

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 components facilities was fully utilized, which was referred to the standard 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 (whole price index). Market prices of these items were also canvassed to compare with the calculated prices in 1998 from those in 1995 in application of the escalations rates.

In general, escalated prices meet canvassed prices in the most of the materials. Escalation rates between 1995 and 1998 were employed in round figures. Some of them (water closet, etc.) were, however, replace 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

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, Pit	NSO wholesale price index			Price		DPWH ⁽²⁾		CIA ⁽³⁾
							1995	1998	Escalation	1995	1998 ⁽¹⁾			
1. Aggregate Sand Gravel	x	x	x	x	x	x	311.6	367.5	5.7%	304	359	330	350	Almost same with (2) & (3).
										385	454	418	500	
2. Cement	x	x	x	x	x	x	197.4	214.1	2.7%	117	127	126	105	ditto
3. Fuel	x		x				601.6	742.6	7.3%	1,100	1,358	1306		Price of GI casing is almost same with (2) and screen is 12% lower than (2).
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		
										4,313	4,667	5291		
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	Price of PVC pipe is almost same with (2) and 7% higher than (3).
										13	15		40	
6. Reinforcing 12mm x 6m 10mm x 6m	x	x	x	x	x	x	201.4	221.9	3.3%	68	75		75	Almost same with (3).
										49	54		45	
7. Lumber				x	x	x	268.5	296.8	3.4%					Almost same with (3).
				x			128.0	140.1	3.1%	266	291		310	
8. Paint Enamel, QDE														Almost same with (3).
9. Machinery	x		x				254.8	254.8	0.0%					

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, 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 (8% of Materials)		LS		3,799
Sub-Total of B				167,286
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 (8% of Materials)		LS		2,193
Sub-Total of D				40,566
E. Indirect Cost				
Profit (10% of A, B, C & D)				42,185
Overhead Expense (13% of A, B, C & D)				54,841
VAT (10% of Labor, Profit & Overhead Expense)				20,799
Sub-Total of E				62,984
Total of Construction Cost (A+B+C+D+E)				352,836
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				360,236
SAY				360,200

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 (8% of Materials)		LS		3,491
Sub-Total of B				127,128
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 (8% of Materials)		LS		2,100
Sub-Total of D				38,858
E. Indirect Cost				
Profit (10% of A, B, C & D)				31,399
Overhead Expense (13% of A, B, C & D)				40,818
VAT (10% of Labor, Profit & Overhead Expense)				14,672
Sub-Total of E				46,071
Total of Construction Cost (A+B+C+D+E)				294,057
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				301,457
SAY				301,500

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 10.2.2(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 (8% of Materials)		LS		4,212
Sub-Total of B				172,860
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 (8% of Materials)		LS		3,642
Sub-Total of D				67,383
E. Indirect Cost				
Profit (10% of A, B, C & D)				45,424
Overhead Expense (13% of A, B, C & D)				59,052
VAT (10% of Labor, Profit & Overhead Expense)				22,269
Sub-Total of E				67,693
Total of Construction Cost (A+B+C+D+E)				389,936
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				397,336
SAY				397,300

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 10.2.3 (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 (8% of Materials)		LS		6,759
Sub-Total of B				309,244
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 (8% of Materials)		LS		2,494
Sub-Total of D				46,131
E. Indirect Cost				
Profit (10% of A, B, C & D)				57,138
Overhead Expense (13% of A, B, C & D)				74,279
VAT (10% of Labor, Profit & Overhead Expense)				34,389
Sub-Total of E				91,527
Total of Construction Cost (A+B+C+D+E)				530,902
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				538,302
SAY				538,300

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 10.2.3 (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 (8% of Materials)		LS		6,451
Sub-Total of B				233,086
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 (8% of Materials)		LS		2,401
Sub-Total of D				44,423
E. Indirect Cost				
Profit (10% of A, B, C & D)				42,751
Overhead Expense (13% of A, B, C & D)				55,576
VAT (10% of Labor, Profit & Overhead Expense)				23,833
Sub-Total of E				66,584
Total of Construction Cost (A+B+C+D+E)				428,093
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				435,493
SAY				435,500

