

## 10 COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

### 10.2 Assumption for Cost Estimates

#### 10.2.1 Unit Construction Cost

##### (1) Calculation method

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

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

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

Table 10.2.1 Price of Major Materials by Facility

	Water Supply			Sanitation		Projection by major materials				Canvassed/collected price		Remarks Compared with (2), (3)	
	L-I	L-II	L-III	ST/PT	Flush type	VIP/Pit	NSO wholesale price index		Price		ted price (2) DPWH (3) CIA		
							1995	1997	Escalation	1995			(1) 1997
1. Sand, stone, gravel Sand Gravel	*	*	*	*	*	*	311.6	343.5	0.050	304 385	335 424	350 450	Almost same with (2),(3)
2. Cement	*	*	*	*	*	*	197.4	200.1	0.007	117	119	105	- do -
3. Fuel and Lubricant	*		*				601.6	694.0	0.074	1,100	1,269	1,306	- do -
4. Metal pipe 100m/m x 3m, casing 100m/m x 3m, screen	*	*	*				208.7	211.5	0.007	2,625 4,313	2,660 4,371	2,763 5,291	Price of casing is almost same with (2), screen is 20% lower than (2)
5. PVC pipe 63m/m pipe w/socket 1 1/2" elbow	*	*	*	*			199.2	221.1	0.054	813 13	902 14	715 32	Price of PVC pipe is almost same with (2) and/or 25% higher than (3)
6. Reinforcing steel 12m/m x 6m 10m/m x 6m		*	*	*	*	*	201.4	207.4	0.015	68 49	70 50	70 49	Same with (3)
7. Lumber				*	*	*	268.5	277.4	0.016				
8. Paint Enamel, QDE				*			128.0	132.8	0.019	266	276	275	Same with (3)
9. Machinery and equipment	*		*				254.8	254.8	0.000				

L-I: Deep well/shallow well, L-II: Major materials are same as those of L-I spring development,

ST: School toilet, PT: Public toilet, Flush type: Flush water sealed w/septic tank and Pour flush w/ double latrine,

CIA: Construction Industry Authority of the Philippines

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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization/Site Preparation</b>		L.S.		15,000
<b>B. Drilling of Well &amp; Installation of Steel Casing/Screen</b>				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	11	pcs.	2,894	31,834
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
(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	2,460	98,400
3. Borehole Logging	1	no	5,000	5,000
4. Freight Cost (11% of Materials)		L.S.		5,301
<b>Sub-Total of B</b>				156,892
<b>C. Well Development and Pumping Test</b>				
Well Development	12	hr.	2,353	28,236
Pumping Test	6	hr.	1,472	8,832
<b>Sub-Total of C</b>				37,068
<b>D. Gravel Packing, Installation of Handpump and Construction of Platform</b>				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m Riser Pipe and Pump Rod	6	pcs.	1,880	11,280
(3) #10 Sieved Gravel	0.7	cu.m	959	671
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	4	bags	128	512
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
<b>Sub-Total of D-1</b>				25,019
2. Labor (40% of D-1.)				10,008
3. Freight Cost (11% of Materials)		L.S.		2,752
<b>Sub-Total of D</b>				37,779
<b>E. Indirect Cost</b>				
Profit (10% of A, B, C & D)				24,674
Overhead Expense (13% of A,B,C & D)				32,076
VAT (10% of Labor, Profit & Overhead Expense)				16,516
<b>Sub-Total of E</b>				41,190
<b>Total of Construction Cost (A+B+C+D+E)</b>				259,693
<b>F. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
<b>Sub-Total of F</b>				6,744
<b>GRAND TOTAL</b>				266,437
<b>SAY</b>				266,400

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level

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

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization</b>		L.S.		15,000
<b>B. Drilling of Well &amp; Installation of Steel Casing/Screen</b>				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	11	pcs.	2,894	31,834
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
(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	1,534	61,360
3. Borehole Logging	1	no	5,000	5,000
4. Freight Cost (11% of Materials)		L.S.		4,878
<b>Sub-Total of B</b>				115,579
<b>C. Well Development and Pumping Test</b>				
Well Development	6	hr.	2,353	14,118
Pumping Test	6	hr.	1,472	8,832
<b>Sub-Total of C</b>				22,950
<b>D. Gravel Packing, Installation of Handpump and Construction of Platform</b>				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m Riser Pipe and Pump Rod	6	pcs.	1,880	11,280
(3) #10 Sieved Gravel	0	cu.m	959	0
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
<b>Sub-Total of D-1</b>				24,220
2. Labor (40% of D-1.)				9,688
3. Freight Cost (11% of Materials)		L.S.		2,664
<b>Sub-Total of D</b>				36,572
<b>E. Indirect Cost</b>				
Profit (10% of A, B, C & D)				19,010
Overhead Expense (13% of A,B,C & D)				24,713
VAT (10% of Labor, Profit & Overhead Expense)				11,477
<b>Sub-Total of E</b>				30,487
<b>Total of Construction Cost (A+B+C+D+E)</b>				206,470
<b>F. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
<b>Sub-Total of F</b>				6,744
<b>GRAND TOTAL</b>				213,214
<b>SAY</b>				213,200

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level

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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization/Site Preparation</b>		L.S.		15,000
<b>B. Drilling of Well &amp; Installation of Steel Casing/Screen</b>				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	24	pcs.	2,894	69,456
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
(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	2,460	196,800
3. Borehole Logging	1	no	5,000	5,000
4. Freight Cost (11% of Materials)		L.S.		9,439
<b>Sub-Total of B</b>				297,052
<b>C. Well Development and Pumping Test</b>				
Well Development	12	hr.	2,353	28,236
Pumping Test	6	hr.	1,472	8,832
<b>Sub-Total of C</b>				37,068
<b>D. Gravel Packing, Installation of Handpump and Construction of Platform</b>				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m Riser Pipe and Pump Rod	12	pcs.	1,880	22,560
(3) #10 Sieved Gravel	1.6	cu.m	959	1,534
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	4	bags	128	512
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
<b>Sub-Total of D-1</b>				37,162
2. Labor (40% of D-1.)				14,865
3. Freight Cost (11% of Materials)		L.S.		4,088
<b>Sub-Total of D</b>				56,115
<b>E. Indirect Cost</b>				
Profit (10% of A, B, C & D)				40,524
Overhead Expense (13% of A,B,C & D)				52,681
VAT (10% of Labor, Profit & Overhead Expense)				30,487
<b>Sub-Total of E</b>				71,011
<b>Total of Construction Cost (A+B+C+D+E)</b>				448,010
<b>F. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
<b>Sub-Total of F</b>				6,744
<b>GRAND TOTAL</b>				454,754
<b>SAY</b>				454,800

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level

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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization/Site Preparation</b>		L.S.		15,000
<b>B. Drilling of Well &amp; Installation of Steel Casing/Screen</b>				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	24	pcs.	2,894	69,456
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
(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	1,534	122,720
3. Borehole Logging	1	no	5,000	5,000
4. Freight Cost (11% of Materials)		L.S.		9,016
<b>Sub-Total of B</b>				<b>218,699</b>
<b>C. Well Development and Pumping Test</b>				
Well Development	6	hr.	2,353	14,118
Pumping Test	6	hr.	1,472	8,832
<b>Sub-Total of C</b>				<b>22,950</b>
<b>D. Gravel Packing, Installation of Handpump and Construction of Platform</b>				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m Riser Pipe and Pump Rod	8	pcs.	1,880	15,040
(3) #10 Sieved Gravel	0	cu.m	959	0
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
<b>Sub-Total of D-1</b>				<b>27,980</b>
2. Labor (40% of D-1.)				11,192
3. Freight Cost (11% of Materials)		L.S.		3,078
<b>Sub-Total of D</b>				<b>42,250</b>
<b>E. Indirect Cost</b>				
Profit (10% of A, B, C & D)				29,890
Overhead Expense (13% of A,B,C & D)				38,857
VAT (10% of Labor, Profit & Overhead Expense)				20,266
<b>Sub-Total of E</b>				<b>50,156</b>
<b>Total of Construction Cost (A+B+C+D+E)</b>				<b>334,937</b>
<b>F. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
<b>Sub-Total of F</b>				<b>6,744</b>
<b>GRAND TOTAL</b>				<b>341,681</b>
<b>SAY</b>				<b>341,700</b>

