8.6 Facilities, Equipment and Rehabilitation Required to Meet the Target Services

8.6.1 Water Supply

(1) Required water supply facilities

Urban water supply:

Urban water supply facilities required by target year shown in Table 8.6.1 were estimated as required number of house connections based on the additional service coverage.

As reference, following requirements were also estimated:

- daily average water demand at 100 lpcd consumption rate, and
- number of deep wells to meet the daily maximum water demand based on the groundwater productivity.
  (daily maximum water demand = 1.3 x daily average water demand)

Information pertaining to the expansion plan of Level III systems was arranged to be indicated in Table 8.6.1 and details in Table 8.6.2, however no information was available during this PW4SP preparation.

Table 8.6.2 Plan for Expansion of Existing Level III System

Municipality	Name of Operating Body	Additional Areas Barangay to be Covered	Additional Population to be Served	Additional Water Sources	
				Type[1]	Capacity (cu. m/day)
Basco (Capital)	Basco M.W.	0	0	N.A.	0
	Chanarian RWSA	0	0	N.A.	0
	Municipal Total	0	0		0
Ivana	Ivana M.W.	0	0	N.A.	0
Mahatao	Mahatao M.W.	0	0	N.A.	0
Sabtang	Sabtang M.W.	0	0	N.A.	0
Uyugan	Uyugan M.W.	0	0	N.A.	0
Provincial Total		0	0		

Note: 1. *DW* - Deep Well, *SP* - Spring, *DgW* - Dug Well, and *Surf* - Surface Water Intake.

Rural water supply:

Rural water supply facilities required by target year shown in Table 8.6.3 were estimated as number of Level II systems with number of communal faucets and number of Level I wells broken-down to deep and shallow wells. One (1) untapped spring suitable for Level II system wasconfirmed during this PW4SP preparation.

Table 8.6.1 Urban Water Supply Facilities Required by Target Year

Municipality	Reference on Expansion of Existing Level III System						Phase I (2000) Requirements				Phase II (2010) Requirements			
	Name of Sytem (Operating Body)	Type	Coverage in 1995		Type of Water Sources[1]	Plan for Expansions[2]	Additional Population to be Served	Number of House Connections	Daily Average Water Demand (cu. m/day)	Number of Deep Well	Additional Population to be Served	Number of House Connections	Daily Average Water Demand (cu. m/day)	Number of Deep Well
			No. of Brgy.	Served Population										
Basco (Capital)	Basco M.W.	Urban	2	4,316	SP	None								
		Rural	3	1,482										
		Total	5	5,798										
	Chanarian RWSA	Urban	0	0	SP	None								
		Rural	1	182										
		Total	1	182										
	Municipal Total	Urban	2	4,316										
		Rural	4	1,664			362	70	36	1	964	241	96	1
		Total	6	5,980										
Itbayat	None	Urban	0	0										
		Rural	0	0	N.A.	None	0	0	0	0	0	0	0	0
		Total	0	0										
Ivana	Ivana M.W.	Urban	0	0										
		Rural	4	1,215	SP	None	0	0	0	0	0	0	0	0
		Total	4	1,215										
Mahatao	Mahatao M.W.	Urban	1	353										
		Rural	3	1,299	SP	None	88	17	9	1	74	19	7	1
		Total	4	1,652										
Sabtang	Sabtang M.W.	Urban	2	595										
		Rural	0	0	SP	None	282	55	28	1	279	70	28	1
		Total	2	595										
Uyugan	Uyugan M.W.	Urban	0	0										
		Rural	4	1,205	SP	None	0	0	0	0	0	0	0	0
		Total	4	1,205										
Provincial Total		Urban	5	5,264										
		Rural	15	5,383			732	142	73	3	1,317	330	131	3
		Total	20	10,647										

Note: 1. *DW* - Deep Well, *SP* - Spring, *DgW* - Dug Well, and *Surf* - Surface Water.
2. Refer to supporting Table 8.6.3 for details.

Table 8.6.3 Rural Water Supply Facilities Required by Target Year

Municipality	Phase I (2000) Requirements									Phase II (2010) Requirements						
	Level II		Level I							Level I						
	Number of System	No. of Communal Faucets	Number of Deep Wells				Number of Shallow Wells	Number of Spring Dev.	Total	Number of Deep Wells				Number of Shallow Wells	Number of Spring Dev.	Total
			30 m	50 m	70 m	Sub-total				30 m	50 m	70 m	Sub-total			
Basco (Capital)	0	0	0	1	0	1	0	0	1	0	5	0	5	0	0	5
Itbayat	0	0	0	0	0	0	0	8	8	0	0	0	0	0	9	9
Ivana	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3	3
Mahatao	1	20	0	0	0	0	0	0	0	0	4	0	4	0	0	4
Sabtang	0	0	0	7	0	7	0	0	7	0	2	0	2	0	0	2
Uyugan	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3	3
Provincial Total	1	20	0	8	0	8	0	10	18	0	11	0	11	0	15	26

(2) Required well drilling and rehabilitation equipment

Presently, no drilling rig and well rehabilitation equipment is available at both DPWH-DEO and the province.

Applicable type of well drilling equipment is determined considering the geological formation of the province that target area is medium to hard formation suitable to percussion type. Idling time for equipment overhauling/maintenance and rest days of workers are considered at 25% of the year.

Medium size percussion drilling rig (truck-mounted type for deep well):

Average performance

- 1 well/30 days (5 m/day of drilling rate with finishing work)

Annual accomplishment

- 9 wells/year (365 days/year ÷30 days/well x 0.75)

Required number

- 1 set for the total 8 deep wells

Well rehabilitation equipment:

Average performance

- 1 well/7 days (well redevelopment and finishing work

Annual accomplishment

- 39 wells/year (365 days/year ÷7 days/well x 0.75)

Required number

- 1 set for 10% of 8 Level I deep wells

Support vehicle:

Type - pick-up truck with winch, double cab

Required number

- 1 unit for well rehabilitation

Considering the utilization of existing percussion drilling rig, the following equipment shall be mobilized/procured either by private sector or LGUs to accomplish the physical targets:

- 1 set of medium size percussion rig for 50% of deep wells
- 1 set of well rehabilitation equipment for 10% of deep wells (to be held by the provincial government), and
- 1 unit of support vehicle for well rehabilitation.

In addition to the above, one (1) unit of service truck equipped with crane are required for percussion rig for hauling drilling tools and water.

Table 8.6.4 Urban Household Toilets Required by Target Year

Municipality	Phase I (2000) Requirements								Phase II (2010) Requirements							
	Add'l HHs to be Served				No.of HHs Toilets				Add'l HHs to be Served				No.of HHs Toilets			
	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total
Basco (Capital)	178	0	6	184	178	0	6	184	513	0	0	513	513	0	0	513
Itbayat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ivana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mahatao	12	0	2	14	12	0	2	14	47	0	0	47	47	0	0	47
Sabtang	40	26	0	66	40	26	0	66	105	0	0	105	105	0	0	105
Uvugan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Provincial Total	230	26	8	264	230	26	8	264	665	0	0	665	665	0	0	665

Table 8.6.5 Rural Household Toilets Required by Target Year

Municipality	Phase I (2000) Requirements								Phase II (2010) Requirements							
	Add'l HHs to be Served				No.of HHs Toilets				Add'l HHs to be Served				No.of HHs Toilets			
	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total	Flush	Pour Flush	VIP Latrine	Total
Basco (Capital)	28	37	0	65	28	37	0	65	27	167	0	194	27	167	0	194
Itbayat	0	122	6	128	0	122	6	128	0	368	0	368	0	368	0	368
Ivana	19	7	1	27	19	7	1	27	17	107	0	124	17	107	0	124
Mahatao	26	0	7	33	26	0	7	33	19	116	0	135	19	116	0	135
Sabtang	0	47	0	47	0	47	0	47	0	103	0	103	0	103	0	103
Uvugan	22	0	3	25	22	0	3	25	16	93	0	109	16	93	0	109
Provincial Total	95	213	17	325	95	213	17	325	79	954	0	1,033	79	954	0	1,033

Table 8.6.6 Public School Toilets Required by Target Year

Municipality	Phase I (2000) Requirements			Phase II (2010) Requirements		
	Add'l Public School Students to be Served	No. of Toilet Units	No. of Toilet Facilities	Add'l Public School Students to be Served	No. of Toilet Units	No. of Toilet Facilities
Basco (Capital)	0	0	0	257	5	1
Itbayat	518	10	2	163	3	1
Ivana	0	0	0	46	1	0
Mahatao	24	0	0	73	1	0
Sabtang	109	2	0	77	2	0
Uyugan	44	1	0	53	1	0
Provincial Total	695	13	2	669	13	2

Table 8.6.7 Public Toilets Required by Target Year

Municipality	Type	Phase I (2000) Requirements	Phase II (2010) Requirements
		Number of Public Toilets	Number of Public Toilets
Basco (Capital)	Public Market	0	0
	Bus/Jeepney Term.	1	0
	Total	1	0
Itbayat	Public Market	1	0
	Bus/Jeepney Term.	0	0
	Total	1	0
Ivana	Public Market	1	0
	Bus/Jeepney Term.	0	0
	Total	1	0
Mahatao	Public Market	0	1
	Bus/Jeepney Term.	0	0
	Total	0	1
Sabtang	Public Market	0	1
	Bus/Jeepney Term.	0	0
	Total	0	1
Uyugan	Public Market	0	1
	Bus/Jeepney Term.	0	0
	Total	0	1
Provincial Total	Public Market	2	3
	Bus/Jeepney Term.	1	0
	Total	3	3

C. SECTOR IMPLEMENTATION ARRANGEMENTS

C. SECTOR IMPLEMENTATION ARRANGEMENTS

9. SECTOR MANAGEMENT PLAN

9.4 Project Management Arrangements

Table 9.4.1 Format for Level I Project Data

Form _____

PROPOSED LEVEL I PROJECT DATA

Notice : This form shall be accomplished upon instruction on PST/PWSD

LOCATION	1.1 Barangay/Sitio	1.3 Province
	1.2 Municipality	1.4 Region
POP. DATA	2.1 Total Community/Barangay Population	2.3 Proposed Population to be Served
	2.2 Total Number of Households	2.4 Proposed Number of Households to be Served
INFORMATION ON THE WELL SITE	3.1 Ownership : ☐ Public ☐ Private	3.3 Location:
	3.2 Description :	3.4 Donor (If Private Lot):
DESCRIPTION OF EXISTING NEARBY SOURCE(S) (Use separate sheets if necessary)	4.1 Type of Point Source: ☐ Deep Well ☐ Shallow Well ☐ Spring ☐ Others (dug well pond)	4.3 For wells : Casing diameter_____ in. or_____m. Casing depth _____ ft. or_____m. Water level Well _____ ft. or_____m. Well capacity/yield _____ gpm. or_____m.
	4.2 Ownership : ☐ Public ☐ Private	4.4 For Springs : Capacity/yield _____ gpm. or_____lps. Approx. elevation above or below Service Area _____ ft. or _____ m Location ☐ Inside of service area ☐ Outside of service area Approximate distance from center of service area _____km.

Prepared by :

_____ _____

Municipal Liason Staff Date

Table 9.4.2 Format for Level II Feasibility Study

Form _____

FEASIBILITY STUDY (Level II) Notice : This form shall be accomplished upon instruction of the PST/PWSO.	Barangay	Municipality
	Province	Region

PROJECT SUMMARY

POPULATION DATA

1. Present Population	2. Design Population	3. Number of Households
		6. Number of Faucets

TECHNICAL DATA

4. Type of Source ☐ Spring ☐ Well ☐ Surface Water	5. Type of System ☐ Gravity ☐ Pumped	
	7. Pump Horsepower _____ HP	8. Pumping Time _____ Hours per Day
9. Total Average Daily Demand _____ Liters	10. Storage Tank Capacity _____ Liters	11. Pump Discharge Capacity _____ LPS

FINANCIAL DATA

12. Total System Cost P _____	13. Maximum Loan Amount P _____	14. Interest Rate _____
15. Local Equity P _____	16. Funding Cost per Household P _____	17. Repayment Period (months) _____

18. Type of Local Equity ☐ Cash ☐ Labor ☐ Materials ☐ Others, _____

19. Total Monthly Expense P _____	20. Monthly Fee Per Household P _____

ANNEXES

☐ 1 Survey Form	☐ 5 Design of Pipe Lines	☐ 9A Fittings Schedule (G I. Pipes)	☐ 12 Financial Analysis
☐ 2 Map of the Project Area	☐ 6 Design of Reservoir and Pump	☐ 9B Fittings Schedule	☐ 13 Availability of Local Equity
☐ 3 Design Criteria and Basic Design Data	☐ 7 Detailed Design Plan	☐ 10 Bill of Materials	
☐ 4 Schematic Diagram of the System	☐ 8 Pipes Schedule	☐ 11 Cost Summary	

Prepared by :	Endorsed by :
_____ Municipal Liason Staff	_____ PST/PWSO Coordinator
_____ Date	_____ Date

Annex 1

SURVEY FORM
_____ Rural Water Supply Project

A. LOCATION

Barangay : _____ Province : _____
Municipality : _____ Region Number : _____

B. GENERAL INFORMATION

1. Population _____
2. Number of households _____
3. Distance from poblacion _____ kilometers
4. Availability of electricity Yes ☐ No ☐
5. Distance form electric line _____ kilometers
6. Power cost per kilowatt hour P _____
7. Availability of public transportation _____
8. Main livelihood of residents
   - ☐ Land transport
   - ☐ Water transport
   - ☐ Farming
   - ☐ Industry ☐ Others
   - ☐ Fishing

C. TECHNICAL INFORMATION

1. Are there reliable sources of potable water?
   ☐ Yes ☐ No

a) For Wells
- Well capacity : _____ lps
- Casing diameter : _____
- Casing depth : _____
- Water level from top of well : _____
- Location :
  - ☐ Within service area
  - ☐ Outside _____M. from service area

b) For Springs
- Average dry season flow : _____ ☐ GPM ☐ LPS
- Relative elevation of spring
  - a. _____ ☐ ft. ☐ m. above service area
  - b. _____ ☐ ft. ☐ m. below service area
- Location :
  - ☐ Within service area
  - ☐ Outside _____ m. from service area

2. Are there water supply system materials and equipment (pumps, pipes, fittings) which can be donated for this project from other source?

☐ Yes ☐ No

For pumps : Type : _____ Power : _____ HP

For pipes : ☐ Galvanized Iron ☐ PVC
☐ Others, specify _____

3. Is there an existing water tank that can be used? ☐ Yes ☐ No

Type : ☐ Steel ☐ Reinforced Concrete

Capacity : _____ ☐ Gallons ☐ Cubic Meters

Location: (Please indicate in the map of the project area)

Relative elevation with respect to service area ____ ☐ ft. ____ ☐ m.

4. Are there other sites where water tanks may be erected? ☐ Yes ☐ No
Location : (please indicate in the map of the project area)

Relative elevation with respect to service area ____ ☐ ft. ____ ☐ m.

5. Does the barrio have skilled personnel? ☐ Yes ☐ No

If yes, how many? Estimated Number

Plumbers : _____
Masons : _____
Carpenters : _____
Others : _____

If no, are there competent contractors near the area?
Plumbing contractor : ☐ Yes ☐ No
Tank fabricator : ☐ Yes ☐ No

Are there suppliers of materials (pumps, pipes, fittings) in the municipality?
☐ Yes ☐ No

D. FINANCIAL INFORMATION

1. What can the barangay provide as local equity?

Cash :	₱ _____		
Labor :	_____	man-days	
Materials :	Sand	: _____	cu. m.
	Gravel	: _____	cu. m.
	Cement	: _____	bags
	Others, specify :	_____	

2. Have the people been informed of the current financing policies for Level II systems, particularly the monthly fees required to repay loan & provide for O & M?

☐ Yes ☐ No

3. How much are the people willing to pay per household per month as a water fee?

Below ₱ 6.00	☐	₱ 10.00 - 15.00	☐	Others	☐
₱ 6.00 - 10.00	☐	15.00 - 20.00	☐	Specify :	_____

4. Average income per household ₱ _____ per month

E. INSTITUTIONAL INFORMATION

1. Is there an existing association who is ready, willing and able to manage the system

☐ Yes ☐ No

If yes, please specify. _____

2. Are people willing to join a water association to operate and manage a water supply system? ☐ Yes ☐ No

3. How many households are willing to be members? _____ households.

4. Name at least three (3) leaders of the community who can act as officers of the association, if required.

Name	Address
_____	_____
_____	_____
_____	_____
_____	_____

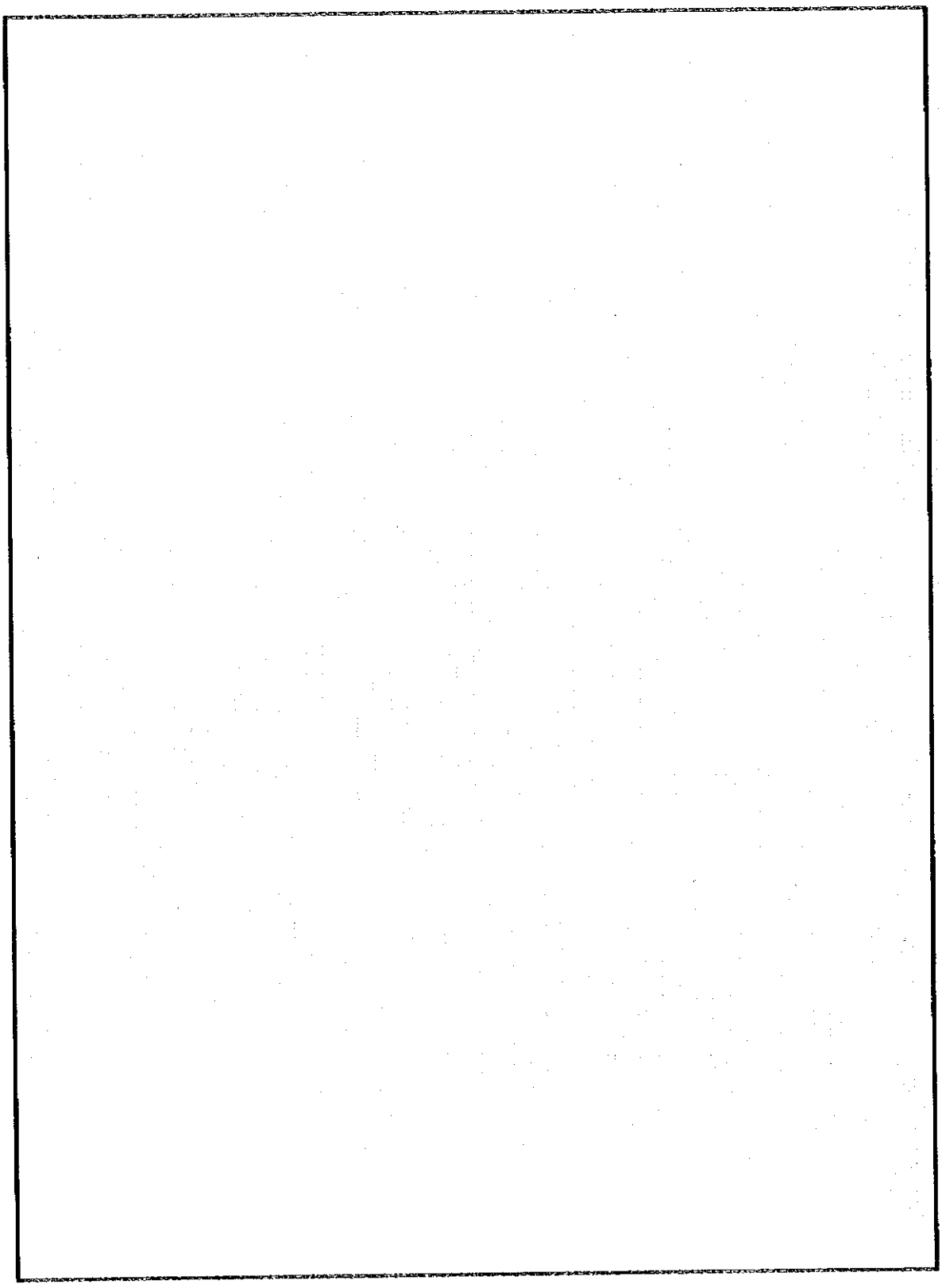
F. MAP OF THE AREA

Please attach map of the area proposed to be served. Indicate location of houses, buildings and other structures to be served including roads, the water source(s) and possible locations of storage tanks. The map should preferably be drawn to scale.

