Chapter 10

COST ESTIMATE 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. In this regard, the required cost for on-going ADB assisted project was excluded from the investment plan.

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 1998 price level (refer to Supporting Report).

Recurrent cost was also included in this Chapter taking into account 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 1998 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 (detailed 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 (9%) 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 100% and 0%. Required cost for iron removal facility shall be included as required for deep wells at high iron contained area (details are referred to Table 7.3.1, Main Report).
- Unit cost for Level I spring development was estimated considering system upgrading to Level II adopting 63mm 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.)
  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.

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	25,073,750	5,000	N/A	5,000	N/A	
	For 10,000 population	37,262,500	10,000	N/A	3,700	N/A	
	For 15,000 population	53,785,000	15,000	N/A	3,600	N/A	
	Expansion						
	For 5,000 population	23,171,250	5,000	N/A	4,600	N/A	
	For 10,000 population	35,360,000	10,000	N/A	3,500	N/A	
	For 15,000 population	51,882,500	15,000	N/A	3,500	N/A	
Rural Water Supply	**Level II**	1,387,838	600	120	2,300	11,600	
	Level I						
	Deep Well						
	40 meter depth	361,900	N/A	15	N/A	24,130	78,700
	80 meter depth	540,900	N/A	15	N/A	36,060	
	120 meter depth	719,900	N/A	15	N/A	48,000	
	Shallow Well	82,400	N/A	15	N/A	5,500	
	Spring Development	747,000	N/A	15	N/A	49,800	
Sanitation	*Household Toilet*						
	Flush	23,000	N/A	1	N/A	23,000	
	Pour Flush	14,800	N/A	1	N/A	14,800	
	VIP Latrine	7,100	N/A	1	N/A	7,100	
	Public School Toilet	233,500	250	N/A	1,000	N/A	
	Public Toilet	368,400	N/A	N/A	N/A	N/A	
	Urban Sewerage				7,300		
	Disinfection of Level I Wells	70					

- Public school toilet:

  Unit cost for public school toilet was estimated in combination of toilet facility with 5 toilet bowls and 5 units of classroom toilet to cover 200 served students. The profile of the two kinds of toilet facility is assumed to be 50% each.
- 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
Maintenance tools	11
Water quality testing kit	16

(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 facility:

- O&M cost of Level I facility simply includes spare parts of hand-pump 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).

The required cost for medium-term period shows the over-all construction cost including the facilities to be constructed under the on-going ADB-assisted project, however, the total investment cost shall be considered excluding ADB-assisted project, since financial arrangements for the said project were decided between concerned parties.

During the medium-term development period, a total of 51.9 million Pesos (excluding required cost for ADB-assisted project) will be required for construction of the facilities. Of the requirements, urban water supply will share 72.5%, while the remaining 27.5% will be required for urban and rural sanitation.

Table 10.3.1 Construction Cost of Required Facility by Municipality

Unit: P 1,000

Name of Municipality	Phase I (2004) 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	
Almeria	3,087	970	4,057	1,494	934	2,428	6,485	1,559	855		2,415	2,481	3,277	5,758	8,173
Biliran		900	900	1,894	1,044	2,938	3,838	18,765	879		19,644	2,111	3,031	5,142	24,786
Cabucgayan	12,760	2,593	15,353	3,235		3,235	18,588	35,686	1,958	55,984	93,628	5,976	934	6,910	100,538
Caibiran	5,745	1,921	7,667	11,205	1,640	12,845	20,511	6,486	1,339		7,825	11,790	4,180	15,970	23,795
Culaba	4,706	1,280	5,985	5,732	997	6,729	12,714	12,034	891		12,925	7,287	3,222	10,509	23,433
Kawayan		737	737	6,128		6,128	6,865	4,135			4,135	5,860	4,608	10,468	14,603
Maripipi		756	756	14,466	525	14,991	15,747	7,285			7,285	15,687	1,998	17,685	24,970
Naval (Capital)	11,316	1,904	13,220	1,494	2,102	3,596	16,816	4,453	1,536	50,173	56,162	6,873	6,079	12,952	69,114
Provincial Total (w/ADB-Assisted Proj.)	37,614	11,062	48,676	45,648	7,241	52,889	101,565	90,403	7,458	106,157	204,018	58,065	27,329	85,395	289,412
Provincial Total (PW4SP)	37,614	8,851	46,466		5,389	5,389	51,855	90,403	7,458	106,157	204,018	58,065	27,329	85,395	289,412

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

Unit; Peso 1,000

Name of Equipment	Unit Cost	Q'ty (set)	Amount
Truck-mounted rotary drilling rig	32,314	NA	0
Truck-mounted percussion drilling rig	25,582	0	0
Well rehabilitation equipment	280	1	280
Service truck with crane	1,200	1	1,200
Support vehicle (Pick-up with winch)	590	1	590
Refuse collection truck	2,057	6	12,342
Total Equipment Cost			14,412

Note: Truck-mounted rotary drilling rig is not necessity 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 and cities for O&M of Level I facilities (details are referred to Supporting Report).

10.3.3 Cost for Laboratory

Required cost for the building and instruments/chemicals for two (2) new laboratories to be established in Kawayan and Caibilan is estimated at 3,278,000 Pesos (details are referred to Supporting Report). These laboratories will be provided under the ADB-assisted project. Thus, financial arrangement for the required cost shall not be considered in the medium-term investment plan. Aside from this, the existing laboratory in Naval shall be replaced with a new one within the compound of the Provincial Hospital. For this plan, the required cost is also estimated at 1,639,000 Pesos (refer to Table 11.3.1 in Main Report).

10.4 Recurrent Cost

Recurrent cost is estimated in 1998 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 2004, the recurrent cost will increase to 10.4 million Pesos/year from 8.1million Pesos/year in 1998, which is 28% 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	2000	2001	2002	2003	2004	Total (2000-2004)
Urban Water Supply	Operating Cost	2,853	2,853	2,969	3,143	3,316	3,432	15,713
	Spare Parts/Equipment	2,824	2,824	2,938	3,110	3,282	3,396	15,549
Rural Water Supply	Spare Parts/Equipment for Level II System	787	787	787	787	787	787	3,937
	Spare Parts/Equipment for Level I Facilities	740	740	767	806	846	873	4,032
Sanitation	Public School Toilets	767	767	913	1,133	1,352	1,498	5,663
	Public Toilets	150	150	201	278	354	405	1,388
Total Recurrent Cost		8,122	8,122	8,576	9,256	9,937	10,391	46,282

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.

