Chapter 10

COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

10. COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

10.1 General

The total investment cost required in the two phases was studied for implementation of the future requirements identified in Chapter 8 and Chapter 9. The investment cost is defined to include direct cost for construction/rehabilitation of required facilities and sector management, as well as physical and price contingencies. Cost requirements for the equipment and vehicle are discussed as a reference to the LGUs and considered in the long-term development. In addition, recurrent cost is estimated for the operation and maintenance of facilities.

Conditions and assumptions to come up with investment cost were established covering all sub-sector components referring to the National Sector Master Plan and current standards of relevant sector agencies (DPWH, DOH and LWUA). Of the total investment cost required, only construction cost for sector components by municipality was included in this Chapter. The total investment cost is presented in Chapter 11 as a total requirement of the province.

With regard to construction cost, unit construction cost per person/household/facility was first prepared under contract-out basis for respective sub-sector component facilities in 1997 price level (refer to Supporting Report).

Recurrent cost was also included in this Chapter taking into account of regular operation, spare parts and equipment replacement for sector components concerned.

10.2 Assumptions for Cost Estimates

(1) Unit Construction Cost

Unit construction cost per person (household or facility) of each sector component was estimated based on the current standard unit cost of relevant sector agencies and typical standards developed for previous PW4SP as contract-out basis in 1995 price level. Referred cost data are urban water supply of LWUA, rural water supply of DPWH and sanitation of DOH. For price adjustment of construction materials, the NSO price index of 1995 to 1997 was referred to.

Unit construction cost consists of, in general, direct cost (mobilization/demobilization, material and labor), indirect cost (profit and VAT of contractor) and government expense (de-

tailed engineering, institutional development and water quality analysis-when deemed necessary).

Freight cost of construction materials excluding indigenous materials, i.e., sand and gravel, was counted for sanitation and rural water supply in consideration of the distance from Manila. The cost is estimated at fixed percentage (11%) based on the standard practice being adopted by sector agencies.

Table 10.2.1 shows a summary of unit construction cost and their descriptions are given below (details are referred to Supporting Report).

Urban water supply:

- Unit cost for three different sizes of Level III system covering served population of 5,000, 10,000 and 15,000.
- Unit cost for Level III system shall be applicable to both systems utilizing spring source and deep well. However, especially in case of utilization of spring source, it is desirable to confirm by surveying in the implementation stage, since the location (distance/elevation) of untapped spring might be affect the construction cost.

Rural water supply:

- Unit cost for four types of Level I wells (shallow well at 18m in depth and deep wells at 40, 80 and 120m in depth).
- Unit cost for deep well was estimated in combination of open hole with gravel packed well and natural gravel packed well based on water source study results. The profile of the two kinds of wells, gravel packed and natural gravel packed wells is assumed to be 90% and 10%. Required costs for iron removal facility shall be included as required for deep wells at high iron contained area (applied to 50% deep wells in the municipality of New Corella).
- Unit cost for Level I spring development was estimated considering system upgrading to Level II adopting 63 mm diameter of transmission line.
- Unit cost for Level II system to cover 600 served population.

Sanitation:

- Household toilet: (Construction cost is not considered since it is out of public works; unit cost is a reference for financial study in terms of affordability.)

Table 10.2.1 Unit Cost of Facilities by Type and Service Level

Sector	Service Level	Unit Construction Cost per Facility (Pesos)	Service Coverage		Unit Cost		Rehabilitation Cost of Level I Deep Well (Pesos/Well)
			Served Population	Served Households	Pesos/ Person	Pesos/ Household	
Urban Water Supply	***New System***						
	For 5,000 population	22,227,500	5,000	N/A	4,500	N/A	
	For 10,000 population	33,122,500	10,000	N/A	3,400	N/A	
	For 15,000 population	48,038,750	15,000	N/A	3,300	N/A	
	Expansion						
	For 5,000 population	20,437,500	5,000	N/A	4,100	N/A	
	For 10,000 population	31,332,500	10,000	N/A	3,200	N/A	
	For 15,000 population	46,248,750	15,000	N/A	3,100	N/A	
Rural Water Supply	**Level II**	1,105,302	600	120	1,850	9,300	
	Level I						
	Deep Well						
	40 meter depth	261,100	N/A	15	N/A	17,410	71,200
	80 meter depth	443,500	N/A	15	N/A	29,570	
	120 meter depth	618,600	N/A	15	N/A	41,240	
	Shallow Well	60,900	N/A	15	N/A	4,060	
	Spring Development	670,300	N/A	15	N/A	44,690	
Sanitation	***Household Toilet***						
	Flush	21,300	N/A	1	N/A	21,300	
	Pour Flush	13,000	N/A	1	N/A	13,000	
	VIP Latrine	6,600	N/A	1	N/A	6,600	
	Public School Toilet	274,100	250	N/A	1,100	N/A	
	Public Toilet	344,100	N/A	N/A	N/A	N/A	
	Urban Sewerage				7,300		
	Disinfection of Level I Wells	70					

Unit cost for four types of sanitary toilets (flush, pour-flush, VIP and Sanitary Pit Latrine) to cover one served household in urban or rural areas. Cost of flush toilet includes costs for demolition, water closet and water line.

- Public school toilet:
  Unit cost for one facility with 5 toilet bowls to cover 250 served students.

- Public toilet:
  Unit cost for one facility with 6 toilet bowls.

- Well disinfection:
  Unit disinfection cost per well based on DOH standard cost. The unit cost shall be applied to all existing and new wells once a year.

Urban Sewerage:

- Unit cost per served population. Preliminary estimates derived from the Philippine National Urban Sewerage and Sanitation Strategy and Feasibility Studies report.

(2) Unit Cost of Equipment

Unit cost of equipment shown in Table 10.2.2 was prepared based on the standard unit cost and recent procurement experience of the relevant sector agencies (details are referred to Supporting Report).

Table 10.2.2 Unit Cost of Equipment and Vehicle

Name of Equipment	Unit Cost (Peso 1,000)
Truck-mounted rotary drilling rig	32,314
Truck-mounted percussion drilling rig	25,582
Well rehabilitation equipment	280
Service truck with crane	1,200
Support vehicle (Pick-up with winch)	590
Refuse collection truck	2,057

(3) Sector Management Cost

Sector management cost consists of:

- Engineering studies (F/S, D/D and construction supervision) for water supply, public toilet and school toilet facilities.

- Community development and training including health & hygiene education and logistic support.

Cost of engineering studies was estimated based on the fixed percentages to the total construction cost; 9% for F/S and D/D and 4% for construction supervision.

Community development and training with logistic support was also estimated on the same manner; 12% of respective construction costs for rural water supply and sanitation, and 3% of construction cost for urban water supply.

(4) Recurrent cost

Recurrent cost was estimated for water supply and sanitation (school and public toilets) facilities to cover the regular operating cost and the cost for spare parts and equipment replacement based on the following cost assumptions, while household toilet is assumed to be maintained by the owner.

Regular operating cost normally includes salaries of operation staff, electricity, fuel and chemicals. Due to the nature of this cost, it is only applied to urban water supply (Level III system). As a typical unit cost being applied to preparation of PW4SP referring to LWUA data, 365 Pesos/household/year was employed.

Cost for spare parts and equipment replacement was considered by different service level as described below.

Level III system:

- Mechanical and electrical equipment has normally a life cycle of 8 to 12 years and is considered in depreciation cost, i.e., 10% per annum. Assuming that the equipment cost comprise 10% of construction cost, annual depreciation will be 1% of the construction cost.
- Accordingly, cost of spare parts was assumed to be 10% of the equipment cost or equivalent to 1% of the construction cost.
- As a whole, 2% of the construction cost was applied for the cost of spare parts and equipment replacement.

Level II system:

- Operation and maintenance (O&M) cost of Level II system utilizing spring sources includes minor repair of pipeline and communal faucets (1% of the direct cost) and salaries of maintenance staff.
- A unit cost of 180 Pesos/household/year was assumed for cost estimates.

Level I system:

- O&M cost of Level I facility simply includes spare parts of handpump and caretaker.
- A unit cost of 100 Pesos/household/year was assumed for cost estimates.

School and public toilets:

- O&M cost includes the salaries of maintenance staff, cost of pumping sludge from septic tanks (periodically) and rehabilitation cost (for depreciation).
- For cost estimates, 5% of the construction cost was applied per facility per year.

Management cost:

- Management cost of water supply, sewerage and sanitation sector is part of the cost required for public services of LGUs mainly consisting of salaries of officers and workers and normally included in the annual budget of each LGU. The rest of management cost, such as equipment for information processing and dissemination was considered as part of logistic support under the sector management cost. Owing to the nature of this cost item, the management cost pertaining to salaries of officers/workers depends largely on the population size and institutional set-up of each LGU.
- Management cost was not estimated in this PW4SP considering the above mentioned reasons.

10.3 Cost of Required Facilities and Equipment

10.3.1 Cost of Required Facilities

The construction cost of required facilities as public investment of LGUs was summarized in Table 10.3.1 by sub-sector by municipality for target years. In this regard, the construction cost of household toilets is limited to the procurement and distribution of toilet bowl for pour-flush type toilets as being implemented by DOH under the FW4SP (refer to over-all construction cost requirements, Supporting Report).

Table 10.3.1 Construction Cost of Required Facility by Municipality

Unit: P 1,000

Name of Municipality	Phase I (2003) Requirements							Phase I (2010) Requirements							
	Urban Area			Rural Area			Grand Total	Urban Area				Rural Area			Grand Total
	Water Supply	Sanitation	Sub-total	Water Supply	Sanitation	Sub-total		Water Supply	Sanitation	Urban Sewerage	Sub-total	Water Supply	Sanitation	Sub-total	
Asuncion	10,066		10,066	12,493	1,371	13,863	23,929	20,090	2,110	38,164	60,364	42,914	18,517	61,431	121,795
Braulio E. Dujali		2,065	2,065	12,874	2,543	15,417	17,481					21,457	9,610	31,067	31,067
Carmen	18,028	713	18,740	34,329	3,482	37,811	56,551	23,242	2,749	50,355	76,346	59,944	18,358	78,302	154,648
Island Garden City of San	18,708	6,736	25,444	39,610	10,800	50,410	75,854	49,569	2,521	94,301	146,391	96,388	23,283	119,671	266,062
Kapalong		1,441	1,441		8,635	8,635	10,076	38,541	3,062	55,546	97,148	21,316	23,426	44,742	141,890
New Corella	14,116	1,096	15,213	7,933	5,604	13,537	28,749	21,062	2,449	47,187	70,698	37,388	14,888	52,275	122,974
Panabo	45,393	7,916	53,309	13,410	15,509	28,919	82,228	177,274	10,114	293,606	480,994	83,415	32,259	115,675	596,668
Santo Tomas		5,004	5,004		10,921	10,921	15,925	86,939	5,775	158,979	251,693	38,087	20,985	59,072	310,765
Tagum City (Capital)		11,312	11,312		11,450	11,450	22,761	318,780	18,519	538,623	875,922	34,332	23,219	57,552	933,473
Talaingod		1,032	1,032		4,164	4,164	5,196					11,619	5,091	16,710	16,710
Provincial Total	106,311	37,314	143,625	120,647	74,478	195,125	338,750	735,495	47,298	1,276,763	2,059,556	446,861	189,636	636,497	2,696,052

During the medium-term development period, a total of 338.8 million Pesos will be required for construction of required facilities. Of the requirements, urban water supply and rural water supply will share 31.4% and 35.6%, respectively. While, remaining 33% will be required for urban and rural sanitation.

10.3.2 Cost of Required Equipment and Vehicle

The procurement cost of required equipment was estimated as shown in Table 10.3.2 (details are referred to Supporting Report), however, in this PW4SP, one set of well rehabilitation equipment and one unit of support vehicle shall be incorporated in the medium-term investment plan (Phase I). While one set of truck-mounted drilling rig shall be procured by the province in long-term development plan (Phase II) considering budgetary constraints and technical capability.