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level

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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization/Site Preparation</b>		L.S.		15,000
<b>B. Drilling of Well &amp; Installation of Steel Casing/Screen</b>				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	37	pcs.	2,894	107,078
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
(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	2,460	295,200
3. Borehole Logging	1	no	5,000	5,000
4. Freight Cost (11% of Materials)		L.S.		13,578
<b>Sub-Total of B</b>				437,213
<b>C. Well Development and Pumping Test</b>				
Well Development	12	hr.	2,353	28,236
Pumping Test	6	hr.	1,472	8,832
<b>Sub-Total of C</b>				37,068
<b>D. Gravel Packing, Installation of Handpump and Construction of Platform</b>				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m Riser Pipe and Pump Rod	15	pcs.	1,880	28,200
(3) #10 Sieved Gravel	2.5	cu.m	959	2,398
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	4	bags	128	512
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
<b>Sub-Total of D-1</b>				43,666
2. Labor (40% of D-1.)				17,466
3. Freight Cost (11% of Materials)		L.S.		4,803
<b>Sub-Total of D</b>				65,935
<b>E. Indirect Cost</b>				
Profit (10% of A, B, C & D)				55,522
Overhead Expense (13% of A,B,C & D)				72,178
VAT (10% of Labor, Profit & Overhead Expense)				44,037
<b>Sub-Total of E</b>				99,559
<b>Total of Construction Cost (A+B+C+D+E)</b>				626,539
<b>F. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
<b>Sub-Total of F</b>				6,744
<b>GRAND TOTAL</b>				633,283
<b>SAY</b>				633,300

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level

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

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization/Site Preparation</b>		L.S.		15,000
<b>B. Drilling of Well &amp; Installation of Steel Casing/Screen</b>				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	37	pcs.	2,894	107,078
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,997	2,997
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,755	9,510
(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	1,534	184,080
3. Borehole Logging	1	no	5,000	5,000
4. Freight Cost (11% of Materials)		L.S.		13,154
<b>Sub-Total of B</b>				<b>321,819</b>
<b>C. Well Development and Pumping Test</b>				
Well Development	6	hr.	2,353	14,118
Pumping Test	6	hr.	1,472	8,832
<b>Sub-Total of C</b>				<b>22,950</b>
<b>D. Gravel Packing, Installation of Handpump and Construction of Platform</b>				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,922	9,922
(2) 63mm x 6m Riser Pipe and Pump Rod	15	pcs.	1,880	28,200
(3) #10 Sieved Gravel	0	cu.m	959	0
(4) Coarse Sand	1	cu.m	335	335
(5) Cement for Sanitary Seal	3	bags	128	384
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	49	294
6) Nail	1	kg.	35	35
<b>Sub-Total of D-1</b>				<b>41,140</b>
2. Labor (40% of D-1.)				16,456
3. Freight Cost (11% of Materials)		L.S.		4,525
<b>Sub-Total of D</b>				<b>62,121</b>
<b>E. Indirect Cost</b>				
Profit (10% of A, B, C & D)				42,189
Overhead Expense (13% of A,B,C & D)				54,846
VAT (10% of Labor, Profit & Overhead Expense)				29,757
<b>Sub-Total of E</b>				<b>71,946</b>
<b>Total of Construction Cost (A+B+C+D+E)</b>				<b>479,718</b>
<b>F. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering Cost		L.S.		3,300
2. Construction Supervision		L.S.		2,200
3. Water Quality Analysis		L.S.		1,244
<b>Sub-Total of F</b>				<b>6,744</b>
<b>GRAND TOTAL</b>				<b>486,462</b>
<b>SAY</b>				<b>486,500</b>

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level



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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization</b>		L.S.		<b>5,000</b>
<b>B. Well Rehabilitation</b>				
1. Materials				
(1) Cylinder Pump Set	1	set	9,922	9,922
(2) Cement for Surface Sealing	4	bags	128	512
(3) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	2	cu.m	424	848
3) Sand	1	cu.m	335	335
4) Plywood (4' x 8' x 1/4")	1	pc.	275	275
5) Form Lumber (2" x 3" x 6")	6	pcs.	49	294
6) Nail	1	kg.	35	35
Sub-Total of B-1				12,733
2. Labor (40% of B-1)				5,093
3. Freight Cost (11% of Materials)				1,401
Sub-Total of B				<b>19,227</b>
<b>C. Well Development</b>		L.S.		<b>28,000</b>
<b>D. Indirect Cost</b>				
Profit (10% of A, B & C)				5,223
Overhead Expense (13% of A,B & C)				6,790
VAT (10% of Profit & Labor)				3,832
Sub-Total of D				<b>15,845</b>
<b>Total of Construction Cost (A+B+C+D)</b>				<b>68,072</b>
<b>E. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering Cost		L.S.		1,200
2. Supervision		L.S.		720
3. Water Quality Analysis		L.S.		1,244
Sub-Total of E				<b>3,164</b>
<b>GRAND TOTAL</b>				<b>71,236</b>
<b>SAY</b>				<b>71,200</b>

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization</b>		L.S.		3,000
<b>B. Drilling of Well &amp; Installation of Steel Casing/Screen</b>				
1. Materials				
(1) 63mm x 6m PVC Pipe with socket	2	pcs.	896	1,792
(2) 63mm x 3m PVC Pipe with plug	1	pc.	452	452
(3) 63mm PVC Socket	1	pc.	99	99
(4) 63mm x 3m PVC Screen	1	pc.	1,433	1,433
(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	1,534	27,612
3. Freight Cost (11% of Materials)		L.S.		415
<b>Sub-Total of B</b>				<b>33,253</b>
<b>C. Well Development</b>	4	hr.	1,482	5,928
<b>D. Gravel Packing, Installation of Handpump and Construction of Platform</b>				
1. Materials				
(1) 50mm Jetmatic Handpump	1	set	2,623	2,623
(2) 50mm Riser Pipe and Foot Valve	1	pc.	110	110
(3) #10 Sieved Gravel	0.1	cu.m	959	96
(4) Coarse Sand	0.07	cu.m	335	23
(5) Cement for Sanitary Seal	4	bag	128	512
(6) Pump Base and Platform				
1) Cement	4	bags	128	512
2) Gravel	1	cu.m	424	424
3) Sand	1	cu.m	335	335
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	275	275
5) Form Lumber (50mm x 75mm x 1,800 mm)	1	pc.	49	49
6) Nail	1	kg.	35	35
<b>Sub-Total of D-1</b>				<b>4,994</b>
2. Labor (40% of D-1.)				1,998
3. Freight Cost (11% of Materials)		L.S.		549
<b>Sub-Total of D</b>				<b>7,541</b>
<b>E. Indirect Cost</b>				
Profit (10% of A to D)				4,972
Overhead Expense (13% of A to D)				6,464
VAT (10% of Profit & Overhead Expense)				1,144
<b>Sub-Total of E</b>				<b>6,116</b>
<b>Total of Construction Cost (A+B+C+D+E)</b>				<b>55,838</b>
<b>F. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering Cost		L.S.		2,200
2. Construction Supervision		L.S.		1,650
3. Water Quality Analysis		L.S.		1,244
<b>Sub-Total of F</b>				<b>5,094</b>
<b>GRAND TOTAL</b>				<b>60,932</b>
<b>SAY</b>				<b>60,900</b>