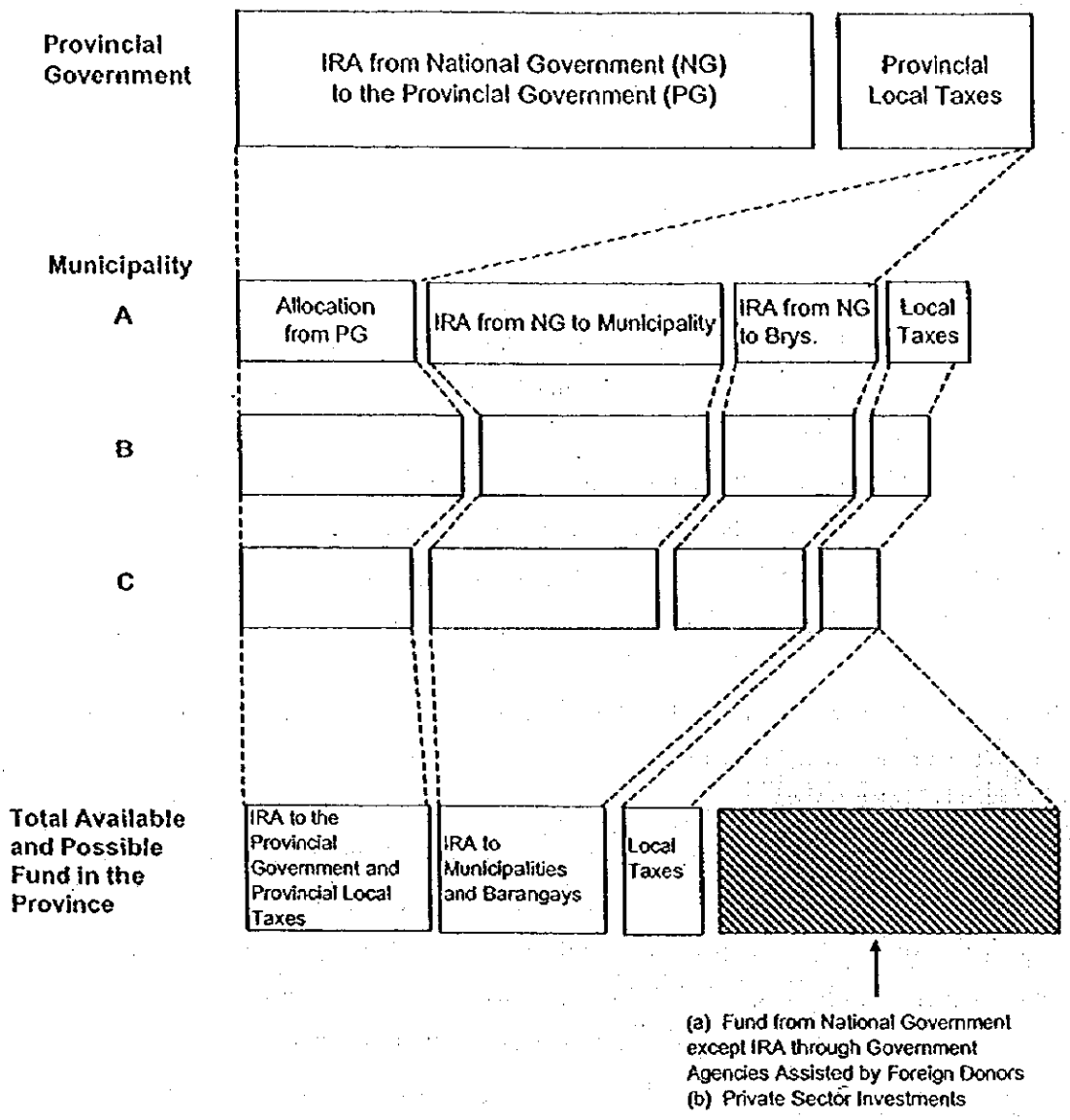
Available funds (IRA) during the medium-term development period are projected with the use of computer-based programs that allow for the future application to include additional funds that are available. Figure 11.1.1 shows the sector budget allocation in the different administrative levels to come up 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 on-going ADB-assisted project for rural water supply (Level I) and sanitation improvement (implementation period: 1999-2001) was fully considered for the financial study as part of the medium-term development plan. In this regard, financial arrangements required are those excluding the components scheduled by ADB-assisted project. Furthermore, sector IRA allocation was discounted (less than 3%) to ensure LGU's contribution (10% of construction cost) to the ADB-assisted project (overlapping period with the project is from 1999 to 2001).

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 in 1998, 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,

Figure 11.1.1 Sector Budget Allocation

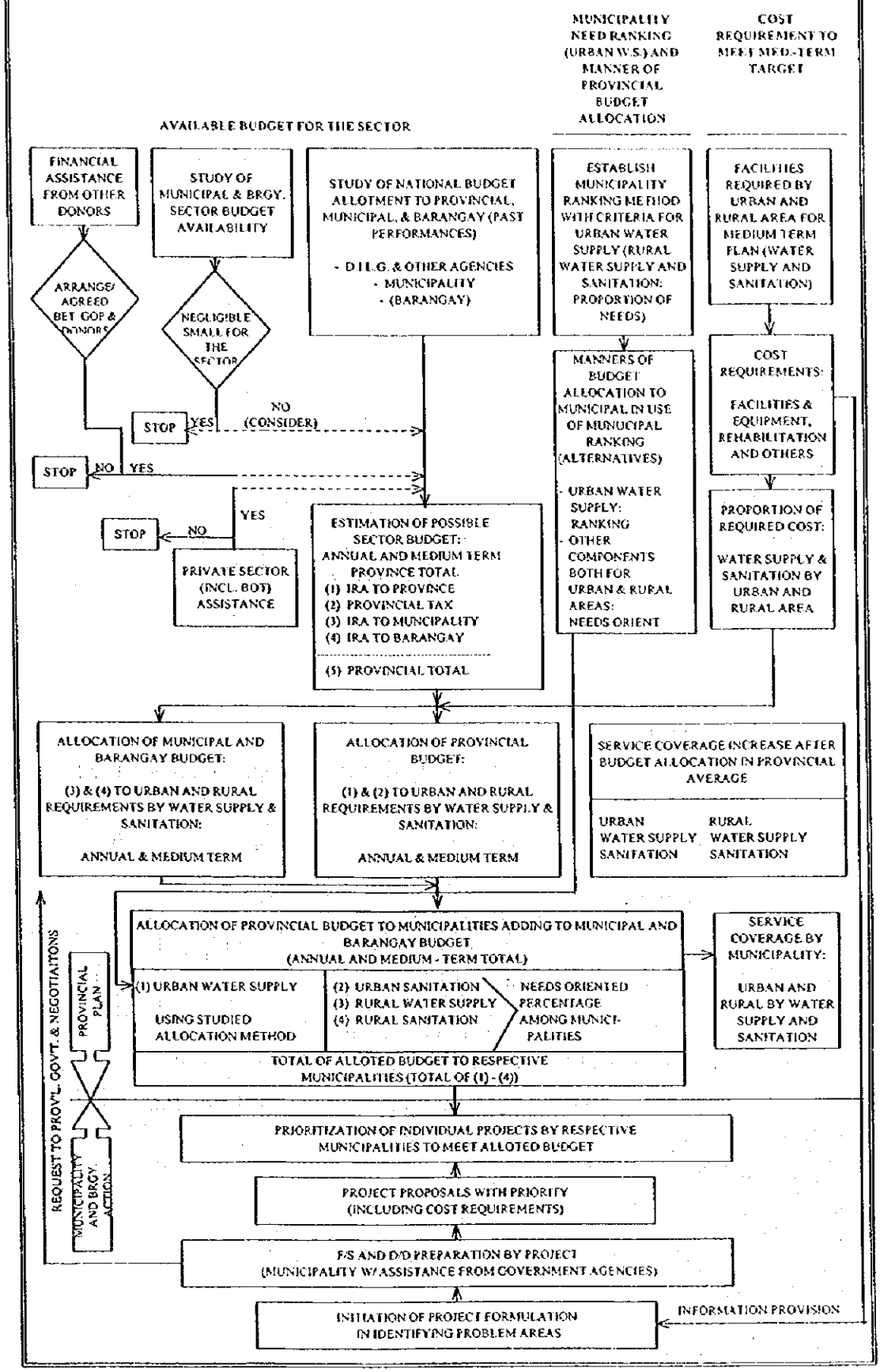


Notes: (1) Budget from different sources in the figure above are those shared to water supply and sanitation sector from allotted amount for overall sectors.

