

Chapter

**10**

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**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.

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 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 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 (8%) 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 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 costs 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 deep well using anti-corrosive materials (PVC casing and stainless screen, riser pipe and sucker rod) was considered additional 7% to the unit cost of ordinary deep well. Of the total number of gravel packed well, 30% shall be applied based on groundwater quality study results.
- 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.)

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	<i>New System</i>						
	For 5,000 population	5,000	N/A	5,100	N/A		
	For 10,000 population	10,000	N/A	3,800	N/A		
	For 15,000 population	15,000	N/A	3,600	N/A		
	<i>Expansion</i>						
	For 5,000 population	5,000	N/A	4,700	N/A		
	For 10,000 population	10,000	N/A	3,600	N/A		
For 15,000 population	15,000	N/A	3,500	N/A			
Level II	1,369,922	600	120	2,290	11,500		
Level I							
Rural Water Supply	<i>Deep Well</i>						
	40 meter depth	N/A	15	N/A	24,870		
	80 meter depth	N/A	15	N/A	36,740		
	120 meter depth	N/A	15	N/A	48,000		
	<i>Shallow Well</i>						
	Spring Development	84,300	N/A	15	N/A	5,620	
	737,600	N/A	15	N/A	49,180		
Sanitation	<i>Household Toilet</i>						
	Flush	23,000	N/A	1	N/A	23,000	
	Pour Flush	14,100	N/A	1	N/A	14,100	
	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	361,600	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 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).

During the medium-term development period, a total of 599.2 million Pesos will be required for construction of required facilities. Of the requirements, urban water supply and rural water supply will share 22% and 46%, respectively. While, remaining 32% will be required for urban and rural sanitation. With reference to urban water supply, some cost required would be managed by newly created WD/s, which is out of public investment to be undertaken by LGUs.

Table 10.3.1 Construction Cost of Required Facility by Municipality

Unit: P. 1,000

Name of Municipality/City	Phase I (2005) Requirements					Phase I (2010) Requirements					Grand Total	
	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			Sub-total
Ayuy	1,342	1,342	4,226	4,226	5,567	2,173	1,446	3,619	32,153	12,094	44,248	47,867
Almodian	4,742	1,561	6,303	2,191	10,360	16,683	2,976	19,576	13,870	6,982	20,851	40,427
Anilao	1,241	1,118	2,358	2,084	9,896	12,254	3,483	4,568	31,923	7,304	39,226	43,794
Badjangan	1,085	1,085	1,085	7,262	1,085	1,085	8,347	8,941	6,102	15,043	23,390	33,380
Balasan	2,627	1,576	4,202	2,802	9,905	13,708	1,913	16,864	13,980	7,504	21,483	38,348
Banate	1,101	1,101	1,101	8,820	12,180	13,281	1,446	10,203	32,304	9,600	41,903	52,106
Barotac Nuevo	1,340	1,340	4,296	4,122	8,262	12,558	1,913	12,005	8,759	10,517	19,277	31,282
Barotac Viejo	2,726	1,570	4,296	1,041	3,505	4,627	2,647	3,732	2,668	4,133	11,802	15,533
Batad	1,123	1,123	5,030	958	5,988	7,560	19,977	22,124	21,963	3,003	24,967	47,090
Bingawan	1,572	1,572	26,907	26,907	26,907	135,027	2,742	181,617	319,385			319,385
Cabanuan	4,587	4,587	5,286	24,079	29,334	16,934	2,998	19,932	110,318	15,873	126,191	146,123
Cainog	3,661	1,593	5,255	18,693	24,733	11,374	2,170	13,544	73,587	18,910	92,497	106,040
Carles	1,811	2,561	4,371	6,203	20,362	11,841	1,880	19,842	13,822	9,135	22,957	42,799
Concepcion	3,335	1,561	4,896	3,735	3,210	6,945	1,841	18,162	22,734	11,890	30,652	42,544
Dingle	1,552	1,552	2,569	4,120	21,287	1,446	1,446	19,455	15,995	5,468	21,463	40,918
Dueros	1,085	1,085	8,378	133	8,512	9,597	18,370	1,808	4,196	73,883	14,223	88,106
Dumangan	1,236	1,085	2,321	17,519	3,971	21,490	23,811	1,808	19,455	15,995	35,450	54,905
Estancia	5,969	1,232	7,201	4,328	333	4,661	11,862	20,477	62,153	19,407	81,560	102,017
Guimbal	1,790	1,790	7,998	2,335	10,333	12,123	20,360	2,847	33,208	27,801	61,009	94,209
Ibarras	3,810	1,552	5,362	6,491	2,196	8,657	14,048	18,770	2,614	21,384	19,012	40,396
Janjua	5,884	2,019	7,903	13,695	4,904	18,598	26,502	21,326	31,04	14,860	45,906	60,772
Jambuan	3,361	2,637	5,998	19,937	5,604	31,538	21,004	1,808	22,812	95,028	18,223	113,250
Leganes	4,634	1,806	6,441	4,248	1,401	5,649	12,090	23,292	2,275	11,425	15,948	41,515
Leteny	1,352	1,352	2,257	2,257	3,609	16,453	1,446	17,899	15,611	6,763	22,374	40,273
Leon	3,538	1,915	5,473	9,763	4,611	14,375	19,847	15,609	2,170	28,834	13,892	42,726
Maasin	2,063	1,318	3,382	7,169	2,569	9,738	13,119	10,400	1,446	11,852	18,102	29,954
Misago	5,236	2,170	7,405	12,685	41	12,726	20,132	19,436	2,998	22,435	29,733	52,168
Mina	1,683	726	2,409	7,265	1,654	8,919	11,328	11,144	1,446	12,590	25,148	37,738
New Lucena	1,669	1,089	2,758	1,401	1,401	4,159	11,463	1,446	12,910	20,677	4,454	38,040
Oton	33,383	7,183	40,566			40,566	216,034	11,510	282,868	510,411		510,411
Passi City	4,558	4,558	6,400	6,400	10,950	3,268	4,876	36,807	44,463	59,663	17,342	77,010
Pava	2,105	2,105	2,102	4,206	4,206	19,076	2,997	41,749	61,222	26,278	7,578	33,856
Ponon	3,443	3,443	14,472	3,859	18,331	21,773	43,776	5,800	71,160	120,737	34,656	106,393
San Dionisio	3,224	1,908	5,133	3,135	8,791	13,924	12,361	1,913	14,274	17,863	8,229	26,093
San Enrique	1,525	1,092	2,469	13,044	15,661	9,132	1,451	10,583	34,331	7,403	41,734	52,137
San Joaquin	3,295	1,940	5,235	15,360	4,274	19,634	24,869	16,234	3,593	19,827	62,700	75,650
San Miguel	2,719	2,719	701	701	3,420	57,590	2,870	64,277	124,437	6,147	2,277	8,424
San Rafael	1,609	1,609	1,045	1,323	3,268	4,876	17,998	2,042	20,039	5,919	9,990	30,029
Santa Barbara	3,652	3,652	101	101	3,753	28,941	2,722	31,663	36,941	9,774	46,715	78,378
Sara	2,318	2,318	4,339	4,339	6,656	17,967	2,998	20,966	19,585	13,720	33,306	54,271
Tubunan	6,330	1,798	8,127	14,953	3,309	18,161	26,298	31,302	2,976	38,156	72,464	100,620
Tubungan	1,193	1,095	2,288	4,627	1,868	6,495	8,784	8,018	3,254	11,273	13,293	19,316
Zamora	2,565	1,114	3,679	6,093	934	7,027	10,707	16,497	2,275	18,772	25,897	48,722
Provincial Total	133,000	83,550	216,641	273,137	109,459	382,596	792,773	1,935,683	1,232,236	383,703	1,619,390	3,551,622



### 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/unit of well rehabilitation equipment and 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 at the present time.

**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	1	25,582
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	25	51,425
<b>Total Equipment Cost</b>			<b>79,077</b>

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

N.A: Not applicable

Aside from the above, one set each of maintenance tools and 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 instruments/chemicals required for two (2) new laboratories to be established at exiting hospitals in Calinog and Sara is estimated at 956,000 Pesos (details are referred to Supporting 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 2005, the recurrent cost will increase to 63.0 million Pesos/year from 46.0 million Pesos/year in 1998, which is 37% increase from the base year corresponding to the implementation of the medium-term development.

**Table 10.4.1 Recurrent Cost**

Unit: ₱ 1,000

Sector Component	Item	Base Year Existing Facilities	2001	2002	2003	2004	2005	Total (2001-2005)
Urban Water Supply	Operating Cost	7,333	7,333	7,766	8,415	9,064	9,496	42,073
	Spare Parts/Equipment	7,468	7,468	7,908	8,569	9,230	9,671	42,846
Rural Water Supply	Spare Parts/Equipment for Level II System	1,081	1,237	1,393	1,393	1,393	1,393	6,810
	Spare Parts/Equipment for Level I Facilities	15,187	15,187	15,631	16,298	16,965	17,410	81,491
Sanitation	Public School Toilets	10,532	10,532	12,092	14,433	16,773	18,333	72,163
	Public Toilets	4,365	4,365	4,839	5,550	6,261	6,735	27,750
<b>Total Recurrent Cost</b>		<b>45,966</b>	<b>46,122</b>	<b>49,630</b>	<b>54,658</b>	<b>59,686</b>	<b>63,038</b>	<b>273,133</b>

