

10 COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

10.2 Assumption for Cost Estimates

(1) Unit Construction Cost

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 1998 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 1998 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 1998 were employed in round figures. Some of them (pipe materials, etc.) were, however, deferred at previous level due to considerable price stabilization in the last year.

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

Table 10.2.1 Price of Major Materials by Facility

Major Materials	Water Supply			Sanitation		Projection by Major Materials				Canvassed & Collected Price		Comparison (1), (2) & (3)			
	L-I	L-II	L-III	ST, PT	Flush type	VIP, Dry	NSO Wholesale Price Index		Escalation	Price			DPWH ^(a)	CIA ^(b)	
							1995	1998		1995	1998 ^(c)				
1. Aggregate	x	x	x	x	x	x	311.6	367.5	5.7%		304	359	330	350	Almost the same with (2) & (3).
Sand											385	454	418	500	
Gravel											117	127	126	105	
2. Cement	x	x	x	x	x	x	197.4	214.1	2.7%		117	127	126	105	ditto
3. Fuel	x	x	x				601.6	742.6	7.3%		1,100	1,358	1306		
4. Metal pipe 4" x 3m, GI 4" x 3m, Screen	x	x	x				208.7	226.3	2.7%		2,625	2,846	2763		Price of GI casing is almost the same with (2) and screen is 12% lower than (2).
5. PVC pipe 2" x 3m 1-1/2" elbow	x	x	x	x	x		199.2	223.4	3.9%		813	912	882	852	
6. Reinforcing 12mm x 6m 10mm x 6m	x	x	x	x	x	x	201.4	221.9	3.3%		13	15		40	Almost the same with (2).
7. Lumber				x	x	x	268.5	296.8	3.4%		68	75		75	
8. Paint Enamel, QDE				x			128.0	140.1	3.1%		49	54		45	Almost the same with (2).
9. Machinery	x						254.8	254.8	0.0%		266	291		310	

L-I: Deep well/shallow well, L-II: Major materials are the 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, prevailing prices for the month of December 1998
 GI: Galvanized iron steel pipe for well casing, Screen: Low carbon steel and wound wire type

Table 10.2.2 (a) Unit Cost of Level I (Gravel Packed Deep Well - 40m Depth)

(Cost, Peso)

Description	Qty.	Unit	Unit Cost	Amount
A. Mobilization/Demobilization/Site Preparation		LS		52,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	11	pcs.	2,846	31,306
(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.	4,667	9,334
(4) Casing Centralizer	2	set	1,925	3,850
2. Labor, Fuel, Lubricant and others				
Well Drilling for 40 m depth at 200mm borehole	40	m	2,500	100,000
3. Borehole Logging	1	no	16,000	16,000
4. Freight Cost (10% of Materials)		LS		4,749
Sub-Total of B				168,236
C. Well Development and Pumping Test				
Well Development	24	hr.	5,500	132,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				162,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 6m Riser Pipe and Pump Rod	6	pcs.	1,880	11,280
(3) #10 Sieved Gravel	1	cu.m	1,026	1,026
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	4	bags	127	508
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				27,409
2. Labor (40% of D-1.)				10,964
3. Freight Cost (10% of Materials)		LS		2,741
Sub-Total of D				41,114
E. Indirect Cost				
Profit (10% of A, B, C & D)				42,335
Overhead Expense (13% of A, B, C & D)				55,036
VAT (10% of Labor, Profit & Overhead Expense)				20,834
Sub-Total of E				63,169
Total of Construction Cost (A+B+C+D+E)				354,519
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				361,919
SAY				361,900

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.2 (b) Unit Cost of Level I (Natural Gravel packed Deep Well - 40m Depth)

(Cost: Peso)				
Description	Qty.	Unit	Unit Cost	Amount
A. Mobilization/Demobilization		LS		52,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	11	pcs.	2,846	31,306
(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.	4,667	9,334
(4) Casing Centralizer	0	set	1,925	0
2. Labor, Fuel, Lubricant and others				
Well Drilling for 40 m depth at 150mm borehole	40	m	1,600	64,000
3. Borehole Logging	1	no	16,000	16,000
4. Freight Cost (10% of Materials)		LS		4,364
Sub-Total of B				128,001
C. Well Development and Pumping Test				
Well Development	12	hr.	5,500	66,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				96,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 6m Riser Pipe and Pump Rod	6	pcs.	1,880	11,280
(3) #10 Sieved Gravel	0	cu.m	1,026	0
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	3	bags	127	381
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				26,256
2. Labor (40% of D-1.)				10,502
3. Freight Cost (10% of Materials)		LS		2,626
Sub-Total of D				39,384
E. Indirect Cost				
Profit (10% of A, B, C & D)				31,539
Overhead Expense (13% of A, B, C & D)				41,000
VAT (10% of Labor, Profit & Overhead Expense)				14,704
Sub-Total of E				46,243
Total of Construction Cost (A+B+C+D+E)				295,628
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				303,028
SAY				303,000

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.2(c) Unit Cost of Level I (Gravel Packed Deep Well - 40m Depth) for Acid Water

(Cost, Peso)				
Description	Qty.	Unit	Unit Cost	Amount
A. Mobilization/Demobilization/Site Preparation		LS		52,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m PVC Casing with Socket	11	pcs.	2,038	22,418
(2) 100mm x 3m PVC Casing with Plug	1	pc.	980	980
(3) 100mm x 3m Stainless Steel Screen	2	pcs.	12,700	25,400
(4) Casing Centralizer	2	set	1,925	3,850
2. Labor, Fuel, Lubricant and others				
Well Drilling for 40 m depth at 200mm borehole	40	m	2,500	100,000
3. Borehole Logging	1	no	16,000	16,000
4. Freight Cost (10% of Materials)		LS		5,265
Sub-Total of B				173,913
C. Well Development and Pumping Test				
Well Development	24	hr.	5,500	132,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				162,000
D. Gravel Packing, Installation of Handpump and				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 3m PVC Riser Pipe and SUS Pump Rod	12	pcs.	2,450	29,400
(3) #10 Sieved Gravel	1	cu.m	1,026	1,026
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	4	bags	127	508
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				45,529
2. Labor (40% of D-1)				18,212
3. Freight Cost (10% of Materials)		LS		4,553
Sub-Total of D				68,294
E. Indirect Cost				
Profit (10% of A, B, C & D)				45,621
Overhead Expense (13% of A, B, C & D)				59,307
VAT (10% of Labor, Profit & Overhead Expense)				22,314
Sub-Total of E				67,935
Total of Construction Cost (A+B+C+D+E)				392,142
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				399,542
SAY				399,500

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.3 (a) Unit Cost of Level I (Gravel Packed Deep Well - 80m Depth)

(Cost: Peso)

Description	Qty.	Unit	Unit Cost	Amount
A. Mobilization/Demobilization/Site Preparation		LS		54,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	24	pcs.	2,846	68,304
(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.	4,667	9,334
(4) Casing Centralizer	2	set	1,925	3,850
2. Labor, Fuel, Lubricant and others				
Well Drilling for 40 m depth at 200mm borehole	80	m	2,500	200,000
3. Borehole Logging	1	no	18,000	18,000
4. Freight Cost (10% of Materials)		LS		8,449
Sub-Total of B				310,934
C. Well Development and Pumping Test				
Well Development	24	hr.	5,500	132,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				162,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 6m Riser Pipe and Pump Rod	8	pcs.	1,880	15,040
(3) #10 Sieved Gravel	1	cu.m	1,026	1,026
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	4	bags	127	508
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				31,169
2. Labor (40% of D-1.)				12,468
3. Freight Cost (10% of Materials)		LS		3,117
Sub-Total of D				46,754
E. Indirect Cost				
Profit (10% of A, B, C & D)				57,369
Overhead Expense (13% of A, B, C & D)				74,579
VAT (10% of Labor, Profit & Overhead Expense)				34,442
Sub-Total of E				91,811
Total of Construction Cost (A+B+C+D+E)				533,499
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				540,899
SAY				540,900

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.3 (b) Unit Cost of Level I (Natural Gravel Packed Deep Well - 80m Depth)

(Cost: Peso)

Description	Qty.	Unit	Unit Cost	Cost
A. Mobilization/Demobilization/Site Preparation		LS		54,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	24	pcs.	2,846	68,304
(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.	4,667	9,334
(4) Casing Centralizer	0	set	1,925	0
2. Labor, Fuel, Lubricant and others				
Well Drilling for 80 m depth at 150mm borehole	80	m	1,600	128,000
3. Borehole Logging	1	no	18,000	18,000
4. Freight Cost (10% of Materials)		LS		8,064
Sub-Total of B				234,699
C. Well Development and Pumping Test				
Well Development	12	hr.	5,500	66,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				96,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 6m Riser Pipe and Pump Rod	8	pcs.	1,880	15,040
(3) #10 Sieved Gravel	0	cu.m	1,026	0
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	3	bags	127	381
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				30,016
2. Labor (40% of D-1.)				12,006
3. Freight Cost (10% of Materials)		LS		3,002
Sub-Total of D				45,024
E. Indirect Cost				
Profit (10% of A, B, C & D)				42,972
Overhead Expense (13% of A, B, C & D)				55,864
VAT (10% of Labor, Profit & Overhead Expense)				23,884
Sub-Total of E				66,856
Total of Construction Cost (A+B+C+D+E)				430,579
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				437,979
SAY				438,000

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.3 (c) Unit Cost of Level I (Gravel Packed Deep Well - 80m Depth) for Acid Water

(Cost: Peso)

Description	Qty.	Unit	Unit Cost	Cost
A. Mobilization/Demobilization/Site Preparation		LS		54,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m PVC Casing with Socket	24	pcs.	2,038	48,912
(2) 100mm x 3m PVC Casing with Plug	1	pc.	980	980
(3) 100mm x 3m Stainless Steel Screen	2	pcs.	12,700	25,400
(4) Casing Centralizer	2	set	1,925	3,850
2. Labor, Fuel, Lubricant and others				
Well Drilling for 40 m depth at 200mm borehole	80	m	2,500	200,000
3. Borehole Logging	1	no	18,000	18,000
4. Freight Cost (10% of Materials)		LS		7,914
Sub-Total of B				305,056
C. Well Development and Pumping Test				
Well Development	24	hr.	5,500	132,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				162,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 3m PVC Riser Pipe and SUS Pump Rod	16	pcs.	2,450	39,200
(3) #10 Sieved Gravel	1	cu.m	1,026	1,026
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	4	bags	127	508
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				55,329
2. Labor (40% of D-1)				22,132
3. Freight Cost (10% of Materials)		LS		5,533
Sub-Total of D				82,994
E. Indirect Cost				
Profit (10% of A, B, C & D)				60,405
Overhead Expense (13% of A, B, C & D)				78,527
VAT (10% of Labor, Profit & Overhead Expense)				36,106
Sub-Total of E				96,511
Total of Construction Cost (A+B+C+D+E)				568,561
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				575,961
SAY				576,000

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.4 (a) Unit Cost of Level I (Gravel Packed Deep Well - 120m Depth)

(Cost: Peso)