(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



financial study for Level I water supply and sanitation improvement was additionally conducted for those municipalities meeting the above conditions.

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 2000 to 2004

The IRA projection for the period 2000 to 2002 have been derived as equivalent to 40% of the total revenues of the actual National Internal Revenue Taxes of the 3rd Fiscal Year preceding the current year (e.g. 1997 to 1999). This 40% ratio is based on the Local Government Code in 1991. For the years 2003 to 2004, the projected National Internal Revenue Taxes by DOF served as the basis for projecting the IRA for the same period. Projected IRA registered an annual average growth rate of 11 percent for the period 2000 to 2004.

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

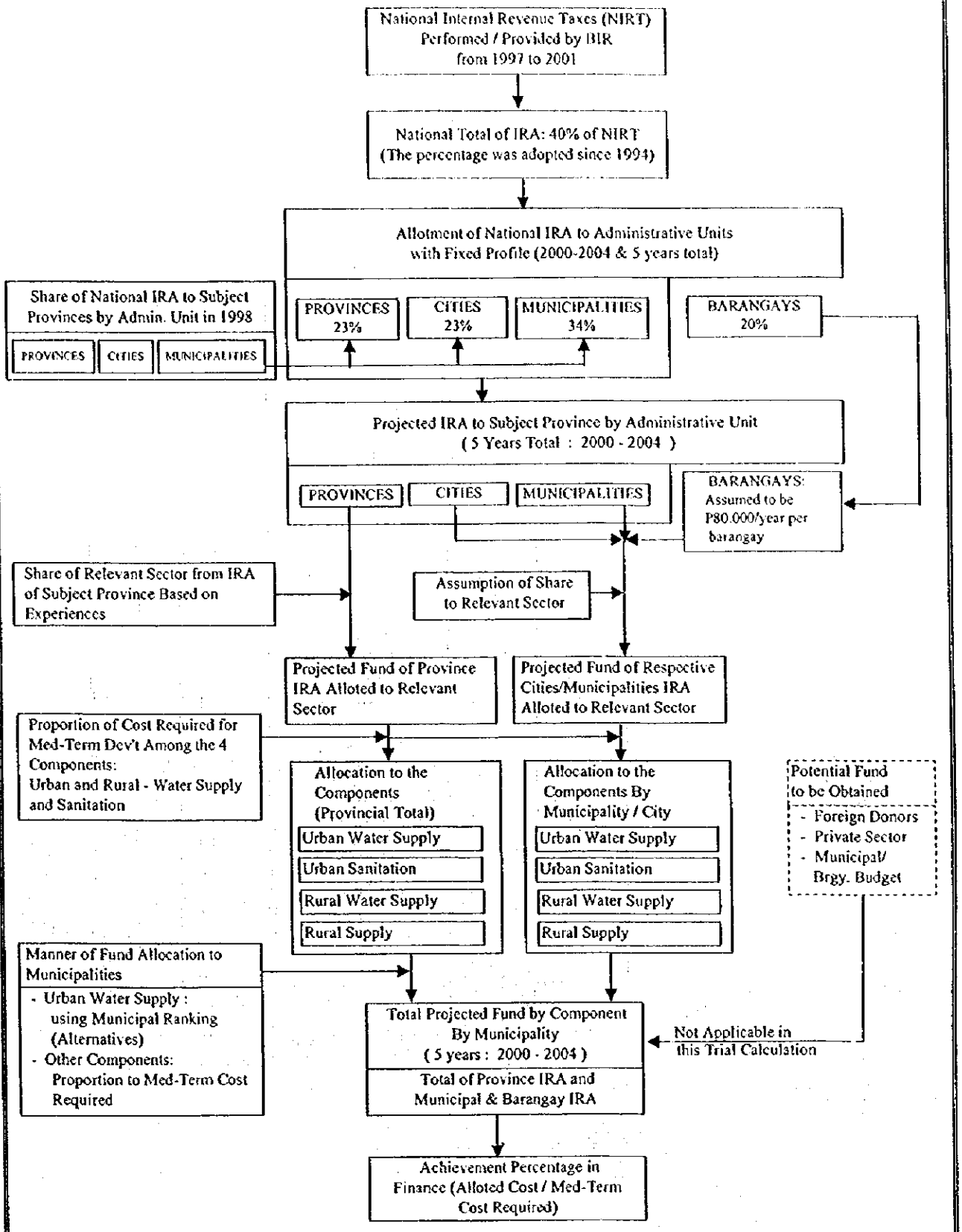
Based on the Local Government Code, IRA is distributed by administrative level as follows:

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 three (3) factors: population, land area and number of administrative units. In this analysis, however, the distribution percentage experienced in 1999 is simply employed in projecting IRA for the period 2000-2004 (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 (1997-2001) is the basis of National Total of IRA (2000-2004)
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

	2000	2001	2002	2003	2004	Total
1 40% of Actual/Projected National Internal Revenue Taxes of the 3rd Fiscal Year preceding the current year	104,049,760	115,801,280	127,449,920	142,317,600	157,972,536	647,591,096
2 Internal Revnue Allotment to all LGUs						
(a) province (23%)	23,931,445	26,634,294	29,313,482	32,733,048	36,333,683	148,945,952
(b) cities (23%)	23,931,445	26,634,294	29,313,482	32,733,048	36,333,683	148,945,952
(c) municipalities (34%)	35,376,918	39,372,435	43,332,973	48,387,984	53,710,662	220,180,973
(d) barangays (20%)	20,809,952	23,160,256	25,489,984	28,463,520	31,594,507	129,518,219
(e) total IRA to all LGUs	104,049,760	115,801,280	127,449,920	142,317,600	157,972,536	647,591,096
3 Projected IRA to Subject Province by Administrative Unit						
(a) province	116,489	129,646	142,687	159,332	176,859	725,014
(b) municipalities/city including barangays	119,632	131,951	144,162	159,747	176,158	731,650
Almeria	13,472	14,876	16,267	18,044	19,914	82,573
Biliran	13,733	15,185	16,624	18,460	20,394	84,396
Cabucgayan	14,130	15,609	17,074	18,945	20,915	86,673
Caibiran	15,993	17,646	19,284	21,375	23,577	97,875
Culaba	13,720	15,116	16,500	18,266	20,126	83,727
Kawayan	15,151	16,682	18,199	20,135	22,174	92,341
Maripipi	10,769	11,849	12,920	14,288	15,727	65,553
Naval (Capital)	22,664	24,989	27,293	30,234	33,331	138,511
(c) Provincial Total	236,122	261,597	286,849	319,080	353,017	1,456,664
4 Project fund of IRA to Relevant Sector by Administrative Unit						
(a) province	3,495	3,889	4,281	4,780	5,306	21,750
(b) municipalities/city including barangays	3,179	3,507	3,832	4,247	4,684	19,450
Almeria	404	446	488	541	597	2,477
Biliran	395	437	478	531	587	2,428
Cabucgayan	424	468	512	568	627	2,600
Caibiran	480	529	579	641	707	2,936
Culaba	412	453	495	548	604	2,512
Kawayan	86	94	103	114	126	523
Maripipi	299	329	358	396	436	1,818
Naval (Capital)	680	750	819	907	1,000	4,155
(c) Provincial Total	6,674	7,396	8,113	9,027	9,990	41,200