Chapter

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**FINANCIAL ARRANGEMENTS FOR  
MEDIUM-TERM DEVELOPMENT PLAN**

**11**

## **11. FINANCIAL ARRANGEMENTS**

### **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.

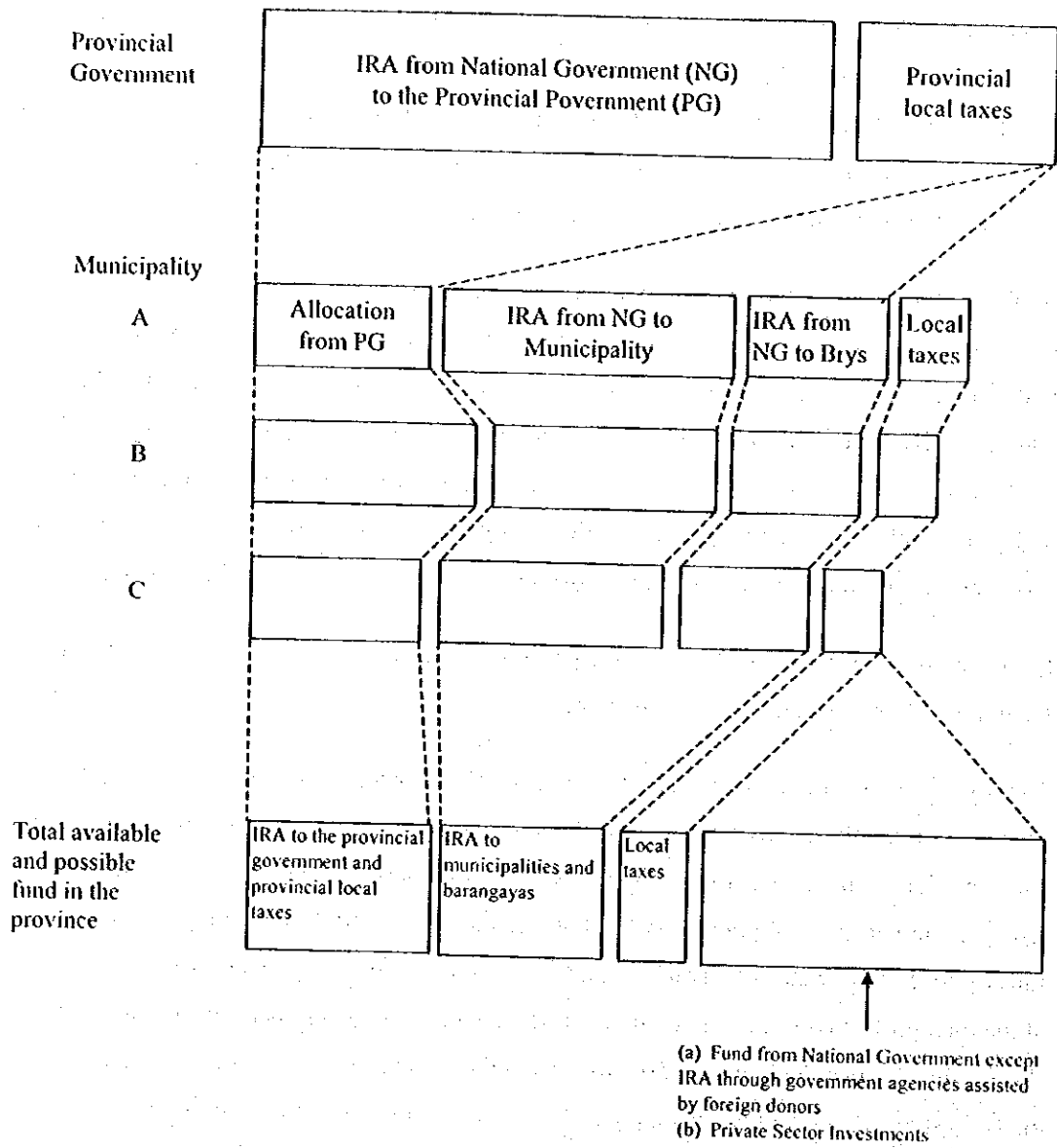
Distribution of IRA to respective municipalities is contemplated in assumption of various factors based on the experiences as of 1998.

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 in 1998, which clearly limited the national government subsidy for Level I water supply to 5<sup>th</sup> and 6<sup>th</sup> class municipalities up to a maximum of 50% of the total project cost. For sanitation facilities, the national government subsidy for 3<sup>rd</sup> to 6<sup>th</sup> 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 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 11.1.1 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**

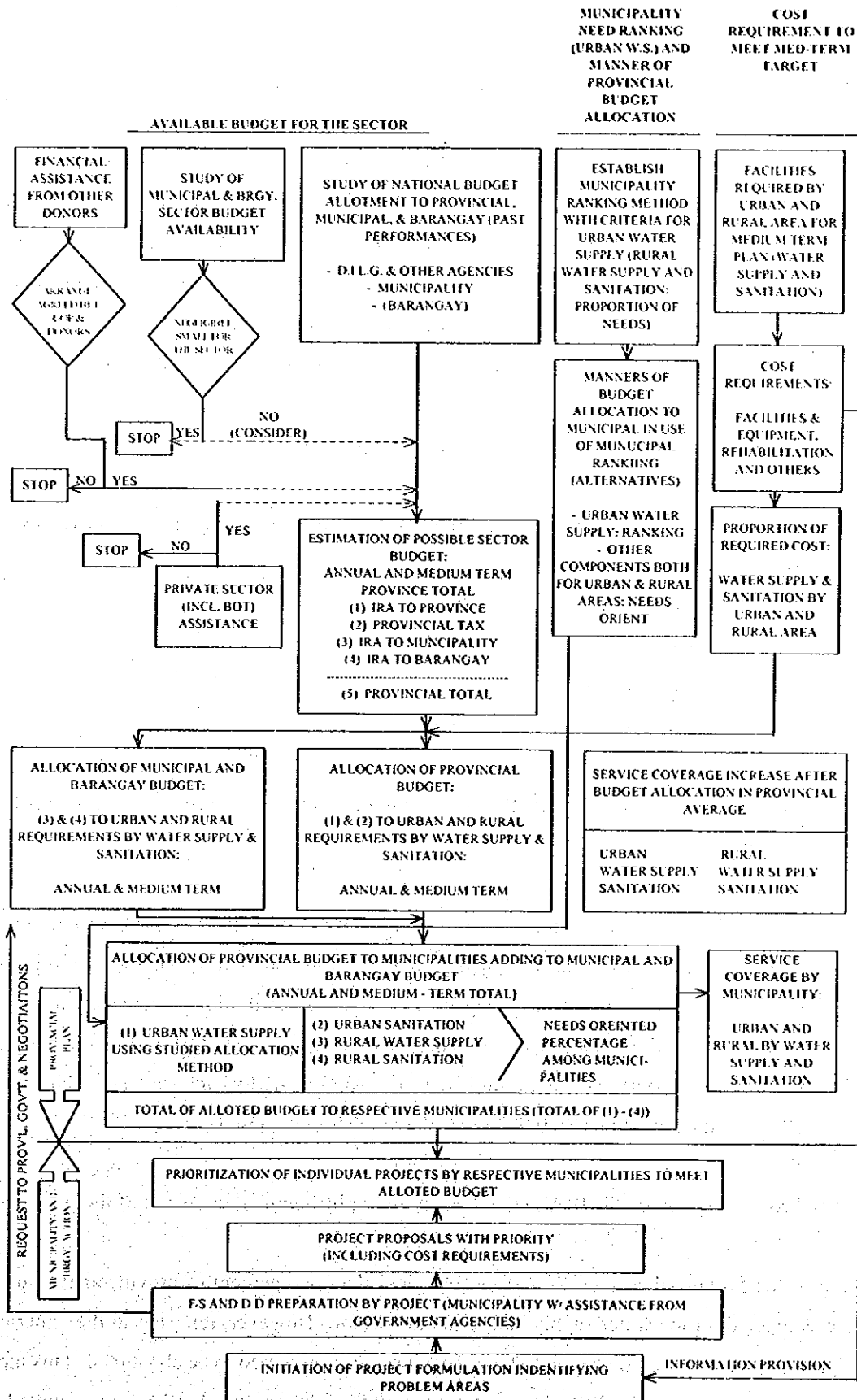


Figure 11.2.1 shows the calculation procedure with assumptions and Tables 11.2.1 and 11.2.2 present the calculation results. Calculation process is further described as follows:

(1) Projection of annual IRA to all LGUs in the Philippines from 2001 to 2005

The IRA projection for the period 2001 to 2002 have been derived as equivalent to 40% of the total revenues of the actual National Internal Revenue Taxes of the 3<sup>rd</sup> 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 2005, the projected National Internal Revenue Taxes by DOF served as the basis for projecting the IRA. Projected IRA registered an annual average growth rate of 11 percent for the period 2001 to 2005.

(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%

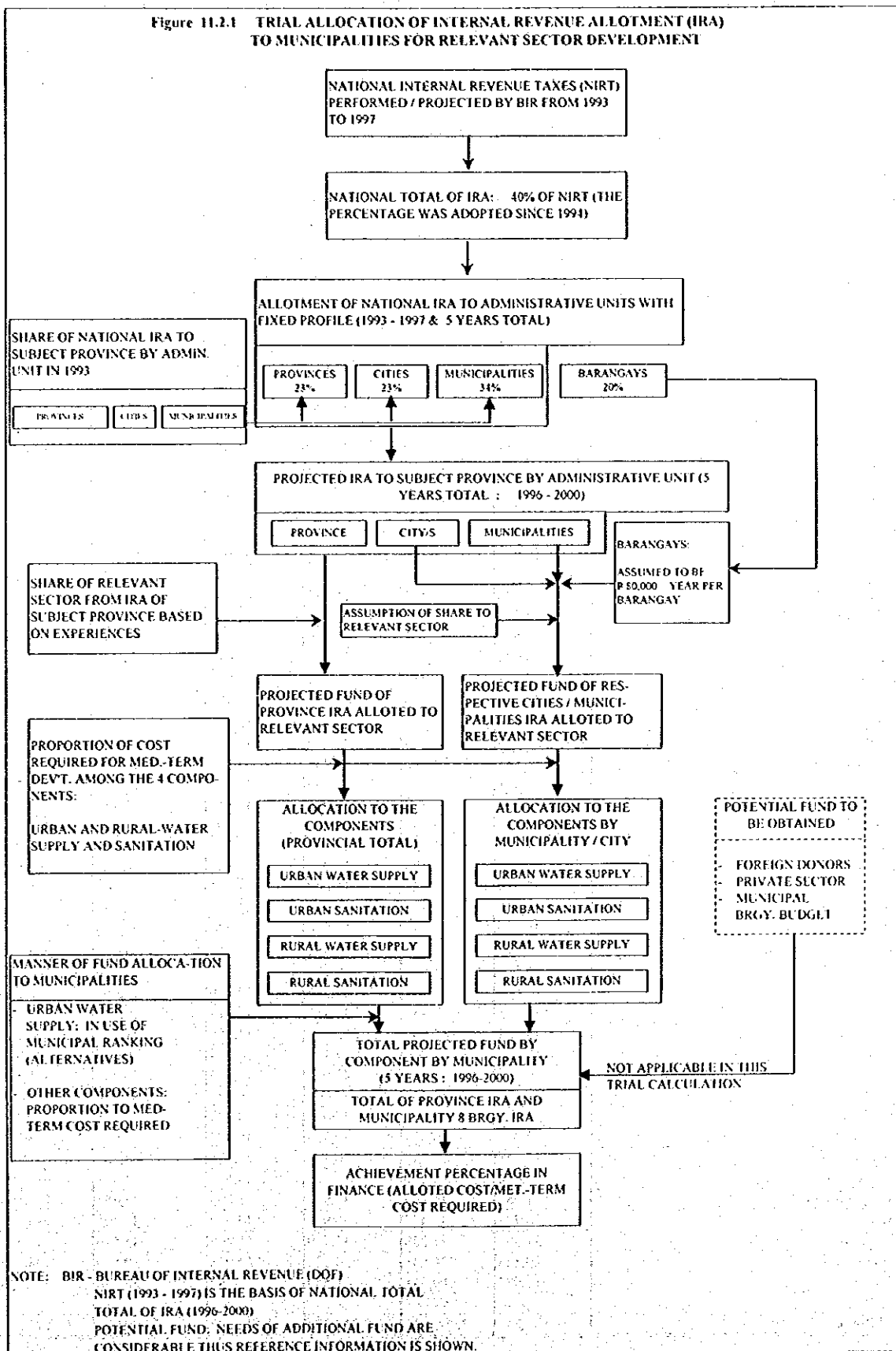
(3) Distribution of national total IRA to the subject province by provincial, municipal and barangay level