Table 10.3.2 Cost of Equipment and Vehicle

Name of Equipment	Unit Cost (₱ 1,000)	Quantity (set)	Cost (₱ 1,000)
Truck-mounted rotary drilling rig	32,314	0	0
Truck-mounted percussion drilling rig	25,582	9	230,238
Well rehabilitation equipment	280	2	560
Service truck with crane	1,200	9	10,800
Support vehicle (Pick-up with winch)	590	2	1,180
Refuse collection truck	2,057	7	14,399
Total Equipment Cost			257,177

Note: Truck-mounted rotary drilling rig is not applicable based on water source study.

N.A: Not applicable

Aside from the above, one set of maintenance tools and one set of water quality testing kits shall be provided to all municipalities for O&M of Level I facilities (details are referred to Supporting Report).

10.3.3 Cost for Laboratory

Required cost for a new laboratory including building/facility and instruments/chemicals is estimated at 1,585,800 Pesos and additional cost for upgrading of existing laboratory is estimated at 445,800 Pesos (details are referred to Supporting Report).

10.4 Recurrent Cost

Recurrent cost is estimated in 1997 price level as a provincial total of each sub-sector covering existing facilities and additional facilities to be constructed during the medium-term development as shown in Table 10.4.1.

In the year 2003, the recurrent cost will increase to 37.3 million Pesos/year from 27.3 million Pesos/year in 1997, which is 37% increase from the base year corresponding to the implementation of the medium-term development.

Table 10.4.1 Recurrent Cost

Unit: P 1,000

Sector Component	Item	Base Year Existing Facilities	1999	2000	2001	2002	2003	Total (1999-2003)
Urban Water Supply	Operating Cost	9,314	9,314	9,735	10,366	10,997	11,417	51,828
	Spare Parts/Equipments	8,100	8,100	8,466	9,015	9,564	9,930	45,075
Rural Water Supply	Spare Parts/Equipments for Level II System	853	946	1,040	1,040	1,040	1,040	5,106
	Spare Parts/Equipments for Level I Facilities	3,865	3,865	4,099	4,450	4,800	5,034	22,248
Sanitation	Public School Toilets	4,637	4,637	5,504	6,806	8,107	8,974	34,028
	Public Toilets	525	525	603	720	837	915	3,600
Total Recurrent Cost		27,295	27,388	29,447	32,396	35,344	37,310	161,885

Chapter 11

FINANCIAL ARRANGEMENTS FOR MEDIUM-TERM DEVELOPMENT PLAN

11. FINANCIAL ARRANGEMENTS FOR MEDIUM-TERM DEVELOPMENT PLAN

11.1 General

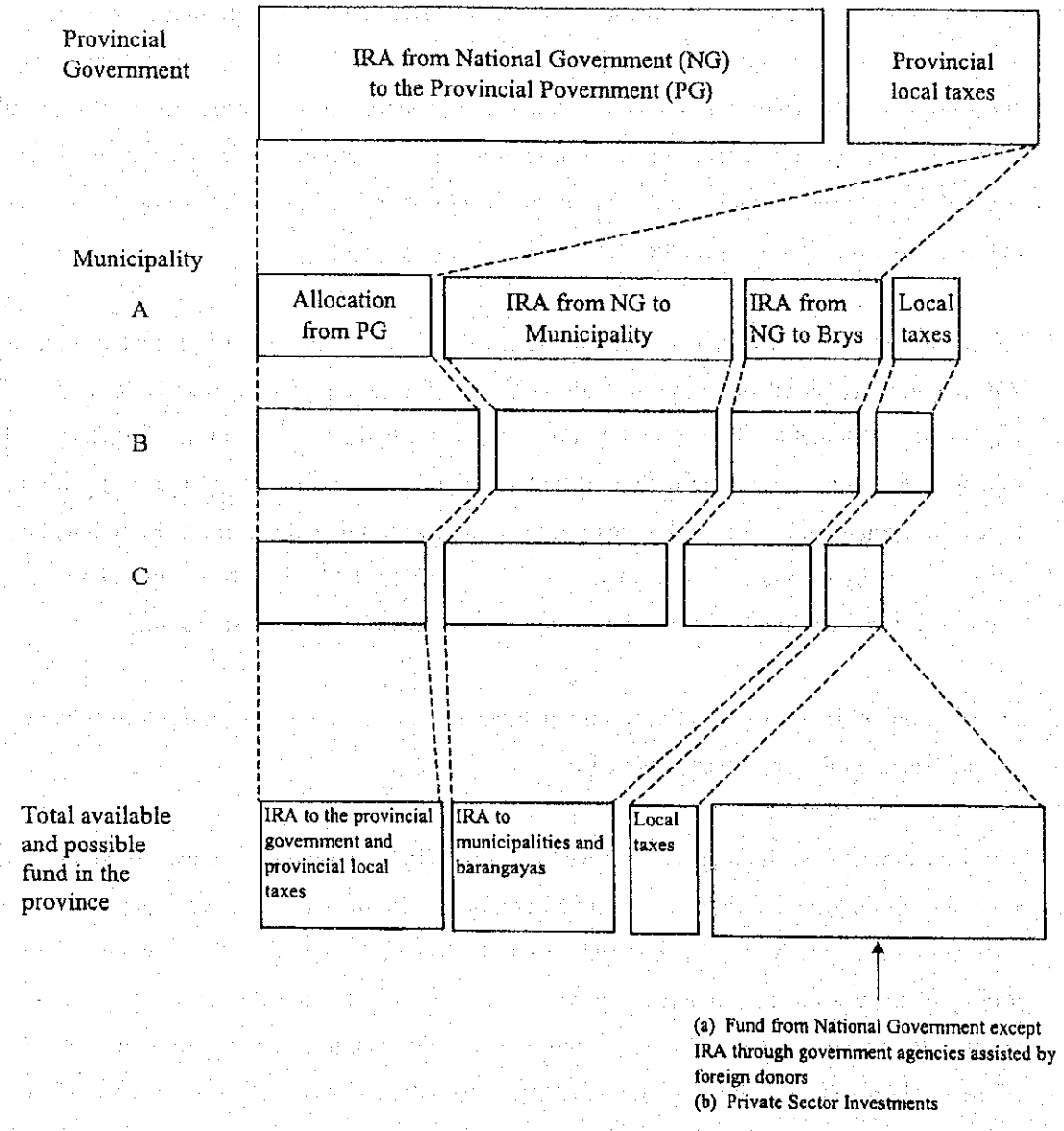
Financial arrangements to attain medium-term (Phase I) targets are sought taking into account potential funds. However, quantitative study is limited to the use of projected Internal Revenue Allotment (IRA). In this connection, this Chapter addresses to identify financial shortfall with reference to available IRA for this sector and to seek comprehensive logistics in terms of acquisition of various funds, augmentation of current practices in the Government assistance to this sector and effective investments and cost recovery.

Available funds (IRA) during the medium-term development period are projected with the use of computer-based programs that allow for the future application to include additional funds that are available. Figure 11.1.1 shows the sector budget allocation in the different administrative levels to come up with total funds available in the province. Figure 11.1.2 illustrates the manner of sector fund allocation to respective municipalities from the national and provincial governments with a detailed study flow availing IRA. Interfaces between provincial government and municipalities/barangays are also presented in the same figure.

Distribution of IRA to respective municipalities is contemplated in assumption of various factors based on the experiences as of 1998.

The Investment Coordination Committee (ICC) of NEDA adopted a policy "to support the financing of devolved activities with social and/or environmental-objectives" based on three considerations, namely: Equity, Externalities and Economies of Scale. The new cost-sharing arrangement was put into practice this year, which clearly limited the national government subsidy for Level I water supply to 5th and 6th class municipalities up to a maximum of 50% of the total project cost. For sanitation facilities, the national government subsidy for 3rd to 6th class municipalities shall be from 50% to 70% of the total project cost. In this connection, financial study for Level I water supply and sanitation improvement was conducted for those municipalities meeting the above conditions.

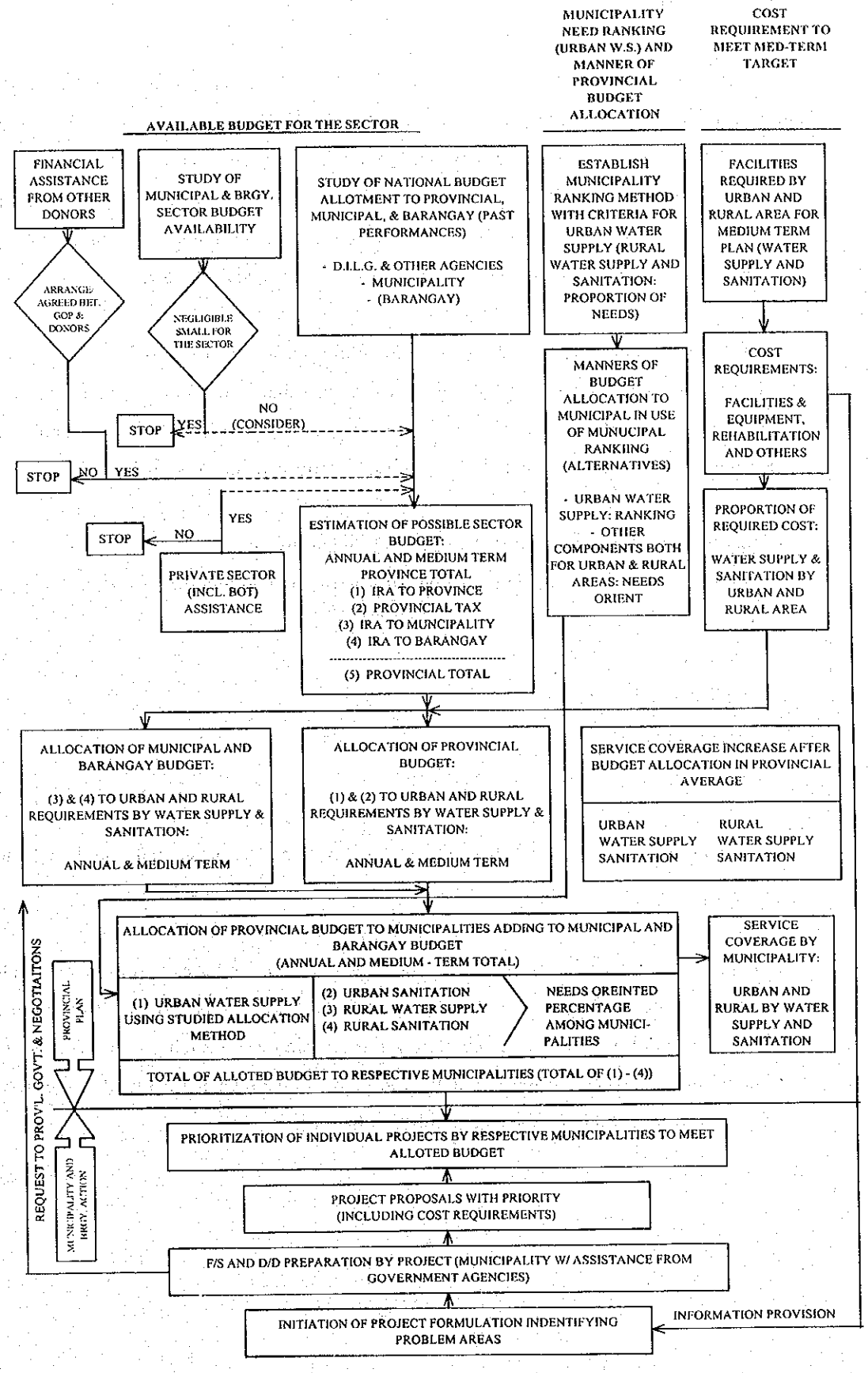
Figure 11.1.1 Sector Budget Allocation



Notes: (1) Budget from different sources in the figure above are those shared to water supply and sanitation sector from allotted amount for overall sectors.

(2) Shaded portion above is the potential fund source to be negotiated/arranged to meet target requirements.