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.7 Unit Cost of Level I (Spring Development)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization</b>		L.S.		3,600
<b>B. Construction of Spring Box</b>				
1. Materials		L.S.		39,900
2. Labor (35% of 1.)		L.S.		13,965
3. Freight Cost (11% of Materials)		L.S.		4,389
<b>Sub-Total of B</b>				<b>58,254</b>
<b>C. Installation of Pipelines &amp; Fittings</b>				
1. Transmission Main				
(1) Materials				
1) 63mm dia. PVC Pipe (Class 12.5 with push type socket)	330	pcs.	896	295,680
2) 63mm dia. Tee	1	no.	97	97
3) Solvent Cement	26	cans	50	1,300
4) 63mm dia. Elbow (90 deg.)	3	nos.	83	249
5) 63mm dia. Elbow (45 deg.)	1	pc.	82	82
6) 50mm dia. Gate Valve	2	pcs.	841	1,682
7) 50mm dia. x 1m Stand Pipe	1	pc.	165	165
8) 63mm x 50mm GI Nipple	1	pc.	115	115
9) 50mm dia. Union Patente	3	pcs.	179	537
10) 63mm x 50mm dia. Reducing Socket	2	pcs.	106	212
11) 50mm dia. GI Elbow (90 deg.)	2	pcs.	74	148
12) 63mm x 50mm dia. Socket Adaptor	2	pcs.	156	312
13) 50mm dia. GI Gate Valve	2	pcs.	739	1,478
14) 13mm dia. Brass Faucet	2	pcs.	45	90
<b>Sub-Total of Materials</b>				<b>302,057</b>
(2) Labor (35% of Material Cost)		L.S.		105,720
(3) Freight Cost (11% of Materials)		L.S.		33,226
<b>Sub-Total of C</b>				<b>441,003</b>
<b>D. Indirect Cost</b>				
1. Transmission Main				
(1) Profit (10% of C)				44,100
(2) Overhead Expense (13% of C)				57,330
(3) VAT (10% of Profit, Overhead Expense and Labor)				20,715
2. Source Facilities				
(1) Profit (10% of A, B)				18,556
(2) Overhead Expense (13% of A, B)				6,185
(3) VAT (10% of Profit, Overhead Expense and Labor)				3,871
<b>Sub-Total of D</b>				<b>150,757</b>
<b>Total Construction Cost (A+B+C+D)</b>				<b>653,614</b>
<b>E. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering and RWSA Formation				2,200
2. Supervision				13,200
3. Water Quality Analysis				1,244
<b>Sub-Total of E</b>				<b>16,644</b>
<b>GRAND TOTAL</b>				<b>670,258</b>
<b>SAY</b>				<b>670,300</b>

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level

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

sheet 1 of 2

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization</b>		L.S.		5,000
<b>B. Construction of Spring Box</b>				
1. Materials		L.S.		39,900
2. Labor (35% of 1.)		L.S.		13,965
3. Freight Cost (11% of Materials)		L.S.		4,389
<b>Sub-Total of B</b>				58,254
<b>C. Installation of Pipelines &amp; Fittings</b>				
<b>1. Transmission Main</b>				
(1) Materials				
1) 63mm dia. PVC Pipe (Class 12.5 with pusher type socket)	500	pcs.	896	448,000
2) 63mm dia. Tee	1	no.	97	97
3) Solvent Cement	40	cans	50	2,000
4) 63mm dia. x 50mm Nipple	3	nos.	149	447
5) 63mm dia. Union Patente	1	pc.	190	190
6) 63mm dia. x 50mm dia. Reducing Socket	2	pcs.	115	230
7) 63mm dia. Elbow (90 deg.)	1	pc.	83	83
8) 63mm dia. Elbow (45 deg.)	1	pc.	82	82
9) 63mm dia. Gate Valve	3	pcs.	841	2,523
<b>Sub-Total of Materials</b>				453,652
(2) Labor (35% of Material Cost)		L.S.		158,778
(3) Freight Cost (11% of Materials)		L.S.		49,902
<b>Sub-Total of Transmission Main</b>				662,332
<b>2. Distribution Pipeline</b>				
(1) Materials				
1) 50mm dia. PVC Pipe (Class 12.5 with pusher type socket)	20	pcs.	496	9,920
2) 38mm dia. PVC Pipe (Class 12.5 with pusher type socket)	30	pcs.	330	9,900
3) 20mm dia. PVC Pipe (Class 40 with pusher type socket)	10	pcs.	110	1,100
4) 13mm dia. x 1 m Stand Pipe	10	pcs.	103	1,030
5) Solvent Cement	4	cans	50	200
6) Fittings				
a. 50mm dia. x 150mm PVC Nipple	3	pcs.	137	411
b. 32mm dia. x 150mm PVC Nipple	3	pcs.	83	249
c. 13mm dia. x 150mm GI Nipple	40	pcs.	27	1,080
d. 50mm dia. Union Patente	1	pcs.	179	179
e. 32mm dia. Union Patente	2	pcs.	78	156
f. 13mm dia. Union Patente	10	pcs.	27	270
g. 50mm dia. x 32mm dia. Reducing Socket	6	pcs.	99	594
h. 32mm dia. x 20mm dia. Reducing Socket	10	pcs.	77	770
i. 20mm dia. x 13mm dia. Reducing Socket	10	pcs.	60	600
j. 50mm dia. PVC Elbow (90 deg.)	2	pcs.	74	148
k. 13mm dia. GI Elbow (90 deg.)	20	pcs.	14	280
l. 20mm dia. x 13mm dia. Socket Adaptor	10	pcs.	45	450
m. 50mm dia. GI Gate Valve	2	pcs.	739	1,478
n. 32mm dia. GI Gate Valve	2	pcs.	418	836
o. 13mm dia. GI Gate Valve	24	pcs.	253	6,072
p. 13mm dia. Brass Faucet	24	pcs.	45	1,080
q. 50mm dia. Tee	4	pcs.	143	572
r. 32mm dia. Tee	6	pcs.	121	726
s. Water Meter	24	pcs.	826	19,824
t. Water Meter Box	24	pcs.	1,212	29,088
<b>Sub-Total of Materials</b>				87,013
(2) Labor (35% of Material Cost)				30,455
(3) Freight Cost (11% of Materials)				9,571
<b>Sub-Total of Distribution Pipeline</b>				127,039
<b>Sub-Total of C</b>				789,371

Table 10.2.8 Unit Cost of Level II (600 Service Population) (Cont'd.)