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 2001-2005 (refer to Table 6.2.2, Main Report and Supporting Report). Allotments to barangays are added to the IRAs for municipalities (P80,000 times the number of barangays).

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

According to the Provincial Annual Report in 1998, less than one percent of provincial IRA on the average 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 about 4%. This means that approximately 20% of "20% Development Fund" from national IRA are counted on

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





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

Unit: P 1,000

	2001	2002	2003	2004	2005	Total
1 40% of Actual/Projected National Internal Revenue Taxes of the 3rd Fiscal Year preceding the current year	115,801,280	127,449,920	142,317,600	157,972,536	175,349,515	718,890,851
2 Internal Revenue Allotment to all LGUs						
(a) province (23%)	26,634,294	29,313,482	32,733,048	36,333,683	40,330,388	165,344,896
(b) cities (23%)	26,634,294	29,313,482	32,733,048	36,333,683	40,330,388	165,344,896
(c) municipalities (34%)	39,372,435	43,332,973	48,387,984	53,710,662	59,618,835	244,422,889
(d) barangays (20%)	23,160,256	25,489,984	28,463,520	31,594,507	35,069,903	143,778,170
(e) total IRA to all LGUs	115,801,280	127,449,920	142,317,600	157,972,536	175,349,515	718,890,851
3 Projected IRA to Subject Province by Administrative Unit						
(a) province	566,575	623,568	696,310	772,904	857,924	3,517,281
(b) municipalities/city including barangays	1,263,273	1,376,498	1,521,012	1,673,179	1,842,084	7,676,645
Ajuy	28,785	31,407	34,754	38,278	42,189	175,414
Alimodian	26,583	28,847	31,736	34,778	38,155	160,100
Anilao	19,751	21,569	23,889	26,332	29,044	120,587
Badianan	20,553	22,371	24,691	27,134	29,846	124,594
Balasan	18,994	20,720	22,922	25,241	27,815	115,692
Banate	21,665	23,699	26,296	29,030	32,065	132,756
Barotac Nuevo	28,400	31,024	34,372	37,898	41,811	173,505
Barotac Viejo	27,636	30,207	33,488	36,943	40,778	169,051
Batad	16,186	17,622	19,453	21,382	23,523	98,166
Bingawan	14,926	16,314	18,087	19,953	22,025	91,305
Cabatuan	32,322	35,026	38,477	42,111	46,145	194,081
Calinog	36,519	39,717	43,800	48,099	52,870	221,005
Carles	30,094	32,855	36,380	40,092	44,211	183,632
Concepcion	23,148	25,276	27,991	30,850	34,024	141,289
Dingle	26,491	28,890	31,953	35,177	38,756	161,267
Ducñas	24,640	26,740	29,421	32,244	35,377	148,422
Dumangas	34,196	37,273	41,202	45,338	49,929	207,937
Estancia	21,885	23,885	26,438	29,127	32,111	133,446
Guimbal	21,431	23,321	25,733	28,274	31,093	129,852
Igbaras	25,110	27,266	30,017	32,914	36,130	151,438
Janiuay	36,461	39,646	43,711	47,991	52,742	220,551
Lambunao	42,894	46,621	51,378	56,388	61,948	259,229
Leganes	17,968	19,630	21,752	23,987	26,467	109,803
Lemery	20,859	22,707	25,067	27,552	30,309	126,494
Leon	34,037	36,776	40,273	43,955	48,042	203,084
Maasin	26,189	28,421	31,270	34,270	37,600	157,750
Miagao	41,916	45,175	49,334	53,713	58,575	248,713
Mina	16,593	18,085	19,989	21,995	24,220	100,882
New Lucena	16,860	18,387	20,336	22,389	24,667	102,639
Oton	34,303	37,455	41,480	45,717	50,420	209,374
Passi City	172,884	189,865	211,538	234,358	259,688	1,068,333
Pavia	19,909	21,766	24,138	26,634	29,406	121,853
Pototan	36,513	39,783	43,957	48,353	53,232	221,838
San Dionisio	22,409	24,429	27,008	29,724	32,739	136,309
San Enrique	22,406	24,434	27,023	29,749	32,775	136,388
San Joaquin	37,359	40,433	44,356	48,487	53,073	223,708
San Miguel	17,021	18,540	20,479	22,521	24,787	103,349
San Rafael	14,604	16,001	17,783	19,660	21,744	89,792
Santa Barbara	31,782	34,496	37,961	41,608	45,657	191,504
Sara	30,725	33,477	36,991	40,690	44,796	186,679
Tigbauan	31,507	34,258	37,769	41,466	45,570	190,572
Tubungan	20,838	22,548	24,730	27,028	29,579	124,724
Zamaga	17,922	19,531	21,586	23,749	26,150	108,938
(c) Provincial Total	1,829,848	2,000,066	2,217,322	2,446,083	2,700,007	11,193,326

Table 11.2.1 Projected Internal Revenue Allotment for Medium-Term Sector Development  
(cont'd)

Unit: P 1,000

	2001	2002	2003	2004	2005	Total
4 Project fund of IRA to Relevant Sector by Administrative Unit						
(a) province	22,663	24,943	27,852	30,916	34,317	140,691
(b) municipalities/city including barangays	45,253	49,274	54,406	59,810	65,809	274,552
Ajuy	1,151	1,256	1,390	1,531	1,688	7,017
Alimodian	1,063	1,154	1,269	1,391	1,526	6,404
Anilao	790	863	956	1,053	1,162	4,823
Badiangan	264	287	317	348	383	1,599
Balasan	760	829	917	1,010	1,113	4,628
Banate	867	948	1,052	1,161	1,283	5,316
Barotac Nuevo	1,136	1,241	1,375	1,516	1,672	6,940
Barotac Viejo	1,105	1,208	1,340	1,478	1,631	6,762
Bataad	647	705	778	855	941	3,927
Bingawan	597	653	723	798	881	3,652
Cabatuan	1,293	1,401	1,539	1,684	1,846	7,763
Calinog	1,461	1,589	1,752	1,924	2,115	8,840
Carles	1,204	1,314	1,455	1,604	1,768	7,345
Concepcion	926	1,011	1,120	1,234	1,361	5,652
Dingle	997	1,087	1,202	1,324	1,459	6,069
Dueñas	986	1,070	1,177	1,290	1,415	5,937
Dumangas	1,368	1,491	1,648	1,814	1,997	8,317
Estancia	875	955	1,058	1,165	1,284	5,338
Guimbal	857	933	1,029	1,131	1,244	5,194
Igbaras	1,004	1,091	1,201	1,317	1,445	6,058
Janiuay	1,458	1,586	1,748	1,920	2,110	8,822
Lambunao	1,716	1,865	2,055	2,256	2,478	10,369
Leganes	719	785	870	959	1,059	4,392
Lenery	834	908	1,003	1,102	1,212	5,060
Leon	1,361	1,471	1,611	1,758	1,922	8,123
Maasin	1,048	1,137	1,251	1,371	1,504	6,310
Miagao	1,677	1,807	1,973	2,149	2,343	9,949
Mina	664	723	800	880	969	4,035
New Lucena	674	735	813	896	987	4,106
Oton	1,372	1,498	1,659	1,829	2,017	8,375
Passi City	2,612	2,869	3,196	3,541	3,924	16,142
Pavia	796	871	966	1,065	1,176	4,874
Pototan	1,461	1,591	1,758	1,934	2,129	8,874
San Dionisio	896	977	1,080	1,189	1,310	5,452
San Enrique	896	977	1,081	1,190	1,311	5,456
San Joaquin	1,494	1,617	1,774	1,939	2,123	8,948
San Miguel	681	742	819	901	991	4,134
San Rafael	584	640	711	786	870	3,592
Santa Barbara	917	996	1,096	1,201	1,318	5,528
Sara	1,229	1,339	1,480	1,628	1,792	7,467
Tigbauan	1,260	1,370	1,511	1,659	1,823	7,623
Tubungan	834	902	989	1,081	1,183	4,989
Zarraga	717	781	863	950	1,046	4,358
(c) Provincial Total	67,916	74,217	82,259	90,726	100,126	415,243

Table 11.2.2 Projected Allotment of IRA to the Relevant Sector by Component, 2001-2005