Important : If map cannot be drawn to scale, indicate distance measurements between important points along roads, or possible routes of distribution pipes with households properly indicated. For rolling terrain, indicate elevation differences between measurement points.

G. REMARKS :

Annex 2
MAP OF THE PROJECT AREA
_____ Rural Water Supply Project



Annex 3

DESIGN CRITERIA AND BASIC DESIGN DATA
_____ Rural Water Supply Project

I. Design Criteria

1. Design Period : 5 years
2. Population
   - Annual Growth : 3%
   - Average Household Size : 6 persons/HH
   - Design Population : Present Population x 1.16
3. Per Capita Water Consumption
   - Level II : 60 lpcd
   - Level II with garden : 75 lpcd
   - Level III : 100 lpcd
4. Water Demand
   - Average Day Demand : Design Population X Per Capita Consumption
   - Maximum Day Demand : 1.3 X Average Day Demand
   - Maximum Hour Demand : 2.5 X Average Day Demand
5. Pump Operation
   - Pumping Hours : 8 -15 hours
   - Pumping Rate : Maximum Day Demand/PumpingHrs. = _____
6. Storage Capacity : 1/4 of Average Day Demand
7. System Pressure : 5 - 10 psi at faucet
8. Households Served Per Faucet : 4 - 6 HH

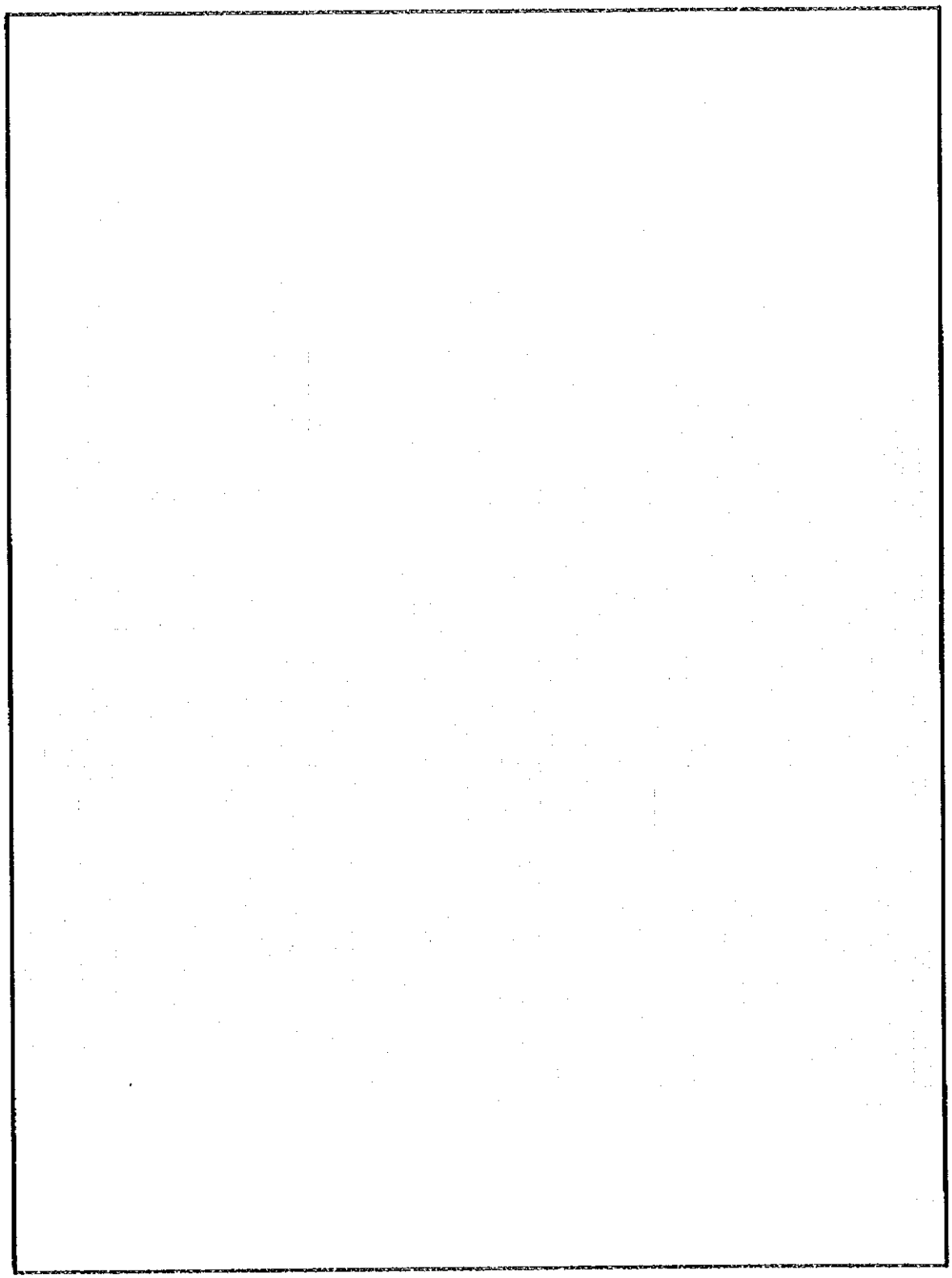
II. Basic Design Data

1. Present Population : _____
2. Design Population (Present Population X 1.16) : _____
3. Average Day Demand: _____ X _____ : _____
   (Per Capita Consumption) (Design Pop.)
4. Maximum Day Demand: 1.3 X _____ : _____
   (Average Day Demand)

Annex 4

SCHEMATIC DIAGRAM OF THE SYSTEM

_____ Rural Water Supply Project



Annex 5

DESIGN OF PIPE LINES

_____ Rural Water Supply Project

SECTION (1)	NODES From (2)	NODES To (3)	SECTION LENGTH(M) (4)	HOUSEHOLD SERVED (5)	PEAKFLOW (LPS) (6)	PIPE DIA (MM) (7)	HEAD LOSS PER 100M (8)	ACTUAL HEADLOSS (9)	REMARK (10)

Annex 6

DESIGN OF RESERVOIR AND PUMP

_____ Rural Water Supply Project

A. DESIGN

1. Determine Capacity of Reservoir, (C_r)

   C_r = 1/4 x Average Day Demand

   C_r = 1/4 x D_a (LPD)

   C_r = _____ liters

2. Determine Minimum Water Elevation, (WL_m)

   WL_m = total head loss + Minimum Pressure in Main (Meters)

   For Barangay System, Min. Pressure = 5 psi (use 3M.)

   For Poblacion System, Min. Pressure = 10 psi (use 7M.)

   WL_m = _____ M.

   Note : The bottom of the storage tank should be higher than this elevation.

B. DESIGN OF PUMP

1. Determine Pump Capacity, Q_p (LPS)

   Q_p = Max. Day Demand (LPD)/ Operating Time (Sec.)

   Q_p = 78 P_d/T where: P_d = Design Population

   T = Operating Time in Seconds

   Q_p = _____ LPS

2. Calculate Total Dynamic Head, TDH (Meters)

   TDH = Depth of Pumping Level + by Maximum Reservoir Elevation + friction loss

   TDH = _____ m

3. Calculate Brake Horsepower Requirement :

$$\text{Brake Horsepower} = \frac{Q_p \times TDH}{75 \times \text{Efficiency}}$$

Brake Horsepower = _____ Hp

Where :

Efficiency for Centrifugal Pump, 30-60 %

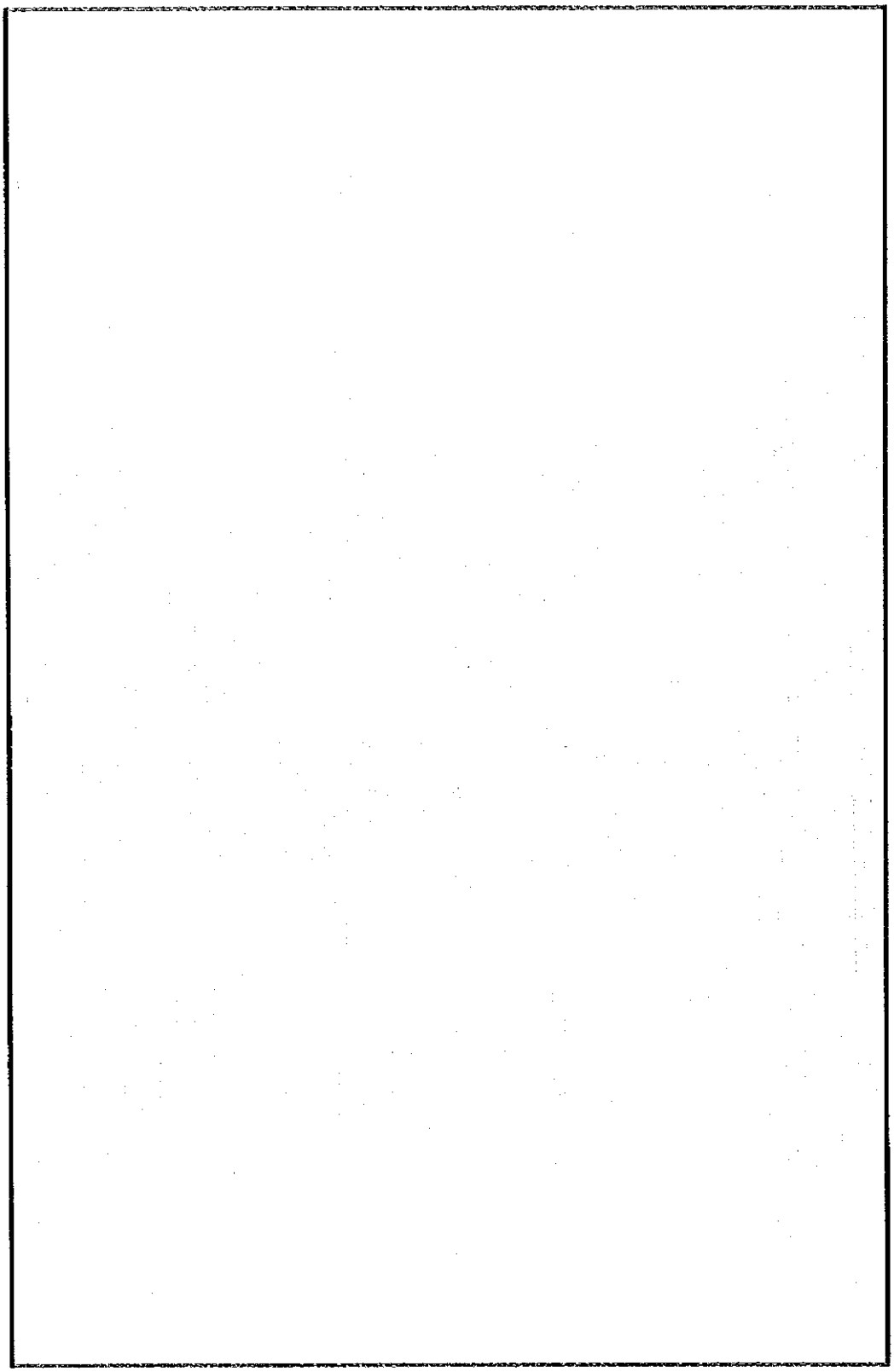
Efficiency for Submersible Pump, 50-60 %

Efficiency for Jetmatic Pump, 20-30 %

Annex 7

DETAILED DESIGN PLAN

_____ Rural Water Supply Project



Annex 8

PIPES SCHEDULE

____________________ Rural Water Supply Project

PIPE (1) DIAMETER mm	SECTION (2) LENGTH m	REQUIRED PIPES (3)	ACTUAL NO. OF PIPES (4)	ADDITIONAL PIPES (5)

Annex 9A

FITTINGS SCHEDULE (G.I. PIPES)

_____ Rural Water Supply Project

NODES / SECT LENGTH	COUPLING		UNION PATENTE	TEE STD.	TEE REDUCER	BUSHING REDUCER	ELBOW STD / ELBOW REDUCER	COUPLING REDUCER	FAUCET	NIPPLE	VALVES
	Qty.	Size	Qty.								

Annex 9B

FITTINGS SCHEDULE (PVC PIPES)

_____ Rural Water Supply Project

NODES / SECT LENGTH	SOCKET		STD. ELBOW REDUCER	STD. TEE REDUCER	SOCKET ADAPTOR	SOCKET REDUCER	G. I FITTINGS			OTHERS
	Qty.	Size					VALVES	FAUCET	ELBOW	

Annex 10

BILL OF MATERIALS

_____ Rural Water Supply Project

QUANTITY	UNIT	DESCRIPTION	UNIT COST	TOTAL COST

Annex 11

COST SUMMARY

_____ Rural Water Supply Project

I. ESTIMATED COST OF THE SYSTEM

1. a) Cost of Pipes ₱ _____

   b) Cost of Fittings _____

   Total Cost of Pipes and Fittings ₱ _____

2. Cost of Reservoir _____

3. Cost of Pump _____

4. Labor Cost _____

   a) 10% of Pipes & Fittings (For G.I. Pipes)

   b) 25% of Pipes & Fittings (For PVC Pipes)

5. Cost of Freight and Handling _____

6. Contingencies 5% (Pipes & Fittings - Labor) _____

   Total Cost of the System ₱ _____

For gravity system, omit cost of pump.

II. FINANCIAL DATA

1. Total Cost of the System ₱ _____

2. Local Equity _____

3. Amount of Loan _____

Annex 12

FINANCIAL ANALYSIS

_____ Rural Water Supply Project

A. RELEVANT DATA

1. Pumping Hours : _____ hrs.
2. Pump Horsepower : _____ HP
3. Cost/KWH : P_____
4. Pump Cost : P_____
5. Amount of Loan : P_____
6. Loan Terms : _____ % (interest per annum)
   : _____ years (Repayment Period)
7. Number of Households : _____

B. COMPUTATION OF MONTHLY EXPENSES (Omit non-applicable items)

1. Operations
   a. Salaries _____ x _____ = P _____
   b. Office Supplies _____ x _____ = P _____
   c. Power _____ x _____ = P _____
   d. Chemical _____ x _____ = P _____
   e. Miscellaneous _____ x _____ = P _____

2. Asset Replacement
   a. Pump _____ / _____ = P _____
   Life (mos.)
   b. Pipelines _____ / _____ = P _____
   Life (mos.)
   c. Tank _____ / _____ = P _____
   Life (mos.)
   d. Others _____ / _____ = P _____
   Life (mos.)
3. Amortization _____ x _____ = P _____
   (CRF) (Loan Amt.)
4. Maintenance (2% of Capital Equipt.costs annually)
   .02 X _____/12 = P _____
6. Total Monthly Expenses = P _____

C. COMPUTATION OF WATER FEE

Monthly Water Fee Per Household :

_____ / _____ = P _____

(Total Monthly Expenses) (No. of HH)

Annex 13

AVAILABILITY OF LOCAL EQUITY

Item	Amount
I. Cash	P _____

II. Labor

Type of Labor	No. of Workers	No. of Days	Rate Per Day	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	_____

III. Materials

Type of Materials	Quantity	Unit Cost	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	_____

TOTAL P _____

I certify that the items listed above represent the local share of the project cost. _____ _____ Association President Date	Noted by : _____ _____ Municipal Sector Liason Date

9.5 Community Development Model

COMMUNITY DEVELOPMENT MODEL STUDY (LEVEL I)
MODEL SITE: SITIO TUKON, BGY. CHANARIAN, BASCO, BATANES

1. Socio-Economic Profile of the Model Site

Sitio Tukon is located at the interior portion of Barangay Chanarian, about 3km southeast of the capital town of Basco. It has an area of 25 hectares and its topography is mountainous with a slope ranging from 10% to 50%. The area is predominantly agricultural. There is no existing school nor health center in the area. For their schooling and medical needs, the students go to the capital town (Basco). Power supply in the area is on a 12-hour basis.

Total population of the model site is 130 and 25 households. Due to the topography of the site, the houses are not clustered in one place. Most of the residents are engaged in farming with fishing as a minor source of livelihood. Average annual family income is ₱48,000

2. Present Water Supply and Sanitation Situation

Residents obtain their supply of water from a spring located 700 meters away from the sitio proper. The elevation of the spring is lower than the households and the residents have to track rolling hills every time they fetch water. Topography of the place makes it difficult and uneconomical to develop the spring and construct facilities near the houses. About six (6) of the households have rain water collector. A non-functioning shallow well with a depth of 18 meters is located near the center of the sitio.

As to the sanitation aspect of the area, 50% of the households have sanitary toilets, 25% have unsanitary toilets while the rest do not have facilities at all.

3. Institutional Analysis

There has been no prior attempt among the residents in the proposed model site to mobilize their common resources and develop Level I water facilities . However, the people are willing

to organize an association that would take care of the water supply facilities. The barangay chairman is also initiating activities that would continuously educate the residents on the importance of water and good hygiene.

4. Future Development Needs

4.1 Potential Source and Service Level

A new deep well can be constructed to augment the water supply needs of the sitio. The deep well could be constructed near the existing shallow well since water quality test conducted by the PHO on the previous well showed it is negative for bacteria and that the water has good taste and smell.

4.2 Formation of BWSA

Since the residents are willing to organize themselves, the barangay council shall initiate the formation of a Barangay Waterworks and Sanitation Association (BWSA). The residents of the sitio shall be the core members of the BWSA. The Municipal Sector Liaison (MSL) shall provide technical assistance in developing the capability of the BWSA. Once organized, the BWSA shall oversee the construction as well as the operation and maintenance of the facilities.

5. Capital and O&M Funds

5.1. Water Source Facility and Sanitary Toilet

Capital cost required to construct a deep well is estimated at about P125,000. The BWSA, with the assistance of MSL shall raise the needed amount.

Capital cost of constructing household toilets shall be shouldered by the owners.

5.2. Operation and Maintenance

The community should initially raise an amount equivalent to at least 1% of the capital cost of deep well water facility (in this case it's P1,250), which shall be set aside for the operation and maintenance of the facility. A monthly fee of P5.00 shall be collected for the reserve fund. Maintenance of household toilets shall be done by the owners.

6. Community Involvement

6.1. Pre-Construction (Project Preparation and Planning)

(1) The Barangay Council of Chanarian, in coordination with the MSL, shall initiate a meeting among the residents to discuss water and sanitation problems and possible implementation of water projects in the study area.

(2) The residents shall organize a BWSA. Once formed, the association shall discuss the constructioin of Level I water facilities and the provision of sanitary toilets to the residents. The BWSA will assign a team that will regularly coordinate with the municipality.

(3) The BWSA shall determine the monthly fees/contribution to cover all monthly operation, maintenance and administration costs, as well as to establish a reserve fund.

(4) The BWSA shall submit a formal request to the MSL, duly endorsed by the barangay council, for technical and financial assistance in undertaking Level I project in the area. The request is supplemented by commitments sheet signed by the members indicating willingness to participate in the project and their responsibility for the operation and maintenance. An initial reserve fund will be collected and deposited in a bank.

(5) Upon approval of such a request, the association will mobilize its project team to assist in project implementation

(6) Monitoring Activities: During this stage, the association will submit a progress report to MSL indicating the status of project planning and preparation. The report will include such information as the composition and membership of BWSA, scope of project to be implemented, project specifications, work plan and schedule, and financial arrangement.