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 (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 (8% of Materials)		LS		6,331
Sub-Total of B				303,473
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 (8% of Materials)		LS		4,426
Sub-Total of D				81,887
E. Indirect Cost				
Profit (10% of A, B, C & D)				60,136
Overhead Expense (13% of A, B, C & D)				78,177
VAT (10% of Labor, Profit & Overhead Expense)				36,045
Sub-Total of E				96,181
Total of Construction Cost (A+B+C+D+E)				565,541
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				572,941
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 (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 (8% of Materials)		LS		9,719
Sub-Total of B				451,202
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 (8% of Materials)		LS		2,794
Sub-Total of D				51,695
E. Indirect Cost				
Profit (10% of A, B, C & D)				72,090
Overhead Expense (13% of A, B, C & D)				93,717
VAT (10% of Labor, Profit & Overhead Expense)				47,978
Sub-Total of E				120,068
Total of Construction Cost (A+B+C+D+E)				708,965
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				716,365
SAY				716,400

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 10.2.4 (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 (8% of Materials)		LS		9,411
Sub-Total of B				339,044
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 (8% of Materials)		LS		2,702
Sub-Total of D				49,988
E. Indirect Cost				
Profit (10% of A, B, C & D)				54,103
Overhead Expense (13% of A, B, C & D)				70,334
VAT (10% of Labor, Profit & Overhead Expense)				32,995
Sub-Total of E				87,098
Total of Construction Cost (A+B+C+D+E)				562,130
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				569,530
SAY				569,500

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

(Cost: Peso)

Description	Quantity	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 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 (8% of Materials)		LS		8,451
Sub-Total of B				434,087
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 (8% of Materials)		LS		5,210
Sub-Total of D				96,391
E. Indirect Cost				
Profit (10% of A, B, C & D)				74,848
Overhead Expense (13% of A, B, C & D)				97,302
VAT (10% of Labor, Profit & Overhead Expense)				49,820
Sub-Total of E				124,668
Total of Construction Cost (A+B+C+D+E)				741,146
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				748,546
SAY				748,500

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 10.2.5 Unit Cost of Level I (Deep Well Rehabilitation)

(Cost: Peso)

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 (8% of Materials)				1,000
Sub-Total of B				18,499
C. Well Development		LS		31,000
D. Indirect Cost				
Profit (10% of A, B & C)				5,750
Overhead Expense (13% of A, B & C)				7,475
VAT (10% of Profit & Labor)				4,175
Sub-Total of D				17,400
Total of Construction Cost (A+B+C+D)				74,899
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				78,399
SAY				78,400

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 (8% of Materials)		LS		298
Sub-Total of B				34,279
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 (8% of Materials)		LS		421
Sub-Total of D				7,796
E. Indirect Cost				
Profit (10% of A to D)				7,007
Overhead Expense (13% of A to D)				9,110
VAT (10% of Profit & Overhead Expense)				1,612
Sub-Total of E				8,619
Total of Construction Cost (A+B+C+D+E)				78,694
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		LS		2,400
2. Construction Supervision		LS		1,800
3. Water Quality Analysis		LS		1,400
Sub-Total of F				5,600
GRAND TOTAL				84,294
SAY				84,300

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 10.2.7 Unit Cost of Level I (Spring Development)

(Cost: Peso)

Description	Q'ty	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 (8% of Materials)		LS		3,416
Sub-Total of B				61,061
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 (8% of Materials)		LS		26,050
Sub-Total of C				465,642
D. Indirect Cost				
1. Transmission Main				
Profit (10% of C)				46,564
Overhead Expense (13% of C)				60,533
VAT (10% of Profit, Overhead Expense & Labor)				22,107
2. Source Facilities				
Profit (10% of A, B)				25,518
Overhead Expense (13% of A, B)				8,506
VAT (10% of Profit, Overhead Expense & Labor)				4,897
Sub-Total of D				168,125
Total Construction Cost (A+B+C+D)				718,828
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				737,628
SAY				737,600