Unit: P 1,000

Allocation of IRA to Provincial Units	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Total
1. Province	31,247	64,128	19,616	25,699	140,691
2. Municipalities					
Ajuy			1,691	5,326	7,017
Alimodian	1,820	3,144	599	841	6,404
Anilao	488	2,839	440	1,056	4,823
Badiangan			1,599		1,599
Balasan	887	2,263	532	946	4,628
Banate		3,526	440	1,344	5,310
Barotac Nuevo			1,952	4,988	6,940
Barotac Viejo	1,468	2,229	845	2,220	6,762
Batad		2,886	953	88	3,927
Bingawan		2,430	760	463	3,652
Cabatuan	6,440		1,324		7,763
Calinog	1,103	5,633	480	1,623	8,840
Carles	538	4,205	761	1,842	7,345
Concepcion	1,592	1,783	745	1,532	5,652
Dingle			2,286	3,783	6,069
Dueñas		5,183	671	82	5,937
Dumangas	432	6,120	379	1,387	8,317
Estancia	2,686	1,947	554	150	5,338
Guimbal		3,427	767	1,000	5,194
Igaras	1,643	2,799	669	947	6,058
Janitay	1,959	4,559	672	1,632	8,822
Lambunao	1,105	6,555	867	1,842	10,369
Leganes	1,684	1,543	656	509	4,392
Lemery			1,895	3,165	5,060
Leon	1,456	3,996	784	1,887	8,123
Maasin	992	3,448	634	1,235	6,310
Miagao	2,587	6,269	1,072	20	9,949
Mina	600	2,588	259	589	4,035
New Lucena	1,647		1,075	1,383	4,106
Oton	6,892		1,483		8,375
Passi City			6,714	9,428	16,142
Pavia			2,439	2,435	4,874
Pototan		5,898	1,403	1,573	8,874
San Dionisio	1,263	2,215	747	1,227	5,452
San Enrique	531	3,684	380	860	5,456
San Joaquin	1,186	5,527	698	1,538	8,948
San Miguel			3,287	847	4,134
San Rafael		1,432	1,185	974	3,592
Santa Barbara			5,379	149	5,528
Sara			2,600	4,867	7,467
Tigbauan	1,838	4,305	521	959	7,623
Tubungan	678	2,628	622	1,061	4,989
Zarraga	1,044	2,480	453	380	4,358
3. Total	75,805	171,668	73,890	93,880	415,243

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 2001-2005 is estimated at ₱415.24 million, which is equivalent to 3.71% of combined provincial and municipal IRA. This percentage is computed based on the result of adjustment in use of IRA for those municipalities, required cost of which is lower than the allotted IRA. With regard to the allocation to sub-sectors, rural water supply has the largest allotment of 41.3% (₱171.67 million out of the total ₱415.24 million) followed by rural sanitation (22.6% or ₱93.88 million). Urban water supply is allotted ₱75.8 million (18.3%) while urban sanitation is allotted ₱73.9 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, Passi City has the largest allotment with ₱16.14 million (3.9%) followed by the municipality of Lambunao with ₱10.37 million (2.5%).

### 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

Table 11.3.1 Financing Requirement by Sector Component for the Province

Unit: P 1,000

Sector Components	2001	2002	2003	2004	2005	Total 2001-2005	Total 2006-2010
<b>Direct Cost</b>							
<i>1. Direct Construction Cost</i>							
<i>Urban Water Supply</i>							
Level III System	0	26,618	39,927	39,927	26,618	133,090	1,037,914
<i>Rural Water Supply</i>							
Level II System	10,561	10,561	0	0	0	21,123	0
Level I Facilities	0	50,403	75,604	75,604	50,403	252,014	1,232,236
<i>Urban Sanitation</i>							
Household toilet	0	193	290	290	193	966	106
Public school toilet	0	5,090	7,635	7,635	5,090	25,452	28,954
Public toilet	0	11,427	17,140	17,140	11,427	57,133	75,936
Disinfection of Level I Deep Well and Shallow	97	178	178	178	178	809	0
<i>Rural Sanitation</i>							
Household toilet	0	1,437	2,156	2,156	1,437	7,186	29,951
Public school toilet	0	20,455	30,682	30,682	20,455	102,273	353,733
Disinfection of Level I Deep Well and Shallow	283	519	519	519	519	2,361	576
<i>Urban Sewerage</i>	N/A	N/A	N/A	N/A	N/A	N/A	792,773
Sub-total	10,942	126,881	174,131	174,131	116,320	602,406	3,552,198
<i>2. Procurement of Vehicle/Equipment/Maintenance tools</i>							
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	86	129	129	86	430	0
Water quality testing kit	0	3	5	5	3	15	0
Sub-total	0	959	134	134	89	1,315	26,782
<i>3. Water Quality Laboratory</i>	956	0	0	0	0	956	0
<i>4. Sector Management Cost</i>							
<i>Engineering Studies</i>							
Feasibility study and detail design	35,868	17,330	0	0	0	53,198	245,653
Construction supervision	422	4,982	6,840	6,840	4,560	23,809	109,179
<i>Institutional Development</i>	18,193	17,793	11,283	6,041	5,642	58,952	245,653
Sub-total	54,483	40,105	18,123	12,881	10,201	135,958	600,484
<b>Total Direct Cost</b>	<b>66,381</b>	<b>167,946</b>	<b>192,388</b>	<b>187,145</b>	<b>126,610</b>	<b>740,635</b>	<b>4,179,464</b>
<b>Contingencies</b>							
<i>1. Physical Contingency</i>	6,638	16,795	19,239	18,715	12,661	74,047	417,946
<i>2. Price Contingency</i>	10,580	41,574	65,773	82,869	69,737	270,534	N.A
<i>3. Value-Added Tax (VAT)</i>	4,819	15,015	18,110	18,110	12,097	68,152	N.A
<b>Total Investment Cost</b>	<b>88,418</b>	<b>241,330</b>	<b>295,510</b>	<b>306,840</b>	<b>221,106</b>	<b>1,153,368</b>	<b>4,597,410</b>
<b>Total Investment Cost (excluding Price Contingency)</b>	<b>77,837</b>	<b>199,755</b>	<b>229,737</b>	<b>223,970</b>	<b>151,368</b>	<b>882,669</b>	<b>4,597,410</b>

Note: Institutional development includes:

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

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 portions are kept blank to supplement upon confirmation of additional funds available. Out of P882.67 million required on 1998 price level for Phase I (2001-2005), IRA can fund only P415.24 million or 47.0% of the requirements. Hence, there is a big shortfall of P581.54 million in funding in consideration of contingencies, price escalation and value added tax.

Municipal achievement percentages in finance (1998 price level) are shown in Table 11.3.3 in provision of available fund originated by IRA against Phase I financial requirements. The percentages of Ajuy, Badiangan, Barotac Nuevo, Dingle, Lemery, Passi City, San Miguel, and Santa Barbara (100%) are the highest among municipalities. Majority is in the range between 40% and 60% to the respective requirements, while the provincial average is 47% (36% in consideration of contingencies and VAT).

#### **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 11.3.2 Additional Fund Requirement for the Medium-Term Plan**

Unit: P 1,000

	2001	2002	2003	2004	2005	Total 2001-2005
Financing Requirement	77,837	199,755	229,737	223,970	151,368	882,669
Expected available fund						
National						
Local (IRA)	67,916	74,217	82,259	90,726	100,126	415,243
Others						
Total	67,916	74,217	82,259	90,726	100,126	415,243
Shortfall in funding	9,922	125,539	147,479	133,244	51,243	467,426
(Additional Fund Requirements)	10,616	143,729	180,668	174,656	71,871	581,539

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

Three reference scenarios are discussed with respect to 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 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 experience of the province.

**(2) The Second Reference Scenario**

An intermediate scenario with 50-75 % funding ranges are considered. Urban and rural water supply coverage in the year 2005 is attained between 66-68% and between 60-63%, respectively. For urban and rural sanitation (household toilets), coverage will reach 85-89% and 65-70%, 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 2005 will be attained at 63% and 58%, respectively.

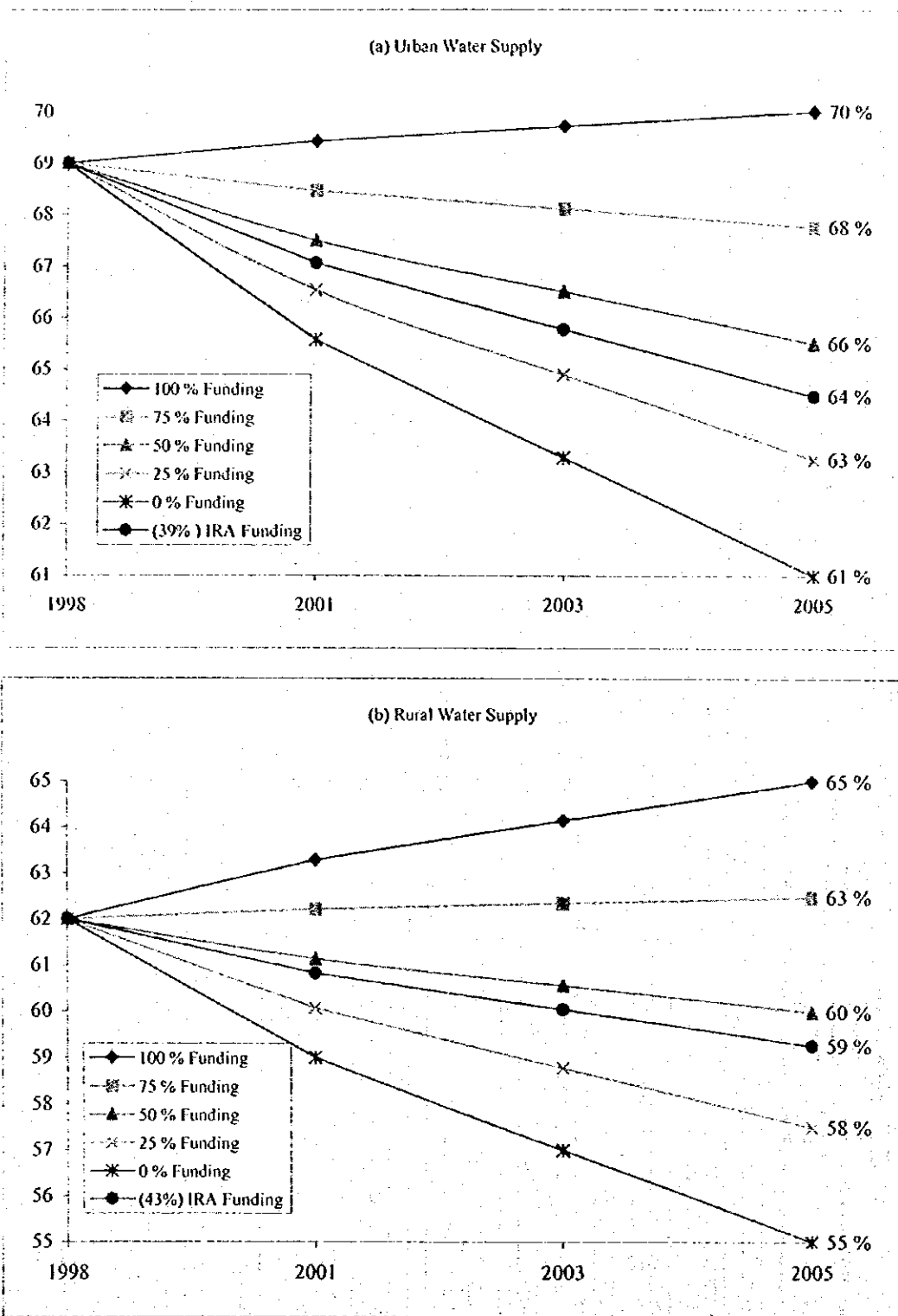
Table 11.3.3 Internal Revenue Allotment for Water Supply and Sanitation Sector by Municipality (Medium-term Development, 2001-2005)