6.2. Construction (Project Implementation)

(1) During construction of the deep well, BWSA will assign a team which shall coordinate and monitor the implementation of the project.

(2) Beneficiaries could provide labor during well construction, pump installation and preparation of drains and soak way pits.

(3) The community may be asked to contribute materials which are locally available. These may take in the form of gravel and sand, roofing sheets, timber or tools for excavation.

(4) The residents should provide information which may be necessary to expedite the construction of the facilities.

(5) Monitoring Activities: The BWSA will have a meeting with the MSL on the status of construction project.

6.3. Post Construction (Operation and Maintenance)

(1) BWSA shall monitor proper disinfection of the wells immediately after the construction. It shall request the PHO to conduct periodic surveillance and, if necessary, disinfection, of the wells.

(2) BWSA shall undertake proper maintainance of the facilities. All users/beneficiaries should be involved directly in the maintenance. They shall keep the premises of the water facilities clean to avoid contamination. They shall report breakdown immediately so that necessary repair work must be undertaken at once.

(3) Operation and maintenance cost will be shouldered by the beneficiaries through their monthly contributions. Expenses for repairs as well as spare parts commonly used and other recurrent costs will be charged out of the reserve fund of the BWSA.

(4) The members should provide labor in the repair and rehabilitation of the facilities.

(5) Maintenance of household toilets should be the responsibility of the owners.

(6) Monitoring Activities: The BWSA shall submit annual reports to MSL. The first post-construction report should be submitted immediately upon the completion of the project. It should indicate well log data, number of sanitary toilets constructed, overall cost, project modification, and timetable of maintenance activities. Succeeding reports will indicate breakdowns and repairs, expenses, problems encountered in operating the system and, if possible, recommendations, and other relevant data.

7. Project Elements

7.1. Health and Hygiene Education

Health and hygiene education shall be launched as early as the initial planning of the project. It is a good entry point in discussing existing water and sanitation issues in the community prior to the formation of BWSA. The MSL, in coordination with the RHU, should conduct a continuous health education campaign in the barangay. The new facilities would provide significant opportunities to discuss practices and to identify areas for improvement. This effort can be reinforced by multi-media campaign being implemented by other government institutions such as the DOH and the Philippine Information Agency.

Meanwhile, the barangay primary/elementary school shall adopt DECS' Teacher-Child-Parent Approach learning program which involves the family members in teaching practical lessons in hygiene education.

7.2. Human Resources Development and Training

The members of the BWSA shall be trained on the basic hand pump operation and maintenance. On-the-job training will be conducted by the municipal government. Qualified BWSA members will be enrolled at the National Manpower and Youth Council (NMYC) which conducts technical courses. Internship of graduates can be arranged with appropriate institutions.

7.3. Women's Involvement

The women shall be involved from the start of the project and on major decisions like the selection of sites for the wells, collection of fees/contributions and on simple operation and maintenance tasks. They should therefore be included in training programs conducted for the members. The women sector must likewise spearhead in health and hygiene education program of the BWSA.

COMMUNITY DEVELOPMENT MODEL STUDY (LEVEL II)
MODEL SITE: SABTANG, BATANES

1. Socio-Economic Profile of the Model Site

The island municipality of Sabtang is situated about 4.5 nautical miles from Batan Island (mainland Batanes). It is bounded by the Pacific Ocean on the east; South China Sea on the west; and the Balintang Channel on the south. It has a total land area of about 4,059 hectares. The proposed model site comprises four rural barangays of Sabtang, namely: Chavayan, Nakanmuan, Savidug and Sumnanga. The area has ruggedly steep slopes with deep canyons, plateaus and steep mountain ranges midland. The terrain is mountainous especially towards the center with an elevation of about 210m above sea level. Three fourths are mountainous while the remaining are nearly level lands.

The area has a population of 1,112 and 350 households. Sabtang is predominantly agricultural. Almost all of the labor force are employed in agriculture. There is no public market in the municipality such that farmers' produce are marketed in the island or in Ivana and Basco.

2. Present Water Supply and Sanitation Situation

Water has been a perennial problem in the municipality despite the existence of springs and the maintenance of watersheds. At present, the proposed model site is serviced by a Level II water system being managed by the municipal government. The source comes from a developed spring with a discharge capacity of 1.746 cu.m/hr. It is located approximately 5,000 meters from the study area, passing through hilly and forested areas. With its present discharge, the spring could only serve about 40% of the total population in the study area. To augment their water needs, some of the residents depend on existing artesian wells. There are at present eight (8) functioning public and three (3) privately-owned artesian wells although most of these well dry up during dry season.

About 87% of the households have sanitary toilet facilities. The rest are practicing the "wrap-and-throw method". There is no prevalent water-borne diseases in the area.

3. Institutional Analysis

The municipal government is presently managing the Level II water system. There are five local NGOs which can provide assistance in the operation and maintenance of the area's water system. These are: Sabtang Farmers Multi-Purpose Cooperative, Ivojos Cattle Raisers Association, Rural Improvement Club, Balikatan, and Sabtang Fisherman's Association.

4. Future Development Needs

4.1. Potential Source and Service Level

A Level II water system shall be developed for the four barangays. Since the existing source can not cope up with the present demand, deep well can be an alternative sources. A survey shall be conducted to determine the ideal locations of new source and the necessary improvement program.

Meanwhile, families shall be encouraged to construct individual household toilets.

4.2. Institutional Arrangement

Prior to the implementation of the proposed project, the Municipal Sector Liaison (MSL), in coordination with the Provincial Sector Team (PST), shall conduct a series of people's consultations in order to explain the proposed project and to get the commitment of the people to the project. The residents shall determine which organization is appropriate to take the lead in implementing the project and in managing the system.

Among the existing organizations in the area, the Sabtang Multi-Purpose Cooperative may be strengthened and deputized to absorb the functions of the Rural Waterworks and Sanitation Association (RWSA) in undertaking the project and to operate and maintain the proposed water system. The cooperative shall represent the residents in all dealings with MSL and PHO in matters related to water and sanitation improvement projects.

5. Capital and O&M Funds

5.1. Water Supply System

The capital cost required to develop the Level II water system for the study area shall be determined after a feasibility study is conducted including appropriate source for the area. The MSL shall provide assistance to the association in sourcing out funds for the project.

5.2. Household Sanitary Toilets

Capital cost of individual household toilets (pour flush type) shall be shouldered by the home owners. Should a family is not be able to put up the initial capital cost, the RWSA can make arrangements for the extension of loan from various institutions. Policies on interest rates and repayment scheme adopted by the institutions shall be followed.

5.3. Operation and Maintenance

Water charges to be collected by the association from the water consumers will cover costs of operation and maintenance. A reserve fund shall be set-up for all recurrent costs of maintaining system.

6. Community Involvement

6.1. Pre-Construction (Project Preparation and Planning)

(1) The MSL, in coordination with the PST, shall conduct meetings among the residents to discuss water and sanitation problems and needs.

(2) The residents shall deputize the Sabtang Multi-Purpose Cooperative to assume the role of RWSA in undertaking the proposed project including sourcing of the funds needed in the project.

(3) The RWSA (Cooperative) determines the scope of project and commits full support to such undertaking. Committees will be assigned to regularly coordinate with the MSL and PST.

(4) The RWSA submits a formal request to the municipal and/or provincial sector team for technical and financial assistance. The request is supplemented by a commitment sheet signed by the beneficiaries indicating their willingness to participate in the project, and their responsibility for the operation and maintenance. An initial reserve fund will be collected and deposited in a bank.

(5) Upon approval of such request, the association will mobilize its team to assist for the following:

1) preparation of a work plan including time frame and budget;
2) undertaking community study (barangay diagnostics);
3) detailed planning as a baseline for evaluation
4) negotiation for the right of way for the sites of communal faucets

(6) RWSA shall meet with the beneficiaries to set water rates which will be used for the system's loan repayment.

(7) Monitoring Activities: During this stage, the association will submit a progress report to the MSL indicating the status of project planning and preparation. The report will include such information as the composition and membership of RWSA, scope of project to be implemented, project specifications, work plan and schedule, and financial arrangement.

6.2. Construction (Project Implementation)

(1) The beneficiaries shall provide self-help labor in the following activities:

1) clearing of the source premises
2) drilling of deep wells
3) pipe laying
4) installation of communal faucets and meter
5) preparation of drains and soak way pits
6) excavation of pits and construction of latrine structures

(2) Granting of right of way installation of necessary facilities.

(3) Dissemination of information on the on-going construction.

(4) Provision of the access road for contractor/s

(5) Monitoring Activities: The RWSA will coordinate with MSL on the construction activities. It shall submit a report containing information such as modifications, project team composition, people's contributions (cash, materials and labor), etc.

6.3. Post Construction (Facility Operations)

(1) The RWSA should monitor the practices of the users to ensure proper handling of the water and sanitation facilities as well as prudent use of water. Every member-consumer should also cooperate with RWSA to protect the communal faucets (with meters) from loss or damage.

(2) The association should assign person/s to regularly monitor the performance of the water source facilities and public faucets. Water samples should be regularly collected and analyzed.

(3) The members should pay their membership dues/water consumption charges regularly in order to maintain good service of the water system.

(4) Maintenance of individual household toilets shall be the responsibility of the owners.

(5) Monitoring Activities: The association is required to submit quarterly reports to MSL. The first post-construction report should indicate scope of work undertaken, number of communal faucets installed, length and diameter of pipes laid, sanitary toilets constructed, any modifications, overall cost, and maintenance activities. Succeeding reports will indicate breakdowns and repairs, expenses, problems encountered and recommendations.

7. Project Elements

7.1. Health and Hygiene Education

To create awareness among the residents on the value of water supply and sanitation facilities, the RWSA assisted by the MSL (with the RHU) shall conduct hygiene education program in the area. The campaign should be launched as early as the commencement of the project and should be sustained. New facilities provide more opportunities to discuss hygiene practices and identify areas for improvement.

The elementary school in the barangay adopts DECS' Teacher-Child-Parent Approach which involves parents and other members of the family in teaching practical lessons in hygiene education. The efforts of the MSL and the school shall be reinforced by multi-media campaign being implemented by DOH and the Philippine Information Agency.

6.2. Human Resources Development and Training

Members of the RWSA will be trained on basic utility operation and maintenance. On-the-job training will be conducted by the MSL. Qualified young members will be enrolled at the National Manpower and Youth Council (NMYC) which conducts technical courses. Internship of graduates can be arranged with the nearest water district or the municipal waterworks system.

6.3. Women's Involvement

Women shall be involved from the start of the project and in the operation and maintenance of the facilities. They shall therefore be included in training programs conducted for the members. The women sector must also spearhead in health and hygiene education program of the RWSA.

COMMUNITY DEVELOPMENT MODEL STUDY (LEVEL III)
MODEL SITE: MAHATAO, BATANES

1. Socio-Economic Profile of the Model Site

The municipality of Mahatao is located at the southwestern portion of Mainland Batanes. It is approximately 6km north of Basco and is accessible by a short 15-minute drive from the capital town. The whole municipality is about 10.96 sq.km. Like most areas of the province, Mahatao has an irregular topography with a terrain ranging from steep to very steep. The municipal terrain and its vegetation accounts for the abundance of water. Soil structure classification of the area are filled-up soils, beach sand, rockland, Basco loam and Uyugan clay loam.

Mahatao has a population of 1,922 and 350 households. Agriculture, fishing, and small scale trading employed the most number of workers in Mahatao. Some of the labor force are in the government service. Major source of income of the residents comes from the agricultural sector. Growth of this industry is minimal due to the absence of cold storage facilities and to the limited power supply (only 12 hours a day) of the province.

2. Present Water Supply and Sanitation Situation

Mahatao has an existing municipal water system which provides Level III service to the barangays. The water source of the system comes from a spring. Households which are not covered by the Level III system rely on deep wells and shallow wells in the area. Present deficiencies in the waterworks system include the absence of storage and treatment facilities. The spring is also very near a cattle pasture lands exposing it to contamination especially during rainy season.

Almost all of the households have water-sealed toilets facilities. The health condition in the area is relatively favorable. Water-borne or related diseases are very minimal.

3. Institutional Analysis

The construction of the municipality's existing Level III water system has proven that the government and the people can work together for a common cause. From the planning to the

construction of the said system, the residents were involved. With the proposed upgrading of the system, the municipal government and the people have once again expressed readiness to cooperate and join resources in implementing the project.

The municipal government has placed the provision of efficient water supply service among its top priority and thereby it promotes sanitation and hygiene in the municipality. People likewise consider water as a very important commodity such that they are prepared to unite with the government to assure of its adequate supply.

4. Future Development Needs

4.1. Potential Source and Service Level

In order to improve the quality of service of the municipal water system, source improvement and system upgrading shall be undertaken. Design of the system shall be updated to meet current requirement. Source improvement will include construction of storage tank, disinfection facility, perimeter fence and guardhouse. Land around the spring shall be acquired to protect the periphery of the source from possible contamination.

4.2. Identification of Community Organization

In Mahatao, the municipal government has been successful in operating the water system. Ideally, however, a separate institution must be delegated to manage the water system. In this way, the municipal government can concentrate on implementing other social services programs.

Since the residents themselves have expressed willingness to participate in the project, they can organize themselves into Rural Waterworks and Sanitation Association (RWSA). The Municipal Sector Liaison (MSL), in coordination with the PST, can initiate the formation of the RWSA.

5. Capital and O&M Funds

5.1. Water System

Capital cost required to upgrade/improve the existing municipal waterworks system of Mahatao can be determined only after the conduct of a feasibility study and the updating of

design. The capital cost will be shouldered by RWSA through a loan from the appropriate institutions (Provincial Trust Fund or from other sources). Water charges will be collected from the consumers to cover the cost of operation and maintenance and for loan amortization.

Capital cost of household toilets shall be shouldered by the homeowners. If a member could not put up the initial capital cost, the association can extend loan to the member, terms of payment of which shall be decided by the group.

6. Community Involvement

6.1. Pre-Construction (Project Planning and Preparation)

(1) The MSL, in coordination with the PST, shall facilitate the holding of a general meeting among the residents to discuss the improvement/expansion of the present system.

(2) The people shall organize the RWSA to assume the management, operation and maintenance of the water supply system. The association shall elect its officers and a manager who will supervise the operation of the system.

(3) The members shall pay their initial membership dues.

(4) The association shall request the MSL for technical assistance in determining the scope of water and sanitation project they shall undertake. The MSL/PST shall present to the residents alternative schemes in upgrading the Level III water system for the municipality.

(5) The association submits a formal request to the municipal and/or provincial government for the necessary financial assistance in undertaking the project. The request is supplemented by a commitment sheet signed by the association indicating their willingness to participate in the project and their responsibility for the operation and maintenance. A reserve fund representing the initial contribution/membership fee of beneficiaries will be collected.

(6) Upon securing funds, the association shall mobilize teams to assist the municipal/ provincial or other supporting staff in:

a) conduct of feasibility studies
b) negotiation for the acquisition of the right of way
c) design of the system
d) project bidding
e) project mobilization

(7) The members shall also attend all briefings and presentations related to the project

(8) Monitoring: During this stage, the association shall submit a progress report to the MSL indicating the status of project planning and preparation. The report will include, among others, the composition and membership of RWSA, the scope of project to be implemented, project specifications, work plan and schedule, delineation of responsibilities, and financial arrangements.

6.2. Construction (Project Implementation)

(1) Since the construction of the water system will be undertaken by a qualified contractor, the direct involvement of the residents shall be limited to the following:

1) Granting of right of way for pipe laying, construction of pump house and installation of other necessary facilities
2) Dissemination of information on the construction activities
3) Compliance with new road traffic routes
4) Provision of the access road for contractor/s
5) Monitoring of inconveniences caused by the construction
6) Early application for water connection

(2) Monitoring: The contractor, through the authority (MSL and/or others) will submit to the association progress reports on the status of the construction project. The report shall include any modification, problems being encountered, and possible solutions.

6.3. Post Construction (Operation and Maintenance)

(1) The facilities shall be operated and maintained by highly-trained personnel and technicians to be assigned by the RWSA. However, the users should participate in the operation and maintenance of the systems through the following:

1) Paying of water bills on time
2) Reporting of water leaks at the main pipeline, illegal connections and tampering of water meters
3) Giving access to meter readers
4) Conservation of water
5) Campaign for more service connections
6) Monitoring of water quality
7) Attending at association meetings and other activities
8) Safe disposal of waste water
9) Dissemination of health and hygiene information

(2) Maintenance of individual household toilets shall be the responsibility of the owners.

(3) Monitoring Activities: The association shall submit quarterly reports to the MSL. The first post-construction report should indicate scope of work, sanitary toilets constructed, any modifications, overall cost and maintenance activities. Succeeding reports will indicate number of connections, breakdowns and repairs, expenses, problems encountered in operating the system and, if possible, recommendations, and other relevant data.

7. Project Elements

7.1. Health and Hygiene Education

Health and hygiene education shall be implemented as early as the initial planning of the project. It is a good entry point in discussing existing issues prior to the formation of RWSA. The MSL, together with the RHU should conduct a continuous health education campaign in the municipality. New facilities can provide opportunities to discuss hygiene practices and identify areas for improvement. The primary schools in the three barangays shall adopt DECS' Teacher-Child-Parent Approach which involves parents and other members of the family in teaching practical lessons in hygiene education. These efforts can be reinforced by multi-media campaign being organized by the DOH and the Philippine Information Agency.

7.2. Human Resources Development and Training

Training shall be directed to those who would manage, operate and maintain the water systems. RWSA officers shall be sent to the provincial government/other relevant central government agencies to attend basic and advanced training programs such as policy making, financial management, systems design, construction supervision, among others.

Qualified members and residents of the barangays will also be enrolled at the National Manpower and Youth Council Training Center which conducts water system-related courses. Internship of graduates can be arranged with the municipal/provincial government.

7.3. Women's Involvement

The association should campaign for female members and give them equal opportunity in the board and in the management of the system. They (the women) must be involved from the start of the project and in the operation and maintenance of the facilities. They should also be included in training programs conducted for the members. The women sector must spearhead in health and hygiene education campaign in the community.

10. COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

10.2 Assumptions for Cost Estimates

10.2.1 Unit Construction Cost

Table 10.2.1 Unit Cost of Level I (Deep Well - 30m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,300
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	7	pcs.	2,625	18,375
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,719	2,719
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,313	8,626
2. Labor, Fuel, Lubricant and others				
Well Drilling for 30 m depth at 200mm borehole	30	m	1,100	33,000
3. Freight Cost (12% of Materials)		L.S.		3,566
Sub-Total of B				66,286
C. Well Development		L.S.		5,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,000	9,000
(2) 63mm x 6m GI Pipe with coupling	4	pcs.	1,706	6,824
(3) #10 Sieved Gravel	0.53	cu.m	870	461
(4) Coarse Sand	1	cu.m	304	228
(5) Cement for Sanitary Seal	3	bags	117	351
(6) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	2	cu.m	385	770
3) Sand	1	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	250	250
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	45	270
6) Nail	1	kg.	32	32
Sub-Total of D-1				18,958
2. Labor (40% of D-1.)		L.S.		7,583
3. Freight Cost (12% of Materials)		L.S.		2,275
Sub-Total of D				28,816
E. Indirect Cost				
Profit (10% of A, B, C & D)		L.S.		10,340
VAT (14% of Profit & Labor)		L.S.		7,129
Sub-Total of E				17,469
Total of Construction Cost (A+B+C+D+E)				120,871
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,000
2. Construction Supervision		L.S.		2,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of F				6,088
GRAND TOTAL				126,959
SAY				127,000

Note: L.S. - Lump Sum
Source: DPWH standard price in 1994
Unit Cost: Adjusted to 1995 Price Level

Table 10.2.2 Unit Cost of Level I (Deep Well - 50m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		**L.S.**		**3,300**
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	14	pcs.	2,625	36,750
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,719	2,719
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,313	8,626
2. Labor, Fuel, Lubricant and others				
Well Drilling for 50 m depth at 200mm borehole	50	m	1,100	55,000
3. Freight Cost (12% of Materials)		L.S.		5,771
Sub-Total of B				**108,866**
C. Well Development		**L.S.**		**5,000**
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,000	9,000
(2) 63mm x 6m GI Pipe with coupling	6	pcs.	1,706	10,236
(3) #10 Sieved Gravel	1.0	cu.m	870	870
(4) Coarse Sand	1	cu.m	304	192
(5) Cement for Sanitary Seal	3	bags	117	351
(6) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	2	cu.m	385	770
3) Sand	1	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	250	250
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	45	270
6) Nail	1	kg.	32	32
Sub-Total of D-1				22,743
2. Labor (40% of D-1.)		L.S.		9,097
3. Freight Cost (12% of Materials)		L.S.		2,729
Sub-Total of D				**34,569**
E. Indirect Cost				
Profit (10% of A, B, C and D)		L.S.		15,174
VAT (14% of Profit & Labor)		L.S.		11,098
Sub-Total of E				**26,272**
Total of Construction Cost (A+B+C+D+E)				**178,007**
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,000
2. Construction Supervision		L.S.		2,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of F				**6,088**
GRAND TOTAL				**184,095**
SAY				**184,100**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.3 Unit Cost of Level I (Deep Well - 70m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,300
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 100mm x 3m Steel Casing with coupling	21	pcs.	2,625	55,125
(2) 100mm x 3m Steel Casing with one end closed	1	pc.	2,719	2,719
(3) 100mm x 3m Low Carbon Steel Screen	2	pcs.	4,313	8,626
2. Labor, Fuel, Lubricant and others				
Well Drilling for 70 m depth at 200mm borehole	70	m	1,100	77,000
3. Freight Cost (12% of Materials)		L.S.		7,976
Sub-Total of B				**151,446**
C. Well Development		L.S.		5,000
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) Improved Deep Well Cylinder Pump (Malawi Type)	1	set	9,000	9,000
(2) 63mm x 6m GI Pipe with coupling	9	pcs.	1,706	15,354
(3) #10 Sieved Gravel	1.5	cu.m	870	1,305
(4) Coarse Sand	1	cu.m	385	231
(5) Cement for Sanitary Seal	3	bags	117	351
(6) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	2	cu.m	385	770
3) Sand	1	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	250	250
5) Form Lumber (50mm x 75mm x 1,800mm)	6	pcs.	45	270
6) Nail	1	kg.	32	32
Sub-Total of D-1				28,335
2. Labor (40% of D-1.)		L.S.		11,334
3. Freight Cost (12% of Materials)		L.S.		3,400
Sub-Total of D				**43,069**
E. Indirect Cost				
Profit (10% of A, B, C and D)		L.S.		20,282
VAT (14% of Profit & Labor)		L.S.		15,206
Sub-Total of E				**35,488**
Total of Construction Cost (A+B+C+D+E)				**238,303**
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		3,000
2. Construction Supervision		L.S.		2,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of F				**6,088**
GRAND TOTAL				**244,391**
SAY				**244,400**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.4 Unit Cost of Level I (Deep Well Rehabilitation)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		**L.S.**		**3,300**
B. Well Rehabilitation				
1. Materials				
(1) Cylinder Pump Set	1	set	9,000	9,000
(2) Cement for Surface Sealing	4	bags	117	468
(3) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	2	cu.m	385	770
3) Sand	1	cu.m	304	304
4) Plywood (4' x 8' x 1/4")	1	pc.	250	250
5) Form Lumber (2" x 3" x 6")	6	pcs.	45	270
6) Nail	1	kg.	32	32
Sub-Total of B-1				11,562
2. Labor (40% of B-1)		L.S.		4,625
3. Freight Cost (12% of Materials)		L.S.		1,387
Sub-Total of B				**17,574**
C. Well Development		**L.S.**		**6,500**
D. Indirect Cost				
Profit (10% of A, B & C)		L.S.		2,737
VAT (14% of Profit & Labor)		L.S.		1,941
Sub-Total of D				**4,678**
Total of Construction Cost (A+B+C+D)				**32,052**
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		1,100
2. Supervision		L.S.		650
3. Water Quality Analysis		L.S.		1,088
Sub-Total of E				**2,838**
GRAND TOTAL				**34,890**
SAY				**34,900**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.5 Unit Cost of Level I (Shallow Well - 18m Depth)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		1,100
B. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 50mm x 6m PVC Pipe with socket	2	pcs.	813	1,626
(2) 50mm x 3m PVC Pipe with plug	1	pc.	410	410
(3) 50mm PVC Socket	1	pc.	90	90
(4) 50mm x 3m PVC Screen	1	pc.	1,300	1,300
2. Labor, Fuel, Lubricant and others				
Well Drilling for 18 m depth at 150mm borehole	18	m	520	9,360
3. Freight Cost (12% of Materials)		L.S.		411
Sub-Total of B				**13,197**
C. Well Development		L.S.		500
D. Gravel Packing, Installation of Handpump and Construction of Platform				
1. Materials				
(1) 50mm Jetmatic Handpump	1	set	2,380	2,380
(2) 50mm x 1m GI Pipe (Sch. 40)	1	pc.	75	75
(3) #10 Sieved Gravel	0.1	cu.m	870	87
(4) Coarse Sand	0.07	cu.m	304	21
(5) Cement for Sanitary Seal	1	bag	117	117
(6) Pump Base and Platform				
1) Cement	4	bags	117	468
2) Gravel	1	cu.m	385	385
3) Sand	1	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1	pc.	250	250
5) Form Lumber (50mm x 75mm x 1,800 mm)	1	pc.	45	45
6) Nail	1	kg.	32	32
Sub-Total of D-1				4,164
2. Labor (40% of D-1.)		L.S.		1,666
3. Freight Cost (12% of Materials)		L.S.		500
Sub-Total of D				**6,330**
E. Indirect Cost				
Profit (10% of A, B, C & D)		L.S.		2,113
VAT (14% of Profit & Labor)		L.S.		1,839
Sub-Total of E				**3,952**
Total of Construction Cost (A+B+C+D+E)				**25,079**
F. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		2,000
2. Construction Supervision		L.S.		1,500
3. Water Quality Analysis		L.S.		1,088
Sub-Total of F				**4,588**
GRAND TOTAL				**29,667**
SAY				**29,700**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level

Table 10.2.6 Unit Cost of Level I (Spring Development - 90 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,000
B. Construction of Spring Box				
1. Materials		L.S.		18,000
2. Labor (30% of 1.)		L.S.		5,400
3. Freight Cost (9% of Materials)		L.S.		1,620
Sub-Total of B				**25,020**
C. Installation of Pipelines & Fittings				
1. Materials				
(1) Transmission Main				
1) 38mm dia. GI Pipe, Sch. 40 w/coupling	165	pcs.	340	56,100
2) 38mm dia. GI Gate Valve	2	pcs.	410	820
(2) Communal Faucet				
1) 38mm dia. x 13mm dia. Reducing Socket	1	pc.	70	70
2) 13mm dia. x 150mm GI Nipple	1	pc.	25	25
3) 13mm dia. Brass Faucet	1	pc.	41	41
4) Cement	0.50	bag	148	74
5) Gravel	0.25	cu.m	475	119
6) Sand	0.12	cu.m	375	45
Sub-Total of Materials				57,294
2. Labor (30% of Material Cost)		L.S.		17,188
3. Freight Cost (12% of Materials)		L.S.		6,875
Sub-Total of C				**81,357**
D. Indirect Cost				
1. Pipe Installation				
(1) Profit (10% of C-1)		L.S.		5,729
(2) VAT (10% of Profit and Labor)		L.S.		2,292
2. Source Facilities				
(1) Profit (10% of A and B)		L.S.		2,802
(2) VAT (14% of Profit and Labor)		L.S.		1,148
Sub-Total of D				**11,971**
Total Construction Cost (A+B+C+D)				**121,348**
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering and RWSA Formation		L.S.		2,000
2. Supervision		L.S.		12,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of E				**15,088**
Total Estimated Cost				**136,436**
Unit Cost per Person Served				**1,516**
			Say	**1,500**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.7 Unit Cost of Level II (600 Service Population)

Sheet-1 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		3,000
B. Construction of Spring Box				
1. Materials		L.S.		36,300
2. Labor (30% of 1.)		L.S.		10,890
3. Freight Cost (12% of Materials)		L.S.		4,356
Sub-Total of B				**51,546**
C. Installation of Pipelines & Fittings				
1. Transmission Main				
(1) Materials				
1) 63mm dia. PVC Pipe (Class 12.5 with pusher type socket)	330	pcs.	813	268,290
2) 63mm dia. Tee	1	no.	88	88
3) Solvent Cement	26	cans	46	1,196
4) 63mm dia. x 150mm Nipple	3	nos.	136	408
5) 63mm dia. Union Patente	1	pc	173	173
6) 63mm dia. x 50mm dia. Reducing Socket	2	pcs.	105	210
7) 63mm dia. Elbow (90 deg.)	1	pc.	76	76
8) 63mm dia. Elbow (45 deg.)	1	pc.	75	75
9) 63mm dia. Gate Valve	3	pcs.	763	2,289
Sub-Total of Materials				272,805
(2) Labor (30% of Material Cost)		L.S.		81,842
(3) Freight Cost (12% of Materials)		L.S.		32,737
Sub-Total of Transmission Main				387,384
2. Distribution Pipeline				
(1) Materials				
1) 50mm dia. PVC Pipe (Class 12.5 with pusher type socket)	20	pcs.	450	9,000
2) 38mm dia. PVC Pipe (Class 12.5 with pusher type socket)	30	pcs.	300	9,000
3) 20mm dia. PVC Pipe (Class 40 with pusher type socket)	10	pcs.	100	1,000
4) 13mm dia. x 1 m Stand Pipe	10	pcs.	94	940
5) Solvent Cement	4	cans	46	184
6) Fittings				
a. 50mm dia. x 150mm PVC Nipple	3	pcs.	125	375
b. 32mm dia. x 150mm PVC Nipple	3	pcs.	76	228
c. 13mm dia. x 150mm GI Nipple	40	pcs.	25	1,000
d. 50mm dia. Union Patente	1	pcs.	163	163
e. 32mm dia. Union Patente	2	pcs.	71	142
f. 13mm dia. Union Patente	10	pcs.	25	250
g. 50mm dia. x 32mm dia. Reducing Socket	6	pcs.	90	540
h. 32mm dia. x 20mm dia. Reducing Socket	10	pcs.	70	700
i. 20mm dia. x 13mm dia. Reducing Socket	10	pcs.	55	550
j. 50mm dia. PVC Elbow (90 deg.)	2	pcs.	68	136
k. 13mm dia. GI Elbow (90 deg.)	20	pcs.	13	260
l. 20mm dia. x 13mm dia. Socket Adaptor	10	pcs.	41	410
m. 50mm dia. GI Gate Valve	2	pcs.	671	1,342
n. 32mm dia. GI Gate Valve	2	pcs.	380	760
o. 13mm dia. GI Gate Valve	24	pcs.	230	5,520
p. 13mm dia. Brass Faucet	24	pcs.	41	984
q. 50mm dia. Tee	4	pcs.	130	520
r. 32mm dia. Tee	6	pcs.	110	660
s. Water Meter	24	pcs.	750	18,000
t. Water Meter Box	24	pcs.	1,100	26,400
Sub-Total of Materials				79,064
(2) Labor (30% of Material Cost)		L.S.		23,719
(3) Freight Cost (12% of Materials)		L.S.		9,488
Sub-Total of Distribution Pipeline				112,271
Sub-Total of C				**499,655**

Table 10.2.7 Unit Cost of Level II (600 Service Population)

Sheet-2 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
D. Indirect Cost				
1. Transmission Main				
(1) Profit (10% of C-1)		L.S.		38,738
(2) VAT (10% of Profit and Labor)		L.S.		12,058
2. Source Facilities and Distribution Pipeline				
(1) Profit (10% of A, B, C-2)		L.S.		16,682
(2) VAT (14% of Profit and Labor)		L.S.		7,181
Sub-Total of D				**74,659**
Total Construction Cost (A+B+C+D)				**628,860**
E. Estimated Government Expenses				
1. Preliminary & Detailed Engineering and RWSA Formation		L.S.		2,000
2. Supervision		L.S.		12,000
3. Water Quality Analysis		L.S.		1,088
Sub-Total of E				**15,088**
Total Estimated Cost				**643,948**
Unit Cost per Person Served				**1,073**
			Say	**1,100**

Note: L.S. - Lump Sum

Source: DPWH standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.8 Unit Cost of Level III (5,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		**L.S.**		**300,000**
B. Source Development and Storage				
1. Deep Well	1	No.	1,540,000	1,540,000
2. Deep Well Pump	1	No.	550,000	550,000
3. Chlorinator House & Equipment	1	L.S.		440,000
4. Storage Tank (250 cu.m)	1	No.	1,100,000	1,100,000
Sub-Total of B				**3,630,000**
C. Transmission Main				
1. 160mm dia.	500	L.M.	1,120	560,000
Sub-Total of C				**560,000**
D. Distribution Main				
1. 160mm dia.	1,000	L.M.	1,120	1,120,000
2. 110mm dia.	3,000	L.M.	925	2,775,000
3. 90mm dia.	3,000	L.M.	580	1,740,000
4. 75mm dia.	5,000	L.M.	540	2,700,000
Sub-Total of D				**8,335,000**
E. Service Connections	**1,000**	**Nos.**	**1,940**	**1,940,000**
F. Miscellaneous				
1. Vehicle	1	No.	550,000	550,000
2. Office & Workshop Bldg.	1	No.	550,000	550,000
3. Office Equipment		L.S.		100,000
4. Tools and Spare Parts		L.S.		100,000
Sub-Total of F				**1,300,000**
Total Direct Cost (A+B+C+D+E+F)				**16,065,000**
G. Indirect Cost (25% of Direct Cost)		**L.S.**		**4,016,250**
Total Estimated Cost				**20,081,250**
Unit Cost per Person Served				
For New Construction				4,016
			Say	**4,000**
For Expansion of Existing System (Exclude F.)				3,691
			Say	**3,700**

Note: L.S. - Lump Sum

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.9 Unit Cost of Level III (10,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		300,000
B. Source Development and Storage				
1. Deep Well	1	No.	1,540,000	1,540,000
2. Deep Well Pump	1	No.	550,000	550,000
3. Chlorinator House & Equipment	1	L.S.		440,000
4. Storage Tank (250 cu.m)	1	No.	1,100,000	1,100,000
Sub-Total of B				**3,630,000**
C. Transmission Main				
1. 160mm dia.	500	L.M.	1,120	560,000
Sub-Total of C				**560,000**
D. Distribution Main				
1. 160mm dia.	2,000	L.M.	1,120	2,240,000
2. 110mm dia.	5,000	L.M.	925	4,625,000
3. 90mm dia.	6,000	L.M.	580	3,480,000
4. 75mm dia.	8,000	L.M.	540	4,320,000
Sub-Total of D				**14,665,000**
E. Service Connections	2,000	Nos.	1,940	3,880,000
F. Miscellaneous				
1. Vehicle	1	No.	550,000	550,000
2. Office & Workshop Bldg.	1	No.	550,000	550,000
3. Office Equipment		L.S.		100,000
4. Tools and Spare Parts		L.S.		100,000
Sub-Total of F				**1,300,000**
Total Direct Cost (A+B+C+D+E+F)				**24,335,000**
G. Indirect Cost (25% of Direct Cost)		L.S.		**6,083,750**
Total Estimated Cost				**30,418,750**
Unit Cost per Person Served				
For New Construction				3,042
			Say	**3,000**
For Expansion of Existing System (Exclude F.)				2,879
			Say	**2,900**

Note: L.S. - Lump Sum

Source: LWUA standard price in 1994

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.10 Unit Cost of Level III (15,000 Service Population)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization/Demobilization		L.S.		300,000
B. Source Development and Storage				
1. Deep Well	2	No.	1,540,000	3,080,000
2. Deep Well Pump	2	No.	550,000	1,100,000
3. Chlorinator House & Equipment	2	L.S.		440,000
4. Storage Tank (250 cu.m)	2	No.	1,100,000	2,200,000
Sub-Total of B				**6,820,000**
C. Transmission Main				
1. 160mm dia.	1,000	L.M.	1,120	1,120,000
Sub-Total of C				**1,120,000**
D. Distribution Main				
1. 160mm dia.	3,000	L.M.	1,120	3,360,000
2. 110mm dia.	7,000	L.M.	925	6,475,000
3. 90mm dia.	9,000	L.M.	580	5,220,000
4. 75mm dia.	11,000	L.M.	540	5,940,000
Sub-Total of D				**20,995,000**
E. Service Connections	3,000	Nos.	1,940	5,820,000
F. Miscellaneous				
1. Vehicle	1	No.	550,000	550,000
2. Office & Workshop Bldg.	1	No.	550,000	550,000
3. Office Equipment		L.S.		100,000
4. Tools and Spare Parts		L.S.		100,000
Sub-Total of F				**1,300,000**
Total Direct Cost (A+B+C+D+E+F)				**36,355,000**
G. Indirect Cost (25% of Direct Cost)		L.S.		**9,088,750**
Total Estimated Cost				**45,443,750**
Unit Cost per Person Served				
For New Construction				3,030
			Say	3,000
For Expansion of Existing System (Exclude F.)				2,921
			Say	2,900

Note: L.S. - Lump Sum
Source: LWUA standard price in 1994
Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.11 Unit Cost of Flush Water Sealed with Septic Tank Toilet

Sheet 1 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Demolition		**L.S.**		1,000
B. Earthwork				
1. Materials				
(1) Gravel Fill	1	cu.m.	385	385
Sub-Total of B-1				385
2. Labor				
(1) Excavation	6	cu.m.	119	714
(2) Backfill	2	cu.m.	108	216
(3) Gravel Fill	1	cu.m	141	141
Sub-Total of B-2				1,071
Sub-Total of B				**1,456**
C. Walls & Posts				
1. Materials				
(1) 0.15 x 0.20 x 0.40 Ord. CHB	180	pcs.	6	1,080
(2) Cement	17	bags	117	1,989
(3) Sand	2	cu.m	304	608
(4) Rebars: 12 mm dia. x 6.0 m	5	pcs.	68	340
10 mm dia. x 6.0 m	2	pcs.	49	98
(5) #16 Tie Wire	1	kg.	49	49
(6) Scaffolding:				
10-2" x 4" x 8" (Ord. Lumber)	53	bf.	32	1,696
Sub-Total of C-1				5,860
2. Labor (30% of C-1)		L.S.		1,758
Sub-Total of C				**7,618**
D. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (L=3.0 m)	3	bd.ft.	274	822
(2) GA #26 Plain GI Flushing	1	pc.	264	264
(3) GA # 24 Plain GI Gutter	1	pc.	264	264
(4) Roof Nails	2	kgs.	44	88
(5) Rafter - 2" x 5 x 10', 4 pcs.	33.33	bd.ft	32	1,067
(6) Purlins - 2" x 2" x 12', 3 pcs.	12	bd.ft	32	384
(7) Wood Cleats - 2" x 2" x 12', 1 pc.	3.33	bd.ft	32	107
(8) Nailers - 2" x 2" x 12', 5 pcs.	20	bd.ft	32	640
2" x 2" x 10', 5 pcs.	20	bd.ft	32	640
(9) Fascia Board - 1" x 12" x 18', 2 pcs.	36	bd.ft	32	1,152
(10) Common Wire Nails (Assorted)	3	kgs.	29	87
(11) Downspout (PVC)				
75 mm dia. x 3.0 m	2	pcs.	81	162
(12) Elbow (PVC) - 75 mm dia.	2	pcs.	15	30
(13) Coupling (PVC) - 75 mm dia.	1	pc.	14	14
Sub-Total of D-1				5,721
2. Labor (30% of D-1)		L.S.		1,716
Sub-Total of D				**7,437**

Table 10.2.11 Unit Cost of Flush Water Sealed with Septic Tank Toilet

Sheet 2 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
E. Plumbing				
1. Materials				
(1) Water Closet	1	set	2,000	2,000
(2) Water line and sanitary fixtures with septic tank		L.S.		6,192
Sub-Total of E-1				8,192
2. Labor (30% of E-1)		L.S.		2,458
Sub-Total of E				**10,650**
F. Carpentry Work				
1. Materials				
(1) Flush Type Door w/Lower Jambs	1	pc.	1,428	1,428
(2) Windows (wooden jalousy) w/Jambs	2	sets	298	596
Sub-Total of F-1				2,024
2. Labor (30% of E-1)		L.S.		607
Sub-Total of F				**2,631**
G. Freight Cost (12% of Materials for B-F excluding indigenous materials)		L.S.		2,100
H. Indirect Cost				
Profit (10% of A - G)		L.S.		3,289
VAT (14% of Profit & Labor)		L.S.		1,526
Sub-Total of H				**4,815**
Total of Construction Cost (A+B+C+D+E+F+G+H)			Say	37,707 **37,700**

Source: DOH standard price in1993.