Description	Qty.	Unit	Unit Cost	Amount
A. Mobilization/Demobilization/Site Preparation		LS		56,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	37	pcs.	2,846	105,302
(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.	4,667	9,334
(4) Casing Centralizer	2	set	1,925	3,850
2. Labor, Fuel, Lubricant and others				
Well Drilling for 120 m depth at 200mm borehole	120	m	2,500	300,000
3. Borehole Logging	1	no	20,000	20,000
4. Freight Cost (10% of Materials)		LS		12,148
Sub-Total of B				453,631
C. Well Development and Pumping Test				
Well Development	24	hr.	5,500	132,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				162,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 6m Riser Pipe and Pump Rod	10	pcs.	1,880	18,800
(3) #10 Sieved Gravel	1	cu.m	1,026	1,026
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	4	bags	127	508
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				34,929
2. Labor (40% of D-1.)				13,972
3. Freight Cost (10% of Materials)		LS		3,493
Sub-Total of D				52,394
E. Indirect Cost				
Profit (10% of A, B, C & D)				72,403
Overhead Expense (13% of A, B, C & D)				94,123
VAT (10% of Labor, Profit & Overhead Expense)				48,050
Sub-Total of E				120,453
Total of Construction Cost (A+B+C+D+E)				712,478
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				719,878
SAY				719,900

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.4 (b) Unit Cost of Level I (Natural Gravel Packed Deep Well - 120m Depth)

				(Cost: Peso)
Description	Qty.	Unit	Unit Cost	Cost
A. Mobilization/Demobilization/Site Preparation		LS		56,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	37	pcs.	2,846	105,302
(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.	4,667	9,334
(4) Casing Centralizer	0	set	1,925	0
2. Labor, Fuel, Lubricant and others				
Well Drilling for 120 m depth at 150mm borehole	120	m	1,600	192,000
3. Borehole Logging	1	no	20,000	20,000
4. Freight Cost (10% of Materials)		LS		11,763
Sub-Total of B				341,396
C. Well Development and Pumping Test				
Well Development	12	hr.	5,500	66,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				96,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 6m Riser Pipe and Pump Rod	10	pcs.	1,880	18,800
(3) #10 Sieved Gravel	0	cu.m	1,026	0
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	3	bags	127	381
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				33,776
2. Labor (40% of D-1.)				13,510
3. Freight Cost (10% of Materials)		LS		3,378
Sub-Total of D				50,664
E. Indirect Cost				
Profit (10% of A, B, C & D)				54,406
Overhead Expense (13% of A, B, C & D)				70,728
VAT (10% of Labor, Profit & Overhead Expense)				33,064
Sub-Total of E				87,470
Total of Construction Cost (A+B+C+D+E)				565,530
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				572,930
SAY				572,900

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.4(c) Unit Cost of Level I (Gravel Packed Deep Well - 120m Depth) for Acid Water

Item Description	Quantity	Unit	Unit Cost	Cost
(Cost: Peso)				
A. Mobilization/Demobilization/Site Preparation		LS		56,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m PVC Casing with Socket	37	pcs.	2,038	75,406
(2) 100mm x 3m PVC Casing with Plug	1	pc.	980	980
(3) 100mm x 3m Stainless Steel Screen	2	pcs.	12,700	25,400
(4) Casing Centralizer	2	set	1,925	3,850
2. Labor, Fuel, Lubricant and others				
Well Drilling for 120 m depth at 200mm borehole	120	m	2,500	300,000
3. Borehole Logging	1	no	20,000	20,000
4. Freight Cost (10% of Materials)		LS		10,564
Sub-Total of B				436,200
C. Well Development and Pumping Test				
Well Development	24	hr.	5,500	132,000
Pumping Test	6	hr.	5,000	30,000
Sub-Total of C				162,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Afridev Type)	1	set	11,815	11,815
(2) 63mm x 3m PVC Riser Pipe and SUS Pump Rod	20	pcs.	2,450	49,000
(3) #10 Sieved Gravel	1	cu.m	1,026	1,026
(4) Coarse Sand	1	cu.m	359	359
(5) Cement for Sanitary Seal	4	bags	127	508
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of D-1				65,129
2. Labor (40% of D-1.)				26,052
3. Freight Cost (10% of Materials)		LS		6,513
Sub-Total of D				97,694
E. Indirect Cost				
Profit (10% of A, B, C & D)				75,189
Overhead Expense (13% of A, B, C & D)				97,746
VAT (10% of Labor, Profit & Overhead Expense)				49,899
Sub-Total of E				125,088
Total of Construction Cost (A+B+C+D+E)				744,982
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		3,600
2. Construction Supervision		LS		2,400
3. Water Quality Analysis		LS		1,400
Sub-Total of F				7,400
GRAND TOTAL				752,382
SAY				752,400

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

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

(Cost: Pcs0)

Description	Q'ty	Unit	Unit Cost	Amount
A. Mobilization/Demobilization		LS		8,000
B. Well Rehabilitation				
1. Materials				
(1) Cylinder Pump Set	1	set	9,570	9,570
(2) Cement for Surface Sealing	4	bags	127	508
(3) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	2	cu.m	454	908
3) Sand	1	cu.m	359	359
4) Plywood (4' x 8' x 1/4")	1	pc.	294	294
5) Form Lumber (2" x 3" x 6")	6	pcs.	52	312
6) Nail	1	kg.	40	40
Sub-Total of B-1				12,499
2. Labor (40% of B-1)				5,000
3. Freight Cost (10% of Materials)				1,250
Sub-Total of B				18,749
C. Well Development		LS		31,000
D. Indirect Cost				
Profit (10% of A, B & C)				5,775
Overhead Expense (13% of A, B & C)				7,507
VAT (10% of Profit & Labor)				4,178
Sub-Total of D				17,460
Total of Construction Cost (A+B+C+D)				75,209
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		1,300
2. Supervision		LS		800
3. Water Quality Analysis		LS		1,400
Sub-Total of E				3,500
GRAND TOTAL				78,709
SAY				78,700

Note: LS - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1998 Price Level

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

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Mobilization/Demobilization		LS		20,000
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 63mm x 6m PVC Pipe with socket	2	pcs.	912	1,824
(2) 63mm x 3m PVC Pipe with plug	1	pc.	452	452
(3) 63mm PVC Socket	1	pc.	12	12
(4) 63mm x 3m PVC Screen	1	pc.	1,443	1,443
(5) Casing Centralizer	2	set	725	1,450
2. Labor, Fuel, Lubricant and others				
Well Drilling for 18 m depth at 150mm borehole	18	m	1,600	28,800
3. Freight Cost (10% of Materials)		LS		373
Sub-Total of B				34,354
C. Well Development	4	hr.	2,000	8,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) 50mm Jetmatic Handpump	1	set	2,807	2,807
(2) 50mm Riser Pipe and Foot Valve	1	pc.	118	118
(3) #10 Sieved Gravel	0.1	cu.m	1,026	103
(4) Coarse Sand	0.07	cu.m	359	25
(5) Cement for Sanitary Seal	4	bag	127	508
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	1	cu.m	454	454
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mm x 75mm x 1,800 mm)	1	pc.	52	52
6) Nail	1	kg.	40	40
Sub-Total of D-1				5,268
2. Labor (40% of D-1.)				2,107
3. Freight Cost (10% of Materials)		LS		527
Sub-Total of D				7,902
E. Indirect Cost				
Profit (10% of A to D)				7,026
Overhead Expense (13% of A to D)				9,133
VAT (10% of Profit & Overhead Expense)				1,616
Sub-Total of E				8,642
Total of Construction Cost (A+B+C+D+E)				78,898
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		1,300
2. Construction Supervision		LS		800
3. Water Quality Analysis		LS		1,400
Sub-Total of F				3,500
GRAND TOTAL				82,398
SAY				82,400

Note: LS - Lump Sum

Source: DPWH standard price in 1994 & LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.7 Unit Cost of Level I (Spring Development)

(Cost: Peso)

Description	Qty	Unit	Unit Cost	Amount
A. Mobilization/Demobilization		LS		24,000
B. Construction of Spring Box				
1. Materials		LS		42,700
2. Labor (35% of 1.)		LS		14,945
3. Freight Cost (10% of Materials)		LS		4,270
Sub-Total of B				61,915
C. Installation of Pipelines & Fittings				
1. Transmission Materials				
63mm dia. PVC Pipe (Class 12.5 with socket)	330	pcs.	959	316,470
63mm dia. Tee	1	no.	172	172
Solvent Cement	26	cans	140	3,640
63mm dia. Elbow (90 deg.)	3	nos.	89	267
63mm dia. Elbow (45 deg.)	1	pc.	99	99
50mm dia. Gate Valve	2	pcs.	900	1,800
50mm dia. x 1m Stand Pipe	1	pc.	177	177
63mm x 50mm GI Nipple	1	pc.	123	123
50mm dia. Union Patent	3	pcs.	192	576
63mm x 50mm dia. Reducing Socket	2	pcs.	113	226
50mm dia. GI Elbow (90 deg.)	2	pcs.	79	158
63mm x 50mm dia. Socket Adapter	2	pcs.	167	334
50mm dia. GI Gate Valve	2	pcs.	791	1,582
13mm dia. Brass Faucet	2	pcs.	59	118
Sub-Total of Materials				325,624
Labor (35% of Material Cost)		LS		113,968
Freight Cost (10% of Materials)		LS		32,562
Sub-Total of C				472,154
D. Indirect Cost				
1. Transmission Main				
Profit (10% of C)				47,215
Overhead Expense (13% of C)				61,380
VAT (10% of Profit, Overhead Expense & Labor)				22,256
2. Source Facilities				
Profit (10% of A, B)				25,775
Overhead Expense (13% of A, B)				8,592
VAT (10% of Profit, Overhead Expense & Labor)				4,931
Sub-Total of D				170,149
Total Construction Cost (A+B+C+D)				728,218
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering and RWSA Formation		LS		2,400
2. Supervision		LS		15,000
3. Water Quality Analysis		LS		1,400
Sub-Total of E				18,800
GRAND TOTAL				747,018
SAY				747,000

Note: LS - Lump Sum

Source:

