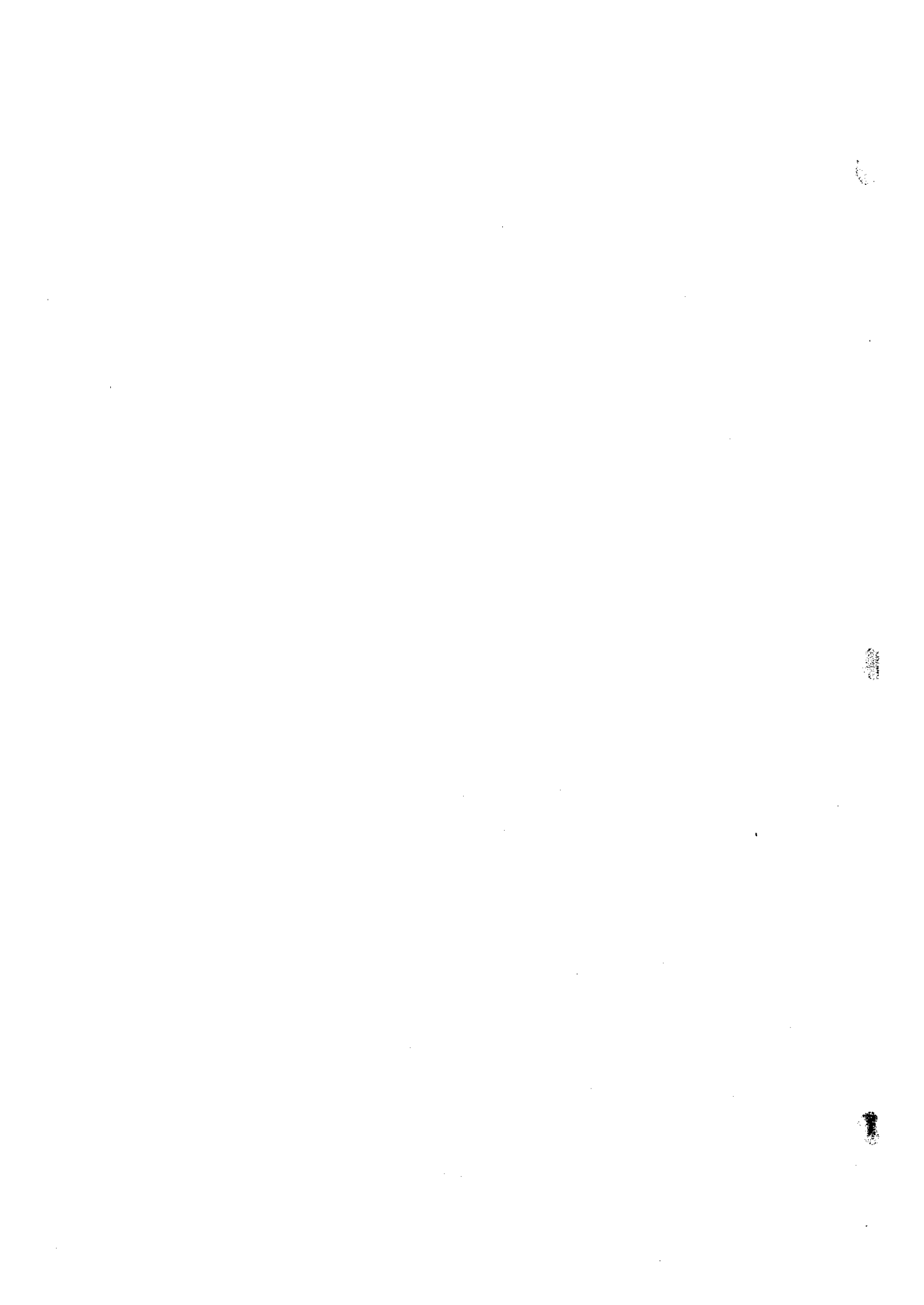
I. Service Coverage

Name of Barangay (1)	LAST YEAR				THIS YEAR			
	Population (2)	Persons with Safe Water & Sanitary Toilets (3)	Persons with Safe Water Only (4)	Persons with Sanitary Toilets Only (5)	Population (6)	Persons with Safe Water & Sanitary Toilets (7)	Persons with Safe Water Only (8)	Persons with Sanitary Toilets Only (9)
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
Total								
% Served								

II. Sources & Uses of Capital Development Funds.

Source of Funds (1)	Budget (2)	Actual Disbursement (3)	Uses of Funds							Others (10)	
			Water Source Development (4)	Water Supply Transmission (5)	Water Storage/ Treatment & Distribution (6)	Household Toilets (7)	School Toilets (8)	Public Toilets (9)			
Municipal Funds											
Barangay Funds											
A.											
B.											
C.											
D.											
E.											
F.											
G.											
H.											
I.											
J.											
K.											
L.											
M.											
N.											
O.											
P.											
Q.											
R.											
S.											
T.											
U.											
W.											
SUB-TOTAL											
NGO											
NGO											
NGO											
SUB-TOTAL											
TOTAL											





JICA