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.12 Unit Cost of Pour Flush with Double Pit Latrine

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Earthwork				
1. Materials				
(1) Gravel Fill	1	cu.m.	385	385
Sub-Total of A-1				385
2. Labor				
(1) Excavation	6	cu.m.	119	714
(2) Backfill	2	cu.m.	108	216
(3) Gravel Fill	1	cu.m.	141	141
Sub-Total of A-2				1,071
Sub-Total of A				1,456
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 16 - 2" x 8" x 6' Coco Lumber	128	bd.ft.	8	1,024
(2) 10mm dia x 6.0m Rebar	3	pcs.	49	147
(3) #16 Tie Wire	0.5	kg.	49	25
(4) Cement	10	bags	117	1,170
(5) Sand	1.5	cu.m.	304	456
(6) Gravel	2	cu.m.	385	770
(7) Stone Lining with Mortar		L.S.	1,014	1,014
Sub-Total of B-1				4,606
2. Labor (25% of B-1)		L.S.		1,152
Sub-Total of B				5,758
C. Walls & Posts				
1. Materials				
(1) 4 - 4" x 4" x 10' Coco Lumber	53.33	bd.ft.	8	427
(2) 6 - 2" x 3" x 10' Coco Lumber	30	bd.ft.	8	240
(3) 8 - 2" x 3" x 8' Coco Lumber	32	bd.ft.	8	256
(4) 2.0 m x 5.0 m Sawali	2	rolls	357	714
(5) Assorted Nails	6	kgs.	29	174
(6) Bamboo Clips		L.S.	119	119
Sub-Total of C-1				1,930
2. Labor (25% of C-1)		L.S.		483
Sub-Total of C				2,413
D. Roofing Work				
1. Materials				
Rafters				
(1) 4 - 2" x 4" x 6' Coco Lumber	16	bd.ft.	8	128
(2) Bamboo Purlins		L.S.	119	119
(3) Nipa Roofing	2	100	238	476
Sub-Total of D-1		pcs./bandle		723
2. Labor (25% of D-1)		L.S.		181
Sub-Total of D				904
E. Plumbing				
1. Material				
(1) Toilet Bowl-Squat Type	1	pc.	547	547
(1) 75mm dia x 6.0m PVC Pipe	1	pc.	129	129
Sub-Total of E-1				676
2. Labor (25% of E-1)		L.S.		169
Sub-Total of E				845
F. Freight Cost (12% of Materials for B - E excluding indigenous materials)		L.S.		263
G. Indirect Cost				
Profit (10% of A - F)		L.S.		1,164
VAT (14% of Profit & Labor)		L.S.		591
Sub-Total of G				1,755
Total Construction Cost (A+B+C+D+E+F+G)			Say	13,394 13,400

Note: L.S. - Lump Sum

Source: DOH standard price in 1993.

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.13 Unit Cost of Ventilated Improved Pit Latrine (VIP)

(Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Earthwork				
1. Materials				
(1) Gravel Fill	0.5	cu.m	385	193
Sub-Total of A-1				193
2. Labor				
(1) Excavation	3	cu.m	119	357
(2) Backfill	1	cu.m	108	108
(3) Gravel Fill	0.5	cu.m	141	71
Sub-Total of A-2				536
Sub-Total of A				729
B. Concrete Work				
1. Materials				
Slab on wood planks				
(1) 8 - 2" x 8" x 6' Coco Lumber	64	bd.ft.	8	512
(2) 10mm dia x 6.0m Rebar	2	pcs.	49	98
(3) #16 Tie Wire	0.5	kg.	49	25
(4) Cement	4	bags	117	468
(5) Sand	0.5	cu.m	304	152
(6) Gravel	0.5	cu.m	385	193
(7) Stone Lining with Mortar		L.S.	1,014	1,014
Sub-total of B-1				2,462
2. Labor (25% of B-1)		L.S.		616
Sub-Total of B				3,078
C. Walls & Posts				
1. Materials				
(1) 4 - 4" x 4" x 10' Coco Lumber	53.33	bd.ft.	8	427
(2) 6 - 2" x 3" x 10' Coco Lumber	30	bd.ft.	8	240
(3) 8 - 2" x 3" x 8' Coco Lumber	32	bd.ft.	8	256
(4) 2.0 m x 5.0 m Sawali	2	rolls	357	714
(5) Assorted Nails	6	kgs.	29	174
(6) Bamboo Clips		L.S.	119	119
Sub-Total of C-1				1,930
2. Labor (25% of C-1)		L.S.		483
Sub-Total of C				2,413
D. Roofing Work				
1. Materials				
Rafters				
(1) 4 - 2" x 4" x 6' Coco Lumber	16	bd.ft.	8	128
(2) Bamboo Purlins		L.S.	119	119
(3) Nipa Roofing	2	100	238	476
Sub-Total of D-1		pcs./bundle		723
2. Labor (25% of D-1)		L.S.		181
Sub-Total of D				904
E. Plumbing				
1. Materials				
(1) 50mm dia PVC Pipe	1	pc.	65	65
(2) Fly Screen		L.S.	50	50
Sub-Total of E-1				115
2. Labor (25% of E-1)		L.S.		29
Sub-Total of E				144
F. Freight Cost (12% of Materials for B-E excluding sand and gravel)		**L.S.**		106
G. Indirect Cost				
Profit (10% of A - F)		L.S.		737
VAT (14% of Profit & Labor)		L.S.		286
Sub-Total of G				1,023
Total of Construction Cost (A+B+C+D+E+F+G)			Say	8,397 8,400

Note: L.S. - Lump Sum

Source: DOH standard price in 1993.

Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.14 Unit Cost of School Toilet

Sheet-1 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization and Demobilization		L.S.		5,300
B. Earthwork				
1. Materials				
(1) Gravel Fill	3.00	cu.m	385	1,155
Sub-Total of B-1				1,155
2. Labor				
(1) Excavation	15.88	cu.m	119	1,890
(2) Backfill	4.97	cu.m	108	537
(3) Gravel Fill	3.00	cu.m	141	423
Sub-Total of B-2				2,850
Sub-Total of B				**4,005**
C. Concrete Work				
1. Materials				
(1) Cement	61.00	bags	117	7,137
(2) Sand	4.00	cu.m	304	1,216
(3) Gravel	8.00	cu.m	385	3,080
(4) Rebars: 12mm dia x 6m	38.00	pcs.	68	2,584
10mm dia x 6m	57.00	pcs.	49	2,793
(5) #16 Tie Wire	8.00	kgs.	49	392
(6) Formworks:				
1/4" Plywood	6.00	pcs.	405	2,430
2"x2"x10" (Coco Lumber)	200.00	bd.ft.	8	1,600
Sub-Total of C-1				21,232
2. Labor (30% of C-1)		L.S.		6,370
Sub-Total of C				**27,602**
D. Masonry Work				
1. Materials				
(1) 6" CHB	800.00	pcs.	6	4,800
(2) 4" CHB	260.00	pcs.	5	1,300
(3) Cement	97.00	bags	117	11,349
(5) Sand	10.00	cu.m	304	3,040
(6) Rebars: 12mm dia x 6m	30.00	pcs.	68	2,040
10mm dia x 6m	11.00	pcs.	49	539
(7) #16 Tie Wire	4.00	kgs.	49	196
(8) Scaffolding:				
2"x4"x8" = 10 pcs. (Coco Lumber)	53.33	bf.	8	427
Sub-Total of D-1				23,691
2. Labor (30% of D-1)		L.S.		7,107
Sub-Total of D				**30,798**
E. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (1 = 10')	20.00	pcs.	274	5,480
(2) GA #24 Pln. GI Flashing	3.00	pcs.	264	792
(3) GA #24 Pln. GI Gutter (Pre-Fab)	9.00	pcs.	264	2,376
(4) Umbrella Nails 2 - 1/2"	12.00	kgs.	44	528
(5) Rafter - 2"x5"x18' = 5 pcs.	75.00	bf.	32	2,400
(6) Purlins - 2"x2"x12' = 18 pcs.	72.00	bf.	32	2,304
(7) WD Cleats - 2"x2"x10" = 6 pcs.	20.00	bf.	32	640

Table 10.2.14 Unit Cost of School Toilet

Sheet-2 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(8) Nailers - 2"x2"x1012' = 30 pcs.	120.00	bf.	32	3,840
- 2"x2"x10' = 36 pcs.	120.00	bf.	32	3,840
(9) Fascia Board				
1"x12"x12' = 4 pcs.	48.00	bf.	32	1,536
1"x12"x18' = 2 pcs.	36.00	bf.	32	1,152
(10) Wood Plate				
2"x4"x20' = 2 pcs.	26.66	bf.	32	853
(11) 1/4" Thk. Mar. Plywood 4'x8'	14.00	pcs.	29	406
(12) C.W.N. Assorted	15.00	kgs.	29	435
(13) 3" dia x 3m Downspout (PVC)	3.00	pcs.	81	242
(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.	26	69
(17) Screen (1/8"x1/8")	1.00	yd.	81	81
Sub-Total of E-1				27,018
2. Labor (30% of E-1)		L.S.		8,105
Sub-Total of E				**35,123**
F. Carpentry Work				
1. Materials				
(1) D - 1 Hollow Core Tanguile				
Flush Type Door w/ Louver (.80x2.20)	2.00	sets	1,428	2,856
(2) D - 2 Hollow Core Tanguile				
Flush Type Door (.60x2.10)	1.00	sets	1,071	1,071
(3) D - 3 Louver Door (.60x1.40)	5.00	sets	893	4,465
(4) Door Jambs (Apitong)				
2"x6"x14" = 1 pc.	14.00	bf.	32	448
2"x6"x10" = 2 pcs.	20.00	bf.	32	640
2"x6"x10" = 1 pc.	18.00	bf.	32	576
2"x4"x12" = 5 pcs.	40.00	bf.	32	1,280
(7) Wooden Jalousie Window				
With 5 Blades (.40x.50)	14.00	set	298	4,172
(8) Window Jambs (Apitong)				
2"x6"x16" = 5 pcs.	80.00	bf.	32	2,560
2"x6"x14" = 1 pc.	14.00	bf.	32	448
2"x6"x10" = 1 pc.	10.00	bf.	32	320
(9) Cabinet				
3/4"x4'x8' = 1 pc. (plyboard)	1.00	pc.	774	774
Sub-Total of F-1				19,610
2. Labor (30% of F-1)		L.S.		5,883
Sub-Total of F				**25,493**
G. Tile Work				
1. Materials				
(1) 4 - 1/4"x4 - 1/4" Glazed Tiles	1,950.00	pcs.	4	7,800
(2) 0.10x0.20m Floor Tiles	900.00	pcs.	7	6,300
(3) Cement	4.00	bags	117	468
(4) White Cement	1.00	bag	629	629
Sub-Total of G-1				15,197

Table 10.2.14 Unit Cost of School Toilet

Sheet-3 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
2. Labor (30% of G-1)		L.S.		4,559
Sub-Total of G				**19,756**
H. Plumbing Work				
1. Materials				
(1) Toilet Bowl - Squat Type	3.00	sets	596	1,788
(2) Toilet Bowl-Sit Type	2.00	sets	596	1,192
(3) Lavatory	2.00	sets	845	1,690
(4) 4" dia x 3m PVC San. Pipe	4.00	pcs.	149	596
(5) 3" dia x 3m PVC San. Pipe	7.00	pcs.	84	588
(6) 1 1/ 2" dia x 3m PVC San. Pipe	4.00	pcs.	53	212
(7) 2" dia. x 3m PVC San. Pipe	2.00	pcs.	50	100
(8) 6" x 4" Floor Drain	5.00	pcs.	84	420
(9) 2" dia. Elbow PVC	4.00	pcs.	7	28
(10) 4" dia WYB PVC	2.00	pcs.	25	50
(11) 4" dia. x 3" dia. WYB PVC	12.00	pcs.	30	360
(12) 4" dia. x 2" dia. TEE PVC	2.00	pcs.	31	62
(13) 4" dia. TEE PVC	3.00	pcs.	31	93
(14) 1 1/2" dia. WYB PVC	1.00	pcs.	12	12
(15) 4" dia. Clean Out PVC	3.00	pcs.	35	105
(16) 3" dia. Clean Out PVC	1.00	pcs.	28	28
(17) Faucet	3.00	pcs.	50	150
(18) 3" dia. x 2" dia. WYB PVC	2.00	pcs.	25	50
(19) 1 1/2" dia. Elbow PVC	6.00	pcs.	13	78
(20) PVC Cement	1.00	can	121	121
(21) 2" dia. PVC San. Pipe x 3m	2.00	pcs.	79	158
(22) 4" dia. x 2" dia. TEE	2.00	pcs.	21	42
(23) Check Valve 1 1/2"	1.00	pcs.	182	182
(24) 4" P-Trap	5.00	pcs.	66	330
Sub-Total of H-1				8,435
2. Labor (30% of H-1)		L.S.		2,531
Sub-Total of H				**10,966**
I. Painting				
1. Materials				
(1) Acrylic, Semi Gloss	8.00	gals.	261	2,088
(2) Concrete Sealer	4.00	gals.	206	824
(3) Acri Color: Wood	4.00	gals.	80	320
(4) Enamel, QDE	6.00	gals.	266	1,596
(5) Wood Putty	1.00	gals.	302	302
(6) Paint Thinner	1.00	gals.	60	60
(7) Tinting Color	4.00	pint	40	160
(8) Sand Paper (Assorted)	15.00	pcs.	7	105
(9) Misecellaneous		L.S.	1,000	0
(10) Roof Paint (green, ready-mix)	2.00	gals.	281	562
Sub-Total of I-1				6,017
2. Labor (30% of I-1)		L.S.		1,805
Sub-Total of I				**7,822**

Table 10.2.14 Unit Cost of School Toilet

Sheet-4 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
J. Electrical Work				
1. Materials				
(1) 40 Watts Flourescent Lamp	2.00	sets	255	510
(2) Elect. Wire TW #12	24.00	M	7	168
(3) Elect. Conduit - 1/2" dia x 10"	4.00	pcs.	78	312
(4) Entrance Cap. 1/2" dia	1.00	pc.	29	29
(5) Switch Outlet, Flush Type	2.00	pcs.	39	78
(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	490	490
(9) Electrical Tape	1.00	roll	22	22
Sub-Total of J-1				1,637
2. Labor (30% of J-1)		L.S.		491
Sub-Total of J				**2,128**
K. Hardware				
1. Materials				
(1) 3"x3" Butt Hinges (Loose Pin)	10.00	pcs.	15	150
(2) 4"x4" Butt Hinges (Loose Pin)	12.00	pcs.	18	216
(3) Door Lockset (Schlage US)	3.00	pcs.	454	1,362
(4) Barrel Bolt (4")	5.00	pcs.	40	200
(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	984	984
0.645x0.633 w/ L bar & flat bar	2.00	set	555	1,110
(7) Padlock	1.00	pcs.	378	378
Sub-Total of K-1				4,435
2. Labor (30% of K-1)		L.S.		1,331
Sub-Total of K				**5,766**
L. Septic Tank and Sewage Basin				
1. Materials				
(1) 4" CHB	180.00	pcs.	5	900
(2) Cement	18.00	bags	117	2,106
(3) Sand	1.50	cu.m	304	456
(4) Gravel	1.00	cu.m	385	385
(5) Rebars: 10mm dia x 6m	29.00	pcs.	68	1,972
(6) #16 Tire Wire	2.00	kgs.	49	98
(7) Formworks: Coco Lumber				
2"x3"x10' = 12 pcs.	60.00	bf.	8	480
1/4" plywood ord. 4'x8'	2.00	pcs.	405	810
C.W.N. (Assorted)	2.00	kgs.	29	58
Sub-Total of L-1				7,265
2. Labor (30% of L-1)		L.S.		2,180
Sub-Total of L				**9,445**

Table 10.2.14 Unit Cost of School Toilet

Sheet-5 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
M. Shallow Well (18 depth)				
a. Drilling of Well & Installation of Steel Casing/Screen				
1. Materials				
(1) 63mm x 6m PVC Pipe with socket	2.00	pcs.	813	1,626
(2) 63mm x 3m PVC Pipe with plug	1.00	pc.	410	410
(3) 63mm PVC Socket	1.00	pc.	90	90
(4) 63mm x 3m PVC Screen	1.00	pc.	1,300	1,300
Sub-Total of M-a-1				3,426
2. Labor, Fuel, Lubricant and others				
Well Drilling for 18m depth at 150mm borehole	18.00	m	520	9,360
Sub-Total of M-a				12,786
b. Well Development		L.S.		500
c. Gravel Packing, Installation of Hand-Pump and Construction of Platform				
1. Materials				
(1) 50mm Jetmatic Handpump	1.00	set	2,380	2,380
(2) 50mm x 1m GI Pipe (Sch. 40)	1.00	pc.	75	75
(3) #10 Sieved Gravel	0.10	cu.m	870	87
(4) Coarse Sand	0.07	cu.m	430	30
(5) Cement for Sanitary Seal	1.00	bag	117	117
(6) Pump Base and Platform				
1) Cement	4.00	bags	117	468
2) Gravel	1.00	cu.m	385	385
3) Sand	1.00	cu.m	304	304
4) Plywood (1,200mm x 2,400mm x 6mm)	1.00	pc.	405	405
5) Form Lumber (50mmx75mmx1,800mm)	1.00	pc.	45	45
6) Nail	1.00	kg.	29	29
Sub-Total of M-c-1				33,823
2. Labor (40% of M-c-1)		L.S.		13,529
Sub-Total of M-c				47,352
Sub-Total of M				60,638
N. Freight Cost (12% of Materials for A - M excluding sand and gravel)		**L.S.**		**19,536**
O. Indirect Cost				
Profit (10% of A - N)		L.S.		26,438
VAT (14% of Profit & Labor)		L.S.		11,645
Sub-Total of O				38,083
Total of Construction Cost (A to O)				302,461
P. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		2,000
2. Construction Supervision		L.S.		1,500
Sub-Total of P				3,500
GRAND TOTAL				305,961
			Say	306,000

Source: DOH standard price in 1993.
Unit Cost: Adjusted to 1995 Price Level.