FIGURE 11.1.2
GENERAL FLOW OF FINANCIAL ARRANGEMENTS FOR RELEVANT SECTOR DEVELOPMENT



11.2 Projection of IRA

The projection of IRA to the relevant sector for Phase I period is made covering different administrative levels. Current manner of allocation by the national government is directed to three different governmental levels; province, municipality and barangay. Municipal fund available for this sector is calculated as a sum of municipal and provincial allotments. Figure 11.2.1 shows the calculation procedure with assumptions and Tables 11.2.1 and 11.2.2 present calculation results. Calculation process is further described as follows:

(1) Projection of annual IRA to all LGUs in the Philippines from 1999 to 2003

The IRAs come from 40% of past and /or projected national internal revenue taxes from 1996 to 2000 (3rd fiscal year preceding the current year) projections for national internal revenue taxes. This ratio is based on the Local Government Code in 1991.

(2) Distribution of national total IRA to each administrative unit

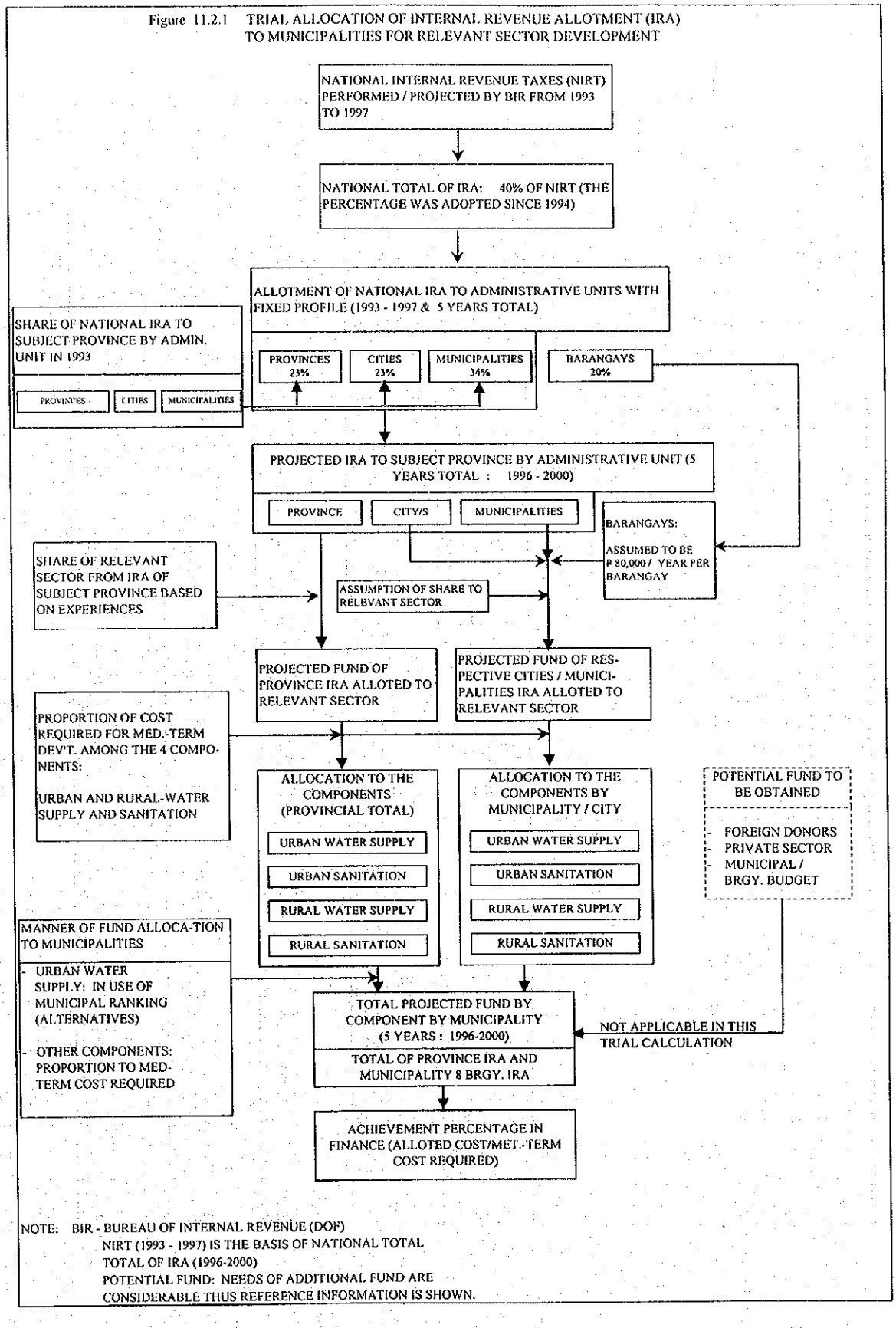
Based on the Local Government Code, IRA is distributed by administrative level as follows:

Provinces	23%
Cities	23%
Municipalities	34%
Barangays	20%

(3) Distribution of national total IRA to the subject province by provincial, municipal and barangay level

With reference to allocation of national IRA by administrative level, provinces and municipalities are based on weighted 3 factors: population, land area and number of administrative units. In this analysis, however, the distribution percentage experienced in 1998 is simply employed in projecting IRA for the period 1999-2003 (refer to Table 6.2.2, Main Report and Supporting Report). Allotments to barangays are added to the IRAs for municipalities (₱80,000 times the number of barangays).

Figure 11.2.1 TRIAL ALLOCATION OF INTERNAL REVENUE ALLOTMENT (IRA) TO MUNICIPALITIES FOR RELEVANT SECTOR DEVELOPMENT



NOTE: BIR - BUREAU OF INTERNAL REVENUE (DOF)
NIRT (1993 - 1997) IS THE BASIS OF NATIONAL TOTAL
TOTAL OF IRA (1996-2000)
POTENTIAL FUND: NEEDS OF ADDITIONAL FUND ARE CONSIDERABLE THUS REFERENCE INFORMATION IS SHOWN.

Table 11.2.1 Projected Internal Revenue Allotment for Medium-Term Sector Development

Unit: P 1,000

	1999	2000	2001	2002	2003	Total
1 40% of Actual/Projected National Internal Revenue Taxes of the 3rd Fiscal Year preceding the current year	94,880,480	104,049,760	115,801,280	127,449,920	142,317,600	584,499,040
2 Internal Revnue Allotment to all LGUs						
(a) province (23%)	21,822,510	23,931,445	26,634,294	29,313,482	32,733,048	134,434,779
(b) cities (23%)	21,822,510	23,931,445	26,634,294	29,313,482	32,733,048	134,434,779
(c) municipalities (34%)	32,259,363	35,376,918	39,372,435	43,332,973	48,387,984	198,729,674
(d) barangays (20%)	18,976,096	20,809,952	23,160,256	25,489,984	28,463,520	116,899,808
(e) total IRA to all LGUs	94,880,480	104,049,760	115,801,280	127,449,920	142,317,600	584,499,040
3 Projected IRA to Subject Province by Administrative Unit						
(a) province	355,169	389,493	433,483	477,088	532,742	2,187,975
(b) municipalities/city including barangays	386,386	421,995	467,632	512,869	570,607	2,359,490
Asuncion	34,511	37,645	41,662	45,643	50,725	210,185
Braulio E. Dujali	7,252	7,915	8,763	9,605	10,678	44,214
Carmen	31,104	33,956	37,610	41,232	45,855	189,757
Island Garden City of Samal	53,696	58,530	64,725	70,865	78,703	326,518
Kapalong	64,285	70,335	78,089	85,775	95,586	394,071
New Corella	25,311	27,595	30,522	33,423	37,126	153,976
Panabo	53,673	58,551	64,802	70,999	78,908	326,934
Santo Tomas	35,997	39,329	43,599	47,832	53,235	219,992
Tagum City (Capital)	61,550	67,321	74,716	82,047	91,404	377,039
Talaingod	19,006	20,819	23,144	25,448	28,388	116,804
(c) Provincial Total	741,556	811,488	901,115	989,957	1,103,350	4,547,465
4 Project fund of IRA to Relevant Sector by Administrative Unit						
(a) province	14,207	15,580	17,339	19,084	21,310	87,519
(b) municipalities/city including barangays	15,276	16,684	18,487	20,275	22,558	93,280
Asuncion	1,380	1,506	1,666	1,826	2,029	8,407
Braulio E. Dujali	290	317	351	384	427	1,769
Carmen	1,244	1,358	1,504	1,649	1,834	7,590
Island Garden City of Samal	2,148	2,341	2,589	2,835	3,148	13,061
Kapalong	2,392	2,617	2,906	3,192	3,557	14,663
New Corella	1,012	1,104	1,221	1,337	1,485	6,159
Panabo	2,147	2,342	2,592	2,840	3,156	13,077
Santo Tomas	1,440	1,573	1,744	1,913	2,129	8,800
Tagum City (Capital)	2,462	2,693	2,989	3,282	3,656	15,082
Talaingod	760	833	926	1,018	1,136	4,672
(c) Provincial Total	29,483	32,263	35,827	39,359	43,867	180,799

(4) Projection of available IRA to the relevant sector by administrative unit of the province.

According to the Provincial Annual Report in 1997, about 1.6% of provincial IRA on the average was availed for the water supply and sanitation sector. Referring to the experience in other provinces, provincial allocation to the relevant sector is assumed to be 4%. This means that 20% of "20% Development Fund" from national IRA are counted on sector projects. The same percentage is applied for the allocation of municipal IRA to the sector.

Table 11.2.2 Projected Allotment of IRA to the Relevant Sector by Component (1999-2003)

Unit: 1,000 pesos

LGUs	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Total
1. Province	27,466	31,170	9,640	19,242	87,519
2. Municipalities	19,421	20,952	16,243	36,665	93,280
Asuncion	3,537	4,389		482	8,407
Braulio E. Dujali		1,302	209	257	1,769
Carmen	2,420	4,608	96	467	7,590
Island Garden City of Samal	3,221	6,820	1,160	1,860	13,061
Kapalong			2,096	12,567	14,663
New Corella	3,024	1,699	235	1,201	6,159
Panabo	7,219	2,133	1,259	2,466	13,077
Santo Tomas			2,765	6,035	8,800
Tagum City (Capital)			7,495	7,587	15,082
Talaingod			928	3,744	4,672
3. Total Provincial	46,887	52,122	25,883	55,907	180,799

(5) Available IRA of municipalities by sub-sector

Available municipal fund for the four components (urban and rural water supply, and urban and rural sanitation) is estimated as a sum of respective components in combination of those allocated from the province and distributed in each municipality. Distribution of sector total fund to sub-components both in the provincial and municipal levels is arranged in proportion to the direct construction cost required for Phase I development.

With regards to the distribution of provincial IRA for urban water supply to respective municipalities, weighing method with ranking is employed, which will be discussed in

detail in Section 11.4. For the other components, provincial IRA is distributed to municipalities in proportion to their required costs in Phase I (refer to Table 11.2.2).

The projected provincial IRA to the sector during the period of 1999-2003 is estimated at ₱180.799 million, which is equivalent to 4% of combination of provincial and municipal IRA. This percentage arrived as a result of adjustment in use of IRA for those municipalities, of which required cost is lower than allotted IRA. With regard to the allocation to sub-sectors, rural water supply has the largest allotment of 28.83% (₱52.122 million out of the total ₱180.799 million) followed by urban water supply (25.9%). Rural sanitation is allotted ₱55.907 million (about 30.9%) and is larger than that for urban sanitation (₱25.883 million). The proportion of IRA allotment for the sub-sectors differs by municipality and depends on their priority sub-sectors.

In the allocation of municipal IRA, Tagum City has the largest allotment with ₱15.082 million (8.34%) followed by the municipality of Kapalong (8.11%).

11.3 Additional Funding Requirements

Annual cost required for the whole province during the medium-term development is summarized in Table 11.3.1 referring to the study results in Chapter 10. The total cost required covers physical contingency; 10% of the direct cost and price contingency; 7% per year covering the direct cost and physical contingency, and value added tax. Details of implementation arrangements for annual investment are shown in Table 11.3.1, Supporting Report. The required cost excluding price contingency was also shown in the Table to compare with available IRA on a current price level.