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 (8% of Materials)		LS		10,240
Sub-Total of B				183,040
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	pcs.	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	pcs.	1,320	3,960
Sub-Total of Materials				490,346
Labor (35% of Material Cost)		LS		171,621
Freight Cost (8% of Materials)		LS		39,228
Sub-Total of Transmission Main				701,195
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	pcs.	106	636
h. 32mm dia. x 20mm dia. Reducing Socket	10	pcs.	82	820
i. 20mm dia. x 13mm dia. Reducing Socket	10	pcs.	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 (8% of Materials)		LS		7,726
Sub-Total of Distribution Pipeline				138,104
Sub-Total of C				839,299
D. Indirect Cost				
1. Transmission Main				
Profit (10% of C-1)		LS		70,120
Overhead Expense (13% of C-1)		LS		91,155
VAT (10% of Profit, Overhead Expense and Labor)		LS		33,290
2. Source Facilities and Distribution Pipeline				
Profit (10% of A, B, C-2)		LS		35,714
Overhead Expense (13% of A, B and C-2)		LS		46,429
VAT (10% of Profit, Overhead Expense and Labor)		LS		16,075
Sub-Total of D				292,783
Total Construction Cost (A+B+C+D)				1,351,122
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				1,369,922
Unit Cost per Person Served				2,283
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
				3,700
For Expansion of Existing System (Exclude F.)				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.)				3,459
				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, 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
(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.	220	220
(2) 75mm dia x 6.0m PVC Pipe		1	pc.	152	152
Sub-Total of D-1					372
2. Labor (25% of D-1)					93
Sub-Total of D					465
E. Transportation Cost					
(excluding indigenous materials)					
		1	LS	340	340
F. Indirect Cost					
Profit (10% of A - D)					
					1,487
VAT (10% of Profit & Labor)					
					477
Sub-Total of F					1,964
Total Construction Cost (A+B+C+D+E+F)				SAY	14,136
					14,100

Note: LS - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1998 Price Level

Unit Cost of Toilet Bowl: referred to ADB-assisted RW3SP

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) Rattan 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		Q'ty	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)					4,635
					SAY 4,600

Note: LS - Lump Sum

Source: DOH 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
H.	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)	Acrylic 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 (8% of Materials for A - M excluding sand and gravel)		LS		13,121
O.	Indirect Cost				
	Profit (10% of A - N)				27,205
	VAT (10% of Profit & Labor)				8,059
	Sub-Total of O				35,264
	Total of Construction Cost (A to O)				307,315
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			SAY	311,515
					311,500

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: Peso)

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 5

(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		Q'ty	Unit	Unit Cost	Amount
H.	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 H				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 (8% of Materials for A - M excluding sand and gravel)				16,234
O. Indirect Cost				
Profit (10% of A - M)				31,546
VAT (10% of Profit & Labor)				10,413
Sub-Total of O				41,959
Total of Construction Cost (A to O)				357,424
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	361,624
				361,600

Note: LS - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1998 Price Level

Table 10.2.18 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 10.2.19 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

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 $\phi 250$ 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 $\phi 250$ 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

10.2.3 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.

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 (2005)