Table 10.2.15 Unit Cost of Public Toilet

Sheet-1 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
A. Mobilization and Demobilization (2.4% of B - M)		L.S.		6,400
B. Earthwork				
1. Materials				
(1) Gravel Fill	3.00	cu.m	385	1,155
Sub-Total of B-1				1,155
2. Labor				
(1) Excavation	15.88	cu.m	119	1,890
(2) Backfill	4.97	cu.m	108	537
(3) Gravel Fill	3.00	cu.m	141	423
Sub-Total of B-2				2,850
Sub-Total of B				**4,005**
C. Concrete Work				
1. Materials				
(1) Cement	61.00	bags	117	7,137
(2) Sand	4.00	cu.m	304	1,216
(3) Gravel	8.00	cu.m	385	3,080
(4) Rebars: 12mm dia x 6m	38.00	pcs.	68	2,584
10mm dia x 6m	57.00	pcs.	48	2,736
(5) #16 Tie Wire	8.00	kgs.	48	384
(6) Formworks:				
1/4" Plywood	6.00	pcs.	405	2,430
2"x2"x10" (Coco Lumber)	200.00	bd.ft.	8	1,600
Sub-Total of C-1				21,167
2. Labor (30% of C-1)		L.S.		6,350
Sub-Total of C				**27,517**
D. Masonry Work				
1. Materials				
(1) 6" CHB	800.00	pcs.	6	4,800
(2) 4" CHB	260.00	pcs.	5	1,300
(3) Cement	97.00	bags	117	11,349
(5) Sand	10.00	cu.m	304	3,040
(6) Rebars: 12mm dia x 6m	30.00	pcs.	68	2,040
10mm dia x 6m	11.00	pcs.	49	539
(7) #16 Tie Wire	4.00	kgs.	49	196
(8) Scaffolding:				
2"x4"x8" = 10 pcs. (Coco Lumber)	53.33	bf.	8	427
Sub-Total of D-1				23,691
2. Labor (30% of D-1)		L.S.		7,107
Sub-Total of D				30,798
E. Roofing Work				
1. Materials				
(1) GA #26 Corr. GI (1 = 10')	20.00	pcs.	274	5,480
(2) GA #24 Pln. GI Flashing	3.00	pcs.	264	792
(3) GA #24 Pln. GI Gutter (Pre-Fab)	9.00	pcs.	264	2,376
(4) Umbrella Nails 2 - 1/2"	12.00	kgs.	44	528
(5) Rafter - 2"x5"x18' = 5 pcs.	75.00	bf.	32	2,400

Table 10.2.15 Unit Cost of Public Toilet

Sheet-2 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(6) Purlins - 2"x2"x12' = 18 pcs.	72.00	bf.	32	2,304
(7) WD Cleats - 2"x2"x10" = 6 pcs.	20.00	bf.	32	640
(8) Nailers - 2"x2"x1012' = 30 pcs.	120.00	bf.	32	3,840
- 2"x2"x10' = 36 pcs.	120.00	bf.	32	3,840
(9) Fascia Board				
1"x12"x12' = 4 pcs.	48.00	bf.	32	1,536
1"x12"x18' = 2 pcs.	36.00	bf.	32	1,152
(10) Wood Plate				
2"x4"x20' = 2 pcs.	26.66	bf.	32	853
(11) 1/4" Thk. Mar. Plywood 4'x8'	14.00	pcs.	452	6,328
(12) C.W.N. Assorted	15.00	kgs.	29	435
(13) 3" dia x 3m Downspout (PVC)	3.00	pcs.	81	243
(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.	26	69
(17) Screen (1/8"x1/8")	1.00	yd.	81	81
Sub-Total of E-1				32,941
2. Labor (30% of E-1)		L.S.		9,882
Sub-Total of E				**42,823**
F. Carpentry Work				
1. Materials				
(1) D - 1 Hollow Core Tanguile				
Flush Type Door w/ Louver (.80x2.20)	2.00	sets	1,428	2,856
(2) D - 2 Hollow Core Tanguile				
Flush Type Door (.60x2.10)	1.00	sets	1,071	1,071
(3) D - 3 Louver Door (.60x1.40)	5.00	sets	893	4,465
(4) Door Jambs (Apitong)				
2"x6"x14" = 1 pc.	14.00	bf.	32	448
2"x6"x10" = 2 pcs.	20.00	bf.	32	640
2"x6"x10" = 1 pc.	18.00	bf.	32	576
2"x4"x12" = 5 pcs.	40.00	bf.	32	1,280
(7) Wooden Jalousie Window				
With 5 Blades (.40x.50)	14.00	set	298	4,172
(8) Window Jambs (Apitong)				
2"x6"x16" = 5 pcs.	80.00	bf.	32	2,560
2"x6"x14" = 1 pc.	14.00	bf.	32	448
2"x6"x10" = 1 pc.	10.00	bf.	32	320
(9) Cabinet				
3/4"x4'x8' = 1 pc. (plyboard)	1.00	pc.	774	774
Sub-Total of F-1				19,610
2. Labor (30% of F-1)		L.S.		5,883
Sub-Total of F				**25,493**
G. Tile Work				
1. Materials				
(1) 4 - 1/4"x4 - 1/4" Glazed Tiles	1,950.00	pcs.	4	7,800
(2) 0.10x0.20m Floor Tiles	900.00	pcs.	7	6,300
(3) Cement	4.00	bags	117	468

Table 10.2.15 Unit Cost of Public Toilet

Sheet-3 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(4) White Cement	1.00	bag	629	629
(5) Tiles Fittings		L.S.	4,790	4,790
Sub-Total of G-1				19,987
2. Labor (30% of G-1)		L.S.		5,996
Sub-Total of G				**25,983**
H. Plumbing Work				
1. Materials				
(1) Urinal	3.00	sets	1,063	3,189
(2) Toilet Bowl - Squat Type	6.00	sets	596	3,576
(3) 4" dia x 3m PVC San. Pipe	6.00	pcs.	149	894
(4) 3" dia x 3m PVC San. Pipe	4.00	pcs.	84	336
(5) 2" dia x 3m PVC San. Pipe	3.00	pcs.	50	150
(6) 3/4" dia x 6m G.I. Pipe Sch. 40	5.00	pcs.	244	1,220
(7) 1/2" dia x 6m G.I. Pipe Sch. 40	1.00	pcs.	179	179
(8) 4"x4" WYE PVC	1.00	pcs.	25	25
(9) 3" dia Elbow PVC	10.00	pcs.	30	300
(10) 3" dia 45 degrees Bend PVC	2.00	pcs.	25	50
(11) 2" dia Elbow PVC	6.00	pcs.	7	42
(12) 2" dia 45 degrees Bend PVC	2.00	pcs.	20	40
(13) 1/2" dia Elbow G.I.	5.00	pcs.	10	50
(14) 4" dia 3" dia WYE PVC	8.00	pcs.	40	320
(15) 3/4" dia TEE G.I.	7.00	pcs.	40	280
(16) 1/2" dia TEE G.I.	5.00	pcs.	20	100
(17) 4" dia x 2" dia TEE PVC	6.00	pcs.	40	240
(18) 4" dia Clean Out PVC	3.00	pcs.	35	105
(19) 2" dia Clean Out PVC	1.00	pcs.	25	25
(20) Faucet	10.00	pcs.	50	500
(21) 3" dia x 2" dia Elbow Reducer PVC	1.00	pcs.	28	28
(22) 3" dia x 2" dia WYE PVC	3.00	pcs.	25	75
(23) 2" dia x 2" dia WYE PVC	3.00	pcs.	15	45
(24) PVC Cement	1.00	can	121	121
(25) 4" dia x 2" dia WYE PVC	2.00	pcs.	40	80
(26) Gate Valve 3/4" dia	1.00	pcs.	121	121
(27) Gate Valve 1/2" dia	1.00	pcs.	96	96
(28) Water Meter 3/4" dia	1.00	pcs.	1,261	1,261
(29) 3/4"dia x1/2"dia Elbow Reducer G.I.	1.00	pcs.	14	14
Sub-Total of H-1				13,462
2. Labor (30% of H-1)		L.S.		4,039
Sub-Total of H				**17,501**
I. Painting				
1. Materials				
(1) Acrylic, Semi Gloss	8.00	gals.	261	2,088
(2) Concrete Sealer	4.00	gals.	206	824
(3) Acri Color: Wood	4.00	gals.	80	320
(4) Enamel, QDE	6.00	gals.	266	1,596
(5) Wood Putty	1.00	gals.	302	302
(6) Paint Thinner	1.00	gals.	60	60

Table 10.2.15 Unit Cost of Public Toilet

Sheet-4 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(7) Tinting Color	4.00	pint	40	160
(8) Sand Paper (Assorted)	15.00	pcs.	7	105
(9) Misecellaneous		L.S.	1,005	0
(10) Roof Paint (green, ready-mix)	2.00	gals.	281	562
Sub-Total of I-1				6,017
2. Labor (30% of I-1)		L.S.		1,805
Sub-Total of I				**7,822**
J. Electrical Work				
1. Materials				
(1) 40 Watts Flourescent Lamp	2.00	sets	255	510
(2) Elect. Wire TW #12	24.00	M	7	168
(3) Elect. Conduit - 1/2" dia x 10"	4.00	pcs.	78	312
(4) Entrance Cap. 1/2" dia	1.00	pc.	29	29
(5) Switch Outlet, Flush Type	2.00	pcs.	39	78
(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	490	490
(9) Electrical Tape	1.00	roll	22	22
Sub-Total of J-1				1,637
2. Labor (30% of J-1)		L.S.		491
Sub-Total of J				**2,128**
K. Hardware				
1. Materials				
(1) 3"x3" Butt Hinges (Loose Pin)	10.00	pcs.	15	150
(2) 4"x4" Butt Hinges (Loose Pin)	12.00	pcs.	18	216
(3) Door Lockset (Schlage US)	3.00	pcs.	454	1,362
(4) Barrel Bolt (4")	5.00	pcs.	40	200
(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	984	984
(7) 0.645x0.633 w/ L bar & flat bar	2.00	set	555	1,110
(8) Padlock	1.00	pcs.	378	378
Sub-Total of K-1				4,435
2. Labor (30% of K-1)		L.S.		1,331
Sub-Total of K				**5,766**
L. Septic Tank and Sewage Basin				
1. Materials				
(1) 4" CHB	180.00	pcs.	5	900
(2) Cement	18.00	bags	117	2,106
(3) Sand	1.50	cu.m	304	456
(4) Gravel	1.00	cu.m	385	385
(5) Rebars: 10mm dia x 6m	29.00	pcs.	68	1,972
(6) #16 Tire Wire	2.00	kgs.	49	98

Table 10.2.15 Unit Cost of Public Toilet

Sheet-5 (Cost: Peso)

Description	Quantity	Unit	Unit Cost	Cost
(7) Formworks: Coco Lumber				
2"x3"x10' = 12 pcs.	60.00	bf.	8	480
1/4" plywood ord. 4'x8'	2.00	pcs.	405	810
C.W.N. (Assorted)	2.00	kgs.	29	58
Sub-Total of L-1				7,265
2. Labor (30% of L-1)		L.S.		2,180
Sub-Total of L				**9,445**
M. Concrete Water Tank (Elevated)				
1. Earth Work				
(1) Materials				
1) Gravel Fill	1.00	cu.m	385	385
Sub-Total of M-1 (1)				385
(2) Labor				
1) Excavation	14.70	cu.m	119	1,749
2) Backfill	13.08	cu.m	108	1,413
3) Gravel Fill	1.00	cu.m	141	141
Sub-Total of M-1 (2)				3,303
Sub-Total of M-1				3,688
2. Materials				
(1) Cement	62.00	bags	117	7,254
(2) Sand	4.50	cu.m	304	1,368
(3) Gravel	8.00	cu.m	385	3,080
(4) Rebars: 12mm dia x 6m	160.00	pcs.	49	7,840
(5) #16 Tie Wire	4.00	kgs.	49	196
(6) Formworks:				
1/4" plywood	12.00	pcs.	405	4,860
2"x3"x16' = 60 pcs.	480.00	bf.	8	3,840
(7) C.W.N. (Assorted)	5.00	kgs.	29	145
Sub-Total of M-2				39,647
3. Labor (30% of M-2)		L.S.		11,894
Sub-Total of M				**55,229**
N. Freight Cost (12% of Materials for A - M excluding sand and gravel)		**L.S.**		**21,268**
O. Indirect Cost				
Profit (10% of A - M)		L.S.		28,218
VAT (14% of Profit & Labor)		L.S.		12,786
Sub-Total of O				**41,004**
Total of Construction Cost (A to O)				**323,182**
P. Estimated Government Expenses				
1. Preliminary & Detailed Engineering Cost		L.S.		2,000
2. Construction Supervision		L.S.		1,500
Sub-Total of P				**3,500**
GRAND TOTAL				**326,682**
			Say	**326,700**

Source: DOH standard price in 1993.
Unit Cost: Adjusted to 1995 Price Level.

10.2.2 Unit Cost of Equipment

Unit cost (CIF Manila) of equipment was referred to the standard cost estimates of DPWH as follows.

(1) Medium size percussion drilling equipment

Type:

Truck-mounted cable percussion type

Rated drilling capacity:

150 m depth for ϕ250 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 10,280,000 per set

(2) 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 138,000 per set

(3) Service truck

Type:

Diesel engine driven 4 tons truck equipped with crane

Unit cost:

Peso 1,175,000 per unit

(4) Support vehicle

Type:

Diesel engine driven pick-up truck with electric winch

Unit cost:

Peso 500,000 per unit

(5) Refuse collection truck

Type:

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

Unit cost:

Peso 1,380,000 per unit including spare parts

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 (2000)

Unit: 1,000 Pesos

Municipalities	Urban Water Supply Level III	Rural Water Supply									Grand Total
		New System							Level I Rehabilitation	Total	
		Level II	Level I					Sub-Total			
			Deep Well		Shallow Wells	Spring Dev.					
			30 m	50 m	70 m						
Basco (Capital)	1,339	0	0	178	0	0	0	178	3	181	1,520
Itbayat	0	0	0	0	0	0	971	971	0	971	971
Ivana	0	0	0	0	0	0	121	121	0	121	121
Mahatao	326	208	0	0	0	0	0	0	0	208	534
Sabtang	1,043	0	0	1,246	0	0	0	1,246	24	1,270	2,313
Uyugan	0	0	0	0	0	0	121	121	0	121	121
Provincial Total	2,708	208	0	1,424	0	0	1,213	2,637	27	2,872	5,580

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

Unit: 1,000 Pesos

Municipalities	Urban Water Supply Level III	Rural Water Supply (Level I)							Total	Grand Total
		New System						Level I Rehabilitation		
		Deep Well			Shallow Wells	Spring Dev.	Sub-total			
		30 m	50 m	70 m						
Basco (Capital)	3,567	0	890	0	0	0	890	17	907	4,474
Itbayat	0	0	0	0	0	1,092	1,092	0	1,092	1,092
Ivana	0	0	0	0	0	364	364	0	364	364
Mahatao	274	0	712	0	0	0	712	14	726	1,000
Sabtang	1,032	0	356	0	0	0	356	7	363	1,395
Uyugan	0	0	0	0	0	364	364	0	364	364
Provincial Total	4,873	0	1,958	0	0	1,820	3,778	38	3,816	8,689

Table 10.3.3 Costs of Sanitation Facilities Required for Phase I (2000)

Unit: 1,000 Pesos

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	Total Public Investment Cost
	Flush	Pour Flush	VIP Latrine	Sub-total of Construction Cost	Sub-total of Public Investment Cost					Flush	Pour Flush	VIP Latrine	Sub-total of Construction Cost	Sub-total of Public Investment Cost			
Basco (Capital)	6,711	0	50	6,761	0	0	323	7,084	323	1,056	507	0	1,563	20	0	1,563	20
Itbayat	0	0	0	0	0	0	323	323	323	0	1,671	50	1,721	67	627	2,348	694
Ivana	0	0	0	0	0	0	323	323	323	716	96	8	820	4	0	820	4
Mahatao	452	0	17	469	0	0	0	469	0	980	0	59	1,039	0	0	1,039	0
Sabtang	1,508	356	0	1,864	14	0	0	1,864	14	0	644	0	644	26	0	644	26
Uyugan	0	0	0	0	0	0	0	0	0	829	0	25	854	0	0	854	0
Provincial Total	8,671	356	67	9,094	14	0	969	10,063	983	3,581	2,918	142	6,641	117	627	7,268	744

Table 10.3.4 Costs of Sanitation Facilities Required for Phase II (2010)

Unit: 1,000 Pesos

Municipality	Urban Sanitation									Urban Sewerage	Rural Sanitation							
	Household Toilets					Public School Toilets	Public Toilets	Total Construction Cost	Total Public Investment Cost		Household Toilets					Public School Toilets	Total Construction Cost	Total Public Investment Cost
	Flush	Pour Flush	VIP Latrine	Sub-total of Construction Cost	Sub-total of Public Investment Cost						Flush	Pour Flush	VIP Latrine	Sub-total of Construction Cost	Sub-total of Public Investment Cost			
Basco (Capital)	19,340	0	0	19,340	0	0	0	19,340	0	21,017	1,018	2,288	0	3,306	91	311	3,617	402
Itbayat	0	0	0	0	0	0	0	0	0	0	0	5,042	0	5,042	201	0	5,042	201
Ivana	0	0	0	0	0	0	0	0	0	0	641	1,466	0	2,107	59	0	2,107	59
Mahatao	1,772	0	0	1,772	0	0	323	2,095	323	0	716	1,589	0	2,305	63	0	2,305	63
Sabtang	3,959	0	0	3,959	0	0	323	4,282	323	0	0	1,411	0	1,411	56	0	1,411	56
Uyugan	0	0	0	0	0	0	323	323	323	0	603	1,274	0	1,877	51	0	1,877	51
Provincial Total	25,071	0	0	25,071	0	0	969	26,040	969	21,017	2,978	13,070	0	16,048	521	311	16,359	832

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 Transporation	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 Transporation	5
3.2 Food	15
3.3 Accommodation	12
3.4 Field	4
Total	100

11. FINANCIAL ARRANGEMENTS

11.3 Additional Funding Requirements

Percentages for Annual Investment

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

Table 11.3.1 Percentages for Annual Investment

Sub-Sector	Component	1996	1997	1998	1999	2000	Total
Urban Water Supply	Level III System						
	Feasibility Study and Detail Design	50	50	0	0	0	100
	Construction & Supervision	0	20	30	30	20	100
	Community Development & Training	30	20	20	20	10	100
Rural Water Supply	Level I Facility						
	Detail Design	50	50	0	0	0	100
	Construction & Supervision	12	22	22	22	22	100
	Community Development & Training	22	22	22	22	12	100
	Level II System						
	Detail Design	100	0	0	0	0	100
	Construction & Supervision	50	50	0	0	0	100
	Community Development & Training	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	12	22	22	22	22	100
	Community Development & Training	22	22	22	22	12	100

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

The Local Government Empowerment Fund (LGEF)

The Local Government Empowerment Fund (LGEF) will be established in 1996. Purposes, concept and mechanics of LGEF are discussed below.

(1) Purpose

1) To provide a mechanism for channeling grants and/or concessional loan funds to LGUs
2) To rationalize the allocation of funds to priority national projects in support of devolved activities of LGUs over and above their mandated IRA shares
3) To effect a more transparent presentation to fund allocations to LGUs in the budget

(2) Concept

1) The LGEF is an umbrella program fund in the GAA (General Appropriate Act) for national government projects being implemented by national government agencies with components supportive of devolved activities of LGUs.
2) Projects under the LGEF are to be supported wholly or partially by grants or highly concessional loans such as those from the ADF funds from ADB, which carry zero

interest and payable in 40 years. Highly concessional loan is defined as those loans with a grant element of no less than 75%.

3) Projects for inclusion in the LGEF will be basically those under the economic and health services sectors.

4) As a matter of strategy, to ensure sustainability of LGU support to the project, a "matching fund" of no less than 10% of the total project cost shall be required from the beneficiary LGU. "The matching fund" may be in cash or in-kind.