DPWH standard price in 1994

LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

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

Sheet 1 of 2

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Mobilization/Demobilization		LS		36,000
B. Construction of Spring Box & Ground Reservoir				
1. Materials		LS		128,000
2. Labor (35% of 1.)		LS		44,800
3. Freight Cost (10% of Materials)		LS		12,800
Sub-Total of B				185,600
C. Installation of Pipelines & Fittings				
1. Transmission Pipeline Materials				
63mm dia. PVC Pipe (Class 12.5 with socket)	500	pcs.	959	479,500
63mm dia. Tee	1	no.	172	172
Solvent Cement	40	cans	140	5,600
63mm dia. x 50mm Nipple	3	nos.	159	477
63mm dia. Union Patent	1	pc.	203	203
63mm dia. x 50mm dia. Reducing Socket	2	pes.	123	246
63mm dia. Elbow (90 deg.)	1	pc.	89	89
63mm dia. Elbow (45 deg.)	1	pc.	99	99
63mm dia. Gate Valve	3	pes.	1,320	3,960
Sub-Total of Materials				490,346
Labor (35% of Material Cost)		LS		171,621
Freight Cost (10% of Materials)		LS		49,035
Sub-Total of Transmission Main				711,002
2. Distribution Pipeline Materials				
50mm dia. PVC Pipe (Class 12.5 with socket)	20	pcs.	531	10,620
38mm dia. PVC Pipe (Class 12.5 with socket)	30	pcs.	353	10,590
20mm dia. PVC Pipe (Class 40 with socket)	10	pcs.	118	1,180
13mm dia. x 1 m Stand Pipe	10	pcs.	110	1,100
Solvent Cement	4	cans	140	560
Fittings				
a. 50mm dia. x 150mm PVC Nipple	3	pcs.	147	441
b. 32mm dia. x 150mm PVC Nipple	3	pcs.	89	267
c. 13mm dia. x 150mm GI Nipple	40	pcs.	29	1,160
d. 50mm dia. Union Patent	1	pcs.	192	192
e. 32mm dia. Union Patent	2	pcs.	83	166
f. 13mm dia. Union Patent	10	pcs.	29	290
g. 50mm dia. x 32mm dia. Reducing Socket	6	pes.	106	636
h. 32mm dia. x 20mm dia. Reducing Socket	10	pes.	82	820
i. 20mm dia. x 13mm dia. Reducing Socket	10	pes.	64	640
j. 50mm dia. PVC Elbow (90 deg.)	2	pcs.	64	128
k. 13mm dia. GI Elbow (90 deg.)	20	pcs.	15	300
l. 20mm dia. x 13mm dia. Socket Adapter	10	pcs.	48	480
m. 50mm dia. GI Gate Valve	2	pcs.	791	1,582
n. 32mm dia. GI Gate Valve	2	pcs.	447	894
o. 13mm dia. GI Gate Valve	24	pcs.	271	6,504
p. 13mm dia. Brass Faucet	24	pcs.	59	1,416
q. 50mm dia. Tee	4	pcs.	153	612
r. 32mm dia. Tee	6	pcs.	129	774
s. Water Meter	24	pcs.	1,004	24,096
t. Water Meter Box	24	pcs.	1,297	31,128
Sub-Total of Materials				96,576

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

Sheet 2 of 2

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
Labor (35% of Material Cost)		LS		33,802
Freight Cost (10% of Materials)		LS		9,658
Sub-Total of Distribution Pipeline				140,036
Sub-Total of C				851,038
D. Indirect Cost				
1. Transmission Main				
Profit (10% of C-1)		LS		71,100
Overhead Expense (13% of C-1)		LS		92,430
VAT (10% of Profit, Overhead Expense and Labor)		LS		33,515
2. Source Facilities and Distribution Pipeline				
Profit (10% of A, B, C-2)		LS		36,164
Overhead Expense (13% of A, B and C-2)		LS		47,013
VAT (10% of Profit, Overhead Expense and Labor)		LS		16,178
Sub-Total of D				296,400
Total Construction Cost (A+B+C+D)				1,369,038
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering and RWSA Formation		LS		2,400
2. Supervision		LS		15,000
3. Water Quality Analysis		LS		1,400
Sub-Total of E				18,800
Total Estimated Cost				1,387,838
Unit Cost per Person Served				2,313
SAY				2,300

Note: LS - Lump Sum

Source:

DPWH standard price in 1994

LWUA Water Supply Feasibility Study Methodology Manual 1998

Unit Cost: Adjusted to 1998 Price Level

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

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Mobilization/Demobilization		LS		360,000
B. Source Development and Storage				
1. Deep Well	1	No.	2,001,000	2,001,000
2. Deep Well Pump	1	No.	832,000	832,000
3. Chlorinator House & Equipment	1	LS	632,000	632,000
4. Storage Tank (250 cu.m)	1	No.	1,300,000	1,300,000
Sub-Total of B				4,765,000
C. Transmission Main				
1. 160mm dia.	500	LM	1,320	660,000
Sub-Total of C				660,000
D. Distribution Main				
1. 160mm dia.	1,000	LM	1,320	1,320,000
2. 110mm dia.	3,000	LM	1,090	3,270,000
3. 90mm dia.	3,000	LM	684	2,052,000
4. 75mm dia.	6,000	LM	637	3,822,000
Sub-Total of D				10,464,000
E. Service Connections	1,000	Nos.	2,288	2,288,000
F. Miscellaneous				
1. Vehicle	1	No.	649,000	649,000
2. Office & Workshop Bldg.	1	No.	645,000	645,000
3. Office Equipment	1	LS	118,000	118,000
4. Tools and Spare Parts	1	LS	110,000	110,000
Sub-Total of F				1,522,000
Total Direct Cost (A+B+C+D+E+F)				20,059,000
G. Indirect Cost (25% of Direct Cost)				5,014,750
Total Estimated Cost				25,073,750
Unit Cost per Person Served For New Construction				5,015
			SAY	5,000
For Expansion of Existing System (Exclude F.)				4,634
			SAY	4,600

Note: LS - 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 1998 Price Level

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

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Mobilization/Demobilization		LS		360,000
B. Source Development and Storage				
1. Deep Well	1	No.	2,001,000	2,001,000
2. Deep Well Pump	1	No.	832,000	832,000
3. Chlorinator House & Equipment	1	LS	632,000	632,000
4. Storage Tank (250 cu.m)	1	No.	1,300,000	1,300,000
Sub-Total of B				4,765,000
C. Transmission Main				
1. 160mm dia.	500	LM	1,320	660,000
Sub-Total of C				660,000
D. Distribution Main				
1. 160mm dia.	2,000	LM	1,320	2,640,000
2. 110mm dia.	5,000	LM	1,090	5,450,000
3. 90mm dia.	6,000	LM	684	4,104,000
4. 75mm dia.	9,000	LM	637	5,733,000
Sub-Total of D				17,927,000
E. Service Connections	2,000	Nos.	2,288	4,576,000
F. Miscellaneous				
1. Vehicle	1	No.	649,000	649,000
2. Office & Workshop Bldg.	1	No.	645,000	645,000
3. Office Equipment	1	LS	118,000	118,000
4. Tools and Spare Parts	1	LS	110,000	110,000
Sub-Total of F				1,522,000
Total Direct Cost (A+B+C+D+E+F)				29,810,000
G. Indirect Cost (25% of Direct Cost)				7,452,500
Total Estimated Cost				37,262,500
Unit Cost per Person Served				
For New Construction				3,726
For Expansion of Existing System (Exclude F.)				3,700
				3,536
				3,500

Note: LS - 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 1998 Price Level

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

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Mobilization/Demobilization		LS		360,000
B. Source Development and Storage				
1. Deep Well	2	No.	2,001,000	4,002,000
2. Deep Well Pump	2	No.	832,000	1,664,000
3. Chlorinator House & Equipment	2	LS	632,000	1,264,000
4. Storage Tank (250 cu.m)	2	No.	1,300,000	2,600,000
Sub-Total of B				9,530,000
C. Transmission Main				
1. 160mm dia.	1,000	LM	1,320	1,320,000
Sub-Total of C				1,320,000
D. Distribution Main				
1. 160mm dia.	3,000	LM	1,320	3,960,000
2. 110mm dia.	7,000	LM	1,090	7,630,000
3. 90mm dia.	8,000	LM	684	5,472,000
4. 75mm dia.	10,000	LM	637	6,370,000
Sub-Total of D				23,432,000
E. Service Connections	3,000	Nos.	2,288	6,864,000
F. Miscellaneous				
1. Vehicle	1	No.	649,000	649,000
2. Office & Workshop Bldg.	1	No.	645,000	645,000
3. Office Equipment	1	LS	118,000	118,000
4. Tools and Spare Parts	1	LS	110,000	110,000
Sub-Total of F				1,522,000
Total Direct Cost (A+B+C+D+E+F)				43,028,000
G. Indirect Cost (25% of Direct Cost)				10,757,000
Total Estimated Cost				53,785,000
Unit Cost per Person Served For New Construction				3,586
For Expansion of Existing System (Exclude F.)				3,600
				3,459
				3,500

Note: LS - 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 1998 Price Level

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

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Demolition		LS		1,100
B. Earthwork				
1. Materials				
(1) Gravel Fill	1	cu.m	454	454
Sub-Total of B-1				454
2. Labor				
(1) Excavation	6	cu.m	140	840
(2) Backfill	2	cu.m	127	254
(3) Gravel Fill	1	cu.m	166	166
Sub-Total of B-2				1,260
Sub-Total of B				1,714
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	pc.	58	174
(3) #16 Tie Wire	0.5	kg	58	29
(4) Cement	10	bag	137	1,370
(5) Sand	1.5	cu.m	359	539
(6) Gravel	2	cu.m	454	908
(7) Stone Lining with Mortar	1	LS	1,250	1,250
Sub-Total of C-1				5,294
2. Labor (30% of C-1)				1,588
Sub-Total of C				6,882
D. Carpentry Work				
1. Materials				
(1) Nipa	60	pc.	2	120
(2) 1.5m x 1.8m, amakan	3	pc.	75	225
(3) 2" x 3" x 10' Coco Lumber	20	bd.ft	11	220
(4) 2" x 2" x 10' Coco Lumber	33.3	bd.ft	10	333
(5) 3" dia. Bamboo	3	light	21	63
(6) Assorted CWN	4	kg	43	172
(7) Rattan wire	20	pc.	1	20
Sub-Total of C-1				1,153
2. Labor (30% of C-1)				346
Sub-Total of C				1,499
E. Plumbing				
1. Materials				
(1) Water Closet	1	set	4,900	4,900
(2) Water line and sanitary fixtures	1	LS	1,650	1,650
Sub-Total of E-1				6,550
2. Labor (30% of E-1)				1,965
Sub-Total of E				8,515
F. Transportation Cost (excluding indigenous materials)	1	LS	540	540
G. Indirect Cost				
Profit (10% of A - F)				2,025
VAT (10% of Profit & Labor)				718
Sub-Total of F				2,743
Total of Construction Cost (A+B+C+D+E+F+G)			SAY	22,993
				23,000

Note: LS - Lump Sum
 Source: DOH standard price in 1993
 Unit Cost, Adjusted to 1998 Price Level

Table 10.2.13 Unit Cost of Pour Flush with Double Pit Latrine

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Earthwork				
1. Materials				
(1) Gravel Fill	1	cu.m	454	454
Sub-Total of A-1				454
2. Labor				
(1) Excavation	6	cu.m	140	840
(2) Backfill	2	cu.m	127	254
(3) Gravel Fill	1	cu.m	166	166
Sub-Total of A-2				1,260
Sub-Total of A				1,714
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	pc.	58	174
(3) #16 Tie Wire	0.5	kg	58	29
(4) Cement	10	bag	137	1,370
(5) Sand	1.5	cu.m	359	539
(6) Gravel	2	cu.m	454	908
(7) Stone Lining with Mortar	1	LS	1,250	1,250
Sub-Total of B-1				5,294
2. Labor (25% of B-1)				1,323
Sub-Total of B				6,617
C. Carpentry Work				
1. Materials				
(1) Nipa	60	pc.	2	120
(2) 1.5m x 1.8m, anakan	3	pc.	75	225
(3) 2" x 3" x 10' Coco Lumber	20	bd.ft	11	220
(4) 2" x 2" x 10' Coco Lumber	33.3	bd.ft	10	333
(5) 3" dia. Bamboo	3	light	21	63
(6) Assorted CWN	4	kg	43	172
(7) Rattan wire	20	pc.	1	20
(8) Pale (medium)	1	pc.	203	203
(9) 3" dia. PVC x 3m	1	pc.	665	665
(10) 3" dia. PVC Elbow	2	pc.	70	140
(11) PVC solvent	1	pint	54	54
(12) Ga. 31" x 8' plain GI sheet	1	sheet	214	214
Sub-Total of C-1				2,429
2. Labor (25% of C-1)				607
Sub-Total of C				3,036
D. Plumbing				
1. Material				
(1) Toilet Bowl-Squat Type	1	pc.	703	703
(2) 75mm dia x 6.0m PVC Pipe	1	pc.	152	152
Sub-Total of D-1				855
2. Labor (25% of D-1)				214
Sub-Total of D				1,069
E. Transportation Cost (excluding indigenous materials)	1	LS	340	340
F. Indirect Cost				
Profit (10% of A - D)				1,547
VAT (10% of Profit & Labor)				495
Sub-Total of F				2,042
Total Construction Cost (A+B+C+D+E+F)			SAY	14,818
				14,800