Unit: P 1,000

Name-of Municipality	Urban Water Supply Level III	Rural Water Supply											Level I Rehabilitation	Total	Grand Total
		New System					Level I								
		Level II	Deep Well			Shallow Well	Spring Dev.	Subtotal							
			40 m	80 m	120 m										
Anini-y	505		3,960				422	1,475	5,857	86	5,943	6,448			
Barbaza	1,885		2,520				506	1,475	4,501	55	4,556	6,441			
Belison	3,162							738	738		738	3,900			
Bugasong	4,169		4,680				927	738	6,345	102	6,447	10,616			
Caluya							169	1,475	1,644		1,644	1,644			
Culasi	2,961		5,040				1,939	1,475	8,454	110	8,564	11,525			
Hamtic	2,359		2,160				169	738	3,066	47	3,113	5,473			
Laua-an	2,341		1,080				253	738	2,071	24	2,094	4,435			
Libertad	1,637						253	1,475	1,728		1,728	3,365			
Pandan			5,400				2,360	738	8,498	118	8,616	8,616			
Patnongon	2,731						2,866	738	3,604		3,604	6,335			
San Jose de Buenavista (Capital)	18,281						84		84		84	18,365			
San Remigio	760		2,880				3,794	1,475	8,149	63	8,211	8,971			
Sebaste			1,800				843	1,475	4,118	39	4,157	4,157			
Sibalom	4,907		2,520					1,475	3,995	55	4,050	8,957			
Tibiao			2,160					1,475	3,635	47	3,682	3,682			
Tobias Fornier			5,760				1,855	1,475	9,090	125	9,215	9,215			
Valderrama	2,285		720					1,475	2,195	16	2,211	4,496			
Provincial Total (w/ ADB Assisted Project)	47,982		40,680				16,439	20,653	77,771	886	78,657	126,639			
Provincial Total (PW4SP)	47,982											47,982			

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

Unit: P 1,000

Name of Municipality	Urban Water Supply Level III	Rural Water Supply										Level I Rehabilitation	Total	Grand Total
		New System												
		Level I												
		Deep Well		Shallow Well	Spring Dev.	Subtotal								
		40 m	80 m											
		120 m												
Anini-y	4,061	31,680			7,418		39,098	690	39,788	43,849				
Barbaza	11,886	15,840			8,430		24,270	345	24,615	36,501				
Belison	19,062	7,920			2,613		10,533	172	10,706	29,768				
Bugasong	12,098	10,080			9,104		19,184	220	19,404	31,502				
Caluya	25,734				9,357		9,357		9,357	35,091				
Culasi	3,502	7,920			7,250		15,170	172	15,342	18,844				
Hamtic	12,577	87,120			2,192		89,312	1,897	91,209	103,786				
Laua-an	17,437	7,920			7,334		15,254	172	15,427	32,864				
Libertad	13,052	5,760			11,381		17,141	125	17,266	30,318				
Pandan	3,065									3,065				
Patnongon	14,081	39,960			3,962		43,922	870	44,792	58,874				
San Jose de Buenavista (Cap	122,007	5,400					5,400	118	5,518	127,524				
San Remigio	5,795	1,080			2,276		3,356	24	3,380	9,175				
Sebaste	29,268									29,268				
Sibalom	20,238	49,680			17,282		66,962	1,082	68,043	88,282				
Tibiao	16,947	1,800			3,794		5,594	39	5,633	22,580				
Tobias Fornier	4,774	29,160			759		29,919	635	30,554	35,327				
Valderrama	17,409	4,680			9,104		13,784	102	13,886	31,295				
Provincial Total	352,992	306,000			102,256		408,256	6,664	414,920	767,911				

Table 10.3.3 Cost for Sanitation Facilities Required for Phase I (2005)