Sheet 2 of 2

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>D. Indirect Cost</b>				
1. Transmission Main				
(1) Profit (10% of C-1)				66,233
(2) Overhead Expense (13% of C-1)				86,103
(3) VAT (10% of Profit, Overhead Expense and Labor)				31,111
2. Source Facilities and Distribution Pipeline				
(1) Profit (10% of A, B, C-2)				19,029
(2) Overhead Expense (13% of A,B and C-2)				24,738
(3) VAT (10% of Profit, Overhead Expense and Labor)				8,819
<b>Sub-Total of D</b>				<b>236,033</b>
<b>Total Construction Cost (A+B+C+D)</b>				<b>1,088,658</b>
<b>E. Estimated Government Expenses</b>				
1. Preliminary & Detailed Engineering and RWSA Formation				2,200
2. Supervision				13,200
3. Water Quality Analysis				1,244
<b>Sub-Total of E</b>				<b>16,644</b>
<b>Total Estimated Cost</b>				<b>1,105,302</b>
<b>Unit Cost per Person Served</b>				<b>1,842</b>
				<b>1,800</b>

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994, LWUA Water Supply Feasibility Study Methodology Manual 1996

Unit Cost: Adjusted to 1997 Price Level

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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization</b>		L.S.		<b>330,000</b>
<b>B. Source Development and Storage</b>				
1. Deep Well	1	No.	1,770,000	1,770,000
2. Deep Well Pump	1	No.	632,000	632,000
3. Chlorinator House & Equipment	1	L.S.		480,000
4. Storage Tank (250 cu.m)	1	No.	1,200,000	1,200,000
<b>Sub-Total of B</b>				<b>4,082,000</b>
<b>C. Transmission Main</b>				
1. 160mm dia.	500	L.M.	1,234	617,000
<b>Sub-Total of C</b>				<b>617,000</b>
<b>D. Distribution Main</b>				
1. 160mm dia.	1,000	L.M.	1,234	1,234,000
2. 110mm dia.	3,000	L.M.	1,019	3,057,000
3. 90mm dia.	3,000	L.M.	639	1,917,000
4. 75mm dia.	5,000	L.M.	595	2,975,000
<b>Sub-Total of D</b>				<b>9,183,000</b>
<b>E. Service Connections</b>	1,000	Nos.	2,138	<b>2,138,000</b>
<b>F. Miscellaneous</b>				
1. Vehicle	1	No.	606,000	606,000
2. Office & Workshop Bldg.	1	No.	606,000	606,000
3. Office Equipment		L.S.		110,000
4. Tools and Spare Parts		L.S.		110,000
<b>Sub-Total of F</b>				<b>1,432,000</b>
<b>Total Direct Cost (A+B+C+D+E+F)</b>				<b>17,782,000</b>
<b>G. Indirect Cost (25% of Direct Cost)</b>				<b>4,445,500</b>
<b>Total Estimated Cost</b>				<b>22,227,500</b>
<b>Unit Cost per Person Served</b>				
<b>For New Construction</b>				<b>4,446</b>
				<b>4,400</b>
<b>For Expansion of Existing System (Exclude F.)</b>				<b>4,088</b>
				<b>4,100</b>

Note: L.S. - Lump Sum

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

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Mobilization/Demobilization</b>		L.S.		330,000
<b>B. Source Development and Storage</b>				
1. Deep Well	1	No.	1,770,000	1,770,000
2. Deep Well Pump	1	No.	632,000	632,000
3. Chlorinator House & Equipment	1	L.S.		480,000
4. Storage Tank (250 cu.m)	1	No.	1,200,000	1,200,000
<b>Sub-Total of B</b>				<b>4,082,000</b>
<b>C. Transmission Main</b>				
1. 160mm dia.	500	L.M.	1,234	617,000
<b>Sub-Total of C</b>				<b>617,000</b>
<b>D. Distribution Main</b>				
1. 160mm dia.	2,000	L.M.	1,234	2,468,000
2. 110mm dia.	5,000	L.M.	1,019	5,095,000
3. 90mm dia.	6,000	L.M.	639	3,834,000
4. 75mm dia.	8,000	L.M.	595	4,760,000
<b>Sub-Total of D</b>				<b>16,157,000</b>
<b>E. Service Connections</b>	2,000	Nos.		3,880,000
<b>F. Miscellaneous</b>				
1. Vehicle	1	No.	606,000	606,000
2. Office & Workshop Bldg.	1	No.	606,000	606,000
3. Office Equipment		L.S.		110,000
4. Tools and Spare Parts		L.S.		110,000
<b>Sub-Total of F</b>				<b>1,432,000</b>
<b>Total Direct Cost (A+B+C+D+E+F)</b>				<b>26,498,000</b>
<b>G. Indirect Cost (25% of Direct Cost)</b>				6,624,500
<b>Total Estimated Cost</b>				<b>33,122,500</b>
<b>Unit Cost per Person Served</b>				
<b>For New Construction</b>				3,312
<b>For Expansion of Existing System (Exclude F.)</b>				3,300
				3,133
				3,100

Note: L.S. - Lump Sum

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

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1997 Price Level

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

(Cost: Peso)

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

Note: L.S. - Lump Sum

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

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1997 Price Level



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

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
<b>A. Demolition</b>		L.S.		1,000
<b>B. Earthwork</b>				
1. Materials				
(1) Gravel Fill	1	cu.m.	424	424
Sub-Total of B-1				424
2. Labor				
(1) Excavation	6	cu.m.	131	786
(2) Backfill	2	cu.m.	119	238
(3) Gravel Fill	1	cu.m.	155	155
Sub-Total of B-2				1,179
Sub-Total of B				1,603
<b>C. Concrete Work</b>				
1. Materials				
Slab on wood planks				
(1) 16 - 2" x 8" x 6' Coco Lumber	128	bd.ft	8	1,024
(2) 10mm dia x 6.0m Rebar	3	pcs.	54	162
(3) #16 Tie Wire	0.5	kg.	54	27
(4) Cement	10	bags	128	1,280
(5) Sand	1.5	cu.m.	335	503
(6) Gravel	2	cu.m.	424	848
(7) Stone Lining with Mortar		L.S.		1,115
Sub-Total of C-1				4,959
2. Labor (30% of C-1)				1,488
Sub-Total of C				6,447
<b>D. Carpentry Work</b>				
1. Materials				
(1) Nipa	60	pcs.	2	120
(2) 1.5m x 1.8m, amakan	3	pcs.	70	210
(3) 2x3 x 10' Coco Lumber	20	bd.ft	10	200
(4) 2 x 2 x 10' Coco Lumber	33.3	bd.ft	10	333
(5) 3" dia. Bamboo	3	lights	20	60
(6) Assorted CWN	4	kgs.	40	160
(7) Rattan wire	20	pcs.	1	20
Sub-Total of C-1				1,103
2. Labor (30% of C-1)				331
Sub-Total of C				1,434
<b>E. Plumbing</b>				
1. Materials				
(1) Water Closet	1	set	4,500	4,500
(2) Water line and sanitary fixtures		L.S.		1,500
Sub-Total of E-1				6,000
2. Labor (30% of E-1)				1,800
Sub-Total of E				7,800
<b>F. Transportation Cost</b> (excluding indigenous materials)		L.S.		500
<b>G. Indirect Cost</b>				
Profit (10% of A - F)				1,878
VAT (10% of Profit & Labor)				668
Sub-Total of F				2,546
<b>Total of Construction Cost</b> <b>(A+B+C+D+E+F+G)</b>				21,330
				21,300

Source: DOH standard price in 1993

Cost adjusted to 1997 Price Level

Table 10.2.13 Unit Cost of Pour Flush with Double Pit Latrine

(Cost: Peso)

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

Note: L.S. - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.14 Unit Construction Cost of Ventilated Improved Pit Latrine

(Cost: Peso)

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

Note: L.S. - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.15 Unit Construction Cost of Pit Latrine

(Cost: Peso)

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

Note: L.S. - Lump Sum

Source: DOH standard price in 1993

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.16 Unit Cost of School Toilet

Sheet 1 of 5

(Cost: Peso)

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

Table 10.2.16 Unit Cost of School Toilet

Sheet 2 of 5

(Cost: Peso)

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

Table 10.2.16 Unit Cost of School Toilet

Sheet 3 of 5

(Cost: Peso)

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

Table 10.2.16 Unit Cost of School Toilet

Sheet 4 of 5

(Cost: Peso)

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



Table 10.2.16 Unit Cost of School Toilet

Sheet 5 of 5

(Cost: Peso)

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

Source: DOH standard price in 1993.