Table 11.3.2 presents additional funding requirements of the province on the current price level (or shortfall in funding), which are figured out comparing with available fund for the relevant sector (IRA) in the province over the Phase I requirements. Other funds such as those provided by foreign assistance and local tax portion are kept blank to supplement upon confirmation of additional funds available. Out of ₱492.97 million required for Phase I (1999-2003), IRA can fund only ₱180.799 million or 36.67% of the requirements. Hence, there is a big shortfall of ₱312.173 million in funding. It will become ₱389.111 million in consideration of price escalation with annual rate of 7%.

Table 11.3.1 Financing Requirement by Sector Component for the Province

Unit: 1,000 pesos

Sector Components	1999	2000	2001	2002	2003	Total 1999-2003	Total 2004-2010
Direct Cost							
1. Direct Construction Cost							
Urban Water Supply							
Level III System	0	21,262	31,893	31,893	21,262	106,311	735,495
Rural Water Supply							
Level II System	4,915	4,915	0	0	0	9,831	0
Level I Facilities	0	22,163	33,245	33,245	22,163	110,816	446,861
Urban Sanitation							
Household toilet	0	82	123	123	82	409	8,760
Public school toilet	0	5,592	8,387	8,387	5,592	27,958	32,344
Public toilet	0	1,789	2,684	2,684	1,789	8,947	6,194
Disinfection of Level I Deep Well and Shallow	18	33	33	33	33	150	0
Rural Sanitation							
Household toilet	0	3,438	5,157	5,157	3,438	17,191	25,176
Public school toilet	0	11,457	17,186	17,186	11,457	57,287	164,460
Disinfection of Level I Deep Well and Shallow	71	129	129	129	129	588	329
Urban Sewerage	N/A	N/A	N/A	N/A	N/A	N/A	1,276,763
Sub-total	5,004	70,862	98,838	98,838	65,946	339,488	2,696,381
2. Procurement of Vehicle/Equipment/Maintenance tools							
Well drilling rig and service truck with crane	0	0	0	0	0	0	26,782
Support vehicle	0	590	0	0	0	590	0
Well rehabilitation equipment	0	280	0	0	0	280	0
Maintenance tools	0	20	30	30	20	100	0
Water quality testing kit	0	3	5	5	3	15	0
Sub-total	0	893	35	35	23	985	26,782
3. Water Quality Laboratory	2,032	0	0	0	0	2,032	0
4. Sector Management Cost							
Engineering Studies							
Feasibility study and detail design	19,133	9,771	0	0	0	28,903	125,500
Construction supervision	197	2,687	3,736	3,736	2,491	12,892	55,778
Institutional Development	8,927	8,608	5,558	3,098	2,779	28,970	125,500
Sub-total	28,256	21,066	9,294	6,834	5,270	70,765	306,777
Total Direct Cost	35,292	92,821	108,167	105,706	71,239	413,270	3,029,941
Contingencies							
1. Physical Contingency	3,529	9,282	10,817	10,571	7,124	41,322	302,994
2. Price Contingency	0	7,147	17,241	26,167	24,355	74,910	N.A
3. Value-Added Tax (VAT)	2,636	8,421	10,261	10,261	6,846	38,425	N.A
Total Investment Cost	41,458	117,671	146,485	152,705	109,563	567,928	3,332,935
Total Investment Cost (excluding Price Contingency)	41,458	110,524	129,244	126,538	85,209	492,972	3,332,935

Municipal achievement percentages in finance are shown in Table 11.3.3 in provision of available fund originating from IRA against Phase I financial requirements. The percentage of Kapalong (100%) is the highest among municipalities, followed by Talaingod (84%).

Majorities are in the range between 30% and 50% to the respective requirements, while the provincial average is 37%.

Table 11.3.2 Additional Fund Requirement for the Medium-Term Plan

Unit: 1,000 pesos

Item	1999	2000	2001	2002	2003	Total 1999-2003
Financing Requirement	41,458	110,524	129,244	126,538	85,209	492,972
Expected available fund						
National						
Local (IRA)	29,483	32,263	35,827	39,359	43,867	180,799
Others						
Total	29,483	32,263	35,827	39,359	43,867	180,799
Shortfall in funding	11,975	78,261	93,417	87,179	41,341	312,173
(Additional Fund Requirements)	12,813	89,601	114,440	114,274	57,983	389,111

Note: Shortfall in funding; above - current year price level.
below - current year price escalated at 7% per year.

11.4 Medium-Term Implementation Arrangements

The financial requirements to meet Phase I target coverage are substantial. However, projected funding available (IRA) in application of past trend revealed that considerable amount of additional fund must be arranged. Under this situation, reference scenarios are discussed with the assumption of different levels of funding availability with reference to service coverage. Alternative countermeasures are also discussed in view of (1) acquisition of external funds, (2) augmentation of sector finance under current arrangements (IRA and others), (3) introduction of private sector participation to mitigate public investment needs, and (4) effective and economical investments.

11.4.1 Reference Scenarios in Different Funding Levels

Achievement levels of service coverage in the target year are examined in assumption of five funding levels. It is regarded that the service coverage is increased in proportion to the investment during Phase I period. The relationships between funding levels and corresponding percentages of service coverage are illustrated in Figure 11.4.1 and Figure 11.4.2 for water supply and sanitation sectors, respectively.

Table 11.3.3 Internal Revenue Allotment for Water Supply and Sanitation Sector by Municipality (Medium-term Development, 1999-2003)

Unit: P 1,000

Name of Municipality	IRA Allocation to Municipalities												Available Fund of Municipality (a)	Phase I Investment Cost Requirement (b)	Achievement Percentage (%) in Finance (a)/(b)
	Urban Water Supply			Rural Water Supply			Urban Sanitation			Rural Sanitation					
	Allotted from Provincial Government	Allotted Municipality Fund	Total	Allotted from Provincial Government	Allotted Municipality Fund	Total	Allotted from Provincial Government	Allotted Municipality Fund	Total	Allotted from Provincial Government	Allotted Municipality Fund	Total			
Asuncion	5,493	3,537	9,030	3,228	4,389	7,617				612	482	1,094	17,741	34,823	51
Braulio E. Dujali				3,326	1,302	4,628	580	209	789	822	257	1,080	6,497	25,440	26
Carmen	5,493	2,420	7,913	8,869	4,608	13,477	231	96	326	1,158	467	1,625	23,341	82,297	28
Island Garden City of Samal	5,493	3,221	8,715	10,233	6,820	17,053	1,787	1,160	2,947	3,049	1,860	4,908	33,623	110,388	30
Kapalong								2,096	2,096	0	12,567	12,567	14,663	14,663	100
New Corella	5,493	3,024	8,517	2,050	1,699	3,749	330	235	565	1,706	1,201	2,906	15,738	41,838	38
Panabo	5,493	7,219	12,713	3,465	2,133	5,597	2,092	1,259	3,351	4,265	2,466	6,731	28,392	119,663	24
Santo Tomas							1,339	2,765	4,104	3,080	6,035	9,114	13,219	23,174	57
Tagum City (Capital)							2,969	7,495	10,464	3,216	7,587	10,803	21,267	33,124	64
Talaingod							313	928	1,241	1,334	3,744	5,078	6,319	7,562	84
Total	27,466	19,421	46,887	31,170	20,952	52,122	9,640	16,243	25,883	19,242	36,665	55,907	180,799	492,972	37

Three reference scenarios are discussed on different levels of funding. These scenarios will be referred to in combination of alternative countermeasures discussed in Section 11.4.2.

Using computer-based programs, these scenarios may be modified by policy makers according to the updated information and policy on the available fund and sector targets.

(1) The First Reference Scenario

No funding constraints are considered in this scenario to realize Phase I development as planned. This scenario is too optimistic based on the past experiences.

(2) The Second Reference Scenario

An intermediate scenario with 50 - 75 % funding ranges are considered. Urban and rural water supply coverage in the year 2003 is attained between 56-58% and between 42-44 %, respectively. For urban and rural sanitation (household toilets), coverage will reach 82-86% and 73-79%, respectively based on the assumption that required private investments are followed.

(3) The Third Reference Scenario

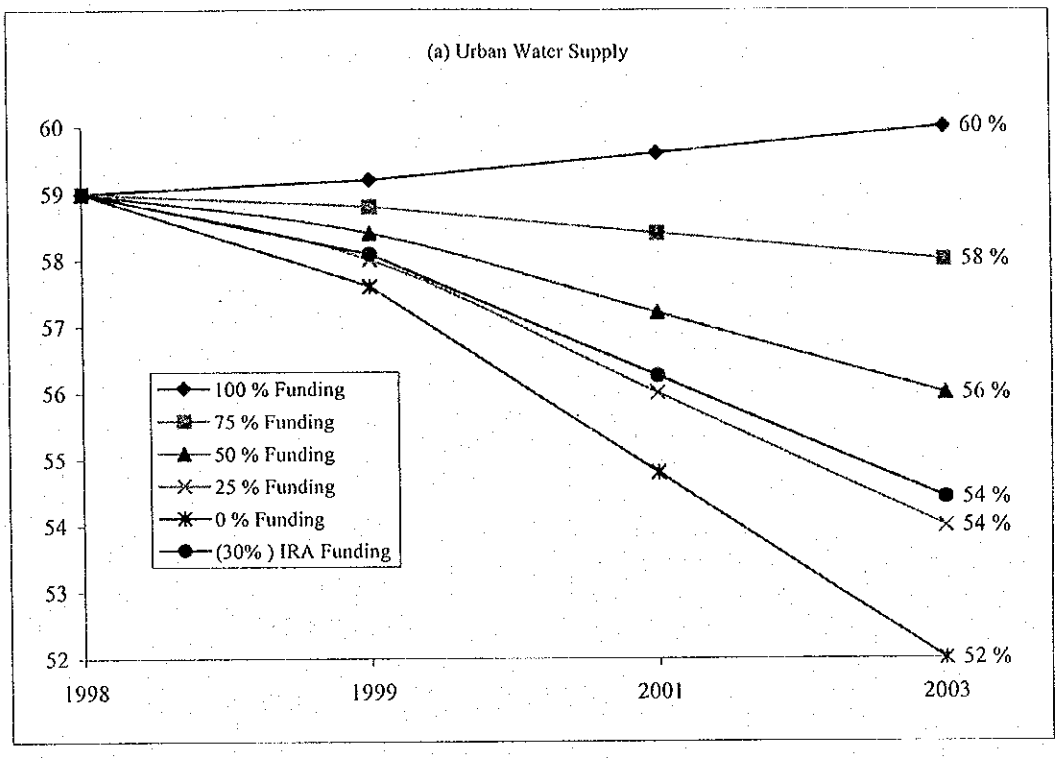
In the scenario of 25% funding against the total requirements of Phase I, urban and rural water supply coverage in the year 2003 will be attained at 54% and 41%, respectively, while urban and rural sanitation coverage will be at 78% and 67%. All sub-sectors will not be able to keep current service levels.