Note: LS - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.14 Unit Construction Cost of Ventilated Improved Pit Latrine

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Earthwork				
1. Materials				
(1) Gravel Fill	0.5	cu.m	454	227
Sub-Total of A-1				227
2. Labor				
(1) Excavation	3	cu.m	140	420
(2) Backfill	1	cu.m	127	127
(3) Gravel Fill	0.5	cu.m	166	83
Sub-Total of A-2				630
Sub-Total of A				857
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 2" x 8" x 6' Coco Lumber	64	bd.ft	8	512
(2) 10mm dia x 6.0m Rebar	2	pc.	58	116
(3) #16 Tie Wire	0.5	kg	58	29
(4) Cement	4	bag	137	548
(5) Sand	0.5	cu.m	359	180
(6) Gravel	0.5	cu.m	454	227
(7) Stone Lining with Mortar	1	LS	1,200	1,200
Sub-total of B-1				2,812
2. Labor (25% of B-1)				703
Sub-Total of B				3,515
C. Carpentry Work				
1. Materials				
(1) Nipa	60	pc.	2	120
(2) 1.5m x 1.8m, amakan	3	pc.	75	225
(3) 2" x 3" x 10' Coco Lumber	20	bd.ft	11	220
(4) 2" x 2" x 10' Coco Lumber	33.3	bd.ft	10	333
(5) 3" dia. Bamboo	3	light	21	63
(6) Assorted CWN	4	kg	43	172
(7) Raffan wire	20	pc.	1	20
(8) 3" x 3" hinges	2	pc.	32	64
Sub-Total of C-1				1,217
2. Labor (25% of C-1)				304
Sub-Total of C				1,521
D. Plumbing				
1. Material				
(1) 50mm dia. PVC Pipe	1	pc.	76	76
(2) Fly Screen	1	pc.	59	59
Sub-Total of D-1				135
2. Labor (25% of D-1)				41
Sub-Total of D				176
E. Transportation Cost (excluding indigenous materials)	1	LS	170	170
F. Indirect Cost				
Profit (10% of A - E)				624
VAT (10% of Profit & Labor)				230
Sub-Total of F				854
Total Construction Cost (A+B+C+D+E+F)			SAY	7,093
				7,100

Note: LS - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.15 Unit Construction Cost of Pit Latrine

(Cost: Peso)

Description	Qty	Unit	Unit Cost	Amount
A. Earthwork				
1. Materials				
(1) Gravel Fill	0.3	cu.m	454	136
Sub-Total of A-1				136
2. Labor				
(1) Excavation	2	cu.m	140	280
(2) Backfill	0.6	cu.m	127	76
(3) Gravel Fill	0.3	cu.m	166	50
Sub-Total of A-2				406
Sub-Total of A				542
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 2" x 8" x 6' Coco Lumber	38	bd.ft	8	304
(2) 10mm dia x 6.0m Rebar	1	pc.	58	58
(3) #16 Tie Wire	0.5	kg.	58	29
(4) Cement	3	bag	137	411
(5) Sand	0.3	cu.m	359	108
(6) Gravel	0.3	cu.m	454	136
(7) Stone Lining with Mortar	1	LS	700	700
Sub-total of B-1				1,746
2. Labor (25% of B-1)				436
Sub-Total of B				2,182
C. Carpentry Work				
1. Materials				
(1) Nipa	30	pc.	2	60
(2) 1.0m x 1.8m, amakan	3	pc.	75	225
(3) 2" x 3" x 10' Coco Lumber	14	bd.ft	11	154
(4) 2" x 2" x 10' Coco Lumber	24	bd.ft	10	240
(5) 3" dia. Bamboo	3	light	21	63
(6) Assorted CWN	3	kg	43	129
(7) Rattan wire	14	pc.	1	14
(8) 3" x 3" hinges	2	pc.	32	64
Sub-Total of C-1				949
2. Labor (25% of C-1)				237
Sub-Total of C				1,186
D. Transportation Cost (excluding indigenous materials)	1	LS	170	170
E. Indirect Cost				
Profit (10% of A -D)				391
VAT (10% of Profit & Labor)				164
Sub-Total of E				555
Total Construction Cost (A+B+C+D+E)			SAY	4,635 4,600

Note: LS - Lump Sum

Source: DOI standard price in 1993

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.16 Unit Cost of School Toilet

Sheet 1 of 5

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
A. Mobilization and Demobilization		LS		6,000
B. Earthwork				
1. Materials				
(1) Gravel Fill	3	cu.m	454	1,362
Sub-Total of B-1				1,362
2. Labor				
(1) Excavation	16	cu.m	140	2,240
(2) Backfill	5	cu.m	127	635
(3) Gravel Fill	3	cu.m	166	498
Sub-Total of B-2				3,373
Sub-Total of B				4,735
C. Concrete Work				
1. Materials				
(1) Cement	61	bags	137	8,357
(2) Sand	4	cu.m	359	1,436
(3) Gravel	8	cu.m	454	3,632
(4) Rebars: 12mm dia x 6m	38	pcs.	79	3,002
10mm dia x 6m	57	pcs.	58	3,306
(5) #16 Tie Wire	8	kg.	58	464
(6) Formworks:				
1/4" Plywood	6	pcs.	477	2,862
2" x 2" x 10', Coco Lumber	200	bd.ft.	10	2,000
Sub-Total of C-1				25,059
2. Labor (30% of C-1)		LS		7,518
Sub-Total of C				32,577
D. Masonry Work				
1. Materials				
(1) 6" CHB	800	pcs.	6	4,800
(2) 4" CHB	260	pcs.	5	1,300
(3) Cement	97	bags	137	13,289
(5) Sand	10	cu.m	359	3,590
(6) Rebars: 12mm dia x 6m	30	pcs.	79	2,370
10mm dia x 6m	11	pcs.	58	638
(7) #16 Tie Wire	4	kg.	58	232
(8) Scaffolding:				
2" x 4" x 8' x 10pcs., Coco Lumber	53	bf.	8	424
Sub-Total of D-1				26,643
2. Labor (30% of D-1)		LS		7,993
Sub-Total of D				34,636
E. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (1 = 10')	20	pcs.	310	6,200
(2) GA #24 Pln. GI Flashing	3	pcs.	300	900
(3) GA #24 Pln. GI Gutter (Pre-Fab)	9	pcs.	300	2,700
(4) Umbrella Nails 2-1/2"	12	kg.	50	600
(5) Rafter - 2" x 5" x 18' = 5pcs.	75	bf.	35	2,625
(6) Purlins - 2" x 2" x 12' = 18pcs.	72	bf.	35	2,520
(7) WD Cleats - 2" x 2" x 10" = 6pcs.	20	bf.	35	700
(8) Nailers - 2" x 2" x 12' = 30pcs.	120	bf.	35	4,200
- 2" x 2" x 10' = 36pcs.	120	bf.	35	4,200

Table 10.2.16 Unit Cost of School Toilet

Sheet 2 of 5

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
(9) Fascia Board				
1" x 12" x 12' = 4pcs.	48	bf.	35	1,680
1" x 12" x 18' = 2pcs.	36	bf.	34	1,224
(10) Wood Plate				
2" x 4" x 20' = 2pcs.	27	bf.	34	918
(11) 1/4" Thk. Mar. Plywood 4'x8'	14	pcs.	32	448
(12) C.W.N. Assorted	15	kg.	43	645
(13) 3" dia x 3m Downspout (PVC)	3	pcs.	91	273
(14) 3" dia Elbow (PVC)	2	pcs.	70	140
(15) 3" dia Coupling (PVC)	1	pcs.	26	26
(16) Ceiling Vent				
1" x 1" x 8' = 4pcs.	3	bf.	29	87
(17) Screen (1/8" x 1/8")	1	yd.	91	91
Sub-Total of E-1				30,177
2. Labor (30% of E-1)		LS		9,053
Sub-Total of E				39,230
F. Carpentry Work				
1. Materials				
(1) D - 1 Hollow Core Tanguile Flush Type Door w/ Louver (.80x2.20)	2	sets	1,620	3,240
(2) D - 2 Hollow Core Tanguile Flush Type Door (.60x2.10)	1	sets	1,216	1,216
(3) D - 3 Louver Door (.60x1.40)	5	sets	1,013	5,065
(4) Door Jambs (Apitong)				
2" x 6" x 14" = 1pc.	14	bf.	37	518
2" x 6" x 10" = 2pcs.	20	bf.	36	720
2" x 6" x 10" = 1pc.	18	bf.	35	630
2" x 4" x 12" = 5pcs.	40	bf.	34	1,360
(7) Wooden Jalousie Window With 5 Blades (.40x.50)	14	set	338	4,732
(8) Window Jambs (Apitong)				
2" x 6" x 16" = 5pcs.	80	bf.	36	2,880
2" x 6" x 14" = 1pc.	14	bf.	35	490
2" x 6" x 10" = 1pc.	10	bf.	34	340
(9) Cabinet 3/4" x 4' x 8' = 1pc. (plyboard)	1	pc.	878	878
Sub-Total of F-1				22,069
2. Labor (30% of F-1)		LS		6,621
Sub-Total of F				28,690
G. Tile Work				
1. Materials				
(1) 4-1/4" x 4-1/4", Glazed Tiles	1,950	pcs.	5	9,750
(2) 0.10m x 0.20m, Floor Tiles	900	pcs.	7	6,300
(3) Cement	4	bags	137	548
(4) White Cement	1	bag	742	742
Sub-Total of G-1				17,340
2. Labor (30% of G-1)		LS		5,202
Sub-Total of G				22,542

Table 10.2.16 Unit Cost of School Toilet

Sheet 3 of 5

(Cost: Peso)