Unit: P 1,000

Name of Municipality	Urban Sanitation						Rural Sanitation					
	Household Toilets			Public School Toilets	Public Toilets	Total Construction Cost	Household Toilets			Sub-total of Public Investment	Public School Toilets	Total Construction Cost
	Flush	Four Flush	VIP/Dry				Flush	Pour Flush	VIP/Dry			
Anini-y	276	183	50	3	362	871	364	1,955	6,810	2,719	11,485	13,353
Barbaza	1,242	1,227		19	234	3,787	1,337	2,392	12,620	1,931	16,943	18,811
Belison	3,128	451		7	1,085	4,664	1,092	1,426	2,383		3,809	3,809
Bugason	4,301	4,780		75	701	10,505	1,498	2,277	24,069	284	26,630	28,731
Caluya		3,046	717	48	362	4,825	1,110	5,950	2,954	8,904	93	10,305
Culasi	3,565	56		1	467	4,450	829	28,412	497	28,909	443	31,477
Hamtic	1,150	959	121	15	362	3,058	844	5,865	16,046	1,583	23,494	27,464
Laua-an	2,484	3,271	270	51	467	6,492	518	4,117	8,827		12,944	15,045
Libertad	1,541	959	178	15	1,085	3,762	1,100	2,944	12,803		15,747	17,381
Pandan		1,791		28	362	2,619	857	3,187	2,755	5,941	50	8,510
Patnongon	2,714	268		4	362	4,278	1,300	3,703	9,941		13,644	18,314
San Jose de Buenavista (Capita)	9,292	16,145		252	1,085	29,790	4,606	324		324	5	558
San Remigio	897	747		12	1,085	2,729	1,096	22,363	753	23,115	349	25,917
Sebasti	3,105				1,085	4,190	1,085	437	423		860	860
Sibalom	5,267	127		2	934	6,690	1,298	8,556	13,310		21,866	26,770
Tibiao	621	874	36	14	362	2,359	842	3,013	1,889	1,619	6,521	7,922
Tobias Fornier	2,116	2,524		39	1,085	5,725	1,124	460			460	460
Valderrama	2,553	776	270	12	467	4,427	841	2,898	9,814		12,712	14,113
Provincial Total (w/ ADB Assisted Project)	44,252	38,183	1,640	596	9,574	105,220	21,740	40,043	179,169	15,095	234,306	269,798
Provincial Total (PWASP)	44,252	38,183	1,640	596	9,574	104,135	21,740	40,043	176,067	15,095	231,204	265,762

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

Unit: P 1,000

Name of Municipality	Urban Sanitation						Rural Sanitation					
	Household Toilets			Public School Toilets	Total Public Investment Cost	Urban Sewerage	Household Toilets			Sub-total of Public Investment	Public School Toilets	Total Construction Cost
	Flush	Pour Flush	VIP/Dry				Flush	Pour Flush	VIP/Dry			
Anini-y	2,208			362	2,570	362		31,739		31,739	495	38,044
Barbaza	8,280			467	8,747	829	7,337	16,624		23,961	259	29,331
Belison	13,294			362	13,656	362		9,292		9,292	145	11,393
Bugason	18,492			362	18,854	362	9,108	20,868		29,976	326	36,281
Caluya	16,675			701	17,376	701		19,726		19,726	308	23,929
Culasi	12,857			467	13,324	829	7,912	22,250		30,162	347	37,867
Hamtic	10,557			234	10,791	234	7,199	38,056		45,255	594	56,696
Laua-an	9,131			234	9,365	595		16,920		16,920	264	22,524
Libertad	6,969			234	7,203	595		22,800		22,800	356	27,470
Pandan	7,245				7,245		8,050	20,064		28,114	313	35,119
Pamomgon	11,937			362	12,299	362		29,399		29,399	459	37,238
San Jose de Buenavista (Capital)	112,309			362	112,671	362		5,161		5,161	81	6,095
San Remigio	3,013				3,013			28,313		28,313	442	35,785
Sebasto	23,322			234	23,556	595		2,439		2,439	38	3,140
Sibalom	22,402			362	22,764	362	2,323	52,805		55,128	824	68,671
Tibiao	9,752				9,752		5,152	9,969		15,121	156	19,090
Tobias Fornier	10,327				10,327		4,485	19,670		24,155	307	29,525
Valderama	9,131			701	9,832	1,062		14,988		14,988	234	19,191
Provincial Total	307,901			4,339	315,509	7,608	51,566	381,081		432,647	5,945	537,488
												110,786