Unit: P. 1,000

Name of Municipality/City	IRA Allocation to Municipalities						Phase I Investment Requirement (b)	Achievement Percentage (% in Finance (a)/(b))							
	Urban Water Supply			Rural Water Supply											
	Allotted from Provincial Government	Allotted Municipality Fund	Total	Allotted from Provincial Government	Allotted Municipality Fund	Total									
Ajuy				392	1,691	2,083	792	5,326	6,117	8,200	8,200	100			
Almodian	658	1,820	2,478	1,923	3,144	5,066	443	599	1,043	1,466	10,053	24,573	41		
Anilao	658	488	1,146	1,693	2,839	4,532	319	440	779	1,056	8,254	18,050	46		
Badiayan					1,599	1,599					1,599	1,599	100		
Balasan	658	887	1,545	1,574	2,263	3,837	447	532	979	1,344	8,074	20,191	40		
Banate				2,071	3,526	5,597	336	440	776	768	2,243	19,563	44		
Barroac Nuevo							76	1,952	2,028	4,988	7,016	7,016	100		
Barroac Viejo	2,547	1,468	4,015	972	2,229	3,201	446	845	1,291	1,078	3,298	11,805	18,497	64	
Batad				798	2,886	3,684	341	953	1,293	135	383	2,200	6,816	76	
Bingawan				1,181	2,430	3,611	446	760	1,206	335	463	798	11,136	50	
Cabatuan	658	6,440	7,098				1,154	1,324	2,477			9,575	39,634	24	
Calinog	658	1,103	1,761	4,389	5,633	10,022	451	480	931	1,375	1,623	2,998	15,713	43,208	36
Carles	2,129	538	2,667	3,324	4,205	7,529	678	761	1,439	1,567	1,842	3,409	15,044	36,431	41
Concepcion	3,089	1,592	4,681	877	1,783	2,659	443	745	1,188	864	1,532	2,396	10,925	17,442	63
Dingle							2,286	2,286				3,783	6,069	6,069	100
Duenhas				1,967	5,183	7,150	332	671	1,003	142	82	224	8,377	14,136	59
Dumuygas	658	432	1,090	4,113	6,120	10,233	332	379	711	1,043	1,387	2,430	14,463	35,073	41
Escarica	658	2,686	3,344	1,016	1,947	2,964	366	554	921	189	150	339	7,567	17,473	43
Gumbal				1,878	3,427	5,304	497	767	1,264	659	1,000	1,659	8,228	17,856	46
Igaras	658	1,643	2,301	1,524	2,799	4,323	441	669	1,110	626	947	1,573	9,306	20,693	45
Janjau	658	1,959	2,617	3,215	4,559	7,774	551	672	1,223	1,262	1,632	2,894	14,508	39,037	37
Lambanao	3,089	1,105	4,194	4,681	6,555	11,236	696	867	1,563	1,426	1,842	3,269	20,261	46,455	44
Legaites	3,089	1,684	4,773	997	1,543	2,541	501	656	1,157	439	509	948	9,419	17,808	53
Lemery							256	1,895	2,151			3,165	5,316	5,316	100
Leon	658	1,456	2,114	2,292	3,996	6,288	526	784	1,310	1,193	1,887	3,080	12,793	29,235	44
Masam	658	992	1,650	1,683	3,448	5,131	386	634	1,021	713	1,235	1,949	9,751	19,324	50
Mitague	658	2,587	3,245	2,978	6,269	9,247	586	1,072	1,658	120	20	140	14,291	29,654	48
Mina	658	600	1,257	1,706	2,588	4,294	247	259	506	499	589	1,088	7,145	16,686	43
New Luteña	658	1,647	2,305				333	1,075	1,408	439	1,383	1,822	5,535	6,126	90
Oton	3,089	6,892	9,981				1,763	1,483	3,246				13,228	59,753	22
Passi City								6,714	6,714			9,428	16,142	16,142	100
Pavia							571	2,439	3,010	604	2,435	3,039	6,049	6,196	98
Pototan				3,398	5,898	9,296	885	1,403	2,288	1,016	1,573	2,589	14,173	32,072	44
San Donisio	658	1,263	1,920	1,528	2,215	3,743	747	1,272	2,019	846	1,277	2,074	8,810	20,509	43
San Enrique	1,715	531	2,246	2,483	3,684	6,167	333	380	713	690	860	1,590	10,676	23,068	46
San Isidoro	658	1,186	1,843	3,606	5,927	9,533	532	698	1,230	1,114	1,538	2,652	14,859	36,631	41
San Miguel							715	3,287	4,003	188	847	1,034	5,637	5,637	100
San Rafael				457	1,432	1,889	455	1,185	1,640	421	974	1,395	4,924	7,183	69
Santa Barbara								5,379	5,379			149	5,528	5,528	100
Sura							621	2,600	3,221	1,129	4,867	5,996	9,217	9,805	94
Tubauan	658	1,838	2,495	3,487	4,305	7,792	499	521	1,020	887	1,846	13,154	38,737	34	
Tubungan	658	678	1,336	1,086	2,628	3,715	334	622	956	549	1,061	1,610	7,616	12,938	59
Zarraga	658	1,043	1,702	1,431	2,430	3,911	338	453	792	330	380	710	7,114	15,271	45
<b>Total</b>	<b>31,247</b>	<b>44,557</b>	<b>75,805</b>	<b>64,128</b>	<b>107,540</b>	<b>171,668</b>	<b>19,616</b>	<b>54,274</b>	<b>73,890</b>	<b>25,699</b>	<b>68,181</b>	<b>93,880</b>	<b>415,243</b>	<b>882,667</b>	<b>47</b>

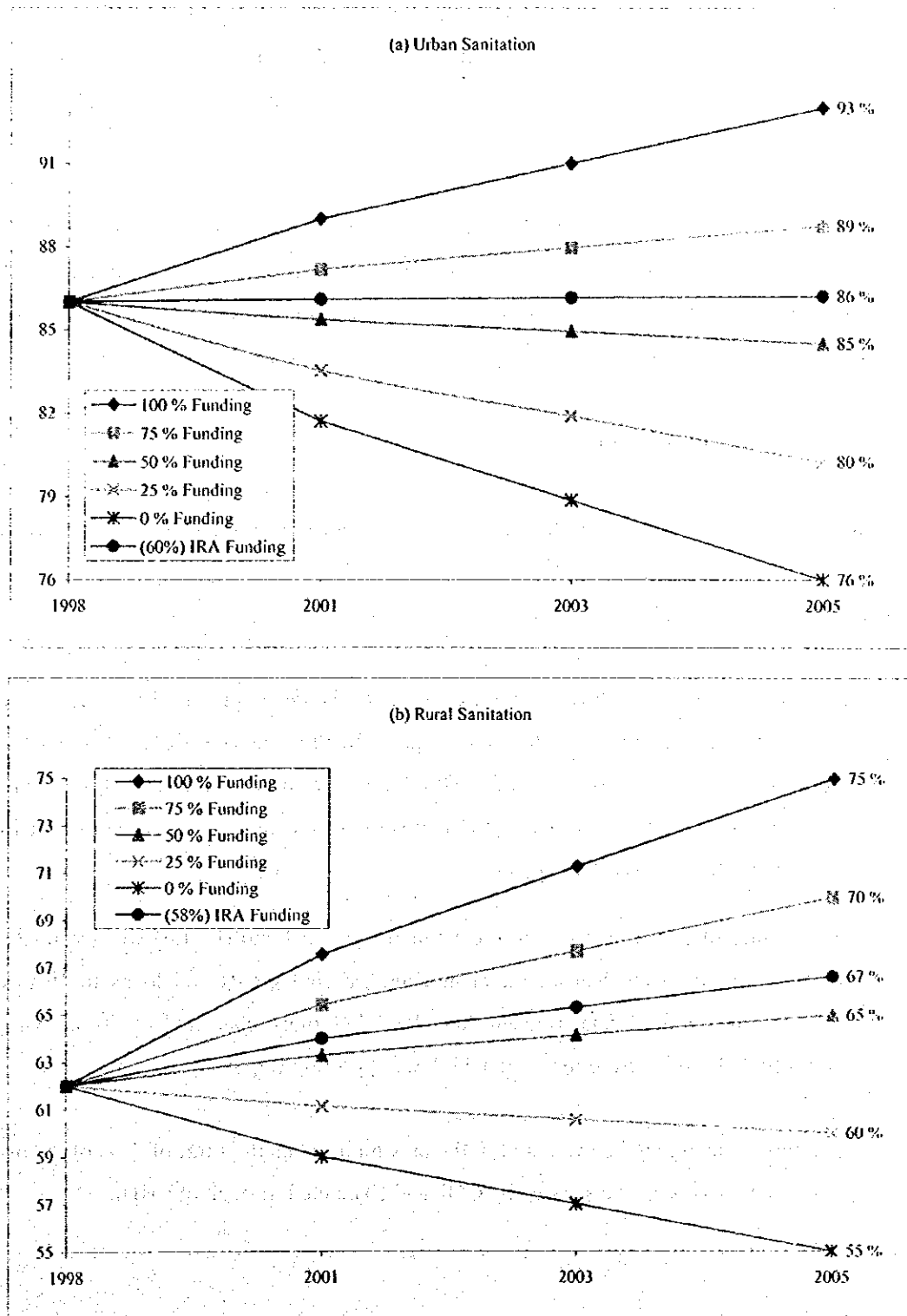


**Figure 11.4.1 Relation Between Funding Levels and Percent of Coverage for Water Supply Sector**



Note: Percentages of the coverage between 1998 and 2005 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 2005 are simply prorated as the reference

while urban and rural sanitation coverage will be at 80% and 60%. 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 2005 will be 39% and 43% which will cover 64% and 59% of the population. In order to attain the Phase I development target of 70% and 65% service coverage, it needs an additional IRA funding of 61% and 57%, respectively.