(3) Mechanics

1) Authorization of funds for the eligible projects will be made under the budgets of the implementing agencies following usual budgetary process, rules and regulations.

2) The LGEF like MDF (Municipal Development Fund) will be included as one of the items under Assistance to Local Government Units (ALGU) authorized in the GAA. It will likewise identity foreign assisted projects being implemented by national government agencies with components that are directly benefiting specific LGUs, such as the implementation of devolved activities. However, unlike the MDF, fund allocations for LGU projects under LGEF are not to be repaid and are to be treated as subsidies.

3) The LGEF will support programs/activities of the 19 priority provinces under the Social Reform Agenda (SRA) and/or those classified as 5th or 6th class LGUs.

Table 11.4.1 Comprehensive Investment Need Ranking of the Municipalities

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	Total Weighted Score	
Basco (Capital)	N.A.	1	2	3	0.30	0.20	0.20	0.20	0.08	0.05	0.05	0.05	0.23	3
Itbayat	N.A.	12	N.A.	10	N.A.	0.20	N.A.	0.20	N.A.	0.10	N.A.	0.10	0.20	4
Ivana	N.A.	3	N.A.	3	N.A.	0.20	N.A.	0.20	N.A.	0.10	N.A.	0.10	0.20	4
Mahatao	N.A.	3	1	5	0.56	0.20	0.20	0.20	0.14	0.05	0.05	0.05	0.29	2
Sabtang	N.A.	50	14	12	0.87	0.60	0.40	0.20	0.22	0.15	0.10	0.05	0.52	1
Uyugan	N.A.	0	N.A.	1	N.A.	0.20	N.A.	0.20	N.A.	0.10	N.A.	0.10	0.20	4
Provincial Total	N.A.	10	4	6										

Note:

(1) Scoring to Underserved and Unserved Percentage.

Score	Range of Underserved and Unserved Percentage		
1.0	61 < %	41 < %	61 < %
0.8	51 < % < 60	31 < % < 40	51 < % < 60
0.6	41 < % < 50	21 < % < 30	41 < % < 50
0.4	31 < % < 40	11 < % < 20	31 < % < 40
0.2	% < 30	% < 10	% < 30

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

0.25	0.25	0.25	0.25	Allocated Weight

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

Form P-1

Province of _____

Provincial Water & Sanitation Monitoring System

Annual Sector Performance Summary Report

Period Covered : _____ to _____

I. Service Coverage

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

II. Sources & Uses of Capital Development Funds

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

III. School Sanitation (Source, DECS)

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

IV. Incidence of Diarrhea (Source IPHO)

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

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

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

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

Form M - 1

Municipality of _____

Provincial Water & Sanitation Monitoring System

Annual Sector Performance Summary Report

Period Covered : _____ to _____

I. Service Coverage

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

II. Sources & Uses of Capital Development Funds.

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

DATA REPORT

DATA REPORT

1. INTRODUCTION

1.3 The Provincial Plan for the Province of Batanes

1.3.2 Outline of the Report

Table 1.3.1 List of the Report/Data/Information/Materials Collected (1/2)

No.	Title	Year	Prepared by	Related Subjects						Remarks
				WS	HD	SE	CD	SE	O	
	LAWS AND REGULATIONS									
1	The Local Government Code of 1991	1991	Congress of the Phil.				x			
2	The Code of Sanitation of the Philippines Presidential Decree No. 856	1976	DOH			x				
3	National Handbook on Land and Other Water Resources	Jul-91	NLUC,NEDA					x		
	STATISTICS - National Level									
1	1991 Family Income and Expenditures Survey of Households Bulletin Series 72	1991	NSO					x		
2	1992 Philippine Statistical Yearbook	Oct-92	NSCB			x		x		
3	1992 Philippine Yearbook.	Dec-92	NSO					x		
4	National Health Survey	1992	DOH			x				
	STATISTICS - Provincial Level									
1	1990 Census of Population and Housing Report No. 3-64 D: Socio-Economic and Demographic	1990								
	Characteristics of Batanes									
2	Socio-Economic Profile Province of Batanes									
	NATIONAL DEVELOPMENT PLAN/ SECTOR PLAN									
1	Water Supply, Sewerage and Sanitation Master Plan of the Philippines 1988-2000.	1988	NEDA	x	x	x				
2	National Physical Framework Plan 1993-2022.	Oct-92	Nat'l. Land Use Com.					x		
3	Philippines : Water Supply Sector Reform Study.	Aug-93	WORLD BANK	x	x	x				Working Papers
4	Philippine Development Report 1987-1992	1993	NEDA					x		
5	Project Benefit Monitoring and Evaluation (PBME).	Oct-93	NJS/Basic Team				x			Final Report
6	Study for the Groundwater Development in Manila Volume 2.	Jun-92	JICA							Main Report
7	First Water Supply, Sewerage and Sanitation Sector Project BWSA Package Phase I & II.	Mar-93	DILG-PMO				x			Training Manual 2nd Edition
8	The Special Assistance for Project Sustainability Program for Rural Water Supply Project.	Mar-92	OECF	x						Final Report (Main Report)
9	BWSA Primer English Version.	Sep-92	DILG,DPWH,DOH				x			Second Edition
10	Database Application for Provincial Water Supply, Sewerage & Sanitation Sector Plan.	Apr-93	WORLD BANK						x	Mission Report
11	Skills Training for Sanitary Engineers	Sep-92				x				Training Manual 1st Edition
12	National Strategy and Action Plan Philippine National Urban Sewerage and Sanitation Strategy and	May-93	World Bank Proj.			x				
	Feasibility Studies Project.		Loan 3242-DH							
13	PAG-ASA Climatological Data				x					
14	Sanitation and Water Supply : Practical Lessons from the Decade.	1992	Sandy Cairncross			x	x			Discussion Paper Series
15	Community Water Supply and Sanitation	1989	WHO			x	x			

List of the Report/Data/Information/Materials Collected (2/2)

No.	Title	Year	Prepared by	Related Subjects						Remarks
				WS	HD	SE	CD	SE	O	
17	Guidelines for Planning Community Participation in Water Supply & Sanitation Projects.		Anne Whyle				x			
18	Participatory Evaluation : Tools for Managing Change in Water and Sanitation.	Feb-93	Deepa Narayan				x			
19	Community Participation and Hygiene Education on Water Supply and Sanitation (CPHE).	Oct-89	Technical Coop.				x			
21	Geological Maps of the Phils.		BMGS		x					
23	Philippine Atmospheric, Geo-Physical and Astronomical Services Admin. Data.		PAG-ASA		x					
24	Philippine Water Resources Summary Data. Vol-I Stream Flow and Lake or River Stage.		Bureau of Research		x					
25	Hydrogeology of Central Luzon	Aug-70	BM,Sandoval & Mamaril		x					
	PROVINCIAL SECTOR PLAN/DEVELOPMENT PROGRAM									
1	Batanes 2000 - Development Master Plan		PPDO					x		
2	Provincial Profile	1988	PPDO					x		
3	Provincial Annual Report	1994	PPDO	x				x		
4	NSO Report No. 3		NSO					x		
5	Municipal Annual Report - Municipality of Basco	1994	MPDO					x		
6	Municipal Annual Report - Municipality of Ivana	1994	MPDO					x		
7	Administrative Map (1:150,000) for the Province of Batanes		NAMRIA		x					
8	Topographic Map (1:50,000) for the Province of Batanes		NAMRIA		x					
9	Rapid Assessment of Water Supply Sources for the Province of Batanes		NWRB		x					
10	Groundwater Resources Investigation for the Province of Batanes		NWRB		x					
11	Geology and Mineral Resources of the Philippines		BMGS		x					
12	Geological Map of the Philippines (1:1,000,000)		BMGS		x					
13	Reconnaisance Hydrogeological Survey of the Province of Batanes		BMGS		x					
14	Philippine Water Resources Summary Data - Batanes		DPWH/BRS		x					
	OTHER REFERENCES									
1	Microsoft Windows Version 3.1	1992	Microsoft Corporation						x	User's Manual
2	Microsoft Excel Version 5.0	1994	Microsoft Corporation						x	User's Manual
3	Microsoft Word Version 6.0	1994	Microsoft Corporation						x	User's Manual

Related Subject : WS Water Supply HD Hydrogeology, SE Sanitation and Environment, CD Community Development, SE Socio-Economy, O Others

Table 1.4.1 List of Persons and Institutions Who Participated in the Preparation of PW4SP

Name	Position	Office
Provincial Sector Planning Team:		
1. Mr. Rolando Ventolero	Provincial Planning & Dev't. Officer	Provincial Planning & Dev't. Office
2. Mr. Carlos Falces	Asst. Provincial Engineer	Provincial Engineer's Office
3. Ms. Marissa Antonio	Planning Development Officer I	Provincial Planning & Dev't. Office
4. Mr. Jomas Fernandez	Statistician I	- do -
5. Mr. Godofredo Fabi	Prov'l. Local Gov't. Operation Officer	DILG
6. Mr. Felipe Cablay	Provincial Health Officer	Provincial Health Office
7. Mr. Ireneo Geronimo	Computer Encoder	Provincial Planning & Dev't. Office
Water Supply and Sanitation - Project Management Office:		
1. Mr. Orville M. Roque	Program Manager	WSS-PMO, DILG
2. Ms. Ellen I. Pascua	Asst. Program Manager	- do -
3. Mr. Rogelio B. Ocampo	Chief, Planning Division	- do -
4. Mr. Mario V. De Dios	Development Management Officer V	- do -
5. Ms. Fe Crisilla M. Banluta	PW4SP Project Officer	- do -
6. Ms. Lina L. Griego	Coordinator	- do -

2. PLANNING APPROACH FOR FUTURE SECTOR DEVELOPMENT

2.6 Planning Principles and Data Management

2.6.1 Planning Principles

Table 2.6.1 Guideline for Preparation of PW4SP

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures		
		Main Report	Supporting Report	Data Report
1. INTRODUCTION				
1.1 Sector Development in the Philippines	Nationwide sector development			
1.2 Provincial Sector Planning	Outline of provincial sector planning			
1.2.1 Objectives of Sector Planning				
1.2.2 Scope of Sector Planning				
1.2.3 Financing of Sector Plan				
1.3 The Provincial Plan for the Province		F1.3.1 Flow Diagram of Sector Planning	F1.3.1 Organization Chart for Implementation of PW4SP	
1.3.1 Preparation of the Plan				*1.3.1 List of Report/Data/ Information/Materials Collected
1.3.2 Outline of the Report				
1.4 Acknowledgments				
2. PLANNING APPROACH FOR FUTURE SECTOR DEVELOPMENT				
2.1 General				
2.2 Planning Framework	- Sector Arrangements with Reference to National Master Plan and Medium-Term Development Plan	T2.2.1 National Sector Coverage Targets		

* Questionnaire form Table - T; Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures				
		Main Report		Supporting Report		Data Report
2.3 Sector Objectives	- Water Supply Coverage - Sanitation and Sewerage Coverage					
2.4 Current Sector Policies and Strategies	- Self-Reliance - Integrated Approach - Cost Recovery - Sustainability - Private Sector Participation - Water Resources Management					
2.5 Major Legislation and Regulations Affecting the Sector	- Local Government Code - Water Code of the Philippines - Philippine Environmental Code - National Drinking Water Standards - Plumbing Code of the Philippines - Code on Sanitation - National Building Code					
2.6 Planning Principles and Data Management	- Constraints and required arrangements to undertake planning work - Data storage processing and retrieval	F2.6.1	Institutional Hierarchical System of the Philippines	T2.6.1	Data File Linkages	
2.6.1 Planning Principles		F2.6.2	Structure of Questionnaire	T2.6.2	Key Parameter	
2.6.2 Data Management				T2.6.3	Composition of Well Sources and Specific Capacity	
				T2.6.4	Annual Distribution of Investment Cost Required by Sub-sector for Medium-term Development Plan	
				T2.6.5	Level I Safe & Unsafe Percentage	
				T2.6.7	Scoring Factor for Municipal Investment Ranking for Urban Water Supply	
				T2.6.8	Scoring Factor for Municipal Comprehensive Investment Ranking	

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents		Contents	Tables & Figures					
			Main Report		Supporting Report		Data Report	
3.	PROVINCIAL PROFILE							
3.1	General	- Location of Province - Administrative composition	F3.1.1 T3.1.1	Location Map Outline of City/ Municipalities				
3.2	Natural Conditions and Geographical Features						T3.2.1	Flow Data of Major Rivers
3.2.1	Meteorology	- Classification of climate by type and its characteristics - Average rainfall, temperature and wind direction						
3.2.2	Land Use	- Current land use	T3.2.1	Current Land Use				
3.2.3	Topography and Drainage	- Topographical characteristics of the province: mountains, major rivers and its flow rates, and water quality of typical rivers	F3.2.1 T3.2.2	Major River Networks Drainage Areas and Flow Rates of Major Rivers				
3.3	Socio-economic Conditions							
3.3.1	Economic Activities and Household Income	(1) Brief description on major economic activities (2) Discussion on (a) household income level and (b) occupation	F3.3.1 F3.3.2	Distribution of Households by Income Class Population Distribution by Occupation	T3.3.1 T3.3.2	Distribution of Households by Income Class Gainful Workers by Occupation Group and Major Industry Group	T3.3.1	Number of Elementary School, High School and Other Served Facilities
3.3.3	Basic Infrastructure	(1) Description on current basic infrastructure in the province (roads, electricity, telecom, postal services, transportation, banking facilities, tourism facilities, schools, etc.)	T3.3.1 T3.3.2	Provincial Outline on Public Services Public Facilities and Services by Municipality				

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures					
		Main Report		Supporting Report		Data Report	
	(2) Discussion on public facilities and services (schools, public markets, banks and hospitals) by municipality						
3.3.3 Education	Description on (a) education levels and (b) literacy level	F3.3.3	Population Distribution by Highest Attainment of Education	T3.3.3	Household Population by Highest Educational Attainment		
3.4 Population							
3.4.1 Previous Population Development	(1) Population data of NSO for the census periods from 1960 to 1990 together with projected (1995) population	T3.4.1	Previous Population Development by Municipality				
	(2) Special issues, if any, which affected the present population of the province, i.e., special development and those of Mt. Pinatubo eruption in 1991	F3.4.1	Previous Population Development of the Province				
3.4.2 Classification of Urban and Rural Areas	(1) Urban and rural areas classified at barangay level based on the definition of NSO	F3.4.2	Present Population Distribution	F3.4.1	Distribution of Urban and Rural Areas		
	(2) Re-classification of urban and rural areas based on actual condition by PSPT	T3.4.2	Outline of Urban and Rural Areas in the Province				
3.4.3 Present Population Distribution	(1) No. of barangays, households & population, household size by urban and rural area	T3.4.3	Household Numbers and Household Sizes				
3.5 Health Status							
3.5.1 Morbidity, Mortality and Infant Mortality	- Ten leading causes of morbidity, mortality and infant mortality and comparison with national level - Identification and rank of diseases related to water among the 10 leading causes	T3.5.1	Number and Rates of Ten Leading Causes of Morbidity, Mortality and Infant Mortality			T3.5.1	Morbidity, Mortality and Infant Mortality by Municipality (Annual Incidence per 100,000 Persons)

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures					
		Main Report		Supporting Report		Data Report	
3.5.2 Water Related Diseases	- Classification of water-borne, based, washed, vector related diseases - Enumeration of water related diseases and their incidence - Discussion on the health implications of sanitation	T3.5.2	Reported Cases and Deaths of Notifiable Water Related Diseases, (Year)				
3.5.3 Health Facilities and Practitioners	- No. of medical facilities and practitioners, its ratio to population and comparison with national level			T3.5.1	Number and Ratio to Population of Health Facilities and Medical Practitioners	T3.5.2	Number of Health Facilities and Practitioners by Municipality
3.6 Environmental Conditions							
3.6.1 General	- Scope of the subject limited to the sector						
3.6.2 Water Pollution	- Evaluation of existing drainage system, its function as a disposal point of domestic wastewater - Evaluation of industrial wastewater discharge - Existing classification of rivers in terms of water quality and extent of water pollution of water bodies			T3.6.1	DENR Water Quality Criteria/Water Usage and Classification for Fresh Water	T3.6.1	Municipal Solid Waste Collection and Disposal by Municipality
3.6.3 Solid Waste Disposal	- Evaluation of solid waste collection and disposal	T3.6.1	Municipal Solid Waste Collection and Disposal, and Service Coverage				
4. EXISTING FACILITIES AND SERVICE COVERAGE							
4.1 Water Supply				T4.1.1	Details on Existing Level III Systems		
4.1.1 General	(1) Types and composition of existing water supply facilities by service level						

* Questionnaire form

Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures					
		Main Report		Supporting Report		Data Report	
	(2) Survey results complied from questionnaire by service level shall be arranged to urban and rural areas at municipal level			T4.1.2	Existing Level II Systems		
	(3) Service coverage shall be counted as percentage of population served by the existing facilities. Further classification by safe and unsafe sources together with adequacy of service are incorporated in the service coverage						
4.1.2 Types of Facilities and Definition of Service Level Standard	(1) Adequacy of service defined by DOH	T4.1.1	Composition of Water System/Facility by Service Level				
4.1.3 Level III Systems	(1) Description of existing Level III system: - No. of WD & Level III (being operated by LGUs) - Type of major water sources - Range of water consumption	T4.1.2	Information on Existing Level III Systems			T4.1.3	List of Subdivisions by Municipality
		T4.1.3	Information on Water Districts				
	(2) Operating conditions of WDs: - Range of service (No. of connection) - Range of charge collection efficiency						
4.1.4 Level II Systems	(1) Description of existing Level II system - No. of operating Level II systems - Type of major water source - Range of household coverage	T4.1.4	Information on Existing Level II Systems				
	(2) Operating conditions: - Water supply interruption - Water quality - Collection efficiency						

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents		Contents	Tables & Figures: Main Report		Tables & Figures: Supporting Report		Tables & Figures: Data Report
4.1.5	Level I Facilities	(1) Description of existing Level I facilities: - No. of operational and non-operational facilities - Safe and unsafe sources - Ownership by public and private (2) Problem areas: - Needs for rehabilitation and replacement of existing facilities	T4.1.5	Information on Existing Level I Facilities	T4.1.3	Percentage of Unsafe Water Sources by IPHO	
			T4.1.6	Operating Status of Existing Wells in the Province	T4.1.4	No. of Level I Facilities by Safe and Unsafe Classification	
					T4.1.5	Estimation of Unserved Population by Municipality	
4.1.6	Water Supply Service Coverage	(1) Criteria of adequate service based on the national standard (2) Service coverage (percent of population served by safe sources) in urban and rural areas by municipality (3) On-going projects by municipality	T4.1.7	Water Supply Service Coverage by Municipality	T4.1.6	Estimation of Population Covered by Safe and Unsafe Source by Municipality	
			F4.1.1	Water Supply Coverage of the Province			
			F4.1.2	Existing Water Supply Service Covrage Map			
4.2	Sanitation and Sewerage						
4.2.1	General	- Brief discussion of government policies/ guidelines on sanitation and sewerage as spelled out in the Code of Sanitation and NUSSMP - Coverage of the PW4SP (HH, school toilets and public toilets)					
4.2.2	Types of Facilities and Definition of Service Level Standard	- DOH/DECS classification by service level - Types of toilet facilities considered as sanitary and unsanitary in this sector plan - Definition of served and underserved/ unserved			F4.2.1	Standard Structure of Private Toilet Facility	
					F4.2.2	Standard Structure of School Toilet Facility	