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 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	2001	2002	2003	2004	2005	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 (% of Underserved and Unserved Population or Households)				Score by Sub-Sector				Weighted Score by Sub-Sector				Synthetic Investment Need Ranking
	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	
Anini-y	N.A.	39	17	26	0.76	0.40	0.40	0.20	0.19	0.10	0.10	0.05	0.44
Barbaza	N.A.	37	12	33	0.80	0.40	0.40	0.40	0.20	0.10	0.10	0.10	0.50
Bellison	N.A.	24	12	15	0.49	0.20	0.40	0.20	0.12	0.05	0.10	0.05	0.32
Bugason	N.A.	32	34	45	0.40	0.40	0.80	0.60	0.10	0.10	0.20	0.15	0.55
Caluya	N.A.	36	31	42	0.39	0.40	0.80	0.60	0.10	0.10	0.20	0.15	0.55
Culasi	N.A.	33	19	50	0.37	0.40	0.40	0.60	0.09	0.10	0.10	0.15	0.44
Hamtic	N.A.	39	17	31	0.97	0.40	0.40	0.40	0.24	0.10	0.10	0.10	0.54
Laua-an	N.A.	30	30	26	0.49	1.00	1.00	0.20	0.12	0.25	0.25	0.05	0.67
Libertad	N.A.	37	18	31	0.66	0.40	0.40	0.40	0.17	0.10	0.10	0.10	0.47
Pandan	N.A.	4	21	20	0.27	0.20	0.60	0.20	0.07	0.05	0.15	0.05	0.32
Pamongo	N.A.	36	13	20	0.63	0.40	0.40	0.20	0.16	0.10	0.10	0.05	0.41
San Jose de Buenavista (Ca)	N.A.	4	18	7	0.46	0.20	0.40	0.20	0.12	0.05	0.10	0.05	0.32
San Remigio	N.A.	20	36	45	0.49	0.20	0.80	0.60	0.12	0.05	0.20	0.15	0.52
Sebasto	N.A.	31	15	25	0.39	0.40	0.40	0.20	0.10	0.10	0.10	0.05	0.35
Sibalom	N.A.	35	12	19	0.43	0.40	0.40	0.20	0.11	0.10	0.10	0.05	0.36
Tibiao	N.A.	27	20	31	0.46	0.20	0.40	0.40	0.12	0.05	0.10	0.10	0.37
Tobias Fomier	N.A.	37	38	11	0.37	0.40	0.80	0.20	0.09	0.10	0.20	0.05	0.44
Valderama	N.A.	44	24	34	0.83	0.60	0.60	0.40	0.21	0.15	0.15	0.10	0.61
Provincial Total	N.A.	32	20	29									2

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				0.25	0.25	0.25	Allocated Weight
	61	< %	41	< %	61	< %	41	< %
1.0	51	< %	60	< %	40	51	< %	60
0.8	41	< %	50	< %	30	41	< %	50
0.6	31	< %	40	< %	20	31	< %	40
0.4	%	< %	30	%	< %	10	%	< %
0.2								

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

(Unit: 1,000 Pesos)

Name of City or Municipality	Ttl No. of Bgs. in Rural Area	Class	Rural Water Supply										Rural Sanitation										Mun. Avail. IRA	Sub-total Avail. IRA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
			No. of Related Bgs.		No. of LEVEL 1 Facilities				Prov. Avail. IRA				No. of Related Bgs.		Rural Sanitation Allotment of IRA				Number of Toilets						Prov. Avail. IRA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
			Prov.	Muni.	Deep	Shallow	Spring	Ttl	Related	IRA	Avail.	Mun.	Related Bgs.	Prov.	Muni.	Public	Bus Term.	School Toilet	Ttl	Related	IRA	Avail.			Mun.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Table 11.5.2 Available IRA for GOP-Assisted Urban Sanitation Project for Eligible Municipalities