Table 11.2.2 Projected Allotment of IRA to the Relevant Sector by Component (2000 – 2004)

Unit: 1,000 pesos

LGUs	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Total
1. Province	15,463		3,694	2,593	21,750
2. Municipalities					
Almeria	1,654		323	501	2,477
Biliran			1,277	1,151	2,428
Cabucgayan	2,249		351		2,600
Cabiran	1,938		524	474	2,936
Culaba	1,853		359	301	2,512
Kawayan			523		523
Maripipi			1,074	744	1,818
Naval (Capital)	3,116		524	514	4,155
3. Provincial Total	26,274		8,649	6,278	41,200

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

Based on the Provincial Accountants records, about 0.66% of provincial IRA on the avcrage was availed for the water supply and sanitation sector. However, referring to the experience in other provinces, provincial allocation to the relevant sector is assumed to be 3%. This means that 15% 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.

(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 2000-2004 is estimated at ₱41.20 million, which is equivalent to 2.83% of combined provincial and municipal IRA. This percentage was arrived as a result of adjustment in use of IRA for those municipalities, required cost of which is lower than the allotted IRA. With regard to the al-

location to sub-sectors, urban water supply has the largest allotment of 63.8% (₱26.29 million out of the total ₱41.20 million). Urban sanitation is allotted ₱8.65 million (21.0%) and is larger than that for rural sanitation (₱6.28 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, Naval (capital) has the largest allotment with ₱4.2 million (21.4%) followed by the municipality of Caibiran with ₱2.9 million (15.1%).

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 the 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 investment cost (excluding price contingency) amounting to ₱75.1 million required on 1998 price level for Phase I (2000-2004), IRA can fund only ₱41.2 million or 55% of the requirements. Hence, there is a shortfall of ₱33.9 million in funding. It will become ₱51.2 million in consideration of contingencies and value added tax.

Municipal achievement percentages in finance are shown in Table 11.3.3 in provision of available fund originated by IRA against Phase I financial requirements. The percentage of Biliran, Kawayan, Maripipi and Almeria is 90-100%. While, Cabucgayan and Naval are in the low level with 35%. The provincial average is 55% (45% in consideration of contingencies and VAT).

Table 11.3.1 Financing Requirement by Sector Component for the Province

Unit: 1,000 pesos

Sector Components	2000	2001	2002	2003	2004	Total 2000-2004	Total 2005-2010
Direct Cost							
1. Direct Construction Cost							
Urban Water Supply							
Level III System	0	7,523	11,284	11,284	7,523	37,614	90,403
Rural Water Supply							
Level II System	0	0	0	0	0	0	0
Level I Facilities	0	0	0	0	0	0	58,065
Urban Sanitation							
Household toilet	0	73	109	109	73	363	240
Public school toilet	0	887	1,331	1,331	887	4,437	5,371
Public toilet	0	810	1,216	1,216	810	4,052	1,842
Disinfection of Level I Deep Well and Shal-	1	1	1	1	1	4	0
Rural Sanitation							
Household toilet	0	3.7	5.5	5.5	3.7	18.5	1,177
Public school toilet	0	1,074	1,611	1,611	1,074	5,371	26,152
Disinfection of Level I Deep Well and Shal-	2	3	3	3	3	15	24
Urban Sewerage	N/A	N/A	N/A	N/A	N/A	N/A	106,157
Sub-total	2	10,375	15,561	15,561	10,375	51,874	289,436
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	16	24	24	16	80	0
Water quality testing kit	0	3	5	5	3	15	0
Sub-total	0	889	29	29	19	965	26,782
3. Water Quality Laboratory	478	0	0	0	0	478	0
4. Sector Management Cost							
Engineering Studies							
Feasibility study and detail design	2,940	1,693	0	0	0	4,633	16,389
Construction supervision	0	412	618	618	412	2,074	7,284
Institutional Development	837	725	558	392	279	2,792	16,389
Sub-total	3,777	2,829	1,176	1,010	691	9,498	40,063
Total Direct Cost	4,258	14,093	16,765	16,599	11,085	62,816	356,281
Contingencies							
1. Physical Contingency	426	1,409	1,677	1,660	1,109	6,280	35,628
2. Price Contingency	328	2,246	4,150	5,675	4,909	17,308	N A
3. Value-Added Tax (VAT)	342	1,337	1,621	1,621	1,081	6,001	N A
Total Investment Cost	5,353	19,086	24,213	25,554	18,183	92,404	391,909
Total Investment Cost (excluding Price Contingency)	5,025	16,839	20,062	19,880	13,274	75,081	391,909

Notes: Institutional development includes:
1. Capacity enhancement programs,
2. Community management program,
3. Health and hygiene education,
4. Water quality surveillance, and
5. Administrative support.

Details may not add up to total due to rounding.

Table 11.3.2 Additional Fund Requirement for the Medium-Term Plan

Unit: 1,000 pesos

Item	2000	2001	2002	2003	2004	Total 2000-2004
Financing Requirement	5,025	16,839	20,062	19,880	13,274	75,081
Expected available fund						
National						
Local (IRA)	6,674	7,396	8,113	9,027	9,990	41,200
Others						
Total	6,7674	7,396	8,113	9,027	9,990	41,200
Shortfall in funding	-1,648	9,443	11,950	10,852	3,284	33,881
(Additional Fund Requirements)	-1,320	11,689	16,100	16,527	8,193	51,201

Note: Shortfall in funding : Figures on top represent current year level cost
Figures below represent overall cost including contingencies, escalation and value added tax Total may not add up due to rounding

Table 11.3.3 Internal Revenue Allotment for Water Supply and Sanitation Sector by Municipality
(Medium-term Development, 2000-2004)

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			
Almeria	2,657	1,654	4,311				414	323	737	521	501	1,022	6,069	6,560	93
Bubran								1,277	1,277	0	1,151	1,151	2,428	2,428	100
Cabucgayan	3,753	2,249	6,003				985	351	1,336				7,338	20,933	35
Caibiran	3,753	1,938	5,691				805	524	1,329	715	474	1,189	8,210	12,353	66
Culaba	3,753	1,853	5,606				541	359	900	451	301	751	7,257	9,054	80
Kawayan								523	523				523	523	100
Maripipi								1,074	1,074	0	744	745	1,818	1,818	100
Naval (Capital)	1,546	3,116	4,663				949	524	1,474	905	514	1,419	7,556	21,412	35
Total	15,463	10,810	26,274				3,692	4,954	8,649	2,593	3,685	6,278	41,200	75,081	55

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.

Three reference scenarios are discussed with respect to the different levels of funding. These scenarios will be referred to in combination with 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.