Description		Q'ty	Unit	Unit Cost	Amount
II.	Plumbing Work				
1.	Materials				
	(1) Toilet Bowl - Squat Type	3	sets	703	2,109
	(2) Toilet Bowl - Sit Type	2	sets	703	1,406
	(3) Lavatory	2	sets	3,300	6,600
	(4) 4" dia x 3m PVC San. Pipe	4	pcs.	175	700
	(5) 3" dia x 3m PVC San. Pipe	7	pcs.	98	686
	(6) 1-1/2" dia x 3m, PVC San. Pipe	4	pcs.	59	236
	(7) 2" dia. x 3m, PVC San. Pipe	4	pcs.	62	248
	(8) 6" x 4", Floor Drain	5	pcs.	98	490
	(9) 2" dia. Elbow PVC	4	pcs.	53	212
	(10) 4" dia WYB PVC	2	pcs.	38	76
	(11) 4" dia. x 3" dia. WYB PVC	12	pcs.	35	420
	(12) 4" dia. x 2" dia. TEE PVC	4	pcs.	36	144
	(13) 4" dia. TEE PVC	3	pcs.	47	141
	(14) 1-1/2" dia. WYB PVC	1	pcs.	20	20
	(15) 4" dia. Clean Out PVC	3	pcs.	41	123
	(16) 3" dia. Clean Out PVC	1	pcs.	32	32
	(17) Faucet	3	pcs.	59	177
	(18) 3" dia. x 2" dia. WYB PVC	2	pcs.	32	64
	(19) 1-1/2" dia. Elbow PVC	6	pcs.	40	240
	(20) PVC Cement	1	can	142	142
	(21) Check Valve 1-1/2"	1	pcs.	214	214
	(22) 4" P-Trap	5	pcs.	77	385
	Sub-Total of H-1				14,865
2.	Labor (30% of H-1)		LS		4,460
	Sub-Total of H				19,325
I.	Painting				
1.	Materials				
	(1) Acrylic, Semi Gloss	8	gals.	295	2,360
	(2) Concrete Sealer	4	gals.	233	932
	(3) Acri Color: Wood	4	gals.	200	800
	(4) Enamel, QDE	6	gals.	310	1,860
	(5) Wood Putty	1	gals.	342	342
	(6) Paint Thinner	1	gals.	67	67
	(7) Tinting Color	4	pint	45	180
	(8) Sand Paper (Assorted)	15	pcs.	8	120
	(9) Miscellaneous	1	LS	1,200	1,200
	(10) Roof Paint (green, ready-mix)	2	gals.	319	638
	Sub-Total of I-1				8,499
2.	Labor (30% of I-1)		LS		2,550
	Sub-Total of I				11,049
J.	Electrical Work				
1.	Materials				
	(1) 40 Watts Fluorescent Lamp	2	sets	289	578
	(2) Elect. Wire TW #12	24	M	7	168
	(3) Elect. Conduit - 1/2" dia x 10"	4	pcs.	88	352
	(4) Entrance Cap. 1/2" dia	1	pc.	32	32
	(5) Switch Outlet, Flush Type	2	pcs.	44	88
	(6) Utility Box 2"x3"	2	pcs.	12	24

Table 10.2.16 Unit Cost of School Toilet

Sheet 4 of 5

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
(7) Porcelain Receptacle 2" dia	2	pcs.	7	14
(8) Safety Switch 60A, 250V	1	set	555	555
(9) Electrical Tape	1	roll	25	25
Sub-Total of J-1				1,836
2. Labor (30% of J-1)		LS		551
Sub-Total of J				2,387
K. Hardware				
1. Materials				
(1) 3" x 3" Butt Hinges (Loose Pin)	10	pcs.	20	200
(2) 4" x 4" Butt Hinges (Loose Pin)	12	pcs.	36	432
(3) Door Lockset (Schlage US)	3	pcs.	650	1,950
(4) Barrel Bolt (4")	5	pcs.	45	225
(5) Cabinet Pull (4")	5	pcs.	7	35
(6) Water Storage Cover				
Checkered Plate 1/4" thick				
1-7/16" x 5/8", L-bar & flat bar	1	set	1,116	1,116
5/8" x 9/16", L-bar & flat bar	2	set	629	1,258
(7) Padlock	1	pcs.	429	429
Sub-Total of K-1				5,645
2. Labor (30% of K-1)		LS		1,694
Sub-Total of K				7,339
L. Septic Tank and Sewage Basin				
1. Materials				
(1) 4" CHB	180	pcs.	5	900
(2) Cement	18	bags	137	2,466
(3) Sand	2	cu.m	359	718
(4) Gravel	1	cu.m	454	454
(5) Rebars: 10mm dia x 6m	29	pcs.	58	1,682
(6) #16 Tie Wire	2	kg.	58	116
(7) Formworks: Coco Lumber				
2" x 3" x 10' = 12pcs.	60	bf.	11	660
1/4" x 4' x 8', Plywood ord.	2	pcs.	477	954
C.W.N. (Assorted)	2	kg.	43	86
Sub-Total of L-1				8,036
2. Labor (30% of L-1)		LS		2,411
Sub-Total of L				10,447
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	pcs.	912	1,824
(2) 63mm x 3m PVC Pipe with plug	1	pc.	452	452
(3) 63mm PVC Socket	1	pc.	12	12
(4) 63mm x 3m PVC Screen	1	pc.	1,443	1,443
Sub-Total of M-a-1				3,731
2. Labor, Fuel, Lubricant and others				
Well Drilling for 18m depth at				
150mm borehole	18	m	1,600	28,800
Sub-Total of M-a				32,531
b. Well Development	1	LS	600	600

Table 10.2.16 Unit Cost of School Toilet

Sheet 5 of 5

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
M. c. Gravel Packing, Installation of Hand-Pump and Construction of Platform				
1. Materials				
(1) 50mm Jetmatic Handpump	1	set	2,807	2,807
(2) 50mm x 1m GI Pipe (Sch. 40)	1	pc.	118	118
(3) #10 Sieved Gravel	0.1	cu.m	1,026	103
(4) Coarse Sand	0.07	cu.m	359	25
(5) Cement for Sanitary Seal	1	bag	127	127
(6) Pump Base and Platform				
1) Cement	4	bags	127	508
2) Gravel	1	cu.m	454	454
3) Sand	1	cu.m	359	359
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	294	294
5) Form Lumber (50mmx75mmx1,800mm)	1	pc.	52	52
6) Nail	1	kg.	40	40
Sub-Total of M-c-1				4,887
2. Labor (40% of M-c-1)		LS		1,955
Sub-Total of M-c				6,842
Sub-Total of M				39,973
N. Freight Cost (11% of Materials for A - M excluding sand and gravel)		LS		18,042
O. Indirect Cost				
Profit (10% of A - N)				27,697
VAT (10% of Profit & Labor)				8,108
Sub-Total of O				35,805
Total of Construction Cost (A to O)				312,777
P. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost	1	LS	2,400	2,400
2. Construction Supervision	1	LS	1,800	1,800
Sub-Total of P				4,200
GRAND TOTAL				316,977
			SAY	317,000

Note: LS - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.17 Unit Cost of Public Toilet

Sheet 1 of 5

(Cost: Pesos)

Description		Q'ty	Unit	Unit Cost	Amount
A.	Mobilization and Demobilization (2.4% of B - M)		LS		7,000
B.	Earthwork				
1.	Materials				
	(1) Gravel Fill	3	cu.m	454	1,362
	Sub-Total of B-1				1,362
2.	Labor				
	(1) Excavation	15.88	cu.m	140	2,223
	(2) Backfill	4.97	cu.m	127	631
	(3) Gravel Fill	3	cu.m	166	498
	Sub-Total of B-2				3,352
	Sub-Total of B				4,714
C.	Concrete Work				
1.	Materials				
	(1) Cement	61	bags	137	8,357
	(2) Sand	4	cu.m	359	1,436
	(3) Gravel	8	cu.m	454	3,632
	(4) Rebars: 12mm dia x 6m	38	pcs.	79	3,002
	10mm dia x 6m	57	pcs.	58	3,306
	(5) #16 Tie Wire	8	kg.	58	464
	(6) Formworks:				
	1/4" Plywood	6	pcs.	477	2,862
	2" x 2" x 10" (Coco Lumber)	200	bd.ft.	10	2,000
	Sub-Total of C-1				25,059
2.	Labor (30% of C-1)				7,518
	Sub-Total of C				32,577
D.	Masonry Work				
1.	Materials				
	(1) 6" CHB	800	pcs.	6	4,800
	(2) 4" CHB	260	pcs.	5	1,300
	(3) Cement	97	bags	137	13,289
	(5) Sand	10	cu.m	359	3,590
	(6) Rebars: 12mm dia x 6m	30	pcs.	79	2,370
	10mm dia x 6m	11	pcs.	58	638
	(7) #16 Tie Wire	4	kg.	58	232
	(8) Scaffolding:				
	2" x 4" x 8" = 10pcs. (Coco Lumber)	53.33	bf.	8	427
	Sub-Total of D-1				26,646
2.	Labor (30% of D-1)				7,994
	Sub-Total of D				34,640
E.	Roofing Work				
1.	Materials				
	(1) GA #26 Corr. GI (1 = 10')	20	pcs.	310	6,200
	(2) GA #24 Pln. GI Flashing	3	pcs.	300	900
	(3) GA #24 Pln. GI Gutter (Pre-Fab)	9	pcs.	300	2,700
	(4) Umbrella Nails 2-1/2"	12	kg.	50	600
	(5) Rafter - 2" x 5" x 18' = 5pcs.	75	bf.	35	2,625
	(6) Purlins - 2" x 2" x 12' = 18pcs.	72	bf.	35	2,520
	(7) WD Cleats - 2" x 2" x 10" = 6pcs.	20	bf.	35	700

Table 10.2.17 Unit Cost of Public Toilet

Sheet 2 of 3

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
(8) Nailers - 2" x 2" x 12' = 30pcs.	120	bf.	35	4,200
- 2" x 2" x 10' = 36pcs.	120	bf.	35	4,200
(9) Fascia Board				
1" x 12" x 12' = 4pcs.	48	bf.	35	1,680
1" x 12" x 18' = 2pcs.	36	bf.	34	1,224
(10) Wood Plate				
2" x 4" x 20' = 2pcs.	26.66	bf.	34	906
(11) 1/4" Thk. Mar. Plywood 4' x 8'	14	pcs.	32	448
(12) C.W.N. Assorted	15	kg.	43	645
(13) 3" dia x 3m Downspout (PVC)	3	pcs.	91	273
(14) 3" dia Elbow (PVC)	2	pcs.	70	140
(15) 3" dia Coupling (PVC)	1	pcs.	26	26
(16) Ceiling Vent, 1" x 1" x 8' x 4pcs.	2.67	bf.	29	77
(17) Screen (1/8" x 1/8")	1	yd.	91	91
Sub-Total of E-1				30,156
2. Labor (30% of E-1)				9,047
Sub-Total of E				39,203
F. Carpentry Work				
1. Materials				
(1) D - 1 Hollow Core Tanguile Flush Type Door w/ Louver (0.80 x 2.2)	2	sets	1,620	3,240
(2) D - 2 Hollow Core Tanguile Flush Type Door (0.60 x 2.10)	1	sets	1,216	1,216
(3) D - 3 Louver Door (0.60 x 1.40)	5	sets	1,013	5,065
(4) Door Jambs (Apitong)				
2" x 6" x 14" = 1pc.	14	bf.	37	518
2" x 6" x 10" = 2pcs.	20	bf.	36	720
2" x 6" x 10" = 1pc.	18	bf.	35	630
2" x 4" x 12" = 5pcs.	40	bf.	34	1,360
(7) Wooden Jalousie Window With 5 Blades (0.40 x 0.50)	14	set	338	4,732
(8) Window Jambs (Apitong)				
2" x 6" x 16" = 5pcs.	80	bf.	36	2,880
2" x 6" x 14" = 1pc.	14	bf.	35	490
2" x 6" x 10" = 1pc.	10	bf.	34	340
(9) Cabinet 3/4" x 4' x 8' = 1pc. (plyboard)	1	pc.	878	878
Sub-Total of F-1				22,069
2. Labor (30% of F-1)				6,621
Sub-Total of F				28,690
G. Tile Work				
1. Materials				
(1) 4-1/4" x 4-1/4" Glazed Tiles	1,950	pcs.	5	9,750
(2) 0.10 x 0.20m Floor Tiles	900	pcs.	7	6,300
(3) Cement	4	bags	137	548
(4) White Cement	1	bag	742	742
(5) Tiles Fittings		LS		5,650
Sub-Total of G-1				22,990
2. Labor (30% of G-1)				6,897
Sub-Total of G				29,887