Unit Cost: Adjusted to 1997 Price Level

Table 10.2.17 Unit Cost of Public Toilet

Sheet 1 of 5

(Cost: Peso)

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

Table 10.2.17 Unit Cost of Public Toilet

Sheet 2 of 5

(Cost: Peso)

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

Table 10.2.17 Unit Cost of Public Toilet

Sheet 3 of 5

(Cost: Peso)

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

Table 10.2.17 Unit Cost of Public Toilet

Sheet 4 of 5

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(7) Tinting Color	4.00	pint	42	168
(8) Sand Paper (Assorted)	15.00	pcs.	7	105
(9) Miscellaneous		L.S.		1,066
(10) Roof Paint (green, ready-mix)	2.00	gals.	298	596
Sub-Total of I-1				7,426
2. Labor (30% of I-1)				2,228
Sub-Total of I				9,654
<b>J. Electrical Work</b>				
1. Materials				
(1) 40 Watts Fluorescent Lamp	2.00	sets	270	540
(2) Elect. Wire TW #12	24.00	M	7	168
(3) Elect. Conduit - 1/2" dia x 10"	4.00	pcs.	82	328
(4) Entrance Cap. 1/2" dia	1.00	pc.	30	30
(5) Switch Outlet, Flush Type	2.00	pcs.	41	82
(6) Utility Box 2"x3"	2.00	pcs.	7	14
(7) Porcelain Receptacle 2" dia	2.00	pcs.	7	14
(8) Safety Switch 60A, 250V	1.00	set	519	519
(9) Electrical Tape	1.00	roll	23	23
Sub-Total of J-1				1,718
2. Labor (30% of J-1)				515
Sub-Total of J				2,233
<b>K. Hardware</b>				
1. Materials				
(1) 3"x3" Butt Hinges (Loose Pin)	10.00	pcs.	15	150
(2) 4"x4" Butt Hinges (Loose Pin)	12.00	pcs.	19	228
(3) Door Lockset (Schlage US)	3.00	pcs.	481	1,443
(4) Barrel Bolt (4")	5.00	pcs.	42	210
(5) Cabinet Pull (4")	5.00	pcs.	7	35
(6) Water Storage Cover				
Checkered Plate 1/4" thick				
1.44x0.633 w/ L bar & flat bar	1.00	set	1,043	1,043
(7) 0.645x0.633 w/ L bar & flat bar	2.00	set	588	1,176
(8) Padlock	1.00	pcs.	401	401
Sub-Total of K-1				4,686
2. Labor (30% of K-1)				1,406
Sub-Total of K				6,092
<b>L. Septic Tank and Sewage Basin</b>				
1. Materials				
(1) 4" CHB	180.00	pcs.	5	900
(2) Cement	18.00	bags	128	2,304
(3) Sand	1.50	cu.m	335	503
(4) Gravel	1.00	cu.m	424	424
(5) Rebars: 10mm dia x 6m	29.00	pcs.	74	2,146
(6) #16 Tire Wire	2.00	kgs.	54	108

Table 10.2.17 Unit Cost of Public Toilet

Sheet 5 of 5

(Cost: Peso)

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

Source: DOH standard price in 1993.

Unit Cost: Adjusted to 1997 Price Level

### 10.2.2 Unit Cost of Equipment

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

(1) Medium size rotary drilling rig

Type: Truck-mounted top head drive mud circulation type

Rated drilling capacity: 150 m depth for  $\phi 250$  mm bore hole

Equipment composition:

One unit of truck-mounted drilling rig

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

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

Unit cost: Peso 32,314,000 per set

(2) Medium size percussion drilling equipment

Type: Truck-mounted cable percussion type

Rated drilling capacity: 150 m depth for  $\phi 250$  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-nitrogen/Iron 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.



Table 10.2.18 Cost for New Laboratory

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

Table 10.2.19 Cost for Upgrading Laboratory

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

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

Unit: P 1,000

Name of Municipality	Urban Water Supply Level III	Rural Water Supply										Grand Total
		New System								Level I Rehabilitation	Total	
		Level II	Level I					Subtotal				
			Deep Well		Shallow Well	Spring Dev.						
			40 m	80 m					120 m			
Baungon	2,944	2,947		464				670	1,134	7	4,089	7,032
Cabanglasan	1,683	3,030									3,030	4,713
Damulog	4,100											4,100
Dangcagan	640	1,012		2,785		122	2,011		4,917	43	5,972	6,612
Don Carlos	23,270	982		3,713				2,681	6,394	57	7,433	30,704
Impasugong	2,206	10,360									10,360	12,566
Kadingilan	6,309	2,908		2,321				1,341	3,661	36	6,605	12,914
Kalilangan	11,468			449		244		1,341	2,033	7	2,040	13,508
Kibawe	3,989	7,578									7,578	11,567
Kitaotao	9,896	4,782	527			122	1,341		1,990	14	6,786	16,682
Lantapan	3,567			464				670	1,134	7	1,142	4,709
Libona	3,087			3,144			61	2,011	5,216	50	5,265	8,353
Malaybalay (Capital)	12,107			5,389			1,523	10,725	17,637	85	17,722	29,829
Malitbog	680	9,861									9,861	10,540
Manolo Fortich												
Maramag	87,742	3,929		898		61	1,341		2,300	14	6,243	93,986
Pangantucan	4,080	5,994		449					449	7	6,450	10,530
Quezon												
San Fernando	10,337	9,916									9,916	20,253
Sumilao		6,116									6,116	6,116
Talakag	410	2,991		928				670	1,599	14	4,604	5,014
Valencia												
Provincial Total	188,513	72,407	527	21,004		2,132	24,801		48,464	342	121,213	309,726

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										Grand Total
		New System					Level I Rehabilitation	Total				
		Level I										
		Deep Well		Shallow Well	Spring Dev.	Subtotal						
		40 m	80 m						120 m			
		Baungon	26,448							670	670	
Cabanglasan	34,081				305		305		305	34,386		
Damulog	14,129		898					898	14	912	15,041	
Dangcagan	19,327		928			2,011	2,939	14	2,953	22,281		
Don Carlos	62,809		2,785			2,681	5,466	43	5,509	68,318		
Impasugong	29,110		898			61	959	14	973	30,084		
Kadangilan	14,986		1,392			1,341	2,733	21	2,754	17,740		
Kahilangan	50,899		449			122	1,341	7	1,919	52,818		
Kibawe	3,132		1,856				1,856	28	1,885	5,017		
Kitatiao	27,194	791				122	1,341	21	2,275	29,468		
Lantapan	44,612		4,177			183	670	64	5,094	49,706		
Libona	2,932		3,593			122	2,011	57	5,782	8,714		
Malaybalay (Capital)	39,091		5,838			1,827	10,725	93	18,483	57,574		
Malitbog	13,546		898				898	14	912	14,459		
Manolo Fortich	31,749		6,033			61	6,094	93	6,187	37,936		
Maramag	125,807		449				1,341	7	1,797	127,604		
Pangantucan	76,533		449				449	7	456	76,989		
Quezon	44,992									44,992		
San Fernando	42,544					365	365		365	42,910		
Sumilao	44,870		464				464	7	471	45,341		
Talakag	4,994		5,105			122	670	78	5,976	10,969		
Valencia	222,427									222,427		
Provincial Total	976,213	791	36,214			3,289	24,801	65,095	584	65,679	1,041,891	