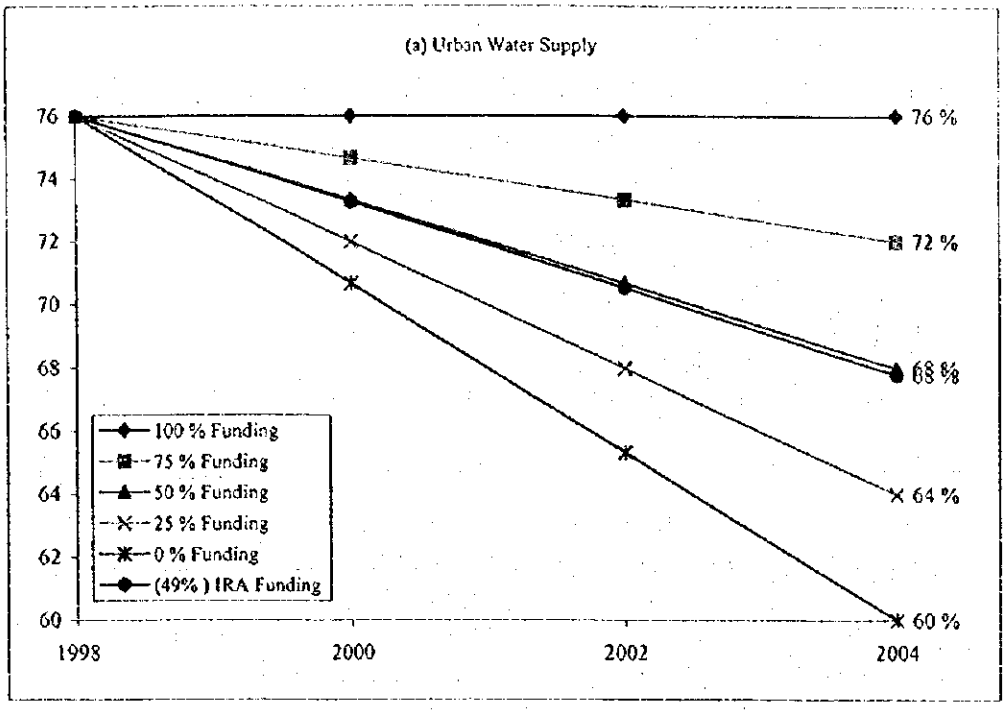
(1) The First Reference Scenario

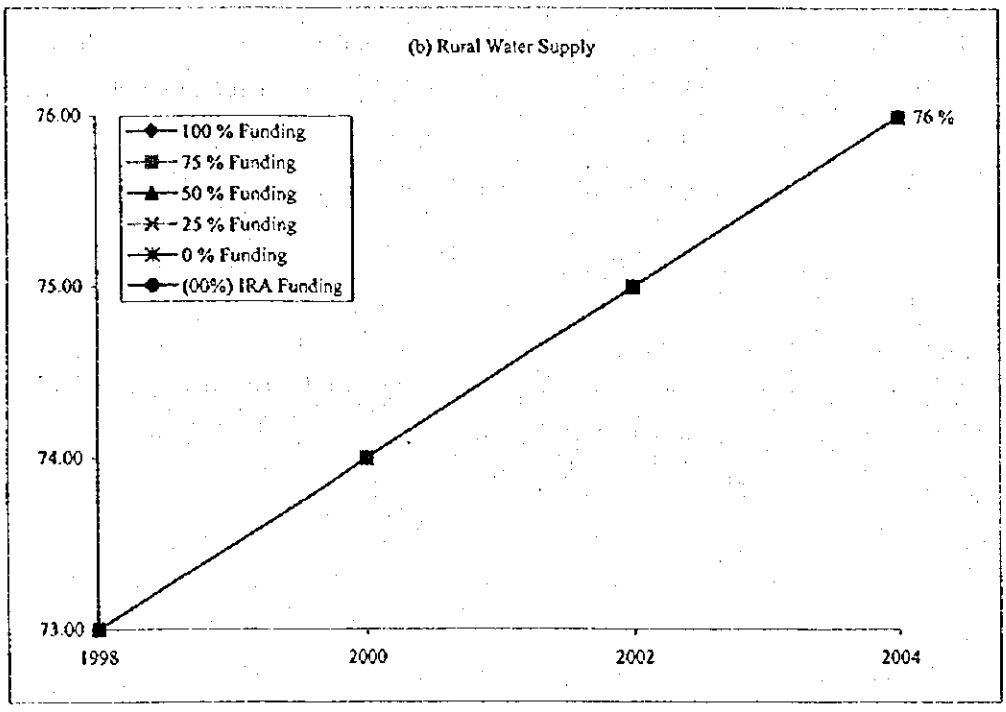
No funding constraints are considered in this scenario to realize Phase I development as planned. This scenario is optimistic based on the past experience of the province.

(2) The Second Reference Scenario

An intermediate scenario with 50 - 75 %-funding ranges are considered. Under this scenario, urban water supply coverage in the year 2004 is attained between 68-72%, while the target of rural water supply of the province will be achieved through ADB-assisted Rural Water Supply and Sanitation Project (RW3SP). For urban and rural sanitation (household toilets), coverage will reach 58-63% and 64-66%, respectively based on the assumption that required private investments are followed.

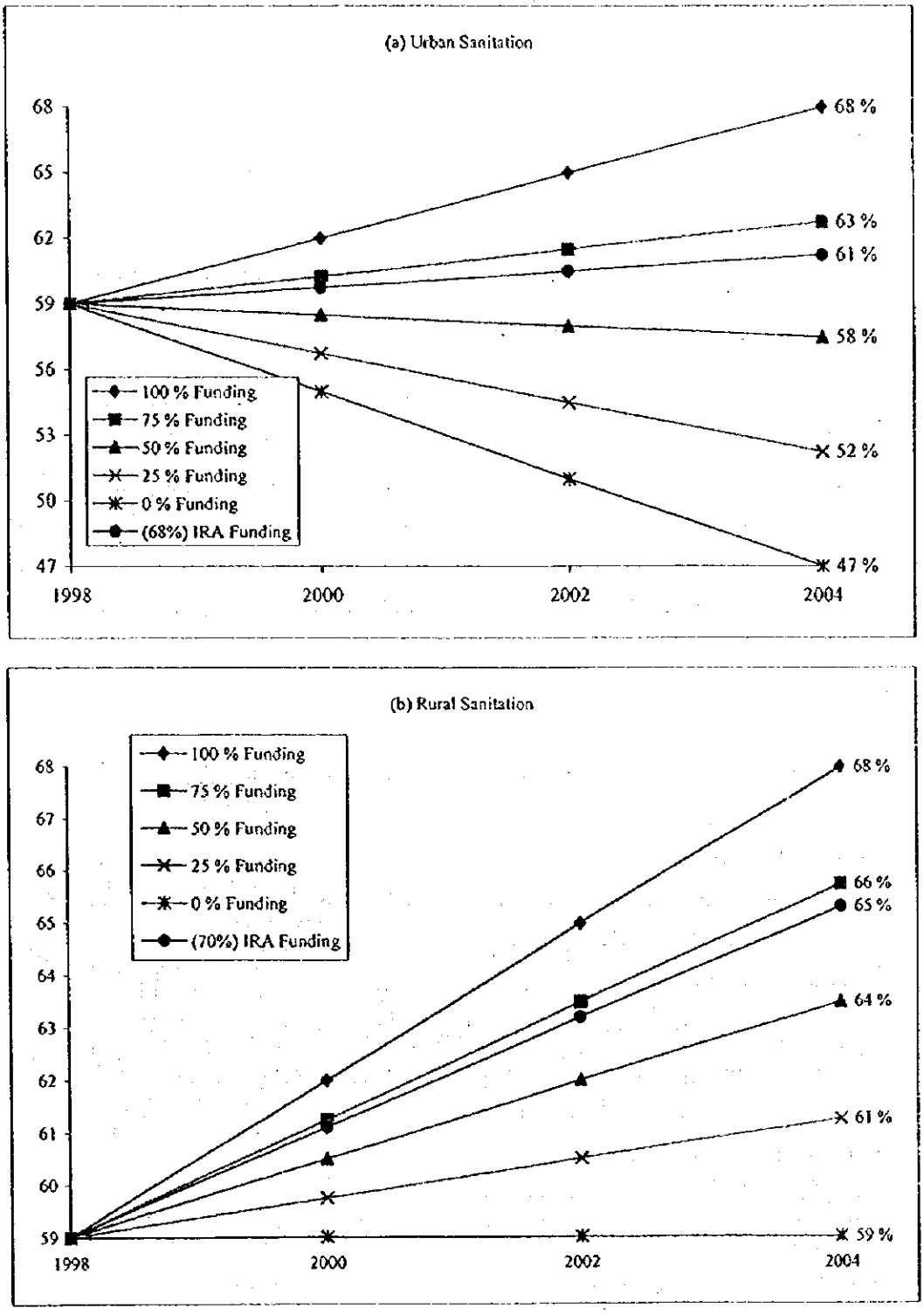
Figure 11.4.1 Relation Between Funding Levels and Percent of Coverage for Water Supply Sector