Table 10.2.17 Unit Cost of Public Toilet

Sheet 3 of 5

(Cost: Peso)

Description	Qty	Unit	Unit Cost	Amount
II. Plumbing Work				
1. Materials				
(1) Urinal	3	sets	1,253	3,759
(2) Toilet Bowl - Squat Type	6	sets	703	4,218
(3) 4" dia x 3m PVC San. Pipe	6	pcs.	175	1,050
(4) 3" dia x 3m PVC San. Pipe	4	pcs.	98	392
(5) 2" dia x 3m PVC San. Pipe	3	pcs.	62	186
(6) 3/4" dia x 6m GI Pipe Sch. 40	5	pcs.	288	1,440
(7) 1/2" dia x 6m GI Pipe Sch. 40	1	pcs.	213	213
(8) 4" x 4" WYE PVC	1	pcs.	38	38
(9) 3" dia Elbow PVC	10	pcs.	70	700
(10) 3" dia 45 degrees Bend PVC	2	pcs.	85	170
(11) 2" dia Elbow PVC	6	pcs.	53	318
(12) 2" dia 45 degrees Bend PVC	2	pcs.	68	136
(13) 1/2" dia Elbow GI	5	pcs.	40	200
(14) 4" dia 3" dia WYE PVC	8	pcs.	52	416
(15) 3/4" dia TEE GI	7	pcs.	70	490
(16) 1/2" dia TEE GI	5	pcs.	55	275
(17) 4" dia x 2" dia TEE PVC	6	pcs.	36	216
(18) 4" dia Clean Out PVC	3	pcs.	41	123
(19) 2" dia Clean Out PVC	1	pcs.	29	29
(20) Faucet	10	pcs.	59	590
(21) 3" dia x 2" dia Elbow Reducer PVC	1	pcs.	85	85
(22) 3" dia x 2" dia WYE PVC	3	pcs.	29	87
(23) 2" dia x 2" dia WYE PVC	3	pcs.	17	51
(24) PVC Cement	1	can	142	142
(25) 4" dia x 2" dia WYE PVC	2	pcs.	47	94
(26) Gate Valve 3/4" dia	1	pcs.	142	142
(27) Gate Valve 1/2" dia	1	pcs.	112	112
(28) Water Meter 3/4" dia	1	pcs.	1,488	1,488
(29) 3/4" dia x 1/2" dia Elbow Reducer GI	1	pcs.	21	21
Sub-Total of H-1				17,181
2. Labor (30% of H-1)				5,154
Sub-Total of II				22,335
I. Painting				
1. Materials				
(1) Acrylic, Semi Gloss	8	gals.	295	2,360
(2) Concrete Sealer	4	gals.	233	932
(3) Acri Color: Wood	4	gals.	200	800
(4) Enamel, QDE	6	gals.	310	1,860
(5) Wood Putty	1	gals.	342	342
(6) Paint Thinner	1	gals.	67	67
(7) Tinting Color	4	pint	45	180
(8) Sand Paper (Assorted)	15	pcs.	8	120
(9) Miscellaneous		LS		1,200
(10) Roof Paint (green, ready-mix)	2	gals.	319	638
Sub-Total of I-1				8,499
2. Labor (30% of I-1)				2,550
Sub-Total of I				11,049

Table 10.2.17 Unit Cost of Public Toilet

Sheet 4 of 5

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
J. Electrical Work				
1. Materials				
(1) 40 Watts Fluorescent Lamp	2	sets	289	578
(2) Elect. Wire TW #12	24	m	7	168
(3) Elect. Conduit - 1/2" dia x 10"	4	pcs.	88	352
(4) Entrance Cap. 1/2" dia	1	pc.	32	32
(5) Switch Outlet, Flush Type	2	pcs.	44	88
(6) Utility Box 2" x 3"	2	pcs.	12	24
(7) Porcelain Receptacle 2" dia	2	pcs.	7	14
(8) Safety Switch 60A, 250V	1	set	555	555
(9) Electrical Tape	1	roll	25	25
Sub-Total of J-1				1,836
2. Labor (30% of J-1)				551
Sub-Total of J				2,387
K. Hardware				
1. Materials				
(1) 3" x 3" Butt Hinges (Loose Pin)	10	pcs.	20	200
(2) 4" x 4" Butt Hinges (Loose Pin)	12	pcs.	36	432
(3) Door Lockset (Schlage US)	3	pcs.	650	1,950
(4) Barrel Bolt (4")	5	pcs.	45	225
(5) Cabinet Pull (4")	5	pcs.	7	35
(6) Water Storage Cover Checkered Plate 1/4" thick 1.44x0.633 w/L bar & flat bar	1	set	1,116	1,116
(7) 0.645x0.633 w/L bar & flat bar	2	set	629	1,258
(8) Padlock	1	pcs.	429	429
Sub-Total of K-1				5,645
2. Labor (30% of K-1)				1,694
Sub-Total of K				7,339
L. Septic Tank and Sewage Basin				
1. Materials				
(1) 4" CHB	180	pcs.	5	900
(2) Cement	18	bags	137	2,466
(3) Sand	1.50	cu.m	359	539
(4) Gravel	1	cu.m	454	454
(5) Rebars: 10mm dia x 6m	29	pcs.	58	1,682
(6) #16 Tire Wire	2	kg.	58	116
(7) Formworks: Coco Lumber 2" x 3" x 10' = 12pcs.	60	bf.	11	660
1/4" plywood ord. 4' x 8'	2	pcs.	477	954
C.W.N. (Assorted)	2	kg.	43	86
Sub-Total of L-1				7,857
2. Labor (30% of L-1)				2,357
Sub-Total of L				10,214
M. Concrete Water Tank (Elevated)				
1. Earth Work				
(1) Materials				
1) Gravel Fill	1	cu.m	454	454
Sub-Total of M-1 (1)				454

Table 10.2.17 Unit Cost of Public Toilet

Sheet-5

(Cost: Peso)

Description	Q'ty	Unit	Unit Cost	Amount
(2) Labor				
1) Excavation	14.70	cu.m	140	2,058
2) Backfill	13.08	cu.m	127	1,661
3) Gravel Fill	1	cu.m	166	166
Sub-Total of M-1 (2)				3,885
Sub-Total of M-1				4,339
2. Materials				
(1) Cement	62	bags	137	8,494
(2) Sand	4.50	cu.m	359	1,616
(3) Gravel	8	cu.m	454	3,632
(4) Rebars: 12mm dia x 6m	160	pcs.	79	12,640
(5) #16 Tie Wire	4	kg.	58	232
(6) Formworks:				
1/4" plywood	12	pcs.	477	5,724
2" x 3" x 16' = 60pcs.	480	bf.	9	4,320
(7) C.W.N. (Assorted)	5	kg.	43	215
Sub-Total of M-2				49,890
3. Labor (30% of M-2)				14,967
Sub-Total of M				69,196
N. Freight Cost (11% of Materials for A - M excluding sand and gravel)				22,322
O. Indirect Cost				
Profit (10% of A - M)				32,155
VAT (10% of Profit & Labor)				10,474
Sub-Total of O				42,629
Total of Construction Cost (A to O)				364,182
P. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		2,400
2. Construction Supervision		LS		1,800
Sub-Total of P				4,200
GRAND TOTAL			SAY	368,382
				368,400

Note: LS - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1998 Price Level

(3) Sector Management 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:

- a. The 12% was derived on the basis of DILG's past experience in BWSA formation; and
- b. The 3% was derived on the basis of LWUA's past experience in the institutional strengthening needs of WDs.

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 10.2.18 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

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 (2004)

Unit: P 1,000

Name of Municipality	Rural Water Supply											Grand Total
	Urban Water Supply Level III	New System						Level I Rehabilitation	Subtotal	Total	Level I Rehabilitation	
		Level II		Level I								
		40 m	80 m	120 m	Shallow Well	Spring Dev.	Deep Well					
Arreche	3,435						989	747	9,239	94	9,333	12,768
Balanga	4,870			1,153			82	2,241	82	24	106	4,976
Balangkayan				2,305			82	747	2,236	39	2,275	2,275
Borongan (Capital)				8,644				10,458	7,884	118	8,002	8,002
Can-avid	4,890			1,729			165	747	6,605	39	6,644	11,554
Dolores	10,715			6,339			330	1,494	16,337	118	16,455	27,170
General Macarthur				576				2,241	4,777	8	4,785	4,785
Giporlos	3,775			4,034			82	747	2,318	63	2,381	6,156
Guvuan	7,020			4,034			165		2,831	71	2,901	9,921
Hernani	1,860			4,034					2,153	55	2,208	4,068
Jipapad	2,800			2,305				1,494	8,663	31	8,694	11,494
Lawaan	4,950			1,153			82	1,494	912	24	935	5,885
Llorente	4,112			2,881			494	1,494	1,241	87	1,328	5,440
Maslog	945			1,153				1,494	2,741	16	2,756	3,701
Maydolong							247		2,318	24	2,342	2,342
Mercedes	1,220			1,729				747	400	24	424	1,644
Oras				4,034			165	4,482	23,265	71	23,335	23,335
Quinaoondan	3,935			1,153			659	3,735	3,425	79	3,503	7,438
Salcedo	2,006			4,610				1,494	1,712	63	1,775	3,781
San Julian	1,875			6,915			247	1,494	2,389	118	2,507	4,382
San Policarpo	3,290			1,729			1,483	1,494	10,192	165	10,358	13,648
Sulat				3,458			247	2,241	1,795	71	1,866	1,866
Taft				4,034			330	2,241	2,113	87	2,199	2,199
Provincial Total (w/ ADB Assisted Project)	61,698			68,002			5,850	43,326	115,626	1,487	117,113	178,811
Provincial Total (PW4SP)	61,698											61,698