For urban and rural sanitation, 100% funding shall have coverage percentage of 93% and 75%, respectively. However, at IRA funding of 60% and 58%, service coverage will only be at 86% and 67%. Thus, to meet the Phase I development targets of 93% and 75% of the population, an additional IRA funding of 40% and 42% is required.

#### 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

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 ranking procedures, overall weighted score and investment need ranking of the municipalities. The top three (3) priority municipalities are Carles, Lambunao, and Oton.

With reference to the provincial fund allocation, it is assumed that 60% of the fund for urban water supply from provincial government is distributed to the top five ranking municipalities, while the remaining 40% are equally distributed to the rest of the municipalities. The result of distribution is shown in Table 11.4.2. The available funds for about half of the 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 Carles, Oton and Anilao, which indicate that they are given priority for investments in all sub-sectors. The municipality of San Miguel is the least priority in terms of investment ranking.

#### **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. 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 Implementing Agency in the meantime. The project may be merged together with those of the 3rd batch provinces in preparation of the PW4SP. The implementation of a packaged project may be realized in the near future.

### 11.5.1 Project Components

#### (1) Water Supply and sanitation Component

There are nine (9) eligible municipalities in terms of 5<sup>th</sup> and 6<sup>th</sup> municipalities for GOP-assisted Level I rural water supply in the province. The Level I facilities for the municipalities consist of 108 deep wells, 27 shallow wells and 4 spring development.

While, there are forty-two (42) municipalities excluding Passi City to meet the condition for GOP-assisted projects (limited to 3rd to 6<sup>th</sup> municipalities) in sanitation sub-sector. The sanitation component comprises 94 public toilets and 518 school toilets to the rural communities. Distribution of toilet bowl (pour flush only) is one of the components of sanitation sub-sector in medium-term development plan, 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.

Table 11.4.1 Municipal Investment Need Ranking for Urban Water Supply

Name of Municipality/City	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		
Ajuy	7	11	7	0.20	0.20	0.20	0.20	42
Alimodian	24	33	52	0.60	0.60	0.60	0.60	21
Anilao	30	38	39	0.60	0.60	0.40	0.57	25
Badian	12	19	71	0.40	0.40	0.80	0.46	33
Balasan	30	36	100	0.60	0.60	1.00	0.66	16
Banate	20	29	100	0.40	0.40	1.00	0.49	28
Barotac Nuevo	3	10	48	0.20	0.20	0.60	0.26	41
Barotac Viejo	49	54	100	1.00	0.80	1.00	0.93	4
Batad	20	30	33	0.40	0.40	0.40	0.40	37
Bingawan	8	18	100	0.20	0.40	1.00	0.39	38
Cabatuan	25	31	94	0.60	0.60	1.00	0.66	16
Calinog	41	50	65	1.00	0.80	0.80	0.90	8
Carles	61	67	100	1.00	1.00	1.00	1.00	1
Concepcion	52	57	100	1.00	0.80	1.00	0.93	4
Dingle	20	23	67	0.40	0.40	0.80	0.46	33
Duenas	18	23	61	0.40	0.40	1.00	0.49	28
Dumangas	28	33	38	0.60	0.60	0.40	0.57	25
Estancia	26	40	59	0.60	0.60	0.60	0.60	21
Guimbal	15	30	48	0.40	0.40	0.60	0.43	36
Igbaras	41	45	100	1.00	0.60	1.00	0.86	9
Juniuay	26	34	72	0.60	0.60	0.80	0.63	18
Lambunao	72	75	100	1.00	1.00	1.00	1.00	1
Leganes	43	48	96	1.00	0.80	1.00	0.93	4
Lemery	21	28	100	0.60	0.40	1.00	0.59	24
Leon	26	38	64	0.60	0.60	0.80	0.63	18
Maasin	32	35	82	0.80	0.60	1.00	0.76	12
Miagao	42	45	74	1.00	0.60	0.80	0.83	10
Mina	39	44	100	0.80	0.60	1.00	0.76	12
New Lucena	36	38	100	0.80	0.60	1.00	0.76	12
Oton	60	66	96	1.00	1.00	1.00	1.00	1
Passi City		7	1	0.20	0.20	0.20	0.20	42
Pavia	6	23	30	0.20	0.40	0.40	0.30	40
Pototan	15	23	62	0.40	0.40	0.80	0.46	33
San Dionisio	25	33	42	0.60	0.60	0.60	0.60	21
San Enrique	41	46	100	1.00	0.80	1.00	0.93	4
San Joaquin	27	39	71	0.60	0.60	0.80	0.63	18
San Miguel	1	13	94	0.20	0.20	1.00	0.32	39
Sap Rafael	12	22	100	0.40	0.40	1.00	0.49	28
Santa Barbara	20	28	86	0.40	0.40	1.00	0.49	28
Sara	12	21	85	0.40	0.40	1.00	0.49	28
Tigbayan	33	41	100	0.80	0.60	1.00	0.76	12
Tubungan	20	37	100	0.40	0.60	1.00	0.56	27
Zarraga	33	46	100	0.80	0.80	1.00	0.83	10
Provincial Total	31	39	79					

Note: 1. Scoring to Underserved and Unserved Percentage.

2. Weight Allocation to Score.

Score	Range of Underserved and Unserved Percentage			50	35	15	Allocated Weight
	41 < %	61 < %	81 < %				
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				

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

Unit: P 1,000

Ranking	Name of Municipality/City	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(%)				
42	Ajuy						
21	Alimodian	658	2.11	1,820	2,478	6,985	35.48
25	Anilao	658	2.11	488	1,146	1,828	62.71
33	Badiangan						
16	Balasan	658	2.11	887	1,545	3,869	39.92
28	Banate						
41	Barotac Nuevo						
4	Barotac Viejo	2,547	8.15	1,468	4,015	4,015	100
37	Batad						
38	Bingawan						
16	Cabatuan	658	2.11	6,440	7,098	32,877	21.59
8	Calinog	658	2.11	1,103	1,761	5,393	32.66
1	Carles	2,129	6.81	538	2,667	2,667	100
4	Concepcion	3,089	9.89	1,592	4,681	4,913	95.28
33	Dingle						
28	Ducñas						
25	Dumangas	658	2.11	432	1,090	1,821	59.84
21	Estancia	658	2.11	2,686	3,344	8,792	38.03
36	Guimbal						
9	Igbaras	658	2.11	1,643	2,301	5,612	40.99
18	Januay	658	2.11	1,959	2,617	8,668	30.19
1	Lambunao	3,089	9.89	1,105	4,194	4,951	84.72
4	Leganes	3,089	9.89	1,684	4,773	6,826	69.92
24	Lemery						
18	Leon	658	2.11	1,456	2,114	5,241	40.34
12	Maasin	658	2.11	992	1,650	3,039	54.30
10	Miagao	658	2.11	2,587	3,245	7,712	42.08
12	Mina	658	2.11	600	1,257	2,479	50.72
12	New Lucena	658	2.11	1,647	2,305	2,458	93.77
1	Oton	3,089	9.89	6,892	9,981	49,173	20.30
42	Passi City						
40	Pavia						
33	Pototan						
21	San Dionisio	658	2.11	1,263	1,920	4,749	40.44
4	San Enrique	1,715	5.49	531	2,246	2,246	100
18	San Joaquin	658	2.11	1,186	1,843	4,853	37.98
39	San Miguel						
28	San Rafael						
28	Santa Barbara						
28	Sara						
12	Tigbauan	658	2.11	1,838	2,495	9,338	26.72
27	Tubungan	658	2.11	678	1,336	1,758	75.98
10	Zarraga	658	2.11	1,044	1,702	3,779	45.04
	<b>Total</b>	<b>31,247</b>	<b>100</b>	<b>44,557</b>	<b>75,805</b>	<b>196,042</b>	<b>38.67</b>