Note: Percentages of the coverage between 1998 and 2004 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 1998 and 2004 are simply prorated as the reference

(3) The Third Reference Scenario

In the scenario of 25% funding against the total requirements of Phase I, urban water supply coverage in the year 2004 will be attained at 64%, while urban and rural sanitation coverage will be at 52% and 61% respectively. At this funding level, urban water supply and urban sanitation will not be able to keep current service levels. Regardless of the IRA funding for rural water supply, it is projected that service coverage of 73% will increase to 76% in year 2004 due to population decrease in rural area.

The allocated IRA funding of urban water supply in the year 2004 will be 49%, which will cover 68% of the population. For rural water supply, the requirements will be catered by ADB-Assisted Rural Water Supply and Sanitation Project (RW3SP) as discussed in Chapter 6 of the Report.

In order to attain the Phase I development target for urban water supply of 76% service coverage, it needs an additional IRA funding of 51%. For urban and rural sanitation, 100% funding will cover 68% in both sub-sectors. However, at IRA funding of 68% for urban and 70% for rural sanitation sub-sector, service coverage will reach to 61% and 65%, respectively. Thus, in order to meet the Phase I development targets for urban and rural sanitation, additional IRA funding of 32% and 30% are required respectively.

11.4.2 Alternative Countermeasures

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

(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

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 Guarantee Organization

LGU Guarantee 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

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 in use of 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 the ranking procedures, overall weighted score and investment need ranking of the municipalities. There are four (4) municipalities identified as top three (3) priority municipalities namely Culaba, Cabucgayan, Almeria and Caibiran.

With reference to the provincial fund allocation, it is initially assumed that 90% of the fund for urban water supply from provincial government is distributed equally to the top third ranking municipalities, while the remaining 10% are equally distributed to the rest of the municipalities. The result of distribution is shown in Table 11.4.2. The available funds except for two municipalities are adequate to meet the Phase I requirements for urban water supply.

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 Culaba, Cabucgayan and Caibiran, which indicates that they are given priority for investments in all sub-sectors. The municipality of Kawayan is the least priority in terms of investment ranking.

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		
Almeria	10	27	10	1.00	0.40	0.20	0.67	3
Biliran	1	13	60	0.20	0.20	0.60	0.26	7
Cabucgayan	39	63	82	0.80	1.00	1.00	0.90	2
Caibiran	36	42	37	0.80	0.60	0.40	0.67	3
Culaba	52	61	52	1.00	1.00	0.60	0.94	1
Kawayan	5	6	44	0.20	0.20	0.60	0.26	7
Maripipi	20	20	100	0.40	0.40	1.00	0.49	5
Naval (Capital)	9	26	9	0.20	0.40	0.20	0.27	6
Provincial Total	24	40	45					

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: 1,000 pesos

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 (%)				
3	Almeria	2,657	17.18	1,654	4,311	4,380	98
7	Biliran						
2	Cabucgayan	3,753	24.27	2,249	6,003	18,108	33.15
3	Caibiran	3,753	24.27	1,938	5,691	8,154	69.80
1	Culaba	3,753	24.27	1,853	5,606	6,678	83.95
7	Kawayan						
5	Maripipi						
6	Naval (Capital)	1,546	10.00	3,116	4,663	16,059	29.04
Total		15,463	100	10,810	26,274	53,379	49.22

Note: Distribution of Provincial IRA was set to 90% for the 1st to 5th rank municipalities and 10% for the remaining municipalities.

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	
Almeria	0.17	0.05	0.15	0.05	0.42	7
Biliran	0.07	0.05	0.20	0.20	0.52	5
Cabucgayan	0.23	0.15	0.25	0.15	0.78	2
Caibiran	0.17	0.10	0.25	0.20	0.72	3
Culaba	0.24	0.10	0.25	0.20	0.79	1
Kawayan	0.07	0.05	0.05	0.05	0.22	8
Maripipi	0.12	0.05	0.25	0.15	0.57	4
Naval (Capital)	0.07	0.10	0.10	0.15	0.42	6

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 23rd OECF assisted loan, to the NEDA through the DILG for the limited sub-sectors under the above conditions. The loan agreement between the two parties was made on September 1999.

In the same context as proposed by the six provinces, project components with scope of work and financial viability were studied. However, Level I rural water supply component was excluded, since on-going ADB assisted project will cover the requirements for medium-term development target. While. Some sanitation components beyond the scope of the said ADB

assisted project were studied for limited classes of the municipality to meet the established provincial target in 2004.

For the Project, the DILG is assumed to be the Executing Agency and the province, the Implementing Agency in the meantime. The project may be merged together with those of the 4th batch provinces in the preparation of the PW4SP. The implementation of a packaged project may be realized in the near future.

11.5.1 Project Components

(1) Sanitary Component

There are seven (7) eligible municipalities to meet the condition for GOP-assisted projects (limited to 3rd to 6th municipalities) in sanitation sub-sector. The sanitation component comprises 4 public toilets and 43 school toilets to the rural communities. Distribution of toilet bowl is one of the components of sanitation sub-sector, however, it shall be excluded from GOP-assisted projects due to the current practice of NEDA. 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 toilet will be constructed for public school in the rural areas (50%: toilet facility/classroom and 50%: standard toilet building), 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) Equipment/Commodity Assistance

The works for Level I facilities and its supporting vehicle/equipment will be managed through ADB-assisted project. Thus, such items shall be excluded from the proposed project.

(3) 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 agen-

cies 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 works.

(4) 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 undertaken 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. Water right permit from the National Water Resources Board will be fulfilled after site selection and preparatory works have been undertaken. 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 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 Class	Devised NG Share	Remarks
Water Supply: Level I only	1st to 4th	0	No GOP grants for Level II & III water supply
	5th to 6th	50	
Sanitary Support Facility for Public Markets and Slaughter houses	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 50% : 50% of the overall project cost. While, 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 cost-sharing part by beneficiaries is equity contribution including land, material 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 1998 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 for the implementation period of 2000 - 2004 arrived at about ₱26.5 million (₱20.1 million in 1998 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 drastic increase of LGUs' budget through the future. Under such a condition, the following are considered.