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

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	Pour Flush	VIP/Dry				Flush	Pour Flush	VIP/Dry			
Baunton	3,813		660	822		5,295		21,242	3,109	24,351	1,062	27,092
Cabanglasan	5,602	1,274	495			7,371		44,993		44,993	2,250	46,638
Damulog	6,049	5,408		274		11,731		21,372		21,372	1,069	22,468
Dangcagan	6,177		594			6,771		1,378	1,313	2,691	69	3,240
Don Carlos	23,813	9,048		2,467		35,328	2,919	10,352	34,411	44,763	1,721	47,778
Impusugong	6,837	1,859		822		9,519	915	6,923	12,012	21,350	601	24,365
Kadugilan	7,327		647			7,974		31,239		31,239	1,562	32,335
Kalilangan	14,463	1,131		3,289	344	19,227	3,690	3,813	1,846	20	92	7,871
Kibawe		2,730	561	137		3,291	137	7,860	1,320	26,730	878	26,730
Kitaotao	16,103		1,426		548	18,077	548	32,669		32,669	1,633	34,314
Lanapan	17,168		1,802	822	688	20,480	1,511	7,689	3,571	33,399	1,107	34,495
Libona	1,683		290	274		2,247	274		3,808	3,808		9,016
Malaybalay (Capital)		29,796	3,973	1,490		36,784	4,505	7,327	109,811	10,210	5,491	136,668
Malibog	3,003		363			3,366		5,174		5,174	259	6,545
Manolo Fortich		7,189	726	359		7,915	359	67,028	4,970	71,998	3,351	73,917
Maramag	54,145	21,242		1,062		85,528	11,204	2,258	4,173	700	209	9,597
Pangantucan	27,136	4,498		3,837		35,472	4,062	6,708	2,462	9,170	335	11,911
Quezon		7,800	1,775	390		10,124	938		9,722	9,722		11,366
San Fernando	20,917		1,901		2,467	25,284	2,467	20,878		20,878	1,044	25,264
Sumilao	14,889	10,023		501		27,379	2,968	6,123	917	7,040	306	8,411
Talakag	6,880		752	548		8,181	548	32,292		32,292	1,615	35,307
Valencia	47,201		2,891	4,660		54,751	4,660	31,226	297	31,523		44,131
Provincial Total	283,205	101,998	18,856	5,100	1,032	442,095	43,136	77,447	44,834	615,319	24,652	679,458

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	Public Toilets	Total Construction Cost	Total Public Investment Cost	Household Toilets			Public School Toilets	Total Construction Cost
	Flush	Pour Flush	VIP/Dry					Flush	Pour Flush	VIP/Dry		
Baungon	20,043	8,307		415	1,096	29,447	1,512	38,478	16,601		4,934	21,535
Cabanglasan	25,624	12,714		636	1,645	39,983	2,280	43,676	42,276		9,319	51,595
Danalog	5,921	455		23	548	6,925	571		17,056		3,837	20,893
Dangcagan	9,074	2,041		102	548	11,663	650		19,604		4,112	23,716
Don Carlos	46,604	10,166		508	3,837	60,608	4,346	113,982	33,514		10,142	65,318
Impasugong	25,283	11,479		574	1,645	38,407	2,219	45,968	28,951		7,675	45,210
Kadugayan	6,560	182		9	548	7,291	557		30,537		7,127	37,664
Kallangan	30,374	5,161		258	2,193	37,728	2,451	78,271	21,515		4,112	25,925
Kibawe	6,071	377		19	548	6,996	567		37,869		8,771	46,640
Kitatiao	13,291				1,096	14,388	1,096	41,099	42,796		9,868	52,664
Lantapan	24,346	4,212		211	2,467	31,025	2,678	62,539	55,211		9,868	71,596
Libona	3,323	286		14	274	3,883	288		38,255		12,335	80,879
Malaybalay (Capital)	67,265	17,576		879	6,030	90,872	6,909	156,855	196,625		40,019	290,703
Malibog	6,284	585		29	274	7,143	303		21,281		4,934	26,215
Manolo Fortich	29,181	13,520		676	1,919	44,620	2,595	52,326	76,908		23,847	158,201
Maramag	125,478	34,801		1,740	11,238	171,517	12,978	287,262	7,391		4,386	25,193
Pangantucan	42,046	9,022		451	3,289	54,357	3,740	103,288	20,904		5,208	26,112
Quezon	38,361	12,909		645	2,467	53,737	3,112	81,738	32,717		17,542	85,177
San Fernando	22,514	2,509		125	1,919	26,942	2,044	61,554	43,290		9,319	52,609
Sumilao	31,844	10,972		549	2,741	45,557	3,290	67,153	7,748		1,919	9,667
Talakag	8,328	663		33	822	9,814	855		73,255		13,979	87,234
Valencia	187,568	86,216		4,311	11,512	285,296	15,823	337,932	51,333		23,024	97,322
Provincial Total	775,384	244,153		12,208	58,657	1,078,194	70,865	1,572,121	278,263		236,274	1,402,567

#### 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
<b>Total</b>	<b>100</b>

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

Note: Institutional development includes:

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

#### Urban water supply:

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

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

#### Rural water supply (Level I):

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

#### Sanitation:

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

### **11.4 Medium-Term Implementation Arrangements**

#### **11.4.2 Alternative Countermeasures**

#### **Comprehensive Investment Need Ranking for the Municipalities**

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

### **11.5 National Government Assisted Level I Water Supply and Sanitation Project**

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

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

The FIRR for Level I water supply project is calculated using a discount rate of 0.09 percent, as presented in Table 11.5.4.