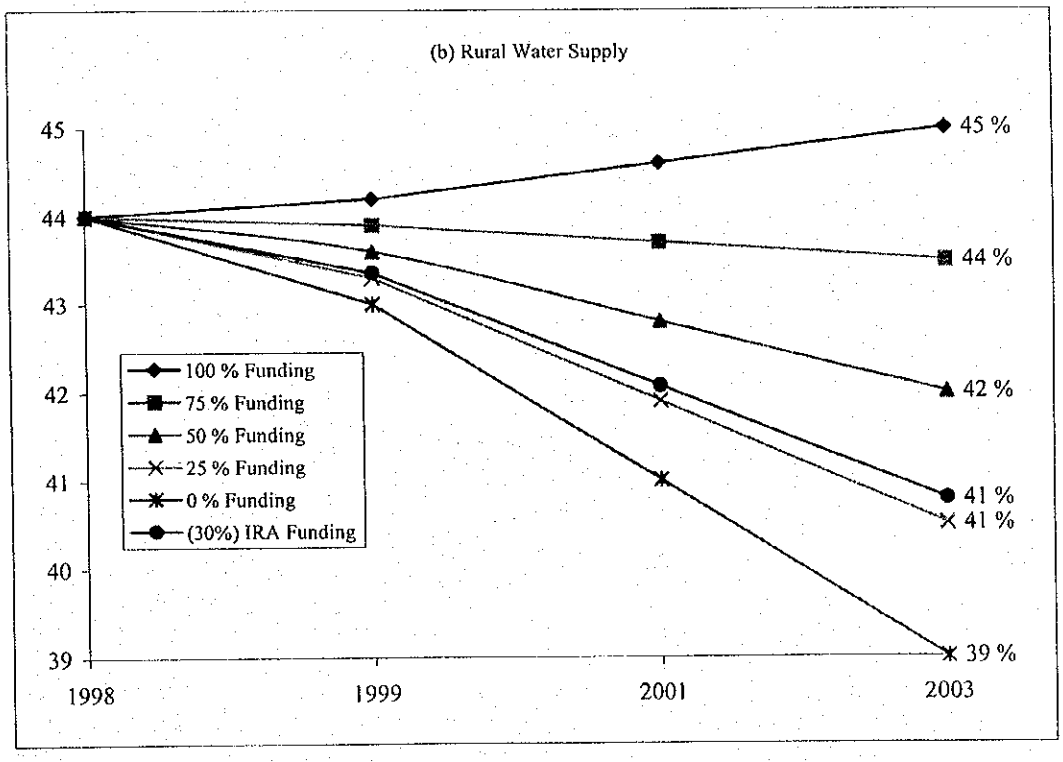
The allocated IRA funding of urban and rural water supply in the year 2003 will be 30% and 30% which will cover 54% and 41% of the population. In order to attain the Phase I development target of 60% and 45% service coverage, it needs an additional IRA funding of 70% and 70%, respectively. While for urban and rural sanitation the allotted IRA funding are 48% and 52%. To cover the Phase I development target of 90% and 85% of the population it requires an additional IRA funding of 52% and 48%, respectively.

11.4.2 Alternative Countermeasures

This sub-section presents the means of financing the shortfall for the investment program.

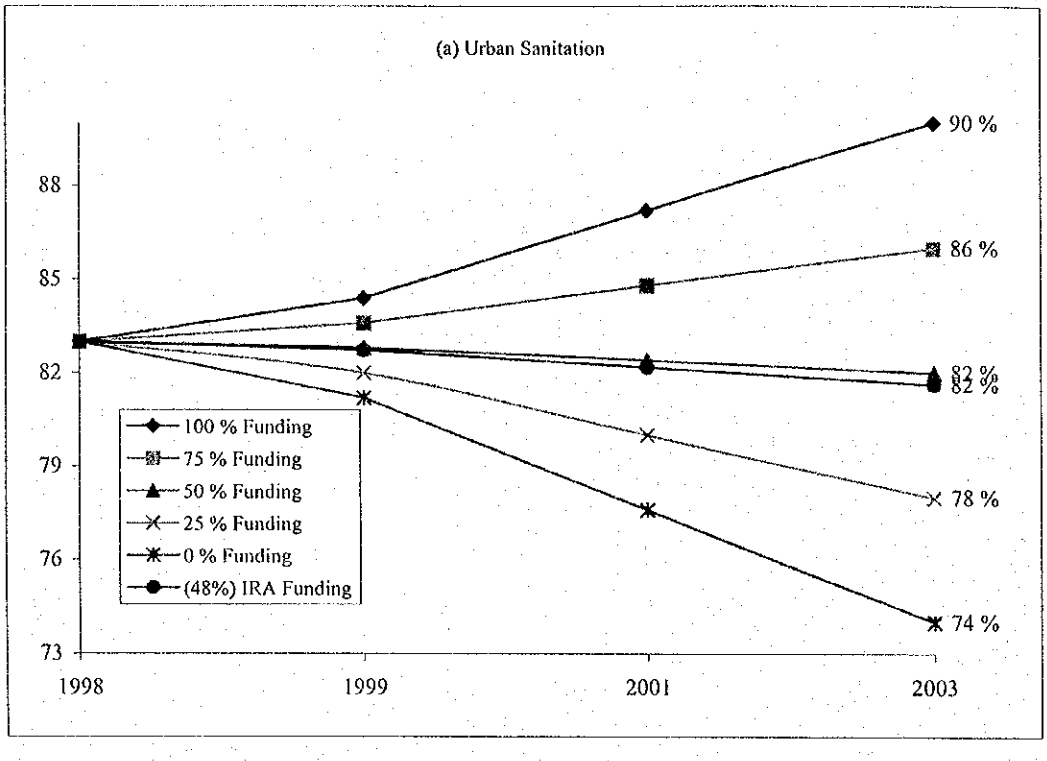
Figure 11.4.1 Relation Between Funding Levels and Percent of Coverage for Water Supply Sector

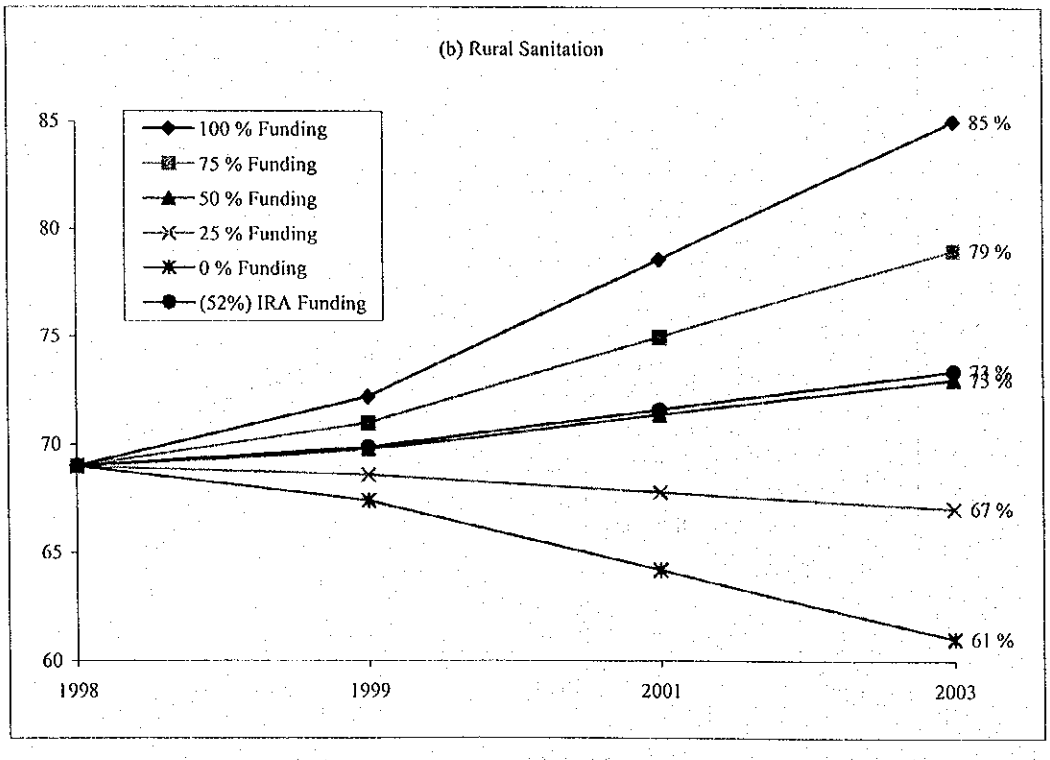




Note: Percentages of the coverage between 1997 and 2003 are simply prorated as the reference

Figure 11.4.2 Relation Between Funding Levels and Percent of Coverage for Sanitation Sector





Note: Percentages of the coverage between 1997 and 2003 are simply prorated as the reference

(1) Acquisition of external funds

Foreign assistance has played a significant role in the development of the relevant sector in the past. Negotiations with the central government agencies (DILG, LWUA, etc.) are requisites to access the foreign funds. Development of new local financial mechanism is also needed for LGUs under current policy shifts to increase the opportunities of LGUs undertaking foreign-assisted projects.

As a matter of fact, Local Government Empowerment Fund (LGEF) was established in 1996 to provide a mechanism for channeling external grants and loans to 19 priority provinces under the Social Reform Agenda and/or those classified as 5th or 6th class LGUs (details are referred to Chapter 11.4.2, Supporting Report).

The foreign loan may be availed of at the maximum financing limit of 75% of the overall project cost. This can be secured by GOP and channeled through the MDF.

(2) Augmentation of sector finance under current arrangements

Increase of the IRA to the Relevant Sector

The increase of IRA from the national government to LGUs is at first needed along with current procedure. LGUs shall also arrange the funds with a priority to the relevant sector.

Local Taxes

More allocation of local taxes to the relevant sector shall be arranged although the share of local taxes in the provincial total budget is small.

Utilization of Other Local Funds

Utilization of other funds, Countryside Development Fund (CDF) in particular, shall be sought for development of the relevant sector.

(3) Introduction of private sector

Privatization of Level III Waterworks System

Privatization of Level III systems helps expedite sector development and sustainability of the system as suggested by NEDA Board Resolution No. 4 (series 1994).

LGU Guaranty Organization

LGU Guaranty Organization as a public-private corporation managed by private sector in the national level shall be studied to encourage private financing for the development of environmental infrastructure, which is introduced in other developing countries. The organization will guarantee local private loans to LGUs in provision of a longer term financing.

(4) Effective and economical investment

Investment Need Ranking of Municipalities

Investment need ranking of the municipalities is discussed as a guide for implementation of PW4SP and a measure for effective and economical public investment. Referring to this ranking, the provincial government will arrange its financial resources more effectively.

The ranking for urban water supply is specifically studied considering three factors, while a sole factor of additional requirements is assumed to coincide with the priority of other sub-sectors. Synthetic evaluation of concerned sub-sectors is finally presented in the context of comprehensive improvement of this sector. The result for urban water supply is employed for allocation of provincial IRA to the municipalities in the concerned sub-sector. The synthetic ranking may be availed for the huge investment that will use the funds to be provided by other donors in the future.

For the urban water supply component, the ranking criteria comprise three essential evaluation factors, namely: (a) percentage of underserved and unserved population in the base year; (b) percentage of underserved and unserved population in Phase I; and (c) percentage of population unserved by Level III Systems in the base year. First, these factors are scored by the range of underserved and unserved percentage and totaled by municipality with the application of weighing method. Adopted weight to the factors (a), (b) and (c) are 50%, 35% and 15%, respectively. Table 11.4.1 shows ranking procedures, overall weighted score and investment need ranking of the municipalities. There are three (3) municipalities identified as top three priority municipalities namely Asuncion, Carmen and Panabo.

With reference to the provincial fund allocation, equal distribution was made to concerned municipalities, since the investment need is limited to those municipalities with

ranking of first to 4th. The result of distribution is shown in Table 11.4.2. The funds for all concerned municipalities are in short.

To come up with the synthetic ranking of the municipalities, scoring method is also employed for other sub-sectors. The score is derived from the range of underserved and unserved percentage in the base year. Synthetic investment need ranking of municipalities covering four sub-sectors is shown in Table 11.4.3 (refer to ranking procedures in Table 11.4.1, Supporting Report). The top ranking municipalities are Asuncion, Carmen, Panabo, Island Garden City of Sand, and New Corella which indicate that they are given priority for investments in all sub-sectors, Kapalong is the least priority in terms of investment.

11.5 National Government Assisted Level I Water Supply and Sanitation Project

Of the overall project requirements for the medium-term development, those for Level I water supply and sanitation improvement with possible assistance from the GOP were studied in application of new cost-sharing arrangement. In 1997, the six provinces in the Luzon area (after completion of PW4SP) jointly submitted the project proposal, as a package of OECF assisted loan, to the NEDA through the DILG for the limited sub-sectors under the above conditions.

In the same context as proposed by the six provinces, project components with scope of work and financial viability were studied. The project is a part of medium-term development plan for Level I water supply and sanitation for limited classes of the municipality. The DILG is assumed to be Executing Agency and the province as the Implementing Agency in the meantime. The project may be merged together with those of the 1st batch provinces in the preparation of the PW4SP. The implementation of a packaged project may be realized in the near future.