Name of City or Municipality	Ttl Nos. of Bgs. in Urban	Class	Nos. of Related Bgs.	Urban Sanitation		Number of Toilets		Prov. Avail. IRA		Mun. Avail. IRA		Sub-total Avail. IRA	
				Muni. Prov.	Muni.	Public Mkt.	Bus Term.	School	Toilet Related	IRA	IRA		
Amimay	1	5th		259	420	0	0	0	0			0	
Barboza	2	5th		698	970	3	1	4	698	970	1,668	1,668	
Belison	1	5th		587	596	2	1	0	587	596	1,184	1,184	
Bugasonig	4	4th		771	837	1	0	3	4	771	857	1,628	
Caluya	2	4th		382	1,456	0	0	3	382	1,456	1,837	1,837	
Culasi	3	4th		469	641	0	0	2	2	469	641	1,110	
Hamic	5	4th		475	607	0	0	2	2	475	607	1,082	
Laua-an	2	5th		379	400	0	0	2	2	379	400	728	
Libertad	2	5th		591	768	2	0	0	2	591	768	1,359	
Pandan	3	5th		481	1,019	0	0	2	2	481	1,019	1,500	
Panmongon	1	4th		681	654	0	0	4	4	681	654	1,335	
San Jose de Buenavista	28	3rd		2,009	962	1	2	14	17	2,009	962	2,971	
San Remigio	1	4th		590	1,240	3	0	0	3	590	1,240	1,830	
Sebasie	6	5th		517	570	0	1	3	5	517	570	1,087	
Sibalom	5	3rd		0	1,582	3	0	0	3	0	1,582	1,582	
Tibiao	2	5th		0	1,228	0	0	2	2	0	1,228	1,228	
Tobias Fornier	2	5th		0	1,112	2	1	0	3	0	1,112	1,112	
Valderama	2	5th		474	615	0	0	2	2	474	615	1,089	
Total	72	3rd		9,314	15,097	17	5	41	63	9,354	15,277	24,331	
Total Available IRA Fund													24,331

Name of City or Municipality	Water Supply Rural	Sanitation		Total
		Urban	Rural	
Amimay	0	0	2,732	2,732
Barboza	0	1,668	2,711	4,379
Belison	0	1,184	0	1,184
Bugasonig	0	1,628	2,816	4,444
Caluya	0	1,837	1,960	3,797
Culasi	0	1,110	3,967	5,077
Hamic	0	1,082	4,948	6,030
Laua-an	0	728	3,019	3,747
Libertad	0	1,359	1,851	3,212
Pandan	0	1,500	3,967	5,067
Panmongon	0	1,335	4,884	6,219
San Jose de Buenavista	0	2,971	286	3,256
San Remigio	0	1,830	4,164	6,194
Sebasie	0	1,582	0	1,582
Sibalom	0	1,087	5,701	6,789
Tibiao	0	1,228	2,086	3,314
Tobias Fornier	0	1,112	0	1,112
Valderama	0	1,089	2,120	3,209
Total	0	24,331	47,013	71,344

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

Name of City or Municipality	Water Supply					Sanitation					Total
	Rural					Urban					
Amnii-y	0					0			2,732		2,732
Barbaza	0					0		1,668	2,711		4,379
Belison	0					0		1,134	0		1,184
Bugasonig	0					0		1,628	2,816		4,444
Caluya	0					0		1,837	1,960		3,797
Culsi	0					0		1,110	3,967		5,077
Hamtic	0					0		1,082	4,948		6,030
Laua-an	0					0		728	3,019		3,747
Libertad	0					0		1,359	1,853		3,212
Pandan	0					0		1,500	3,567		5,067
Panmongon	0					0		1,335	4,884		6,219
San Jose de Buenavista	0					0		2,971	286		3,256
San Remigio	0					0		1,830	4,164		6,194
Sebasie	0					0		1,582	0		1,582
Sibalom	0					0		1,087	5,701		6,789
Tibiao	0					0		1,228	2,086		3,314
Tobias Fornier	0					0		1,112	0		1,112
Valderama	0					0		1,089	2,120		3,209
Total	0					0		24,331	47,013		71,344