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

#### **O and M for Rural Water Supply**

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

#### **O and M for Sanitation**

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

Table 11.4.1 Comprehensive Investment Need Ranking of the Municipalities

Name of Municipality	Evaluation Factor				Score by Sub-Sector				Weighted Score by Sub-Sector				Synthetic Investment Need Ranking	
	(% of Underserved and Unserved Population or Households)				Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation		Total Weighted Score
Baungon	N.A.	18	12	71	0.53	0.20	0.40	1.00	0.13	0.05	0.10	0.25	0.53	8
Cabanglasan	N.A.	6	56	49	0.49	0.20	1.00	0.60	0.12	0.05	0.25	0.15	0.57	6
Damulog	N.A.	5	51	55	0.76	0.20	1.00	0.80	0.19	0.05	0.25	0.20	0.69	2
Dangcagan	N.A.	79	12	27	0.49	1.00	0.40	0.20	0.12	0.25	0.10	0.05	0.52	9
Don Carlos	N.A.	38	28	64	0.83	0.40	0.60	1.00	0.21	0.10	0.15	0.25	0.71	1
Impasugong	N.A.	5	17	57	0.43	0.20	0.40	0.80	0.11	0.05	0.10	0.20	0.46	13
Kadanglian	N.A.	36	0	44	0.83	0.40	0.20	0.60	0.21	0.10	0.05	0.15	0.51	10
Kailangan	N.A.	50	9	29	0.66	0.60	0.20	0.20	0.17	0.05	0.05	0.05	0.42	15
Kibawe	N.A.	11	0	54	0.67	0.20	0.20	0.80	0.17	0.05	0.05	0.20	0.47	11
Kitaotao	N.A.	26	0	37	0.76	0.20	0.20	0.40	0.19	0.05	0.05	0.10	0.39	17
Lantapan	N.A.	11	0	77	0.49	0.20	0.20	1.00	0.12	0.05	0.05	0.25	0.47	12
Libona	N.A.	37	0	10	0.87	0.40	0.20	0.20	0.22	0.10	0.05	0.05	0.42	15
Malaybalay (Capital)	N.A.	43	2	70	0.37	0.60	0.20	1.00	0.09	0.15	0.05	0.25	0.54	7
Maitbog	N.A.	8	12	27	0.49	0.20	0.40	0.20	0.12	0.05	0.10	0.05	0.32	18
Manolo Fortich	N.A.	5	0	50	0.70	0.20	0.20	0.60	0.18	0.05	0.05	0.15	0.43	14
Maramag	N.A.	51	12	35	1.00	0.80	0.40	0.40	0.25	0.20	0.10	0.10	0.65	4
Pangantucan	N.A.	30	24	47	0.49	1.00	0.60	0.60	0.12	0.25	0.15	0.15	0.67	3
Quezon	N.A.	5	15	14	0.26	0.20	0.40	0.20	0.07	0.05	0.10	0.05	0.27	20
San Fernando	N.A.	15	0	27	0.56	0.20	0.20	0.20	0.14	0.05	0.05	0.05	0.29	19
Sumilao	N.A.	12	54	69	0.36	0.20	1.00	1.00	0.09	0.05	0.25	0.25	0.64	5
Talakag	N.A.	15	0	27	0.37	0.20	0.20	0.20	0.09	0.05	0.05	0.05	0.24	21
Valencia	N.A.	2	8	15	0.33	0.20	0.20	0.20	0.08	0.05	0.05	0.05	0.23	22
Provincial Total	N.A.	20	13	41										

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 < %	21 < %	1 < %				
1.0	61 < %	41 < %	21 < %	1 < %				
0.8	51 < %	31 < %	11 < %	1 < %				
0.6	41 < %	21 < %	11 < %	1 < %				
0.4	31 < %	11 < %	11 < %	1 < %				
0.2	% < 30	% < 30	% < 10	% < 30				

(Unit: 1,000 Pesos)

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

Table 11.5: Available IRA for GOV-Assisted Level I Water and Rural Sanitation																								
Name of City or Municipality	Tri Nos. of Bgs. in Rural Area	Class	Rural Water Supply												Rural Sanitation									
			No. of Related Bgy.	R. Water Supply		Nos. of LEVEL I Facilities			Mun. Avail. IRA	Sub-total Avail. IRA	No. of Related Bgy.	Rural Sanitation		Number of Toilets				Prov. Avail. IRA	Mun. Avail. IRA	Sub-total Avail. IRA				
				Prov.	Muni.	Deep Wells	Shallow Wells	Spring				Tu	Related	Public Mkt.	Bus Term.	School Toilet	Ttl. Related							
Bumayan	14	4	0	1,120	2,266	1	0	1	0	0	0	0	14	1,137	2,108	0	0	10	10	1,137	2,108	3,244		
Cabanglasan	14	5	14	830	2,280	0	0	0	0	0	0	0	16	1,162	2,930	0	0	6	6	1,162	2,930	4,091		
Dumalog	16	4	0	0	0	0	0	0	0	0	0	0	12	688	1,662	0	0	4	4	688	1,662	2,350		
Dungaucan	13	5	13	1,636	3,591	6	2	3	11	1,636	3,591	5,228	13	264	371	0	0	2	2	264	371	635		
Don Carlos	19	3	0	2,037	1,741	3	0	4	0	0	0	0	19	1,392	1,109	0	0	11	11	1,392	1,109	2,501		
Impasugong	12	2	0	2,838	7,266	0	0	0	0	0	0	0	0	1,083	2,536	0	0	11	11	0	0	0		
Kadugayan	16	5	16	1,810	2,515	5	0	2	0	1,810	2,515	4,324	16	823	1,012	0	0	4	4	0	823	1,012	1,835	
Kalinagan	8	4	0	559	686	1	4	2	0	0	0	0	8	721	769	0	0	8	8	721	769	1,489		
Kibawe	21	4	0	2,076	4,436	0	0	0	0	0	0	0	21	335	514	0	0	0	0	335	514	849		
Kitaobao	33	4	0	1,859	3,368	2	2	2	0	0	0	0	33	993	1,627	0	0	6	6	993	1,627	2,620		
Lanuran	10	4	0	313	1,096	1	0	1	3	11	2	0	10	698	2,116	0	0	4	4	698	2,116	2,815		
Libona	13	4	0	1,443	2,913	7	1	3	11	1,443	2,913	0	13	1,522	2,881	0	0	19	19	1,522	2,881	4,402		
Malaybalay (Capital)	34	1	0	4,855	7,690	12	25	16	33	4,855	7,690	0	0	4,152	6,426	0	0	34	34	0	0	0		
Manobo Fortich	10	4	0	2,702	6,214	0	0	0	0	0	0	0	10	541	1,027	0	0	5	5	541	1,027	1,568		
Marikina	21	2	0	0	0	0	0	0	0	0	0	0	0	0	7,567	0	0	7	7	0	0	0		
Manolo Fortich	21	2	0	0	0	0	0	0	0	0	0	0	0	828	294	0	0	9	9	0	0	0		
Maramag	11	3	0	1,711	685	2	1	2	3	1,711	685	0	11	938	1,650	0	0	10	10	938	1,650	2,568		
Pangasinan	8	2	0	1,767	3,418	1	0	0	0	0	0	0	0	0	2,361	0	0	6	6	0	0	0		
Quezon	29	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
San Fernando	22	3	0	2,717	3,868	0	0	0	0	0	0	0	23	1,582	2,118	0	0	16	16	1,582	2,118	3,700		
Sumilao	7	5	7	1,676	2,832	0	0	0	0	1,676	2,832	4,507	7	554	776	0	0	5	5	554	776	1,350		
Talakac	25	2	0	1,261	5,118	2	0	1	3	1,261	5,118	0	0	1,363	5,146	0	0	11	11	0	0	0		
Valencia	28	1	0	0	0	0	0	0	0	0	0	0	0	3,549	13,553	0	0	46	46	0	0	0		
Total	382		50	33,009	61,983	48	55	37	92	5,952	11,218	17,169	227	24,326	60,532	0	0	234	234	106	13,349	22,650	35,999	
Total Available IRA Fund			53,168																					