Table 11.4.1 Municipal Investment Need Ranking for Urban Water Supply

Name of Municipality	Evaluation Factor			Scoring by the Factor			Overall Weighted Score	Investment Need Ranking
	% of Underserved and Unserved Population in Base Year	% of Underserved and Unserved Population in Phase I	% of Population Unserved by Level III Systems in Base Year	Underserved and Unserved Population in Base Year	Underserved and Unserved Population in Phase I	Population Unserved by Level III Systems in Base Year		
Asuncion	72	73	84	1.00	1.00	1.00	1.00	1
Braulio E. Dujali	100	100		1.00	1.00	0.20	0.88	6
Carmen	83	85	83	1.00	1.00	1.00	1.00	1
Island Garden City of Samal	61	65	76	1.00	1.00	0.80	0.97	4
Kapalong	26	30	73	0.60	0.40	0.80	0.56	10
New Corella	73	76	73	1.00	1.00	0.80	0.97	4
Panabo	61	66	90	1.00	1.00	1.00	1.00	1
Santo Tomas	29	37	49	0.60	0.60	0.60	0.60	8
Tagum City (Capital)	23	32	52	0.60	0.60	0.60	0.60	8
Talaingod	100	100		1.00	1.00	0.20	0.88	6
Provincial Total	41	48	66					

Note: 1. Scoring to Underserved and Unserved Percentage.

Score	Range of Underserved and Unserved Percentage		
1.0	41 < %	61 < %	81 < %
0.8	31 < % < 40	46 < % < 60	61 < % < 80
0.6	21 < % < 30	31 < % < 45	41 < % < 60
0.4	11 < % < 20	16 < % < 30	21 < % < 40
0.2	% < 10	% < 15	% < 20

2. Weight Allocation to Score.

50	35	15	Allocated Weight

Table 11.4.2 Distribution of Provincial IRA to Municipalities for Urban Water Supply

Unit: P 1,000

Ranking	Name of Municipality	Fund Distribution		IRA to Municipalities from National Government (2)	Available Fund Distributed to Municipalities (1) + (2)	Phase I Requirements	Accomplishment Percentage (%)
		Fund Distribution from Provincial Government (1)	Distribution Percentage (%)				
1	Asuncion	5,493	20.00	3,537	9,030	14,648	61.65
6	Braulio E. Dujali						
1	Carmen	5,493	20.00	2,420	7,913	26,235	30.16
4	Island Garden City of Samal	5,493	20.00	3,221	8,715	27,225	32.01
10	Kapalong						
4	New Corella	5,493	20.00	3,024	8,517	20,543	41.46
1	Panabo	5,493	20.00	7,219	12,713	66,059	19.24
8	Santo Tomas						
8	Tagum City (Capital)						
6	Talaingod						
Total		27,466	100	19,421	46,887	154,710	30.31

Table 11.4.3 Municipal Investment Need Ranking

Name of Municipality	Weighted Score by Sub-sector					Synthetic Municipal Investment Need Ranking
	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Total Weighted Score	
Asuncion	0.25	0.25	0.05	0.05	0.60	7
Braulio E. Dujali	0.22	0.25	0.25	0.10	0.82	2
Carmen	0.25	0.25	0.25	0.10	0.85	1
Island Garden City of Samal	0.24	0.25	0.20	0.10	0.79	3
Kapalong	0.14	0.10	0.05	0.10	0.39	9
New Corella	0.24	0.20	0.15	0.10	0.69	5
Panabo	0.25	0.20	0.15	0.05	0.65	6
Santo Tomas	0.15	0.10	0.15	0.10	0.50	8
Tagum City (Capital)	0.15	0.10	0.05	0.05	0.35	10
Talaingod	0.22	0.05	0.25	0.20	0.72	4

11.5.1 Project Components

(1) Water Supply and Sanitation Component

Since all municipalities of the province are 1st to 4th class municipalities, there is no water supply component to meet the conditions in the provision of GOP-assisted Level I water supply in the rural areas (which is limited to 5th and 6th class municipalities). While, there are six (6) municipalities/city that meet the condition for GOP-assisted projects (limited to 3rd to 6th class municipalities) in sanitation sub-sector. The sanitation component comprises 12,069 units of toilet bowl by distributing toilet molds (pour flush type only), 18 public toilets and 87 school toilets to the rural communities. With the integration of sanitation in the water supply projects, equal emphasis shall be given to sanitation component to ensure a greater health impact in the rural communities. School toilets will be constructed for public school in the rural areas, while public toilets will be constructed at public markets and bus terminals in urban areas. Health consciousness among the rural people will also be bolstered with the provision of health education training and IEC materials.

(2) Consultancy Services

Considering the magnitude and complexity of the project, consulting services and technical assistance may be availed to strengthen the executing and implementing agencies' capabilities in undertaking the project. The services will cover technical and institutional/community development aspects of the project.

During the detailed design stage, the services will cover finalization of construction sites based on site selection criteria to be developed, and preparation of bidding documents. Guidelines and training program for strengthening the capability of implementing agencies and NGOs will be prepared and carried out. The construction stage will include assistance to LGUs in the supervision of construction works, community organizing and training.

(3) Institutional Development

The project entails community development with people's active participation to assure the responsibility for O&M of the facilities and strengthening of existing institution/organization and/or formation of new ones. Thus, various activities will be under-

taken from national to beneficiary levels. A sufficient cost for the purpose will be taken into account.

11.5.2 Project Requirements

The province will manifest its willingness to participate in the project entailing timely arrangements to meet NEDA requirements. These requirements are (1) RDC Endorsement, (2) ECC clearance and (3) Letter of Commitment. In addition, Memorandum of Agreement (MOA) on the cost-sharing and other arrangements required for the project will be exchanged between the province and concerned municipalities.

11.5.3 Funding Requirements

(1) New Cost Sharing Policy

The project finance was studied in accordance with the 50%-50% cost-sharing arrangement (50% is an average municipality's share among concerned municipalities) between the GOP and the LGUs. Financial sharing among the province, municipality and barangay shall then be clarified based on the estimated cost requirements through MOA.

The new policy of the national government grants for devolved activities stated that "this scheme shall be applied to all new ODA-assisted projects that are currently being packaged in support of LGUs". With regard to this, 50% national government share will be applied for Level I water supply (not applicable to the province) and even 70% of NG share for 5th and 6th classes of municipalities for sanitation component (refer to Table 11.5.1).

Table 11.5.1 New Cost-Sharing Arrangement between NG and LGUs

Sector/Activity	LGU Income	Devised NG	Remarks
Water Supply: Level I only	1st to 4th	0	No GOP grants for Level II & III sys-
	5th and 6th	50	
Sanitary Support Facility for Public Markets and Slaughterhouses	1st to 2nd	0	
	3rd and 4th	50	
	5th and 6th	70	

(2) Financial Viability

1) Conditions and Assumptions for Financial Study

- The cost sharing between the GOP and LGUs is assumed to be 50% : 50% of the overall project cost. It is assumed that the 50% share of LGU is further allocated to the LGUs and beneficiaries with 47% and 3% to the overall cost, respectively.
- The financial sources of the national government are the loan from foreign donor and GOP counterpart budget and LGUs from the budget of the province and municipalities. The part of beneficiaries is equity contribution including land purchase cost, right of way, labor, etc.
- The O&M cost is managed by the beneficiaries.

2) Project Cost

The cost estimate was made based on 1997 price level in Chapter 10. Then, physical and price contingencies as well as value-added tax were added. The project cost for the concerned municipalities in line with above conditions/assumptions is shown in Table 11.5.2. Overall aggregate cost from 1999 to 2003 is estimated at about ₱76.1 million (₱53.7 million in 1997 price level) referring to the implementation schedule of the project.

3) Financial Arrangement

The two alternatives for the financial arrangements are studied to prepare required cost to be shared among concerned parties: i) Utilization of IRA only and ii) Utilization of IRA and MDF.

Case 1: Utilization of IRA fund only

Currently, there is no projection on the drastic increase of LGUs' budget through the future. Under such a condition, the following are considered.

- Potential fund is the IRA allotted annually from the GOP to municipalities and from province to municipalities. Municipal tax is negligible to be considered in

allocation to the sector. The total municipal budget available was projected by sub-sector in Section 11.3.

- Arrangements by the municipalities with MDF and banks are disregarded considering the current financial capability of the municipalities.
- 5-year development program (from 1999 to 2003) is applied to increase project funds using the available IRA.

Applying the cost-sharing arrangement, the projected IRA available was estimated for the eligible municipalities in provision of national government grant fund based on the following conditions.

a) The available fund of sub-sectors is a sum of municipal and provincial allotments of IRA.

b) For sanitation sub-sector, IRA to municipalities with income classification of 3rd to 6th classes are counted. The IRA allotted to the province are divided into two groups; class 1st to 2nd and class 3rd to 6th in proportion to the construction cost required. The provincial IRA for the eligible municipalities is considered for this project.

The total IRA of the province available for the eligible municipalities in the sanitation sub-sector was estimated at ₱ 22.559 million as a total of 5-year development program, in combination of available IRA allotted to urban and rural sanitation (details are included in Table 11.5.1, 11.5.2 and 11.5.3, Supporting Report). The available IRA is shown below:

Sub-sector	Provincial IRA	Municipal IRA	Total
Rural Sanitation:	8,681,000	8,010,000	16,691,000
Urban Sanitation:	3,240,000	2,627,000	5,868,000
Total:	11,921,000	10,637,000	22,559,000

The cost comparison was made between the estimated project cost to be shared by the LGUs and available IRA of LGUs. Both the required cost and IRA are based on 1997 year price level without considering price escalation, but including physical contingency.

Table 11.5.2 GOP-Assisted Level I Water Supply and Sanitation Project Cost

(Unit: Peso)

Category	Qty.	Unit Cost	Amount	GOP		LGU
				Foreign Loan	GOP/CP	
A. Const. & Civil Works						
Water Supply						
1. Deep Well (40m)	0		0			
2. Deep Well (80m)	0		0			
3. Deep Well (120m)	0		0			
4. Shallow Well	0		0			
5. Spring Development	0		0			
Sub-total a			0	0		0
Sanitation						
1. HH Latrines	12,069	700	8,448,300			
2. School Toilets	87	274,100	23,846,700			
3. Public Toilets	18	344,100	6,193,800			
Sub-total b			38,488,800	14,094,431		24,394,369
Land acquisition						
Land acquisition & Right of Way			0			0
Sub-total A			38,488,800	14,094,431		24,394,369
B. Equip./Logistic Support						
1. Support Vehicle	0	590,000	0	0		
2. Well Rehab. Eqt.	0	280,000	0	0		
3. Maintenance Tools	0	10,000	0	0		
4. Water Quality Test Kits	0	15,300	0	0		
Sub-total B			0	0		
C. Consultancy Services						
1. Hydrogeological Survey			0	0		
2. D/D and Const. Sv.			4,233,768	4,233,768		
Sub-total C			4,233,768	4,233,768		
D. Instiutional Devt.						
1. Capacity Enhanc. Prog.	L.S.		3,200,000	2,650,000	550,000	
2. Commu. Manag. Prog.	121	10,770	1,303,170	437,865	865,305	
3. Health & Hygiene Educ.	121	1,800	217,800		217,800	
4. Water Quality Surveil.	0	700	0		0	
5. NGO Assistance	121	1,200	145,200		145,200	
6. Administrative Support	L.S.		1,200,000		1,200,000	
Sub-total D			6,066,170	3,087,865	2,978,305	
E. Physical Contingency			4,878,874	2,141,606	297,830	2,439,437
Total (A+B+C+D+E)			53,667,612	23,557,671	3,276,135	26,833,806
GOP Total					26,833,806	
LGUs						25,223,778
Equity						1,610,028
LGUs + Equity						26,833,806
F. Others						
1. Price Contingency			20,596,069	9,577,151	1,198,922	9,819,995
2. Value Added Tax (VAT)			1,832,820		1,832,820	
Sub-total F			22,428,888	9,577,151	3,031,742	9,819,995
Grand Total			76,096,500	33,134,822	6,307,877	36,653,801

Note: (1) Equity of users includes land cost, right of way, labor, etc., equivalent to 3% of direct cost (excluding item F).
(2) N.A.: Not applicable
(3) Assumption/Conditions for Cost estimate
1) Direct cost: based on 1997 price level.
2) Pysical contengency: 10% of materials procured.
3) Price contingency: Forex 3%; local 7%; compounded annually, base year 1997
4) Value added tax; 10% materials produced.