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures					
		Main Report		Supporting Report		Data Report	
4.2.3 Sanitation Facilities and Service Coverage							
(1) Household Toilets	- No. of Households with sanitary toilet facilities and underserved, by municipality - Service coverage (percent of household with sanitary toilet facilities and underserved/unserved in urban and rural area, by municipality	T4.2.1	Sanitation Facilities and Service Coverage of Household Toilets, Urban and Rural, 1994	T4.2.1	Sanitation Facilities and Service Coverage of Household Toilets, by Type, by Municipality, Urban and Rural, 1994		
		F4.2.1	Provincial Service Coverage of Household Toilet Facilities, 1994				
		F4.2.2	Existing Household Toilets Service Coverage Map				
(2) School and Public Toilets	- No. of School and public toilets by municipality	T4.2.2	School Toilet Facilities and Service Coverage in 1994				
	- Service coverage (percent of students adequately served by sanitary facilities and percent of public utilities with sanitary facilities)	T4.2.3	Public Toilet Facilities and Service Coverage in 1994				
(3) On-going Projects	- On-going projects by municipality (service coverage)						
(4) Problem Areas	- Common problems encountered with regards to physical and social standpoints						
4.2.4 Sewerage Facilities	- Presence/absence of sewerage facilities. If none, description of existing condition on sewage disposal - If present, description of sewerage system						

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures		
		Main Report	Supporting Report	Data Report
5. EXISTING SECTOR ARRANGEMENTS AND INSTITUTIONAL CAPACITY				
5.1 General				
5.2 Sector Reforms	- NEDA Board Resolution No. 4 - NEDA Board Resolution No. 5			
5.3 Sector Institutions	- Existing Institutional Arrangements - Sector Financing	F5.3.1 Functional Relationships		
5.4 Sector Agencies at the National Level	(To be discussed for each of the major agencies)			
(1) DILG	- Existing mechanisms and processes to deliver or support services to provinces, municipalities and barangays (financial, technical and institutional) - Mechanisms for coordination and collaboration with LGUs - Existing capacity of national agency to implement sector projects (technical, financial, institutional) - Actual programs being implemented by national sector agencies focusing on transfer of appropriate technologies and approaches - Actual experiences and practices of national agency in project implementation - Problem areas			
(2) LWUA				
(3) DPWH				
(4) DOH				
(5) Other Agencies (NEDA, DOF, NWRB, DBM, DENR, DECS, MWSS)				

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures		
		Main Report	Supporting Report	Data Report
5.5 Sector Agencies at the Local Level (1) Provincial Level - PPDO - PEO - PHO (2) Municipal and Barangay Levels - MDO - MEO - Barangay Councils - RHU/BHS (3) Field Offices of Central Sector Agencies - DPWH DEO - DILG P/MLGOO - NEDA RO and RDC (4) Water Districts (5) RWSAs (6) BWSAs (7) Others (including CBOs)	(To be discussed for each of the agencies) - General description of mandate and responsibility - Present capacity of local agency to undertake: the LGU level within the sector * Project identification and priority-setting * Establishment of community-based organization * Project preparation and planning * Project implementation * Operation and maintenance * Monitoring and evaluation - Financial resources (Refer to Chap 6) - Actual experiences and practices of local agencies on project implementation - Mechanism for coordination and collaboration level among local offices to implement, coordinate and monitoring of program activities - Extent of private sector participation - Linkage with national government agencies		F5.5.1 Organization Chart of the PPDO F5.5.2 Organization Chart of PEO F5.5.3 Organization Chart of PHO	
5.6 External Support Agencies Active in the Sector (1) Multilateral Agencies	- The World Bank (IBRD) - The Asian Development Bank (ADB) - The United Nations Development Program and the United Nations Children's Fund (UNICEF)			

* Questionnaire form

Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures		
		Main Report	Supporting Report	Data Report
(2) Bilateral Agencies	- The Japan International Cooperation Agency (JICA) - The Overseas Economic Cooperation Fund (OECF) - The Australian International Development Assistance Bureau (AIDAB) - The Danish International Agency (DANIDA) - KfW - The Royal Government of the Netherlands			
(3) NGOs and Private Sector				
5.7 Current Community Development and Training Approaches				
5.7.1 Community Development	- Existing CD approaches to promote participation of local beneficiaries - Experiences/practices on participation of project beneficiaries - Financial contributions from beneficiaries - Strategies for targeting involvement of women - Organization and training of beneficiaries			
5.7.2 Human Resources Development & Training	- Staffing situation (quality and quantity) - Existing training programs of sector agencies and mechanisms for implementation (technical and management training) - Access to technical information - Available training and information materials * Types and contents * Mode of dissemination			

* Questionnaire form

Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures		
		Main Report	Supporting Report	Data Report
	- Actual experiences and practices of sector agencies			
5.7.3 Sanitation/Hygiene Education	- Existing health/hygiene education programs of sector agencies and mechanisms for implementation * DOH (Implementing program on Public Toilets) * DECS (Implementing program on School Toilets) - Mechanisms and resources for mass dissemination of information and other social marketing programs - Hygiene educational materials available * Types and content * Mode of dissemination			
	- Actual experiences and practices of sector agencies (national-and local-level)			
5.8 Existing Sector Monitoring				
(1) National Level (2) Local Level				
6. PAST FINANCIAL PERFORMANCE IN WATER SUPPLY AND SANITATION				
6.1 General	- Basic idea and brief contents of this chapter			
6.2 Past Public Investment				

* Questionnaire form

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents		Contents	Tables & Figures				Data Report
			Main Report		Supporting Report		
6.2.1	Past Public Investment by the Central Government Agencies and LGUs	(1) Study on the previous public investment to the province by concerned agencies	T6.2.1	Previous Sector Investment to the Province by Concerned Agency	T6.2.1	Past Internal Revenue Allotment to Municipalities from Central Government	
6.2.2	Sources of Local Fund	(2) Role of past IRA in the provincial finance (profile of sector investment to allotted IRA in the province)	T6.2.2	Past Internal Revenue Allotment to the Province from Central Government			
6.3	Cost Recovery	- Study on cost recovery in water supply by service level and sanitation (WD, RWSA and BWSA)					
6.4	Affordability	- Affordability of water rates by service level and sanitation costs by users in comparison with income level	T6.4.1	Affordability in Water and Sanitation Services			
6.5	Past Financial Performance of WDs and RWSAs/BWSAs	- Study on past financial performance of WDs RWSAs/BWSAs	T6.5.1	Financial Indicators of Water Districts			
			T6.5.2	Loan Status of Water Districts			
7.	WATER SOURCE DEVELOPMENT						
7.1	General						
	(1) Approach and Outputs	- Available water sources and their application to suit the locality - Study approach with justification focusing on groundwater - Water Availability Map & standard well specification					

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures					
		Main Report		Supporting Report		Data Report	
(2) Basic Data/Report with Conditions	- Major reports and hydrogeological maps used as basis of the study (with conditions and limitations) - Effective data to supplement the base materials						
(3) Utilization and Up-dating	- Manner of out-put in PW4SP - Updating methods clarifying what factors can be modified and updated						
(4) Existing Water Sources in the Province	- Description of existing water sources in the province	T7.1.1	Existing Groundwater Sources in the Province			T7.1.1	Water Source Information
7.2 Geology	- Classification of geologic rock units (3 types: Recent, Pliocene to Pleistocene, Pleistocene and Old rock units) - Distribution of each rock units and their proportion by municipality - Hydrogeolocial characteristics of each units	F7.2.1	Geological Map				
7.3 Groundwater Sources						T7.3.1	Well Inventory by Municipality
7.3.1 Classification of Ground-water Sources	- Definition and classification of groundwater sources - shallow well area (with high yield area) - deep well area (with high yield area) - difficult area	F7.3.1	Groundwater Availability Map				
7.3.2 Groundwater Availability in the Province				F7.3.1	Work Flow of Groundwater Availability Map		
(1) Shallow Well Area	- Shallow well distribution						

* Questionnaire form Table - T, Figure - F

COMPOSITION OF FIGURES AND TABLES BY CHAPTER/SECTION

Table of Contents	Contents	Tables & Figures				
		Main Report	Supporting Report		Data Report	
	- Technical information of shallow well (Depth, SWL, SPC-CP)		F7.3.2	Groundwater Potential Area in the Province		
(2) Deep Well Area	- Deep well distribution - Technical information of deep well (Depth, SWL, SPC-CP)		F7.3.3	Potential Areas of High Yielding and With Salt Intrusion Problem		
(3) Difficult Area	- Distribution and proportion of difficult areas - Geological & Topographical characteristics of the area		F7.3.4	Area Category in Ground-water Utilization		
(4) Water Quality of Groundwater	- Possible area of salt water intrusion - Iron & Manganese problem area					
7.4 Spring Sources	- Distribution of spring sources - Technical information		T7.4.1	Existing Spring Sources by Municipality		
7.5 Surface Water Sources	- Major rivers in the province - Typical feature of the river both in quality and flow		F7.5.1	Study River Basin and Water Sampling Points		
			T7.5.1	River Information and Related Data	T7.5.1	Water Quality Examination Results
			T7.5.2	Water Quality Analysis Results		
7.6 Future Development Potential of Water Sources	- Potential water sources in each municipality (especially for rural area) with standard specifications by well type (shallow well, deep well, and spring)		T7.6.1	Existing Well Sources	F7.6.1	Individual Well Location and Specifications Map
			T7.6.2	Standard Specifications of Wells by Municipality		

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8. FUTURE REQUIREMENTS IN WATER SUPPLY AND SANITATION IMPROVEMENT				
8.1 General	(1) Physical targets - Provincial sector targets in context of the National Sector Master Plan and the National Medium-Term Development Plan - Population to be served by target year based on the NSO population projection and broken down to urban and rural areas at municipal level by sub-sector - Public school students to be served by target year based on projected school enrollment at municipal level - Projected number of public utilities by target year at municipal level (2) Physical requirements - Required facilities classified by urban and rural areas by sub-sector with implementation criteria - Equipment for construction, rehabilitation and O&M be identified (3) Identification of priority projects - Criteria for identifying priority projects - Priority projects by sub-sector			

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8.2 Targets of Provincial Sector Plan	(1) Percentages of beneficiaries or utilities to be served as target indicator	T8.2.1	Provincial Sector Targets	T8.2.1	Estimation of Base Year Service Coverage of Water Supply	
	(2) Setting up of provincial sector targets by sub-sector - Water supply - Sanitation - Sewerage - Solid waste	T8.2.2	Base Year Service Coverage of Water Supply	T8.2.2	Population Coverage in Phase I Provided by Served Population in the Base Year (Water Supply)	
		T8.2.3	Base Year Service Coverage of Household Toilets	T8.2.3	Number of Households Served by Sanitary Toilets in the Base Year (1995)	
		T8.2.4	Base Year Service Coverage of Public School Toilets and Public Toilets	T8.2.4	Number of Public School Students Served by School Toilets in the Base Year (1995)	
		T8.2.5	Base Year Service Coverage of Municipal Solid Waste System in 1995	T8.2.5	Number of Public Utilities with Sanitary Toilets in the Base Year (1995)	
				T8.2.6	Household Coverage in Phase I Provided by Existing Facilities in the Base Year (Household Toilets)	
				T8.2.7	Public School Students and Public Utilities Coverage in Phase I Provided by Existing Facilities in the Base Year	

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8.3	Projection of Frame Values						
8.3.1	Population Projection	(1) Methodology for population projection by urban and rural areas by municipality - Base figures and conditions: 1990 population census and future population by urban and rural areas by municipality by target year as projected by NSO - Review/verify past population development characteristics by urban and rural areas at regional and provincial level - Review/compare past population in urban and rural areas at provincial level - Identify areas/municipalities where adjustment of projected population is necessary - Identify areas/municipalities to be excluded from PW4SP - Establish future population of urban and rural areas by municipality by target year for	T8.3.1	Future Population by Urban and Rural Area by Municipality	T8.3.1 T8.3.2 T8.3.3 T8.3.4 T8.3.5	Population Distribution in Urban and Rural Areas Past Population Development Population Projection for Target Years: Region and Province Provincial Population for Target Years Projected Number of Households by Urban and Rural Area by Municipality by Target Year	
8.3.2	School Enrollment Projection	(1) Methodology for school enrollment projection by municipality - Determine school age population - Determine participation rate of total school enrollment and participation rate of public school enrollment - Establish future participation rate of total school enrollment and participation rate of public school enrollment	T8.3.2	Projected Public School Enrollment and Number of Public Utilities by Municipality	T8.3.6	Projected School Enrollment by Municipality by Target Year	
8.3.3	Projection of the Number of Public Utilities	- Conditions used for projection of the number of public utilities toilets			T8.3.7	Projected Number of Public Utilities by Municipality by Target Year	

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8.3.4 Planning Area and Population to be Served by the Sewerage System	- Conditions used to define planning area and population to be served			
8.3.5 Number of Households to be Served by Municipal Solid Waste Collection System	- Condition used to determine population to be served			
8.4 Types of Facilities and Implementation Criteria				
8.4.1 Water Supply	- Classification of service level by urban and rural area - Optimum number of persons to be served by type andn level of service - Limited utilization/application of Levels I & II systems - Rehabilitation/replacement of Level I facilities	T8.4.1 Groundwater Productivity T8.4.2 Standard Specifications of Level I Wells	F8.4.1 Standard Structure of Wells (Open-hole Drilling and Gravel Pack Method)	
8.4.2 Sanitation	(1) HH toilets: One sanitary toilet per household is considered. Type of facility is dependent on the existing or planned water supply level of community (2) School and public utilities toilets - Future assumption on the number of public schools/utilities toilets - Standard DECS coverage based on a 1:50 facility-student ratio will be followed and the standard designs of RESP will be adopted. - Standard FW4SP designs (with modification) for public toilets will be adopted			

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8.4.3 Urban Sewerage	- Staged implementation of the sewerage program for limited urban area.			F8.4.2	Staged Improvement in Sewage Collection Method	
8.4.4 Solid Waste	- Requirement of garbage collection trucks is considered.					
8.5 Service Coverage by Target Year						
8.5.1 Water Supply	(1) Assumptions/conditions adopted - Criteria on number of persons served by type and level of service through the future - Limited utilization/application of Levels I & II systems	T8.5.1	Population to be served by Target Year (Water Supply)	T8.5.1	Population to be Served by Level II System in Phase I	
		F8.5.1	Map Showing Future Water Supply Service Coverage by 2000	T8.5.2	Population to be Served in Phase I (Water Supply)	
	(2) Additional population to be served by target year - Present population served in urban and rural areas at each municipality (1994)	F8.5.2	Map Showing Future Water Supply Service Coverage by 2010	T8.5.3	Population to be Served in Phase II (Water Supply)	
8.5.2 Sanitation	(1) Household toilets - Present household served by type of toilet facility in urban and rural areas at municipal level (1994) - Households to be served by type of toilet facility in urban and rural areas at municipal level by target year - Additional households to be served by type of toilet facility in urban and rural areas at municipal level by target year	T8.5.2	Additional number of Households to be Served by Target Year (Household Toilets)	T8.5.4	Additional Number of Households to be Served in Phase I (Household Toilets)	
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		(2) School toilets - Present number of public school students adequately served at municipal level (1994) - Number of public school students to be served at municipal level by target year - Additional public school students to be served at municipal level by target year	T8.5.3	Additional Number of Public School Students to be Served by Target Year (School Toilets)	T8.5.6	Additional Number of Public School Students to be Served in Phases I and II (School Toilets)	
		(3) Public utilities toilets - Present number of sanitary public toilets at municipal level (1994) - Projected number of sanitary public utilities toilets at municipal level by target year (new construction) - Additional public utilities toilets at municipal level by target year	T8.5.4	Additional Number of Public Utilities with Sanitary Toilets by Target Year	T8.5.7	Number of Public Utilities with Sanitary Toilets in Phases I and II	
8.5.3	Urban Sewerage	- Assumptions adopted to define service coverage - Population to be served by target year (2010)	T8.5.5	Population to be Served by Urban Sewerage in Phase II			
8.5.4	Solid Waste	- Assumptions adopted to define service coverage - Additional number of households to be served by the municipal system by target year (2000)	T8.5.6	Additional No. of Urban Households to be Served by Municipal Solid Waste System in Phase I			
8.6	Facilities, Equipment and Rehabilitation to Meet the Target Services						
8.6.1	Water Supply	(1) Water supply facilities by service level by target year	T8.6.1	Water Supply Facilities Required by Target Year	T8.6.1	Urban Water Supply Facilities Required by Target Year	

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	(3) Rehabilitation - Wells and handpumps					
8.6.2 Sanitation	- Urban household toilets required by target year - Rural household toilets required at municipal level by target year - Public school toilets required at municipal level by target year - Public utilities toilets required at municipal level by target year	T8.6.2	Sanitation Facilities Required by Target Year	T8.6.4 T8.6.5 T8.6.6 T8.6.7	Urban Household Toilets Required by Target Year Rural Household Toilets Required by Target Year Public School Toilets Required by Target Year Public Toilets Required by Target Year	
8.6.3 Urban Sewerage and Solid Waste	- Additional units of truck required to meet service coverage	T8.6.3	Number of Garbage Collection Trucks Required in Phase I			
8.7 Identification of Priority Projects for Medium-Term Development	(1) Criteria for identifying priority projects (2) Description of identified projects by mode of service in each sub-sector					

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9.	SECTOR MANAGEMENT PLAN				
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9.3	Institutional Arrangements				
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9.5	Community Involvement Models	- Policy; responsibilities - Potential future development needs	T9.5.1 Summary of Community Development Study Sites		
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10.	COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT				
10.1	General	(1) Methodology adopted to cost estimates (2) Composition of cost estimates - Costs for required facilities by urban and rural areas at municipal level together with equipment for construction/rehabilitation and O&M			

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10.2 Assumptions for Cost Estimates	(1) Unit Cost of facilities	T10.2.1	Unit Cost of Facilities by Type and Service Level	T10.2.1	Unit Cost of Level I (Deep Well - 30m Depth)	
	Establish unit cost (per capital/HH or facility) by type and level of service based on: - Existing standard unit costs of sector agencies concerned (DPWH, LWUA and DOH) - Typical standards development for PW4SP (i.e., deep wells by different depths)	T10.2.2	Unit Cost of Equipment and Vehicle	T10.2.2	Unit Cost of Level I (Deep Well - 50m Depth)	
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	(3) Sector management costs			T10.2.8	Unit Cost of Level III (10,000 Service Population)	
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10.3.1 Cost of Required Facilities	- Costs of required facilities by type and service level of each sub-sector by municipality	T10.3.1 Construction Cost of Required Facilities by Municipality	T10.3.1 Construction Cost of Water Supply Facilities Required for Phase I (2000)	
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11.2	Projection of IRA	- Study on fund availability: Internal Revenue Allotment and other sources to be negotiated/arranged	F11.2.1	Trial Allocation of Internal Revenue Allotment (IRA) to Municipalities for Relevant Sector Development			
			T11.2.1	Projected Internal Revenue Allotment for Medium-Term Sector Development			
			T11.2.2	Projected Allotment of IRA to the Relevant Sector by Component, 1996-2000			
11.3	Additional Funding Requirements	- Financial shortfall to implement Medium-Term Development Plan	T11.3.1	Financing Requirements for Sector Component for the Province	T11.3.1	Percentages for Annual Investment	
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11.4.1 Reference Scenarios in Different Funding Levels	- Trial calculation on the allocation of projected IRA to municipalities for Medium-Term Development	F11.4.1 Relationship Between Funding Levels and Percent of Coverage for Water Supply Sector F11.4.2 Relationship Between Funding Levels and Percent of Coverage for Sanitation Sector		
11.4.2 Alternative Countermeasures	- Acquisition of external funds - Augmentation of sector finance - Private sector participation - Effective and economical investment	T11.4.1 Municipal Investment Need Ranking for Urban Water Supply T11.4.2 Distribution of Provincial IRA to Municipalities for Urban Water Supply T11.4.3 Municipal Investment Need Ranking		
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