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

Table II-5.2 Available IRA for GOF-Assisted Urban Sanitation Project for Longue municipalities																			
Name of City or Municipality	Tri Nos. of Bgs. in Urban	Class	No. of Urban Sanitation		Number of Toilets				Prov.				Mun.				Sub-total		
			Related Bgy.	Prov.	Public Mkt.	Bus Term.	School	Related	Avail. IRA	Ttl	Avail. IRA	Avail. IRA	Avail. IRA	IRA					
Bumayan	2	4	2	298	456	0	0	3	3	298	456	754	0	0	0	0	0	3,999	
Cabanglasan	1	5	1	90	48	0	0	0	0	0	90	48	138	0	0	0	0	7,340	
Dumalog	1	4	1	222	418	0	0	1	1	222	418	640	0	0	0	0	0	2,990	
Dungaucan	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,863	
Don Carlos	10	3	10	873	684	0	0	9	9	873	684	1,557	0	0	0	0	0	4,058	
Impasugong	1	2	0	324	642	0	0	3	3	0	0	0	0	0	0	0	0	6,160	
Kadugayan	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,814	
Kalinagan	6	4	6	1,084	1,241	1	0	12	13	1,084	1,241	2,325	0	2,325	1,459	0	0	1,039	
Kibawe	2	4	2	110	80	0	0	0	0	110	80	190	0	190	849	0	0	3,115	
Kitaobao	2	4	2	223	272	0	0	2	2	223	272	495	0	495	2,630	0	0	4,752	
Lanuran	4	4	4	487	1,451	2	0	3	5	487	1,451	1,938	0	1,938	2,815	0	0	4,702	
Libona	1	4	1	148	152	0	0	1	1	148	152	300	0	300	4,402	0	0	1,568	
Malaybalay (Capital)	12	1	0	1,307	1,955	0	0	11	0	0	0	0	0	0	0	0	0	0	
Manobo Fortich	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Marikina	12	2	0	3,143	1,230	0	0	37	0	0	0	0	0	0	0	0	0	0	
Pangasinan	8	3	8	1,186	2,152	0	0	14	14	1,186	2,152	3,338	0	3,338	2,563	0	0	3,906	
Quezon	2	1	0	0	1,347	0	0	2	0	0	0	0	0	0	0	0	0	0	
San Fernando	2	3	2	749	962	0	0	9	9	749	962	1,711	0	1,711	3,700	0	0	3,411	
Sumilao	3	5	3	0	1,374	0	0	9	9	0	0	1,374	1,374	4,507	1,374	1,374	1,374	7,212	
Talakac	6	2	0	323	689	0	0	2	2	0	0	0	0	0	0	0	0	0	
Valencia	3	1	0	1,350	5,009	0	0	17	0	0	0	0	0	0	0	0	0	0	
Total	82		45	11,818	20,598	3	0	135	57	5,471	9,290	14,761	17,169	14,761	35,999	0	0	67,959	
Grand Available IRA Fund			14,761																

Table 11.5.4 FIRR for Level 1 Water Supply

Year	Nos. of Deep Well	Nos. of Shallow Well	Spring Dev't	Construction Cost	Rehab. And Replacement Cost	O&M Cost	Cash Outflow	DW	SW	SD	No. of Households	Water Rate per Month per Household	Loans and Subsidies	Cash Inflow	Net Value
1	2	0	1	1,568,500		0	1,568,500	0	449,100	60,900	670,300	248		0	(1,568,500)
3	3	1	1	2,078,500		15,685	2,094,185	0.2	449,100	60,900	670,300	248		357,120	(1,737,065)
4	3	1	2	2,748,800		36,470	2,785,270	0.3	449,100	60,900	670,300	248		624,960	(2,160,310)
5	3	0	1	2,017,600		63,938	2,081,558	0.2	449,100	60,900	670,300	248		803,520	(1,278,038)
6						84,134	84,134					248		803,520	719,386
7						289,051	289,051					248		803,520	514,469
8						289,051	289,051					248		803,520	514,469
9						289,051	289,051					248		803,520	514,469
10						289,051	289,051					248		803,520	514,469
11						289,051	289,051					248		803,520	514,469
12					75,200	289,051	364,251					248		803,520	439,269
13					144,900	289,051	433,951					248		803,520	369,569
14					144,900	289,051	433,951					248		803,520	369,569
15					112,800	289,051	401,851					248		803,520	401,669
16						289,051	289,051					248		803,520	514,469
17						289,051	289,051					248		803,520	514,469
18						289,051	289,051					248		803,520	514,469
19						289,051	289,051					248		803,520	514,469
20						289,051	289,051					248		803,520	514,469

TOTAL 700,239  
FIRR 1.1 %  
NPV 107,977

Discount Rate for NPV = 0.09 per year

**Table 11.6.1 Investment Program of GOP-Assisted Level I Water Supply and Sanitation Project** (Unit: Pesos)

Category	Total Amount	1st year	2nd year	3rd year	4th year	5th year
<b>A. Const. &amp; Civil Works</b>						
1. Water Supply	8,413,400	0	1,682,680	2,524,020	2,524,020	1,682,680
2. Sanitation	64,156,000	0	12,831,200	19,246,800	19,246,800	12,831,200
3. Land Acquisition	115,000	0	23,000	34,500	34,500	23,000
<b>B. Equip./Logistic Support</b>	971,200	0	971,200	0	0	0
<b>C. Consultancy Services</b>						
1. Hydrogeological Survey	1,148,000	1,148,000	0	0	0	0
2. D/D and Const. Sv.	7,995,284	3,198,114	1,599,057	1,599,057	799,528	799,528
<b>D. Institutional Devt.</b>						
1. Capacity Enhanc. Prog.	3,200,000	960,000	960,000	640,000	320,000	320,000
2. Commu. Manag. Prog.	2,929,440	878,832	878,832	585,888	292,944	292,944
3. Health & Hygiene Educ.	489,600	146,880	146,880	97,920	48,960	48,960
4. Water Quality Surveil.	2,800	840	840	560	280	280
5. NGO Assistance	326,400	97,920	97,920	65,280	32,640	32,640
6. Administrative Support	1,200,000	360,000	360,000	240,000	120,000	120,000
<b>E. Physical Contingency</b> (10% of sub-total A+B+C+D)	9,094,712	679,059	1,955,161	2,503,402	2,341,967	1,615,123
<b>Total (A+B+C+D+E+F)</b>	100,041,836	7,469,644	21,506,770	27,537,427	25,761,640	17,766,356
<b>F. Others</b>						
1. Price Contingency	38,264,903	2,857,057	8,226,103	10,532,763	9,853,544	6,795,436
2. Value Added Tax (VAT)	3,732,532	278,690	802,411	1,027,414	961,159	662,858
<b>Grand Total</b>	142,039,272	10,605,391	30,535,284	39,097,604	36,576,343	25,224,649

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	11	2	5
Nos. of HHs to be Served	165	30	75
<b>Reconstruction Cost (Peso)</b>			
Unit Cost	449,100	60,900	670,300
Ttl. Reconst. Cost	4,940,100	121,800	
Ttl. Reconst. Cost/year	247,005	12,180	
Cost per HH/year	1,497	406	
<b>Rehabilitation Cost (Peso)</b>			
Unit Cost	37,600		
Ttl. Rehab. Cost	413,600		
Ttl. Rehab. Cost/year	41,360		
Cost per HH/year	251		
<b>Recurrent Cost for O&amp;M (Peso)</b>			
Cost per HH/year	100	50	50
<b>O&amp;M Cost Total (Peso)</b>			
Cost per HH/year	1,848	456	50

Note: 1) Reconstruction of deep and shallow wells shall be conducted every 20 and 10 years, respectively.

Spring development is excluded due to more than 20 years facility life.

2) Rehabilitation is applicable to deep wells every 10 years.

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

	Deep Well	Shallow Well	Spring Dev't
O&M Cost per HH/month	154	38	4
Proportion (Mean)	1.9%	0.5%	0.0%
Proportion (Median)	2.8%	0.7%	0.1%

Table 11.6.4 Family Income

(Unit: Pesos)

Annual <sup>1)</sup>			Monthly <sup>2)</sup>		
Mean	Median	Low	Mean	Median	Low
52,627	36,104	43,659	8,063	5,531	6,689

Note: 1) 1994 NSO Family Income and Expenditure Survey

2) Estimated value in 2003 applying 7% inflation rate/year

## O&M Cost for GOP Assisted Sanitation Project

Table 11.6.5 O&M Cost for Rural Sanitation

(Unit: Pesos)

Nos. of Facilities to be Constructed		Unit Construction Cost		Yearly O&M Cost
Public Toilets	School Toilets	Public Toilets	School Toilets	
0	106	344,100	274,100	1,452,730

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	
3	65	344,100	274,100	942,440

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



[illegible]

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