**Table 11.4.3 Municipal Investment Need Ranking**

Name of Municipality/City	Weighted Score by Sub-sector					Synthetic Municipal Investment Need Ranking
	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Total Weighted Score	
Ajuy	0.05	0.10	0.20	0.15	0.50	23
Alimodian	0.15	0.10	0.05	0.05	0.35	35
Anilao	0.14	0.20	0.25	0.25	0.84	3
Badiangan	0.12	0.05	0.05	0.05	0.27	40
Balasan	0.17	0.25	0.15	0.25	0.82	4
Banate	0.12	0.15	0.25	0.25	0.77	6
Barotac Nuevo	0.07	0.05	0.10	0.15	0.37	33
Barotac Viejo	0.23	0.10	0.15	0.25	0.73	10
Batad	0.10	0.10	0.25	0.10	0.55	19
Bingawan	0.10	0.25	0.25	0.10	0.70	11
Cabatuan	0.17	0.25	0.10	0.25	0.77	6
Calinog	0.23	0.25	0.05	0.10	0.63	14
Carles	0.25	0.25	0.25	0.25	1.00	1
Concepcion	0.23	0.20	0.10	0.25	0.78	5
Dingle	0.12	0.05	0.05	0.05	0.27	40
Dueñas	0.12	0.10	0.10	0.15	0.47	26
Dumangas	0.14	0.20	0.05	0.10	0.49	25
Estancia	0.15	0.15	0.20	0.15	0.65	13
Guimbal	0.11	0.10	0.05	0.05	0.31	37
Igaras	0.22	0.15	0.05	0.15	0.57	16
Janiuay	0.16	0.10	0.05	0.05	0.36	34
Lambunao	0.25	0.20	0.05	0.05	0.55	19
Leganes	0.23	0.10	0.05	0.05	0.43	29
Lemery	0.15	0.05	0.15	0.10	0.45	27
Leon	0.16	0.10	0.05	0.10	0.41	30
Maasin	0.19	0.10	0.05	0.05	0.39	32
Miagao	0.21	0.15	0.10	0.10	0.56	18
Mina	0.19	0.15	0.10	0.10	0.54	21
New Lucena	0.19	0.05	0.15	0.05	0.44	28
Oton	0.25	0.25	0.1	0.25	0.85	2
Passi City	0.05	0.05	0.15	0.25	0.50	23
Pavia	0.08	0.05	0.1	0.05	0.28	39
Pototan	0.12	0.10	0.05	0.05	0.32	36
San Dionisio	0.15	0.15	0.25	0.2	0.75	8
San Enrique	0.23	0.15	0.05	0.2	0.63	14
San Joaquín	0.16	0.15	0.1	0.15	0.56	17
San Miguel	0.08	0.05	0.05	0.05	0.23	43
San Rafael	0.12	0.05	0.25	0.25	0.67	12
Santa Barbara	0.12	0.05	0.05	0.05	0.27	40
Sara	0.12	0.05	0.2	0.15	0.52	22
Tighauan	0.19	0.2	0.25	0.1	0.74	9
Tubungan	0.14	0.05	0.05	0.05	0.29	38
Zarraga	0.21	0.1	0.05	0.05	0.41	31

## (2) Equipment/Commodity Assistance

Due to budgetary constraint and cost-sharing arrangement required (heavy burden to the LGUs), the provision of drilling machine and its service truck is excluded in the medium-term plan (to be considered for long-term plan). While each one unit of service vehicle and well rehabilitation equipment is considered. In addition, maintenance tool and water quality testing kits are to be procured and one unit will be provided to each municipality to maintain the facilities.

## (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 hydrogeological survey, finalization of well/spring 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 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 5<sup>th</sup> and 6<sup>th</sup> 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	1 <sup>st</sup> to 4 <sup>th</sup>	0		No GOP grants for Level II & III
	5 <sup>th</sup> to 6 <sup>th</sup>	50		
Sanitary Support Faci. for Public Markets and Slaughterhouses	1 <sup>st</sup> to 2 <sup>nd</sup>	0		
	3 <sup>rd</sup> and 4 <sup>th</sup>	50		
	5 <sup>th</sup> and 6 <sup>th</sup>	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 2001 - 2005 arrived at about ₱360.7 million (₱259.9 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 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 current financial capability of the municipalities.
- 5-year development program (from 2001 to 2005) 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

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	
<b>A. Const. &amp; Civil Works</b>						
<b>Water Supply</b>						
1. Deep Well (40m)	86	373,000	32,078,000			
2. Deep Well (80m)	22	551,000	12,122,000			
3. Deep Well (120m)	0	720,000	0			
4. Shallow Well	27	84,300	2,276,100			
5. Spring Development	4	737,600	2,950,400			
Sub-total a			49,426,500	21,026,649		28,399,851
<b>Sanitation</b>						
1. School Toilets	518	233,500	120,953,000			
2. Public Toilets	94	361,600	33,990,400			
Sub-total b			154,943,400	65,914,852		89,028,548
<b>Land acquisition</b>						
Land acquisition & Right of Way			715,000			715,000
Sub-total A			205,084,900	86,941,501		118,143,400
<b>B. Equip./Logistic Support</b>						
1. Support Vehicle	1	590,000	590,000	590,000		
2. Well Rehab. Eq.	1	280,000	280,000	280,000		
3. Maintenance Tools	9	10,000	90,000	90,000		
4. Water Quality Test Kits	9	15,300	137,700	137,700		
Sub-total B			1,097,700	1,097,700		
<b>C. Consultancy Services</b>						
1. Hydrogeological Survey			1,148,000	1,148,000		
2. D/D and Const. Sv.			22,559,339	22,559,339		
Sub-total C			23,707,339	23,707,339		
<b>D. Institutional Devt.</b>						
1. Capacity Enhanc. Prog.	L.S.		3,200,000	2,650,000	550,000	
2. Commu. Manag. Prog.	138	10,770	1,486,260	499,383	986,877	
3. Health & Hygiene Educ.	138	1,800	248,400		248,400	
4. Water Quality Surveil.	138	700	96,600		96,600	
5. NGO Assistance	138	1,200	165,600		165,600	
6. Administrative Support	L.S.		1,200,000		1,200,000	
Sub-total D			6,396,860	3,149,383	3,247,477	
<b>E. Physical Contingency</b>						
			23,628,680	11,489,592	324,748	11,814,340
<b>Total (A+B+C+D+E)</b>			<b>259,915,479</b>	<b>126,385,515</b>	<b>3,572,224</b>	<b>129,957,739</b>
<b>GOP Total</b>					<b>129,957,739</b>	
<b>LGUs</b>						<b>122,160,275</b>
<b>Equity</b>						<b>7,797,464</b>
<b>LGUs + Equity</b>						<b>129,957,739</b>
<b>F. Others</b>						
1. Price Contingency			89,615,728	51,589,954	1,307,277	36,718,497
2. Value Added Tax (VAT)			11,174,654		11,174,654	
Sub-total F			100,790,382	51,589,954	12,481,931	36,718,497
<b>Grand Total</b>			<b>360,705,861</b>	<b>177,975,469</b>	<b>16,054,156</b>	<b>166,676,237</b>

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) Physical contingency: 10% of materials procured

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

4) Value added tax: 10% materials produced

- b) For water supply sub-sector, IRA to municipalities with income classification of 5<sup>th</sup> and 6<sup>th</sup> classes is counted. The IRA allotted to the province is divided into two groups; classes 1<sup>st</sup> to 4<sup>th</sup> and 5<sup>th</sup> & 6<sup>th</sup> 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 (3<sup>rd</sup> to 6<sup>th</sup>) 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 ₱186,404,000 as a total of 5-year development program, consisting of water supply; ₱34,776,000 and sanitation, ₱151,628,000 (details are included in Table 11.5.1, 11.5.2 and 11.5.3, Supporting Report). The estimated IRA available is shown below.

<u>Sub-sector</u>	<u>Provincial IRA</u>	<u>Municipal IRA</u>	<u>Total</u>
Rural Water Supply:	11,803,000	22,972,000	34,776,000
Rural Sanitation:	25,699,000	58,753,000	84,452,000
Urban Sanitation:	19,616,000	47,559,000	67,176,000
<b>Total:</b>	<b>57,118,000</b>	<b>129,284,000</b>	<b>186,404,000</b>

The cost comparison was made between the estimated project cost (1998 price level) to be shared by the LGUs and available IRA of 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 48.6% or ₱126.4 million and 1.4% or ₱4.6 million of the government counterpart fund. The remaining 50% of the overall cost shall be shared between the LGUs by 47% or ₱122.2 million and BWSAs (beneficiaries) by 3% or ₱7.8 million.

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

<b>Financial Source</b>	<b>x 1,000 Peso</b>	<b>Percentage</b>		<b>Remarks</b>
GOP	3,572	1.4	50	GOP counterpart
	126,386	48.6		Foreign Loan
LGUs	122,160	47	50	IRA
	7,797	3		BWSA equity
<b>Total</b>	<b>259,915</b>	<b>100</b>		

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 ₱156.7 million from ₱122.2 million (1998 price level). The required cost is covered by 84% of available IRA (₱186.4 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 between the GOP and the LGUs.

GOP is possibly to finance up to ₱194.9 million or 75% of the total project cost in the portion of loan. Out of GOP finance through the loan, ₱126.4 million or 48.6% of the total project cost shall be granted to the LGUs, aside from 1.4% GOP counterpart fund.

The remaining ₱68.6 million or 26.4% of the total project cost shall be utilized for financing the LGUs to secure their budgetary capacity through MDF.

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

Financial Source	x 1,000 Peso	Percentage			Remarks
GOP	3,572	1.4	1.4	50	GOP counterpart
	126,386	48.6	75		Foreign Loan
	(68,550)	(26.4)			Foreign Loan for MDF
LGUs	53,610	20.6	47	50	IRA
	68,550	26.4			MDF through Foreign Loan
	7,797	3			BWSA Equity
<b>Total</b>	<b>259,915</b>	<b>100</b>			

Under this case, the IRA to be used by the LGU will increase to ₱64.1 million from ₱53.6 million (1998 price level), considering price contingency and VAT, which is 34% of available IRA estimated in the previous study (₱186.4 million).

#### 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**

Activities	2001				2002				2003				2004				2005			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Project Implementation																				
1. Detailed Design	■	■	■	■																
2. Community Development/ BWSA Formation		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3. PQ, Bidding and Contractor Selection				■	■	■	■	■												
4. Procurement and Delivery of Materials and Equipment						■	■	■	■	■										
5. Construction of Water Supply and Sanitation Facilities (Construction supervisory services)								■	■	■	■	■	■	■	■	■	■	■	■	■
Project Monitoring										■	■	■	■	■	■	■	■	■	■	■

#### 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 12.90 Pesos per household in the year 2005, 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 ₱4,584 in 1998. 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 1,596 to meet the target (refer to Table 8.5.1: population to be served of 8,379 people and household size of 5.25 persons). The average capital cost to be paid is estimated at ₱11,500 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 20 years repayment period, monthly payment amounts to ₱90 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 ₱24.10 in the year 2005 at an annual inflation rate of 7%. Thus, the total amount of repayment and recurrent cost in the year 2005 is ₱114, which is 1.5% 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 2005 <sup>1)</sup>	:	1.5%

Notes:

- 1) Provincial average monthly median income in 2005 (₱7,361 per household) is derived from 1994 Family Income and Expenditure Survey considering annual inflation rate of 7%. The monthly median income in 1998 is ₱4,584.