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

Unit: P 1,000

Name of Municipality	Rural Water Supply											Grand Total	
	New System										Level I Rehabilitation		Total
	Level I												
	Urban Water Supply Level III		Deep Well		Shallow Well		Spring Dev.		Subtotal				
40 m	80 m	120 m	80 m	120 m	Shallow Well	Spring Dev.	Spring Dev.	Subtotal	Level I Rehabilitation	Total			
Arteche	19,959	16,712		247	2,241	2,241			19,200	228	19,429	39,388	
Balangiga	21,970			989					989		989	22,958	
Balangkayan	9,065			2,225	1,494				3,719		3,719	12,784	
Borongan (Capital)	49,756	7,204		5,603	4,482				17,289	142	17,431	67,187	
Can-avid	22,306	14,407		1,318	2,241				17,967	197	18,163	40,469	
Dolores	47,530	34,577		1,154	4,482				40,213	472	40,685	88,215	
General Macarthur	21,670	1,601		2,390	2,988				6,979	31	7,010	28,680	
Giporlos	18,773			412	1,494				1,906		1,906	20,679	
Guiuan	29,915	14,408		1,236	747				16,391	283	16,675	46,589	
Hemani	11,095			1,813	1,494				3,307		3,307	14,402	
Jipapad	16,827	9,797		82	2,241				12,120	134	12,254	29,081	
Lawaan	23,044			659	747				1,406		1,406	24,450	
Llorrente	18,842			577	747				1,324		1,324	20,165	
Maslog	5,640		1,505	1,071	1,494				4,070	16	4,086	9,725	
Maydolong	19,651			2,472	1,494				3,966		3,966	23,617	
Mercedes	7,383	1,201		330					1,530	24	1,554	8,937	
Oras	33,030	59,357		824	1,494				65,333	811	66,144	99,174	
Quinapondan	17,689	3,202			747				5,200	63	5,263	23,272	
Salcedo	4,752				747				747		747	5,499	
San Julian	10,405	400		742	1,494				2,636	8	2,644	13,049	
San Policarpo	19,490	13,208			2,988				16,196	260	16,455	35,946	
Sulat	13,575	3,202		824	747				4,773	63	4,836	18,411	
Taft	18,637	6,804		1,318	747				8,869	134	9,003	27,640	
Provincial Total	461,001	51,230	1,505	26,286	42,579	256,450	2,865	259,315	720,316				

Table 10.3.3 Cost for Sanitation Facilities Required for Phase I (2004)

Unit: P. 1,000

Name of Municipality	Urban Sanitation						Rural Sanitation						Total Public Investment Cost	Total Construction Cost	Public School Toilets	Total Public Investment Cost	
	Household Toilets			Public School Toilets	Total Construction Cost	Total Public Investment Cost	Household Toilets			Sub-total of Public Investment	Sub-total of Construction Cost	Public School Toilets					
	Flush	Pour Flush	VIP/Dry				Flush	Pour Flush	VIP/Dry								
Ateneo	2,760	4,248		7,008	212	7,010	913	7,708	913	7,874	394	1,168	9,041	1,361			
Balanga	3,910	3,330		7,240	167	467	1,002	8,075	1,002	666	33	234	1,574	267			
Balangkayan	1,679	533		2,212	27	234	629	2,814	629	1,924	96	467	3,271	563			
Borongan (Capital)	3,565	23,547		27,112	1,177	1,868	3,045	28,980	3,045	33,078	1,654	3,036	36,114	4,689			
Canavid	3,565	3,478		7,043	174	934	1,108	7,977	1,108	11,189	559	1,401	12,590	1,960			
Dolores	6,233	7,578		13,811	379	1,868	2,247	15,679	2,247	13,601	114	2,802	16,517	3,582			
General Macarthur		4,618		4,618	231		231	4,618	231	7,755	388		7,755	388			
Giporlos	3,059	3,256		6,315	163	368	6,683	531	6,683	1,095	518	55	1,614	55			
Gunua	4,531	340		4,871	17	1,401	1,418	6,272	1,418	15,984	2,989	3,503	22,476	4,902			
Hemam	1,196	3,641		4,837	182	234	416	5,070	416	7,726	386	701	8,426	1,037			
Jipapad	1,386	666		2,552	33	467	500	3,019	500	2,309	115	234	2,542	349			
Lawan	3,381	5,920	170	9,471	296	467	763	9,938	763		497	731		234			
Llorente	2,714	1,273		3,987	64	467	531	4,454	531	1,335		701	2,035	701			
Maslog	713	681		1,394	34	341	34	1,394	34	710	36		1,051	36			
Maydolong	2,806	2,753		5,559	138		138	5,559	138	414	277		1,712	51			
Mercedes	759	1,406	78	2,243	70		70	2,243	70	252	824	467	1,542	480			
Oras	6,630	462	462	7,092	352	1,168	1,867	8,623	1,867	7,089	354	3,269	15,655	3,623			
Quinapondan	2,369	2,856	241	5,467	143	701	1,212	6,536	1,212		1,548	934	2,482	934			
Salcedo	1,817	185		2,002		368	368	2,370	368	385	19	467	3,521	486			
San Julian	1,518	170		1,688		234	234	1,922	234		2,393	1,168	3,560	1,168			
San Policampo	2,737	3,670		6,407	184	467	651	6,874	651	12,506	625	934	13,440	1,550			
Sula	3,703	2,723	383	6,810	136		136	6,810	136	2,045			2,045				
Taft		178		178		701	1,069	1,246	1,069	7,045	352	1,868	10,475	3,220			
Provincial Total (w/ADB-Assisted Proj.)	54,901	83,146	1,867	139,915	4,157	12,376	2,579	154,869	19,112	414	132,208	23,963	156,585	6,610	23,584	180,168	30,194
Provincial Total (PW4SP)	54,901	83,146	1,867	139,915	4,157	12,376		152,290	16,533	414	94,024	23,963	118,401	4,797	21,949	140,350	36,746

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

Unit: P 1,000

Name of Municipality	Urban Sanitation						Rural Sanitation						Total Public Investment Cost	Total Construction Cost	Public School Toilets	Total Public Investment Cost	
	Household Toilets			Public School Toilets	Total Public Investment Cost	Urban Sewerage	Household Toilets			Sub-total of Public Investment	Sub-total of Construction Cost	Public School Toilets					Total Public Investment Cost
	Flush	Pour Flush	VIP/Dry				Flush	Pour Flush	VIP/Dry								
Artache	11,362			701	12,063	701				14,593			730	2,569	12,161	3,298	
Balangiga	16,491				16,491					9,975			499	1,635	11,610	2,133	
Balangkavan	6,969				6,969					12,151			608	2,102	14,252	2,709	
Boronagan (Capital)	45,494				45,494		77,490			39,501	3,841		1,975	8,873	52,215	10,848	
Can-avid	17,135	311		16	17,446	1,183				20,454			1,023	3,269	23,723	4,292	
Dolores	36,179			2,102	38,281	2,102	60,415			39,634			1,932	6,305	45,939	8,286	
General Macanthur	12,213				12,213					9,842			492	3,868	11,710	2,360	
Giporlos	10,557				10,557					4,425			221	934	5,359	1,155	
Guttan	22,333			234	22,567	234	38,237			37,414			1,871	7,005	44,419	8,876	
Hemami	6,486	89		4	6,575	4				12,980			649	1,868	14,848	2,517	
Himani	9,982	755		38	10,737	505				5,802			290	701	6,502	991	
Jipapud	17,940	1,332		67	19,272	67				8,584			429	1,168	9,752	1,597	
Lawaan	11,546				11,546					6,616			331	1,868	8,484	2,199	
Llorente	3,266				3,266					4,677			234	701	5,377	934	
Mastog	14,743				14,743					2,093			650	2,335	17,422	2,985	
Maydolong	4,462	553		27	4,995	27				9,339			467	1,401	10,740	1,868	
Mercedes	25,139				25,139					49,047			2,452	7,706	56,753	10,153	
Ormas	14,076	1,968		98	16,511	565				16,280			814	2,335	18,615	3,149	
Quinapondan	6,417				6,417					14,608			488	2,569	12,337	3,057	
Salcedo	5,796			234	6,030	234				9,768			713	2,335	16,602	3,048	
San Julian	11,040				11,040					14,267			591	2,335	14,160	3,926	
San Policarpo	14,421				14,421					11,825			730	2,335	14,160	3,926	
Sulat	13,984				13,984					28,771			1,439	4,437	33,208	5,875	
Tait	338,031	4,988		249	343,019	5,620	176,142			399,481	5,934		19,677	70,284	469,764	89,963	
Provincial Total																	

10.3.2 Unit Cost of Required Equipment and Vehicles

Unit cost (CIF Manila) of equipment was referred to the market price in 1998 as follows.

(1) Medium size rotary drilling rig

Type: Truck-mounted top head drive mud circulation type

Rated drilling capacity: 150m depth for 250mm diameter of borehole

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: 150m depth for 250mm diameter of borehole

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/cm² x 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 5m³ 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 11,000 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-nitrogen/Iron testing kit

Unit cost: Peso 16,400 per unit

10.3.3 Cost for Laboratory

Required cost for new laboratory including building/facility and instruments/chemicals and additional cost for upgrading of existing laboratory are shown in Table 10.3.5 and Table 10.3.6, respectively.

Table 10.3.5 Cost for New Laboratory

(Cost: Peso)

Item	Unit	Unit Cost	Q'ty	Amount
1. Building				
New Building	m ²	15,000	57	855,000
2. Instruments				
Turbidity meter	set	37,500	1	37,500
Color meter	set	10,500	1	10,500
pH/Residual chlorine checker	set	16,000	1	16,000
Incubator	set	105,000	1	105,000
Refrigerator	set	26,800	2	53,600
Sterilizer	set	54,000	1	54,000
Water quality testing kits	set	320,000	1	320,000
Electric stove	set	1,100	1	1,100
Range hood	set	11,000	1	11,000
Sub-total				608,700
3. Accessories				
Sink	LS			
Working table	LS			
Shelf	LS			
Office desk	LS			
Chair	LS			
Sub-total				65,000
4. Glassware/Chemicals				
Glassware/Chemicals	LS			110,000
Total				1,638,700