The comparison shows that the projected available IRA, as the provincial total aggregated in assumption of respective 5-year development programs, meets the cost to be shared by the LGUs. Table 11.5.3 shows the cost-sharing for the project among the GOP, LGUs and beneficiaries (BWSAs). The GOP shall shoulder 50% of the overall project cost, utilizing the foreign-assisted loan of 43.9% or ₱23.6 million and 6.1% or ₱3.3 million of the government counterpart fund. The remaining 50% of the overall cost shall be shared between the LGUs with share of 47% or ₱25.2 million and beneficiaries to contribute 3% or ₱1.6 million.

Table 11.5.3 Cost-Sharing for the Project (Case 1): 1997 price level

Financial Source	x 1,000 Peso	Percentage		Remarks
GOP	3,276	6.1	50	GOP counterpart
	23,558	43.9		Foreign Loan
LGUs	25,224	47	50	IRA
	1,610	3		Equity of beneficiaries
Total	53,668	100		

Under this case, it was identified that about ₱ 2.7 million are in short achieving 90% of the proposed requirements in comparison between available IRA and the cost to be shared by LGUs.

As an option to solve this financial shortage, the provincial government may re-arrange IRA allocation; about 20% of replenishment from the remaining provincial IRA allotted to urban and rural sanitation sub-sector after reducing allotted amount to the eligible municipality.

Case 2: Utilization of IRA and MDF

The utilization of the MDF is considered in case that the LGUs will fail to furnish IRA for the project (even if estimated IRA available meets the required cost to be shared by the LGU). The foreign loan may be availed of at the maximum financing limit of 75% of the overall project cost.

Thus, the GOP shall possibly support the LGUs through the MDF in case that manageable IRA will not be able to fill up the cost requirement of the project. Table 11.5.4 shows the cost sharing scheme for the project between the GOP and the LGUs.

Table 11.5.4 Cost Sharing for the Project (Case 2)

Financial Source	x 1,000 Peso	Percentage			Remarks
GOP	3,276	6.1	5		GOP counterpart
	23,558	43.9	75	50	Foreign Loan
	16,691	(31.1)			Foreign Loan for MDF
LGUs	8,553	15.9	47		IRA
	16,691	31.1		50	MDF through Foreign Loan
	1,610	3	3		Equity of beneficiaries
Total	53,668	100			

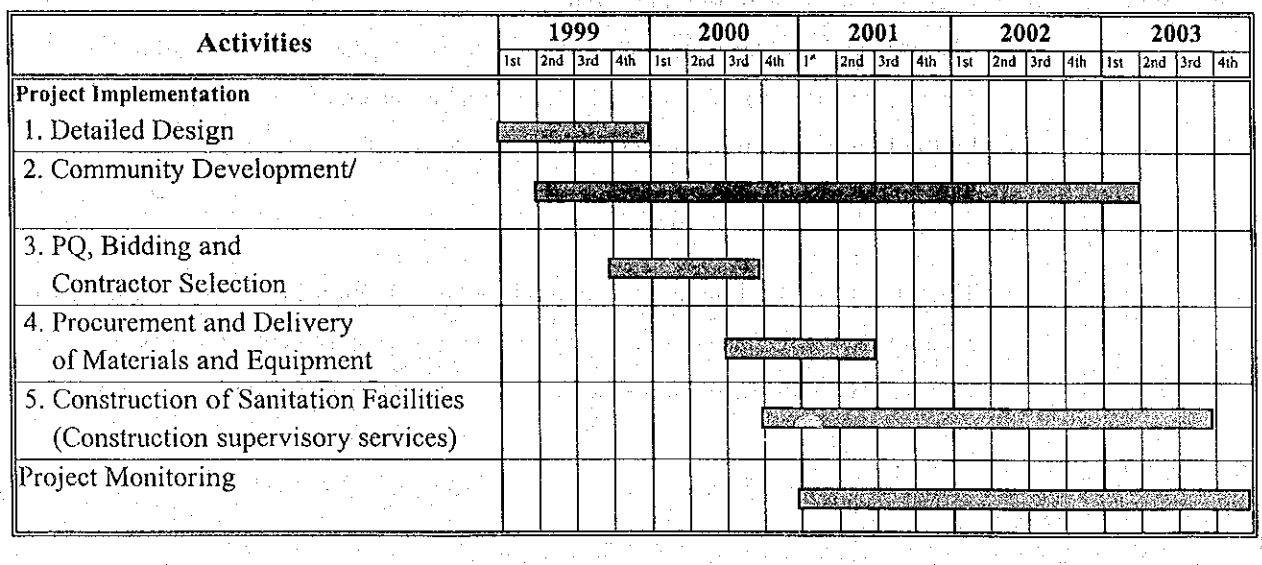
Under this case, the IRA to be used by the LGU is about 40% of the available IRA estimated in the previous study (₱22.6 million).

GOP can possibly finance up to ₱40.2 million or 75% of the total project cost in the portion of loan. Out of the GOP finance through the loan, ₱23.6 million or 43.9% of the total project cost shall be granted to the LGUs, aside from the 6.1% GOP counterpart fund. The remaining ₱16.691 million or 31.1% of the total project cost shall be utilized for financing the LGUs to secure their budgetary capacity through MDF.

4) Project Implementation Schedule

The proposed implementation of the project is scheduled for five years after hiring the consultants. Figure 11.5.1 presents the proposed schedule.

Figure 11.5.1 Proposed Project Implementation Schedule



11.6 Cost Recovery

Cost recovery and cost sharing are essential to attain the planned targets. The PW4SP advocates the imposition of tariffs for the recovery of capital and operating cost based on the principle that adequate water, sewerage and sanitation facilities should be paid for.

(1) Level I water supply systems

For Level I systems, cost sharing between the LGUs and beneficiaries is required for the capital costs, even the portion of the beneficiaries is limited according to the current national policy. Currently, the percentage shared by the beneficiaries seems to be 3 to 5% of total requirements based on the experience.

Beneficiaries are also responsible for all recurrent costs. Monthly recurrent cost is estimated at about 8 Pesos per household in the base year price level (refer to recurrent cost in Chapter 10). The figure will be increased up to about 12 Pesos per household in the year 2003, assuming an annual inflation rate of 7%. This monthly fee seems to be affordable to the users considering the current income level (refer to affordability in Chapter 6), but willingness to pay shall be promoted.

Depending on the users' income level, water charges shall be determined and agreed upon among the water users. The estimated water charge for O&M cost is ₱8 per household per month, which is less than 1% of the median monthly household income of ₱4,580 in 1997. However, the users will have to pay water charge of up to 2% of their monthly income or ₱92/ household/month to manage not only for repair of hand-pump, but also rehabilitation and reconstruction of deep well, assuming that well life is 20 years.

(2) Level II water supply systems

Full cost recovery is required for all capital costs for Level II systems. The number of households to be covered is 1,042 to meet the target (refer to Table 8.5.1; population to be served of 5,314 people and household size of 5.10 persons). The average capital cost to be paid is estimated at ₱9,435 per household (refer to Chapter 10 Main Report and Supporting Report). Applying the capital recovery factor to the capital costs with conditions of 7% interest rate and 25 years repayment period, monthly payment amounts to about ₱67 per household.

The annual recurrent cost per household is estimated to be ₱180 (₱15/household/month) in the base year (refer to Chapter 10). It will reach to about ₱22.5 in the year 2003 at an annual inflation rate of 7%. Thus, the total amount of repayment and recurrent cost in the year 2003 is about ₱90, which is less than 2% of the family income as shown below.

(a) Estimated water rate (flat rate; Pesos)	:	90.00
(b) Percentage of (a) to monthly median household income in 2003 [1)]	:	1.3%
(c) Percentage of (a) to monthly low household income in 2003 [2)]	:	1.4%

Notes:
1) Provincial average monthly median income in 2003 (₱6,873 per household) is derived from 1994 Family Income and Expenditure Survey considering annual inflation rate of 7%. The monthly median income in 1997 is ₱4,580
2) Provincial average monthly low income in 2003 (P6,523 per household) is estimated using the NSO data. The monthly low income in 1997 is ₱4,347.

(3) Level III water supply systems

A full recovery of capital and operation & maintenance cost is required for Level III systems. To test the affordability, a comparative study was made between estimated water rate (based on standard monthly consumption; 15m³ per household) and projected income in year 2003. Total capital cost of Level III water supply system is ₱106.311 million for 5,706 households to be served. Assuming an annual inflation rate of 7% and 25 years repayment period, annual capital cost to be paid is about ₱1,599 per household. The monthly capital cost to be paid by each household is about ₱133.

The monthly recurrent cost per household is estimated to be ₱46 (₱557/ year; refer to re-current cost in Chapter 10). Using an annual inflation rate of 7%, this recurrent cost is projected to be ₱70 per household in the year 2003.

The combined amount of capital repayment and recurrent cost in the year 2003 arrives at ₱203/ household/month. The cost shall be recovered as a monthly water charge to be paid by users. The percentage of the water rate against income with more or less 5% is commonly affordable. In this regard, monthly water consumption for low-income households is less than 10 m³.

(a) Estimated water rate for 15 m³ (Pesos) [1)]	:	203.00
(b) Estimated minimum water rate (1-10 m³) (Pesos) [2)]	:	174.00
(c) Percentage of (a) to monthly median household income in 2003	:	3.0%
(d) Percentage of (a) to monthly low household income in 2003[3)]	:	3.1%
(e) Percentage of (b) to monthly low household income in 2003	:	2.7%

Notes:
(1) Water rate for the HH with monthly consumption rate of $10m^3$ is estimated under the same assumption of a).
(2) Monthly median household income is ₱6,873 and the low household income is ₱6,523 in the year of 2003.

(4) Sanitation

The provision of sanitary toilet facilities for public markets and schools is under LGUs in coordination with parent-teacher association. However, recurrent cost for the public markets shall be collected from the users including stakeholders of the market.

Household toilet shall be managed by individual household. However, the facility is costly with reference to the current income level, especially in the rural area (flush-type toilet; ₱21,300 and pour-flush toilet; ₱13,000). Governmental support is also limited to the provision of toilet bowl for pour-flush toilets as an incentive to increase the distribution of water-sealed toilets. Thus, cost recovery in application of loan shall be considered.

Applying the capital recovery factor to the construction cost with assumptions of 7% interest rate and 5 years repayment period, monthly repayment amounts to about ₱468 for a flush type and ₱286 for a pour-flush type, respectively (details of unit cost are referred to in Chapter 10, Supporting Report). The percentages of repayment to household income in the year 2003 are calculated in the same manner as the study for Level III water systems and are shown below.

(a) Repayment for Flush Type (Pesos)	:	468
(b) Repayment for Pour Flush Type (Pesos)	:	286
(c) Percentage of (a) to monthly median household income in 2003 1)	:	6.8%
(d) Percentage of (b) to monthly low household income in 2003 2)	:	4.4%

To expedite the sanitation sector improvement, introduction of specific loans that are revolving in character with low interest rates and longer repayment period may be an effective solution. For urban sanitation, the linkage with existing housing loan shall be established to cover construction of sanitary toilets.

Chapter 12

MONITORING FOR MEDIUM-TERM DEVELOPMENT PLAN

12. MONITORING FOR MEDIUM-TERM DEVELOPMENT PLAN

12.1 General

Many of the systems constructed earlier have operated in a limited way because of the insufficient monitoring and post-construction technical support, aside from the problems in promotion of self-reliance and local community management. This Chapter seeks to recommend a focused, practical, viable, creative approach to strengthening sector and project monitoring. The development of a coordinated monitoring system is one of the key components of an effective management system.

Sector monitoring refers to the overall water and sanitation situation in the province. One may readily use a demand-supply model for sector monitoring. Demand would be indicated by such indicators as coverage, health conditions, etc. Supply would be indicated by the water resources situation, by the available funding, or by water/sanitation associations organized to undertake sector activities. Project monitoring, on the other hand, looks at the progress of specific activities or projects. Indicators would thus include; disbursements, percent completion, cost overruns (under-runs), etc.