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

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	370,235	0			
2. Deep Well (80m)	0	546,285	0			
3. Deep Well (120m)	0	722,300	0			
4. Shallow Well	0	82,400	0			
5. Spring Development	0	747,000	0			
Sub-total a			0	0		0
Sanitation						
1. School Toilets	43	233,500	10,040,500			
2. Public Toilets	4	368,400	1,473,600			
Sub-total b			11,514,100	2,894,835		8,619,266
Land acquisition						
Land acquisition & Right of Way			0			0
Sub-total A			11,514,100	2,894,835		8,619,266
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		
2. D/D and Const. Sv.			1,266,551	1,266,551		
Sub-total C			1,266,551	1,266,551		
D. Instiutional Devt.						
1. Capacity Enhanc. Prog.	L.S.		3,200,000	2,650,000	550,000	
2. Commu. Manag. Prog.	4	10,770	43,080	14,475	28,605	
3. Health & Hygiene Educ.	4	1,800	7,200		7,200	
4. Water Quality Surveil.	4	700	2,800		2,800	
5. NGO Assistance	4	1,200	4,800		4,800	
6. Administrative Support	L.S.		1,200,000		1,200,000	
Sub-total D			4,457,880	2,664,475	1,793,405	
E. Physical Contingency			1,723,853	682,586	179,341	861,927
Total (A+B+C+D+E)			18,962,384	7,508,446	1,972,746	9,481,192
GOP Total					9,481,192	
LGUs						8,912,321
Equity						568,872
LGUs + Equity						9,481,192
F. Others						
1. Price Contingency			5,670,565	2,434,348	557,383	2,678,833
2. Value Added Tax (VAT)			416,139		416,139	
Sub-total F			6,086,703	2,434,348	973,522	2,678,833
Grand Total			25,049,088	9,942,795	2,946,267	12,160,025

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 1998 price level.

2) Pysical contengency: 10% of materials procured.

3) Price contingency: Forex 3%; local 7%; compounded annually, base year 1998

4) Value added tax; 10% materials produced.

- tion 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 current financial capability of the municipalities.
- 5-year development program (from 2000 to 2004) is applied to increase project fund using available IRA

Applying the cost-sharing arrangement, the 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 water supply sub-sector, IRA to municipalities with income classification of 5th and 6th classes is counted. The IRA allotted to the province is divided into two groups; classes 1st to 4th and 5th & 6th in proportion to the construction cost required. The provincial IRA for the eligible municipalities is considered for this project.
c) For sanitation sub-sector, IRA to the eligible municipalities is regarded as available fund. The manner of allocation of provincial IRA to the eligible municipalities is same as that in water supply sub-sector.

The total IRA of the province available for the eligible municipalities in the subject sector was estimated at ₱14,403,000 as a total of 5-year development program, consisting of urban and rural sanitation (details are included in Table 11.5.1, 11.5.2 and 11.5.3, Supporting Report). The estimated IRA available is shown below.

Sub-sector	Provincial IRA	Municipal IRA	Total
Rural Sanitation:	2,593,000	3,685,000	6,278,000
Urban Sanitation:	3,694,000	4,431,000	8,125,000
Total:	6,287,000	8,116,000	14,403,000

Table 11.5.3 shows the cost sharing (1998 price level) 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 39.6% or ₱7.5 million and 10.4% or ₱2.0 million of the government counter-

part fund. The remaining 50% of the overall cost shall be shared between the LGUs by 47% or ₱8.9 million and BWSAs (beneficiaries) by 3% or ₱0.6 million.

Table 11.5.3 Cost-Sharing for the Project (Case 1): 1998 price level

Financial Source	x 1,000 Peso	Percentage		Remarks
GOP	1,973	10.4	50	GOP counterpart
	7,508	39.6		Foreign Loan
LGUs	8,912	47	50	IRA
	569	3		BWSA equity
Total	18,962	100		

The cost comparison was made between the estimated project cost to be shared by the LGUs and available IRA of LGUs in the implementation period. Considering contingencies and VAT, the IRA to be used by LGUs will increase to ₱12.1 million from ₱8.9 million (1998 price level). The required cost is covered by the available IRA (₱14.4 million).

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 cost to be shared (even if estimated IRA available meets the required cost to be shared by the LGUs). 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 cost sharing scheme for the project (1998 price level) between the GOP and the LGUs.

GOP is possibly to finance up to ₱14.2 million or 75% of the total project cost in the portion of loan. Out of GOP finance through the loan, ₱7.5 million or 39.6% of the total project cost shall be granted to the LGUs, aside from 10.4% GOP counterpart fund.

The remaining ₱6.7million or 35.4% of the total project cost shall be utilized for financing the LGUs to secure their budgetary capacity through MDF.

Under this case, the IRA to be used by the LGU will increase to ₱2.5 million from ₱2.2 million (1998 price level), considering contingencies and VAT, which is 18% of available IRA estimated in the previous study (₱14.4 million).

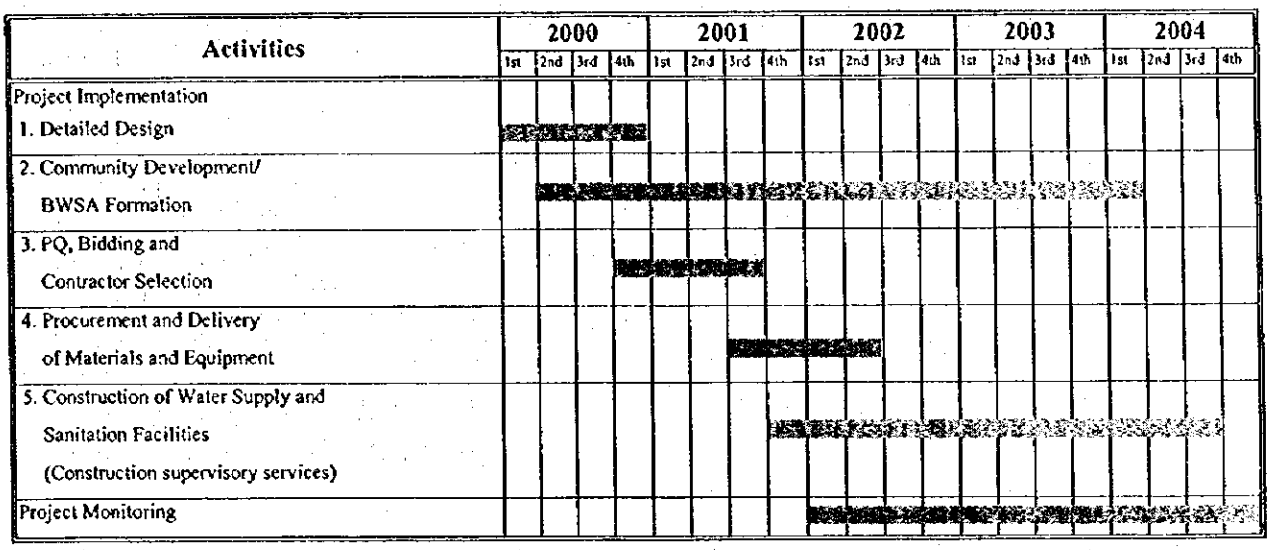
Table 11.5.4 Cost Sharing for the Project (Case 2): 1998 price level