(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; 15m<sup>3</sup> per household) and projected income in year 2005. Total capital cost of Level III water supply system is ₱411.3 million for 18,959 households to be served. Assuming an annual inflation rate of 7% and 20 years repayment period, the annual capital cost to be paid is ₱2,048 per household. The monthly capital cost to be paid by each household is ₱171.

The monthly recurrent cost per household is estimated to be ₱61.36 (₱736.3/ year; refer to recurrent cost in Chapter 10 where operating cost is ₱35 million in base year for 47,538 households). Using an annual inflation rate of 7%, this recurrent cost is projected to be ₱98.53 per household in the year 2005.

The combined amount of capital repayment and recurrent cost in the year 2005 is ₱269.53/ 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 rate (3.7% of the household income) seems to be affordable.

(a) Estimated water rate for 15 m <sup>3</sup> (Pesos)	:	269.5
(b) Percentage of (a) to monthly median household income in 2005	:	3.7%

Notes:

- 1) Monthly median household income is ₱7,361 in the year of 2005.

#### (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. 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 ₱468 for a flush type and ₱287 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 2005 are calculated in the same manner as the study for Level III water systems and are shown in the next page.

(a) Repayment for Flush Type (Pesos)	: 468
(b) Repayment for Pour Flush Type (Pesos)	: 287
(c) Percentage of (a) to monthly median household income in 2005 <sup>1)</sup>	: 6.4%

Note:

1) Monthly median household income is ₱7,361 in the year 2005

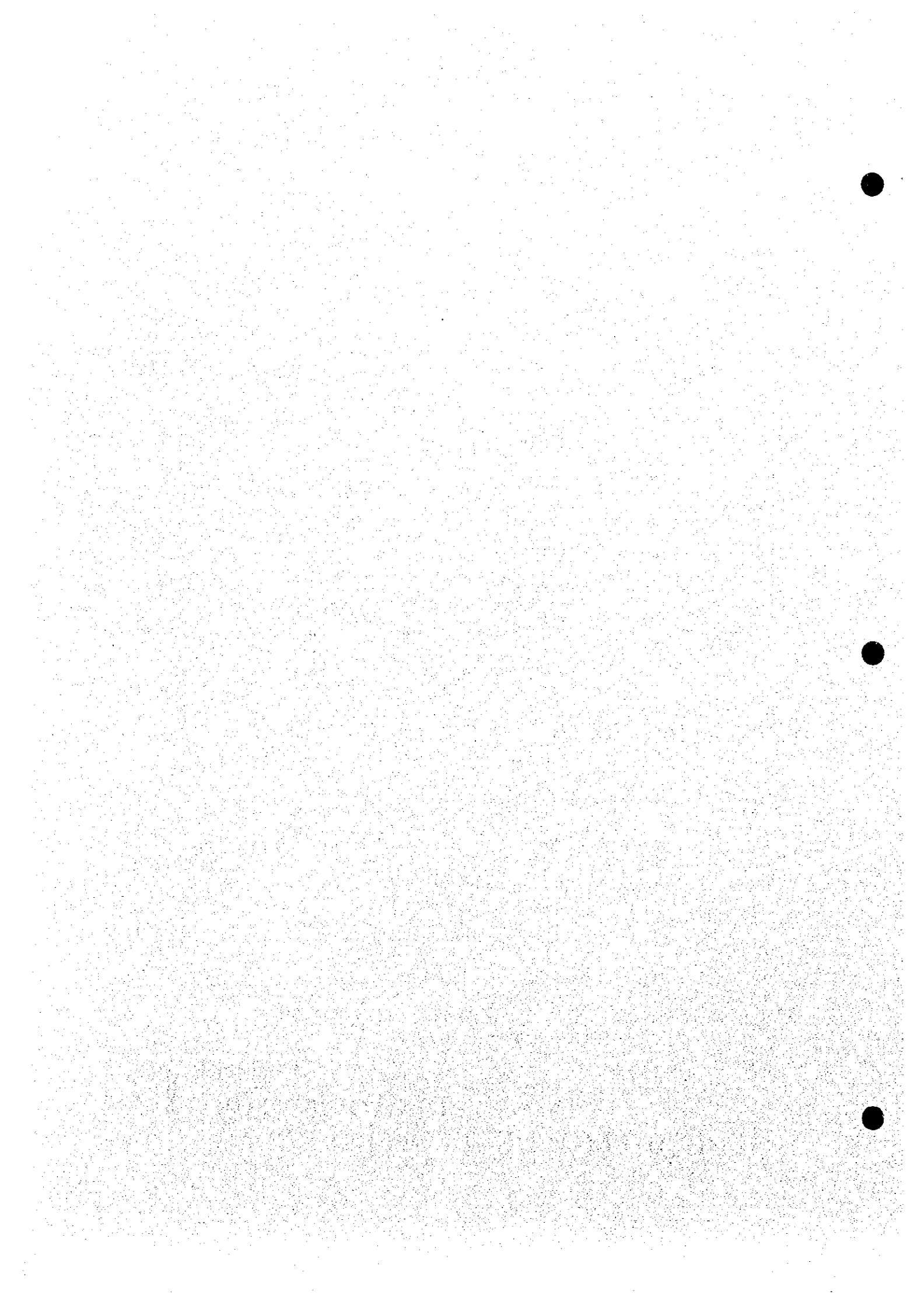
To expedite the sanitation sector improvement, introduction of specific loans that are revolving in character with low interest rates and longer repayment period may be an effective solution. For urban sanitation, the linkage with existing housing loan shall be established to cover construction of sanitary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

Chapter

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**MONITORING FOR  
MEDIUM-TERM DEVELOPMENT PLAN**

**12**



## **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.

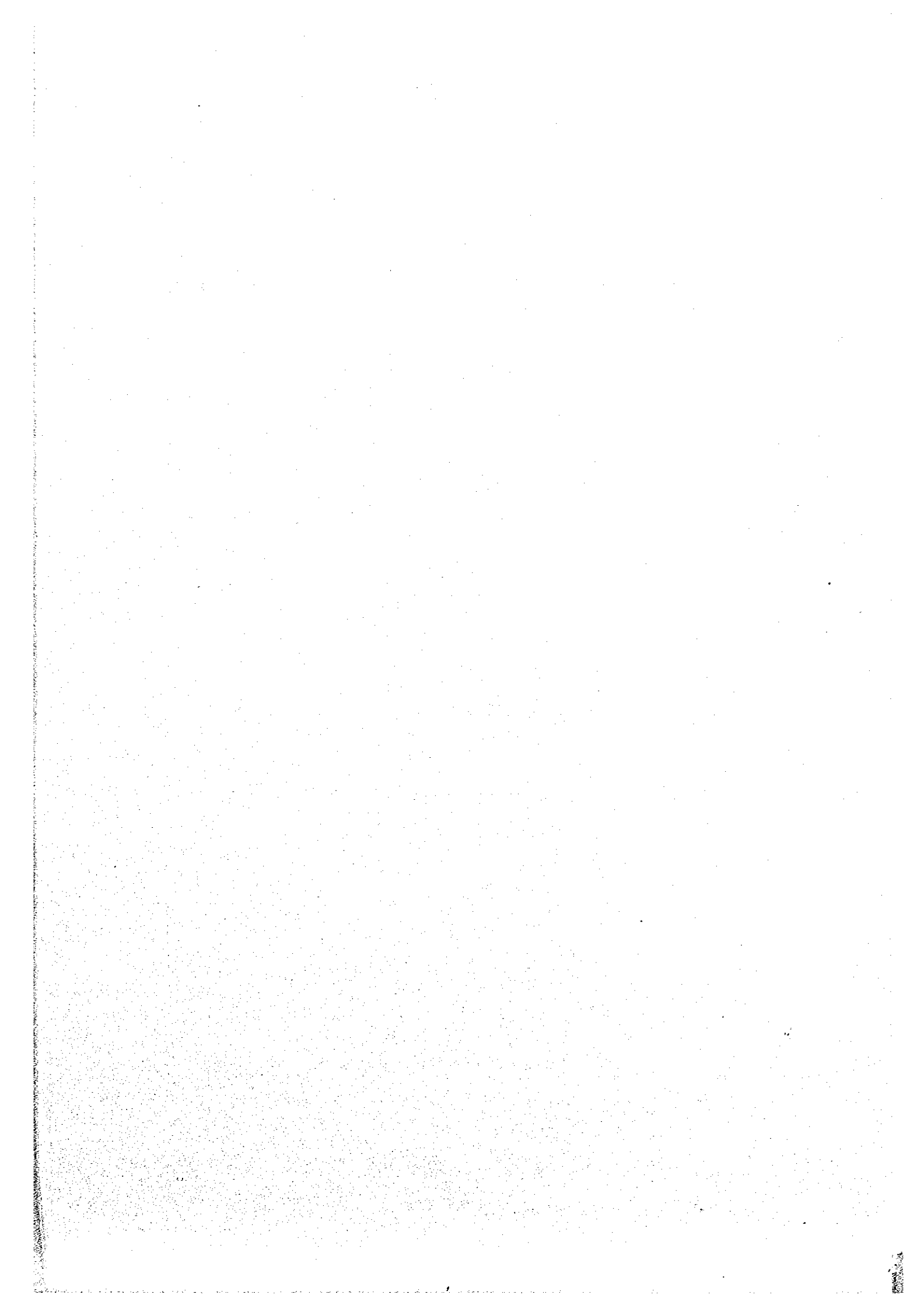
The municipal sector report is reviewed by the Mayor and then submitted to the Governor for further consolidation. Salient sections of this report would be furnished to DILG, which is tasked with coordinating a national sector performance report for NEDA and for the President.

- (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.

*[The text in this block is extremely faint and illegible due to low contrast and noise. It appears to be a multi-paragraph document.]*







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