Table 11.5.4 FIRR for Level I Water Supply

Year	No. of Deep Well	No. of Shallow Well	Spring Dev't.	Construction Cost	Rehab. & Replacement Cost	O&M Cost	Total Costs (Outflow)	No. of Households	Water Rate per month per household	Loans and Subsidies	Cash Inflow	Net Value
1	23	39	6	15,993,300	0	0	15,993,300	1,020	109.19		1,336,485.60	(14,656,814.40)
2	34	59	8	23,114,500	0	159,933	23,274,433	2,535	109.19		3,321,559.80	(19,952,873.20)
3	34	59	8	23,114,500	0	391,078	23,505,578	4,050	109.19		5,306,634.00	(18,198,944.00)
4	8	39	6	10,593,300	0	622,223	11,215,523	4,845	109.19		6,348,306.60	(4,867,216.40)
5					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
6					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
7					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
8					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
9					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
10					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
11					5,090,900	728,156	5,819,056	4,845	109.19		6,348,306.60	529,250.60
12					7,639,300	728,156	8,367,456	4,845	109.19		6,348,306.60	(2,019,149.40)
13					7,639,300	728,156	8,367,456	4,845	109.19		6,348,306.60	(2,019,149.40)
14					3,914,900	728,156	4,643,056	4,845	109.19		6,348,306.60	1,705,250.60
15					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
16					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
17					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
18					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
19					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60
20					0	728,156	728,156	4,845	109.19		6,348,306.60	5,620,150.60

Province of Antioquia

Total: 7,962,161.60
 FIRR: 1.29%
 NPV@9%: -22,997,671.74

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	53,020,700	0	10,604,140	15,906,210	15,906,210	10,604,140
3. Land Acquisition	0	0	0	0	0	0
B. Equip./Logistic Support	0	0	0	0	0	0
C. Consultancy Services						
1. Hydrogeological Survey	0	0	0	0	0	0
2. D/D and Const. Sv.	5,832,277	2,332,911	1,166,455	1,166,455	583,228	583,228
D. Institutional Devt.						
1. Capacity Enhanc. Prog.	3,200,000	960,000	960,000	640,000	320,000	320,000
2. Commu. Manag. Prog.	0	0	0	0	0	0
3. Health & Hygiene Educ.	0	0	0	0	0	0
4. Water Quality Surveil.	0	0	0	0	0	0
5. NGO Assistance	0	0	0	0	0	0
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)	6,325,298	365,291	1,309,060	1,795,267	1,692,944	1,162,737
Total (A+B+C+D+E+F)	69,578,275	4,018,202	14,399,655	19,747,932	18,622,381	12,790,104
F. Others						
1. Price Contingency	23,834,784	1,376,478	4,932,756	6,764,866	6,379,297	4,381,388
2. Value Added Tax (VAT)	2,722,649	157,235	563,469	772,751	728,707	500,486
Grand Total	96,135,708	5,551,915	19,895,880	27,285,549	25,730,385	17,671,978

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 ¹⁾	113	195	28
Nos. of HHs to be Served	1,695	2,925	420
Reconstruction Cost (Peso) ²⁾			
Unit Cost	360,000	84,300	737,600
Ttl. Reconst. Cost	40,680,000	16,438,500	
Ttl. Reconst. Cost/year	2,034,000	1,643,850	
Cost per HH/year	1,200	562	
Rehabilitation Cost (Peso) ³⁾			
Unit Cost	78,400		
Ttl. Rehab. Cost	8,859,200		
Ttl. Rehab. Cost/year	885,920		
Cost per HH/year	523		
Recurrent Cost for O&M (Peso)			
Cost per HH/year	100	50	50
O&M Cost Total (Peso)			
Cost per HH/year	1,823	612	50

Note: 1) Physical target under ADB-assisted project

2) 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.

3) 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	152	51	4
Proportion (Mean)	2.0%	0.7%	0.1%
Proportion (Median)	2.8%	0.9%	0.1%

Table 11.6.4 Family Income

(Unit: Pesos)

Annual ¹⁾		Monthly ²⁾	
Mean	Median	Mean	Median
42,393	31,125	7,436	5,459

Note: 1) 1994 NSO Family Income and Expenditure Survey

2) Estimated value in 2005 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	152	361,600	233,500	1,774,600

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	
22	41	361,600	233,500	876,435

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)

[illegible]

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