Financial Source	x 1,000 Peso	Percentage			Remarks
GOP	1,973	10.4	10.4		GOP counterpart
	7,508	39.6		50	Foreign Loan
	(6,714)	(35.4)	75		Foreign Loan for MDF
LGUs	2,198	11.6			IRA
	6,714	35.4	47	50	MDF through Foreign Loan
	569	3	3		BWSA Equity
Total	18,962	100			

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 are 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 2004, 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 ₱3,926 in 1998. However, the users will have to pay water charge of up to 2% of their monthly income or ₱119 /household/month in 2004 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. Based on the standard design of Level II system under PW4SP, population to be served is 600 people. The average capital cost to be paid is estimated ₱11,565 per household (refer to Chapter 10). Applying the capital recovery factor to the capital costs with conditions of 7% interest rate and 20 years repayment period, monthly payment amounts to ₱91 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 ₱22.50/HH/month in the year 2004 at an annual inflation rate of 7%. Thus, the annual amount of recurrent cost in the year 2004 is ₱114, which is 1.9% of the family income as shown below.

(a) Estimated water rate (flat rate; Pesos)	:	114
(b) Percentage of (a) to monthly median household income in 2004 [1]	:	1.93%

Note:
1) Provincial average monthly median income in 2004 (₱5,892 per household) is derived from 1994 Family Income and Expenditure Survey considering annual inflation rate of 7%. The monthly median income in 1998 is ₱3,926.

(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 2004. Total capital cost of Level III water supply system is ₱37,614 million for 1,538 households to be served. Assuming an annual inflation rate of 7% and 20 years repayment period, the annual capital cost to be paid is ₱2,308 per household. The monthly capital cost to be paid by each household is ₱192.

The monthly recurrent cost per household is estimated to be ₱34 (₱411.17/ year; refer to recurrent cost in Chapter 10 where operating cost is ₱5.67 million in base year for 28,403 households). Using an annual inflation rate of 7%, this recurrent cost is projected to be ₱51 per household in the year 2004.

The combined amount of capital repayment and recurrent cost in the year 2004 is ₱244/ household/month, 4.1% of monthly income. 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 rate seems to be affordable.

(a) Estimated water rate for 15 m³ (Pesos) 1)	:	244
(b) Estimated minimum water rate (1-10 m³) (Pesos) 2)	:	210
(c) Percentage of (a) to monthly median household income in 2004	:	4.1%

Notes:
1) Water rate for the HH with monthly consumption rate of 10m³ is estimated under the same assumption of a).
2) Monthly median household income is ₱5,892 in the year 2004.

(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: ₱23,000 and pour-flush toilet: ₱14,800). 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. 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 P467 for a flush type and P301 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 2004 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)	:	301
(c) Percentage of (a) to monthly median household income in 2003[1)]	:	7.9%

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 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 strengthen sector and project monitoring. The development of a coordinated monitoring system is one of the key components of an effective management system.

12.2 Sector Monitoring

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 gaps in coverage, health conditions, and standards for water consumption. Supply would be indicated by the water resources situation, actual coverage of existing facilities, output volume, types and condition of facilities, by the available funding, and by water/sanitation associations organized to undertake sector activities.

(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) Establishing the database: This involves identifying the types, level, and form of the information to be extracted regarding the performance of the sector's service development, service delivery, and service maintenance systems.

2) Data collection and transmittal system: This defines the methods and assigns responsibilities for the recording and relaying of the data from source to the concerned recipients, from raw data to consolidations and reports at the various levels of the hierarchy of sector management.

3) Data analysis: This prescribes how and by whom the data will be processed, and the purpose of the outputs of the various analysis and reports. The purpose or uses of the data will determine when or how frequently a report will be generated, as well as the parties who should receive the report.

4) Response system: This defines the responsibility, authority and discretion of the recipients of the data flow to take actions, make decisions, alter plans, or take such measures as are appropriate given the performances indicated by the data. This system feeds into and is essential to the management and regulatory structures of the sector.

(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 an 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. Thus, a household can 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 by 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.

It would be useful to have a series of workshops among the different levels of the sector's management structure, to achieve the following:

1) Training on project monitoring and data use in the water sector.
2) Development of initial database (identification of the type of data and reports that the participant-managers need in their respective areas of concern.)
   After the database is established, a team will draft the Management Information System (MIS), which will be an input to the next series for workshops.
3) Review of MIS draft, revisions, and commitments to test.
4) Sharing / reviewing of experiences with MIS draft system. Recommendation on adjustments to MIS for 2nd field testing period.
5) Sharing / review of experiences.
   Final recommendations to be incorporated into Final Draft of MIS system by the MIS Team.
6) Review of Final Draft System to be presented by MIS Team of adoption.

(4) Regarding sector development indicators, some important indicators will be more difficult to collect than the others 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 PPDOs, 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/PWSU, 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 was designed and is currently under review. A Sector Database Center was established within the DILG-PMO. The system was successfully piloted in three provinces and replication in other priority provinces will begin shortly. (Note: This database does not go down to the project level. It was primarily set up to determine supply/demand and financial capabilities of LGUs to absorb costs.)

12.3 Project Monitoring

Sector monitoring refers to the overall water and sanitation situation in the province, on the other hand, project monitoring looks at progress of specific activities or projects. Indicators would thus include; disbursements, percent completion, cost overruns/underruns, etc.

(1) At the provincial level, project monitoring shall include projects classified under any of the following:

- 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;
- other projects implemented and managed at the provincial level with funding generated from provincial sources.

(2) Project Monitoring Committees (PMCs) at the provincial and municipal levels are to be tasked with the monitoring of local government projects funded from national and local government funds, and 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 PPDO 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) The specific roles and responsibilities of the various units in the implementation of the monitoring system are as follows:

The Project Monitoring Committee:

- Provides the list and schedule of all projects to be monitored to the NGOs involved in monitoring;
- 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;
- Pinpoints problems and verifies information to be submitted for analysis and action of the development council;
- Provides feedback on the remedial actions of the development council and follows-up their implementation;
- Prepares and disseminates periodic project monitoring report on the status of project implementation; and
- Elevates to higher level bodies problems/issues which are not resolved at their level.

The PMC Secretariat:

- Prepares 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;
- Provides chief executives with information on the projects to be monitored by the local PMC's;
- Facilitates inter-agency, inter-governmental and field headquarters coordination whenever necessary.

The Project Implementors:

- Submit periodic reports to the monitoring committee on the status of project implementation base on suggested reporting forms;
- Provide authorized monitors assistance in getting access to more detailed information on project implementation (e.g. detailed work program);
- Submit to next higher level office of line agency reports on status of implementation;

- Implement/institute remedial measures on problems/issues identified as suggested by the development council.

(4) The following is the process flow of project monitoring.

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 submit project exception reports 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) The PMC determines 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 PWSU 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 reports, which are prepared by the PHO midwives. These annual surveys are summarized by municipality by the sanitary inspectors. NSO population projections will be utilized.

2) Water and sanitation associations (RWSAs/ BWSAs/ other community-based associations) 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/PWSU 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 their 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.