Note: LS - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1998 Price Level

Table 10.3.6 Cost for Upgrading Laboratory

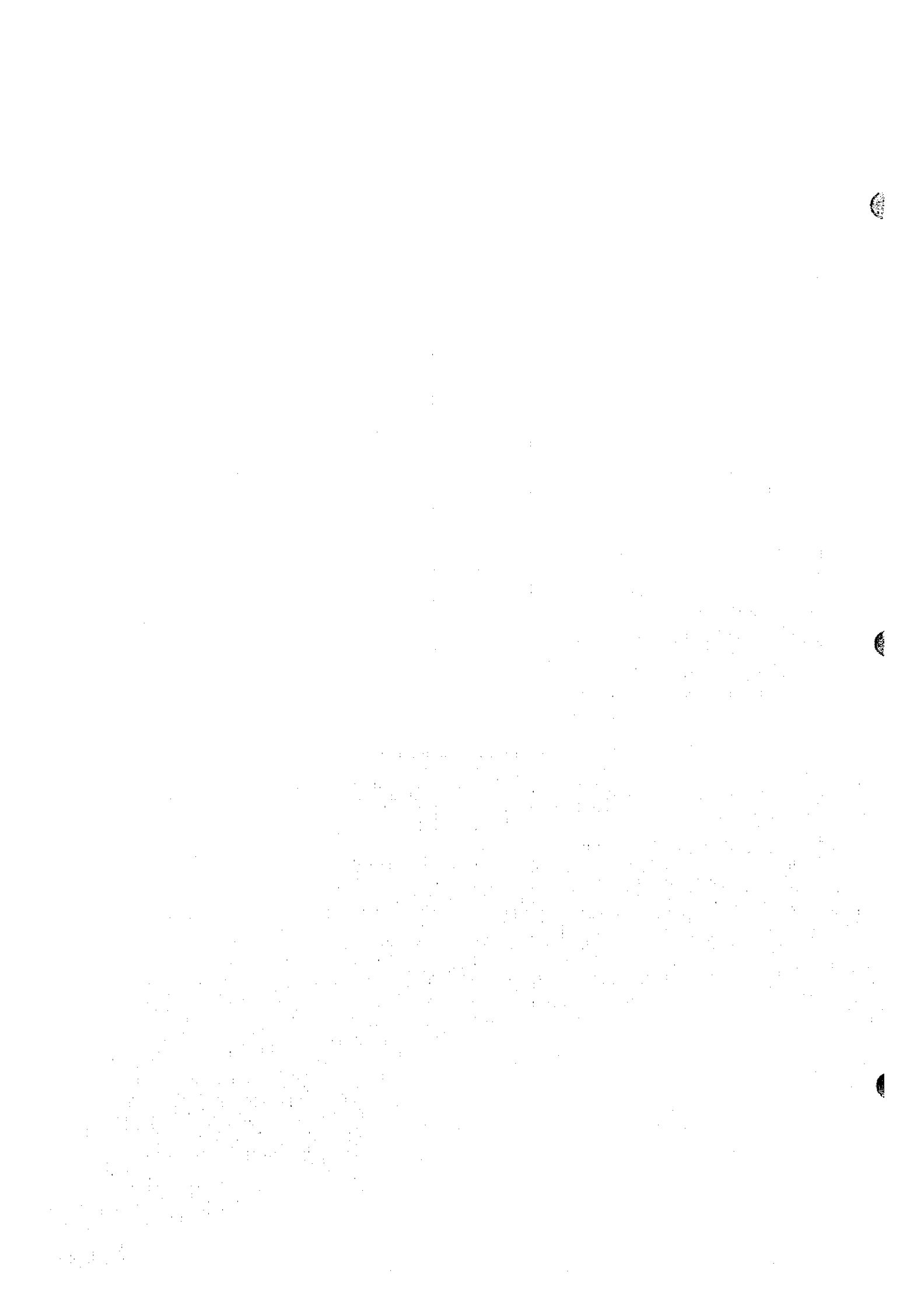
(Cost: Peso)

Item	Unit	Unit Cost	Q'ty	Amount
1. Instruments				
Turbidity meter	set	37,500	1	37,500
Color meter	set	10,500	1	10,500
pH/Residual chlorine checker	set	16,000	1	16,000
Incubator	set	105,000	0	0
Refrigerator	set	26,800	1	26,800
Sterilizer	set	54,000	0	0
Water quality testing kits	set	320,000	1	320,000
Electric stove	set	1,100	1	1,100
Range hood	set	11,000	1	11,000
Sub-total				422,900
2. Glassware/Chemicals				
Glassware/Chemicals	LS			55,000
Total				477,900

Note: LS - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1998 Price Level



11. FINANCIAL ARRANGEMENTS FOR MEDIUM-TERM DEVELOPMENT PLAN

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	2000	2001	2002	2003	2004	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 0.09 percent, as presented in Table 11.5.4.

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

O&M for Rural Water Supply

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

O&M for Sanitation

Table 11.6.5 presents the O&M cost for rural sanitation while Table 11.6.6 presents the O&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 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	Total Weighted Score
	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation														
Ariehche	N.A.	66	19	55	0.93	1.00	0.40	0.80	0.23	0.25	0.10	0.20	0.78	4				
Balanga	N.A.	40	31	46	0.83	0.40	0.80	0.60	0.21	0.10	0.20	0.15	0.66	15				
Balangayan	N.A.	59	32	44	0.26	0.80	0.80	0.60	0.07	0.20	0.20	0.15	0.62	10				
Borongan (Capital)	N.A.	43	23	16	0.56	0.60	0.60	0.20	0.14	0.15	0.15	0.05	0.49	22				
Canavid	N.A.	57	28	48	0.92	0.80	0.60	0.60	0.23	0.20	0.15	0.15	0.73	9				
Dolores	N.A.	61	10	59	0.83	1.00	1.00	0.80	0.21	0.25	0.25	0.20	0.91	2				
General MacArthur	N.A.	90	47	56	0.32	1.00	1.00	0.80	0.08	0.25	0.25	0.20	0.78	4				
Groffios	N.A.	64	42	64	0.76	1.00	1.00	1.00	0.19	0.25	0.25	0.25	0.94	1				
Guiluan	N.A.	34	18	58	0.76	0.40	0.40	0.80	0.19	0.10	0.10	0.20	0.59	17				
Hernani	N.A.	55	47	32	0.83	0.30	1.00	0.40	0.21	0.20	0.23	0.10	0.76	6				
Jupad	N.A.	100	14	53	0.66	1.00	0.40	0.80	0.17	0.25	0.10	0.20	0.72	11				
Loriente	N.A.	40	51	42	0.83	0.40	1.00	0.60	0.21	0.10	0.25	0.15	0.71	12				
Lawaan	N.A.	56	30	44	1.00	0.30	0.60	0.60	0.25	0.20	0.15	0.15	0.75	8				
Maslog	N.A.	91	34	46	1.00	1.00	0.60	0.60	0.25	0.25	0.20	0.15	0.85	3				
Maydolom	N.A.	62	29	41	0.46	1.00	0.60	0.60	0.12	0.25	0.15	0.15	0.67	14				
Mercedes	N.A.	23	58	46	1.00	0.20	1.00	0.60	0.25	0.05	0.25	0.15	0.70	13				
Oras	N.A.	55	48	51	0.42	0.80	1.00	0.30	0.11	0.20	0.25	0.20	0.76	6				
Quinsundan	N.A.	45	45	43	0.66	0.60	1.00	0.60	0.17	0.15	0.25	0.15	0.72	10				
Salcedo	N.A.	18	26	50	0.87	0.20	0.60	0.60	0.22	0.05	0.15	0.15	0.57	19				
San Julian	N.A.	33	24	18	0.76	0.40	0.60	0.20	0.19	0.10	0.15	0.05	0.49	23				
San Policarpo	N.A.	44	14	40	0.76	0.60	0.40	0.40	0.19	0.15	0.10	0.10	0.54	20				
Sulat	N.A.	46	36	25	0.70	0.60	0.80	0.20	0.18	0.15	0.20	0.05	0.58	18				
Taft	N.A.	28	12	51	0.59	0.20	0.40	0.80	0.15	0.05	0.10	0.20	0.50	21				
Provincial Total	N.A.	48	28	44														

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 < %	
1.0	61 < %	41 < %	21 < %	1 < %	0.25
0.8	51 < %	31 < %	11 < %	1 < %	0.25
0.6	41 < %	21 < %	11 < %	1 < %	0.25
0.4	31 < %	11 < %	1 < %	1 < %	0.25
0.2	21 < %	11 < %	1 < %	1 < %	0.25

Table 11.5.4 FIRR for Level I Water Supply

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	Water Rate Per Month Per Household	Loans and Subsidies	Cash Inflow	Net Value
1	0	0	0	0	0	0	0	0	183	0	0	0
2	25	22	11	23,686,925	0	0	23,686,925	870	183	0	1,910,520	(21,776,405)
3	37	33	17	35,630,745	0	236,869	35,867,614	2,175	183	0	4,776,500	(31,091,114)
4	37	33	17	35,630,745	0	593,177	36,223,922	3,480	183	0	7,642,080	(28,581,842)
5	25	21	12	24,351,525	0	949,484	25,301,009	4,350	183	0	9,552,600	(15,748,409)
6				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
7				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
8				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
9				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
10				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
11				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
12				3,780,300	0	956,130	4,736,430	4,350	183	0	9,552,600	4,816,170
13				5,631,100	0	956,130	6,587,230	4,350	183	0	9,552,600	2,965,370
14				5,631,100	0	956,130	6,587,230	4,350	183	0	9,552,600	2,965,370
15				3,697,900	0	956,130	4,654,030	4,350	183	0	9,552,600	4,898,570
16				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
17				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
18				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
19				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470
20				0	0	956,130	956,130	4,350	183	0	9,552,600	8,596,470

TOTAL 13,008,678
 FIRR 1.3%
 NPV 3,993,533

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: Pesos)

Category	Total Amount	1st year	2nd year	3rd year	4th year	5th year
A. Const. & Civil Works						
1. Water Supply	0	0	0	0	0	0
2. Sanitation	36,243,160	0	7,248,632	10,872,948	10,872,948	7,248,632
3. Land Acquisition	0	0	0	0	0	0
B. Equip./Logistic Support	1,300,100	0	1,300,100	0	0	0
C. Consultancy Services						
1. Hydrogeological Survey	0	0	0	0	0	0
2. D/D and Const. Sv.	3,986,748	1,594,699	797,350	797,350	398,675	398,675
D. Institutional Devt.						
1. Capacity Enhanc. Prog.	3,200,000	960,000	960,000	640,000	320,000	320,000
2. Commu. Manag. Prog.	290,790	87,237	87,237	58,158	29,079	29,079
3. Health & Hygiene Educ.	48,600	14,580	14,580	9,720	4,860	4,860
4. Water Quality Surveil.	18,900	5,670	5,670	3,780	1,890	1,890
5. NGO Assistance	32,400	9,720	9,720	6,480	3,240	3,240
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)	4,632,070	303,191	1,078,329	1,262,844	1,175,069	812,638
Total (A+B+C+D+E+F)	50,952,767	3,335,097	11,861,617	13,891,279	12,925,761	8,939,013
F. Others						
1. Price Contingency	17,553,016	1,148,927	4,086,278	4,785,488	4,452,871	3,079,453
2. Value Added Tax (VAT)	1,836,966	120,238	427,639	500,813	466,004	322,272
Grand Total	70,342,749	4,604,262	16,375,534	19,177,580	17,844,635	12,340,758

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	124	109	57
Nos. of HHs to be Served	1,860	1,635	855
Reconstruction Cost (Peso)			
Unit Cost	546,285	82,400	747,000
Ttl. Reconst. Cost	67,739,340	8,981,600	
Ttl. Reconst. Cost/year	3,386,967	898,160	
Cost per HH/year	1,821	549	
Rehabilitation Cost (Peso)			
Unit Cost	78,700		
Ttl. Rehab. Cost	9,758,800		
Ttl. Rehab. Cost/year	975,880		
Cost per HH/year	525		
Recurrent Cost for O&M (Peso)			
Cost per HH/year	100	50	50
O&M Cost Total (Peso)			
Cost per HH/year	2,446	599	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	204	50	4
Proportion (Mean)	2.1%	0.5%	0.0%
Proportion (Median)	2.8%	0.7%	0.1%

Table 11.6.4 Family Income (Unit: Pesos)

Annual ¹⁾		Monthly ²⁾	
Mean	Median	Mean	Median
60,643	43,826	9,941	7,184

Note: 1) 1994 NSO Family Income and Expenditure Survey

2) Estimated value in 2004 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	98	358,400	233,500	1,144,150

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	
7	48	358,400	233,500	685,840

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										

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

	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								
			Water Source Development (4)	Water Supply Transmission (5)	Water Storage/ Treatment & Distribution (6)	Household Toilets (7)	School Toilets (8)	Public Toilets (9)	Others (10)		
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