12.2 Sector Monitoring

(1) The monitoring system must support a well-defined and accepted sector development process-model. There are four general aspects of sector monitoring which will be addressed:

1) Information collection: Defining the information needs of the LGUs from various levels; reviewing current, readily-available sector information, including its reliability and timeliness; identifying the information gaps and deficiencies of the information system; data consolidation and processing.
2) Tracing the flow of raw data from the field (or other related monitoring systems) to the central level. Identifying possible causes of distortions, inconsistencies or blocks.
3) Information analysis: Assessing the quality of information; reviewing the analyses done.
4) Data feedback: Reviewing the impact of information on planning and decision making at the policy level, the resource allocation level and the operating level; tracing the flow of data back to the field.

(2) Sector performance deficiencies demand that serious thought be given to innovations to reduce costs in achieving the provincial sector plan. With the monitoring system, the sector should be able to take a fresh and objective view of the way to meet current strategies. For example, does community management of systems really work? Do low-cost technologies make sense? Under what conditions and how? How can the target be achieved for low-income communities? A sector monitoring system should be flexible to support planning and research studies on such specific policy and operational issues.

(3) In putting together a relevant sector monitoring system, the following should be seriously looked into:

1) It should reinforce the linkage between water, sanitation and health. This implies that coverage should be measured for availability of both water and sanitation for a household. It should not be monitored separately, i.e., a household can thus be categorized as having both water and sanitation, water only, sanitation only or none of either. At later stages, health practices can be included in the monitoring.

2) It should be reliable and involve the beneficiaries. This mechanism could provide the data quality control, which is missing in existing systems. Distortion of information may occur when implementors are the monitors. The barangay will be the basic data capture level.

3) Monitoring will succeed only with interagency support, particularly in the initial stages. It should be accepted by all sector agencies. A unified set of figures and indicators will greatly help in planning.

4) It should be practical and implementable. It should start with the current monitoring capacity situation and move up with a clear vision of what the monitoring system should be. This implies phasing and gradual expansion and strengthening of the system and training of staff.

5) The system should be followed through with effective feedback. It should develop creative ways of providing feedback to the field. The current way in which data is processed is towards consolidation. The field sources' only feedback is, for example, national coverage figures. In the course of consolidation, opportunities for specific feedback useful to project implementors on performance are lost.

(4) Regarding sector development indicators, some important indicators will be more difficult to collect because the sector is not ready to gather them. The LGUs will group indicators into phases based on availability of data and/or ease with which such information can be collected with improved systems. A review of the objectives set for the sector almost exclusively shows a focus on coverage. It is important to get sector objectives

stated beyond coverage terms in order to encourage use of additional indicators. Based on past experience, requiring too much information leads to start-up difficulties. A three-phase build-up meeting sector requirements is outlined in the following sections:

1) Phase 1 Indicators
   - Access to both adequate water and sanitation
   - Water and sanitation associations duly organized to undertake sector activities
   - Water and sanitation facilities in schools
   - Capital development costs
   - Sources of capital development funds
   - Incidence of diarrhea
   - Water availability and water quality maps
   - Unit cost (per capita or per facility)

2) Phase 2 Indicators
   - Household hygiene habits and practices
   - Water stored in house covered? food covered? grounds free of faeces, garbage, wastewater cesspools? animals in the house? mother's and children's hands clean?
   - Existence of barangay spot maps and facilities ledger cards
   - Existence of O&M arrangements
   - Current costs to households and willingness to pay for improved service

3) Phase 3 Indicators
   - O&M Costs
   - Financial efficiency and stability indicators
   - Institutional development indicators
   - Low-income groups benefiting from improvements

(5) NEDA has issued a Board Resolution in 1995 providing a practical definition of terms for planning and monitoring. The definitions were arrived at after exhaustive discussions and consensus with the implementing agencies.

(6) Recommended institutional responsibilities for sector monitoring: Monitoring is best left to parties not directly involved in delivery of the services. The best monitors are the community members themselves since accurate monitoring reports is in their best

interest. At the data capture level, the PHO structure, with its midwives and BHW volunteers, is in the best position to take the lead in data gathering.

1) Provincial Level: The PPDO, through its Research and Evaluation Division, will play the lead role in organizing the field data collection effort in coordination with the field offices of national agencies, NGOs and the water districts. The Monitoring Specialist, with the PST/PWSO, will assist the PPDO.
2) Municipal Level: The Municipal Development Coordinator has the mandate of monitoring all development activities in the municipality. The municipal sector liaison will therefore coordinate the preparation of the reports with the MPDO, supported by PHO and NGOs, as needed.
3) Barangay Level: There are several institutional options for leading the monitoring at the barangay level, such as the barangay health stations, the barangay council, etc. The municipal liaison will take the lead in establishing the barangay monitoring responsibilities.

(7) Computerization of the system can come at later stages. This should be gradually phased in as the sector agencies strengthen their monitoring mode. This will also discourage a ground swell of requests for computer hardware. Computer facilities are available at the provincial level.

(8) A new sector database program has been designed and currently under review. A Sector Database Center has been established within the DILG-PMO. The system has been successfully piloted in three provinces and replication in other priority provinces will begin shortly.

12.3 Project Monitoring

Project Monitoring Committees (PMCs) exist at the provincial and municipal levels tasked with the monitoring of local government projects funded from national and local government funds.

(1) Scope and coverage: At the provincial level, monitoring includes projects classified under any of the following:

1) foreign and nationally-funded projects which are implemented or located in two or several municipalities in the province or implemented or located in the province;

2) other projects implemented and managed at the provincial level with funding generated from provincial sources.

(2) Organization of Project Monitoring Committee (PMC): The PMC established in each province is composed of representatives from different organizations, from NGOs, the administration, the ruling party and the opposition. From these representatives, the Provincial Governor selects the chairman and the others as members. The Provincial Planning and Development Office can be delegated to serve as the Secretariat and the PMC manages with the assistance of the non-government organizations in the monitoring and validation of project implementation.

(3) Responsibilities: The specific rules and responsibilities of the various units in the implementation of the monitoring system are as follows:

The Project Monitoring Committee :

1) Provides the list and schedule of all projects to be monitored to the NGOs involved in monitoring;
2) Collects and processes reports of implementors; NGOs monitor the status of project implementation for the information of the development council and next higher level project monitoring committee;
3) Pinpoint problems and verify information to be submitted for analysis and action of the development council;
4) Provide feedback on the remedial actions of the development council and follow-up their implementation;
5) Prepare and disseminate periodic project monitoring report on the status of project implementation; and
6) Elevate to higher level bodies problems/issues which are not resolved at their level.

The PMC Secretariat:

1) Prepare the monitoring program to be undertaken by the PMC during any given fiscal year, which will include, among others, the lists of projects and schedule of implementation based on submission of implementing agencies;
2) Provide chief executives with information on the projects to be monitored by the local PMC's;
3) Facilitate inter-agency, inter-governmental and field headquarters coordination whenever necessary.

The Project Implementors:

1) Submit periodic reports to the monitoring committee on the status of project implementation base on suggested reporting forms;
2) Provide authorized monitors assistance in getting access to more detailed information on project implementation (e.g. detailed work program);
3) Submit to next higher level office of line agency reports on status of implementation;
4) Implement/institute remedial measures on problems/issues identified as suggested by the development council.

(4) Process Flow

1) The PMC secretariat provides the NGOs with the monitoring plan, containing information on projects to be implemented at the provincial level;
2) PMC prepares its monitoring program for the calendar year;
3) Project implementors undertake projects, prepare and submit status reports on project implementation to the PMC;
4) NGOs project exception reports are submitted to the PMC, with copy furnished the project implementors;
5) PMC assesses reports of implementors and NGOs and conducts project visits of projects identified in the monitoring work program;
6) PMC processes reports of various implementors and provides the provincial development council with a consolidated report on status of project implementation in the province;
7) PMC evaluates problems, recommends solutions during its regular or special meetings, and refers same to the Provincial Development Council for appropriate action;
8) PDC assesses reports and takes proper action (problem solving, referral to appropriate agencies/council);
9) Implementors take remedial action on problems/issues encountered in project implementation. (If after a reasonable period of time, no remedial measures/ appropriate action have been taken on the problems referred to the concerned agency/local development council, the PMC forward the issue to that RDC.);
10) PMC provides feedback to concerned implementors, LGUs, NGOs, and other concerned agencies and follow-up implementation of remedial measures; and
11) PMC forwards consolidated status report on project implementation in the province to the Regional Project Monitoring Committee (RPMC).

(5) Frequency/Timing of Report Submission

The PMC determine the schedules for the submission of reports. Reports are submitted to the PMC who will forward the consolidated reports to the Provincial Development Council (PDC). Submission of the consolidated report from the provincial PMC to the regional PMC is usually undertaken on a quarterly basis. The PMC furnishes the Provincial Governor with a copy of the reports for his reference and action.

12.4 Evaluation of Plan Implementation and Updating the PW4SP

(1) This PW4SP should be updated at least every five years. This will be the responsibility of the PWSO in close coordination with the PPDO. Based on the sector monitoring reports, the PWSC will review the progress of the sector compared with objectives and the efficiency with which these objectives were achieved. This will be followed by a reformulation of objectives, strategies, new policies and policy revisions and an updated sector investment program.

(2) To initiate the implementation of this sector monitoring system, the Phase I indicators (See 12.2) shall be used. Formats have been drafted for this purpose (See Table 12.4.1, Supporting Report). Specifically, the information to be collected are as follows:

1) Access to both adequate water and sanitation as a measure of demand: This indicator can be taken from the Field Health Service Information System (FHSIS) Annual Environmental Sanitation Survey which are prepared by the PHO midwives. The sanitary inspectors summarized these annual surveys by municipality. NSO population projections will be utilized.
2) Water and sanitation associations (RWSAs/BWSAs) organized: This indicator can be collected from the Cooperative Development Authority (Municipal or Provincial Chapters) in as much as all water cooperatives and/or associations are required to register with the CDA.
3) Water and sanitation facilities in schools: This indicator can be collected from the various school district offices; consolidated at the division (provincial level). Although a system is in place for regular inventory of facilities by DECS, actual inventories are seldom implemented and the LGUs may have to institute a supporting data gathering activity.
4) Capital development costs: The LGUs may have to gather information from the local DEO of DPWH, the various municipalities and the water districts.
5) Sources of capital development funds: Data sources are the same as those of item 4).

6) Incidence of diarrhea: This information can be taken from Form M-2 of the FHSIS. (Collection and processing of the data form is similar to that of item 1).

7) Water availability and water quality maps: These maps should be continually updated based on field reports on water quality and quantity as they are received from operations reports studies. Areas where, for example, salinity is increasing should be indicated. Areas suitable for shallow wells, for deep wells and for possible spring sources can be indicated.

8) At the conclusion of every project, the monitoring specialist prepares a report on actual unit costs incurred. This would include, for example, the cost of drilling for shallow or deep wells per meter depth; the cost of pipeline per linear meter, etc.

(3) Municipal level consolidation: For every reporting period, the municipal sector liaison gathers all the barangay level data including those reports of the municipal health officer (and sanitary inspectors), the DECS division offices. A municipal sector report will be thus prepared. Further refinements of this report may be needed in view of future development initiated at the national level.

The municipal sector report is reviewed by the Mayor and then submitted to the Governor for further consolidation. Salient sections of this report would be furnished to DILG, which is tasked with coordinating a national sector performance report for NEDA and for the President.

(4) Feedback: Based on these reports, the PST/PWSO will draft a consolidated report on the performance of the sector during the period including the opportunities and constraints met and a set of recommendations for policy revision. Municipalities which have made outstanding progress, and associations, which have introduced creative innovations in its operations would be cited.

Annual reviews shall be organized to analyze not only the attainment on the physical project targets, but more significantly, whether the vision is being attained. These reviews could also provide the opportunity to sharpen or revise the vision and the mission statement and distill lessons learned from the implementation experiences.