Chapter 10

COST ESTIMATE FOR FUTURE SECTOR DEVELOPMENT

10. COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

10.1 General

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

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

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 using open hole with gravel packed well based on water source study results. 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 open hole with gravel packed well. Of the total number of deep well, 5% 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.)
  Unit cost for four types of sanitary toilets (flush, pour-flush, VIP and Sanitary Pit Latrine) to cover one served household in urban or rural areas. Cost of flush toilet includes costs for demolition, water closet and water line.

Table 10.2.1 Unit Cost of Facilities by Type and Service Level

Sector	Service Level	Unit Construction Cost per Facility (Pesos)	Service Coverage		Unit Cost		Rehabilitation Cost of Level I Deep Well (Pesos/Well)
			Served Population	Served Households	Pesos/ Person	Pesos/ Household	
Urban Water Supply	***New System***						
	For 5,000 population	25,073,750	5,000	N/A	5,100	N/A	
	For 10,000 population	37,262,500	10,000	N/A	3,800	N/A	
	For 15,000 population	53,785,000	15,000	N/A	3,600	N/A	
	Expansion						
	For 5,000 population	23,171,250	5,000	N/A	4,700	N/A	
	For 10,000 population	35,360,000	10,000	N/A	3,600	N/A	
	For 15,000 population	51,882,500	15,000	N/A	3,500	N/A	
Rural Water Supply	**Level II**	1,369,922	600	120	2,290	11,500	
	Level I						
	Deep Well						
	40 meter depth	373,000	N/A	15	N/A	24,870	78,400
	80 meter depth	551,000	N/A	15	N/A	36,740	
	120 meter depth	720,000	N/A	15	N/A	48,000	
	Shallow Well	84,300	N/A	15	N/A	5,620	
	Spring Development	737,600	N/A	15	N/A	49,180	
Sanitation	***Household Toilet***						
	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					

- 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 186.5 million Pesos will be required for construction of required facilities. Of the requirements, urban water supply and rural water supply will share 38% and 30%, 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							
	Urban Area			Rural Area			Grand Total	Urban Area				Rural Area			Grand Total
	Water Supply	Sanitation	Sub-total	Water Supply	Sanitation	Sub-total		Water Supply	Sanitation	Urban Sewerage	Sub-total	Water Supply	Sanitation	Sub-total	
Cuartero	5,544	731	6,274	6,851	2,417	9,268	15,543	19,514	1,529		21,044	76,852	10,187	87,039	108,082
Dao	6,477	957	7,434		1,401	1,401	8,835	22,964	1,776		24,740	25,135	6,380	31,515	56,256
Dumalag		732	732		1,459	1,459	2,191	19,875	829		20,703	54,079	7,794	61,873	82,576
Dumarao	6,002	1,680	7,682		2,187	2,187	9,869	20,281	1,296		21,576	30,914	10,896	41,810	63,386
Ivisan	5,259	957	6,216		1,531	1,531	7,747	13,804	1,296		15,100	72,090	7,125	79,216	94,315
Jamindan	3,794	734	4,529	9,948	3,006	12,954	17,482	14,598	1,062		15,660	96,942	15,537	112,480	128,140
Ma-ayon	5,355	957	6,312	7,275	1,886	9,161	15,473	18,354	1,062		19,416	56,471	8,941	65,412	84,828
Mambusao	7,534	2,275	9,809	6,093	1,635	7,728	17,537	17,536	1,529		19,065	71,598	9,064	80,662	99,726
Panay	3,398	723	4,121	6,855	2,131	8,986	13,107	3,798	1,062		4,860	156,525	12,227	168,753	173,612
Panitan	2,820	733	3,553		2,133	2,133	5,687	5,231	829		6,060	81,591	10,350	91,941	98,001
Pilar	5,490	957	6,446		2,102	2,102	8,548	22,508	1,763		24,271	9,497	10,742	20,239	44,510
Pontevedra	7,139	1,227	8,366	5,713	2,102	7,814	16,180	8,864	1,789		10,653	84,546	11,594	96,141	106,794
President Roxas	7,829	1,210	9,038	2,388	1,168	3,555	12,594	18,194	1,296		19,490	22,809	5,770	28,579	48,069
Roxas City (Capital)		5,923	5,923		4,844	4,844	10,767	229,673	18,271	375,541	623,485	153,681	21,188	174,869	798,354
Sapi-an	4,758	723	5,482		1,172	1,172	6,654	16,464	1,062		17,526	50,854	6,700	57,554	75,080
Sigma	2,667	723	3,391	4,981	1,243	6,224	9,614	8,145	595		8,740	79,596	6,850	86,445	95,186
Tapaz		726	726	5,160	2,777	7,938	8,663	11,225	829		12,054	58,451	12,597	71,047	83,101
Provincial Total	74,067	21,966	96,033	55,264	35,192	90,456	186,489	471,028	37,873	375,541	884,442	1,181,633	173,942	1,355,575	2,240,017

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, set/unit each 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	10	20,570
Total Equipment Cost			48,222

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 upgrading of existing laboratory in Roxas City is estimated at 478,000 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 26.1 million Pesos/year from 20.0 million Pesos/year in 1998, which is 30% increase from the base year corresponding to the implementation of the medium-term development.

Table 10.4.1 Recurrent Cost

Unit: P 1,000

Sector Component	Item	Base Year Existing Facilities	2001	2002	2003	2004	2005	Total (2001-2005)
Urban Water Supply	Operating Cost	5,303	5,303	5,515	5,834	6,152	6,364	29,169
	Spare Parts/Equipments	5,299	5,299	5,511	5,829	6,147	6,359	29,145
Rural Water Supply	Spare Parts/Equipments for Level II System	380	545	710	710	710	710	3,387
	Spare Parts/Equipments for Level I Facilities	5,658	5,658	5,757	5,905	6,054	6,152	29,527
Sanitation	Public School Toilets	2,528	2,528	3,026	3,772	4,518	5,016	18,860
	Public Toilets	840	840	966	1,155	1,344	1,470	5,775
Total Recurrent Cost		20,008	20,173	21,485	23,205	24,925	26,072	115,862

Chapter 11

FINANCIAL ARRANGEMENTS FOR MEDIUM-TERM DEVELOPMENT PLAN

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.

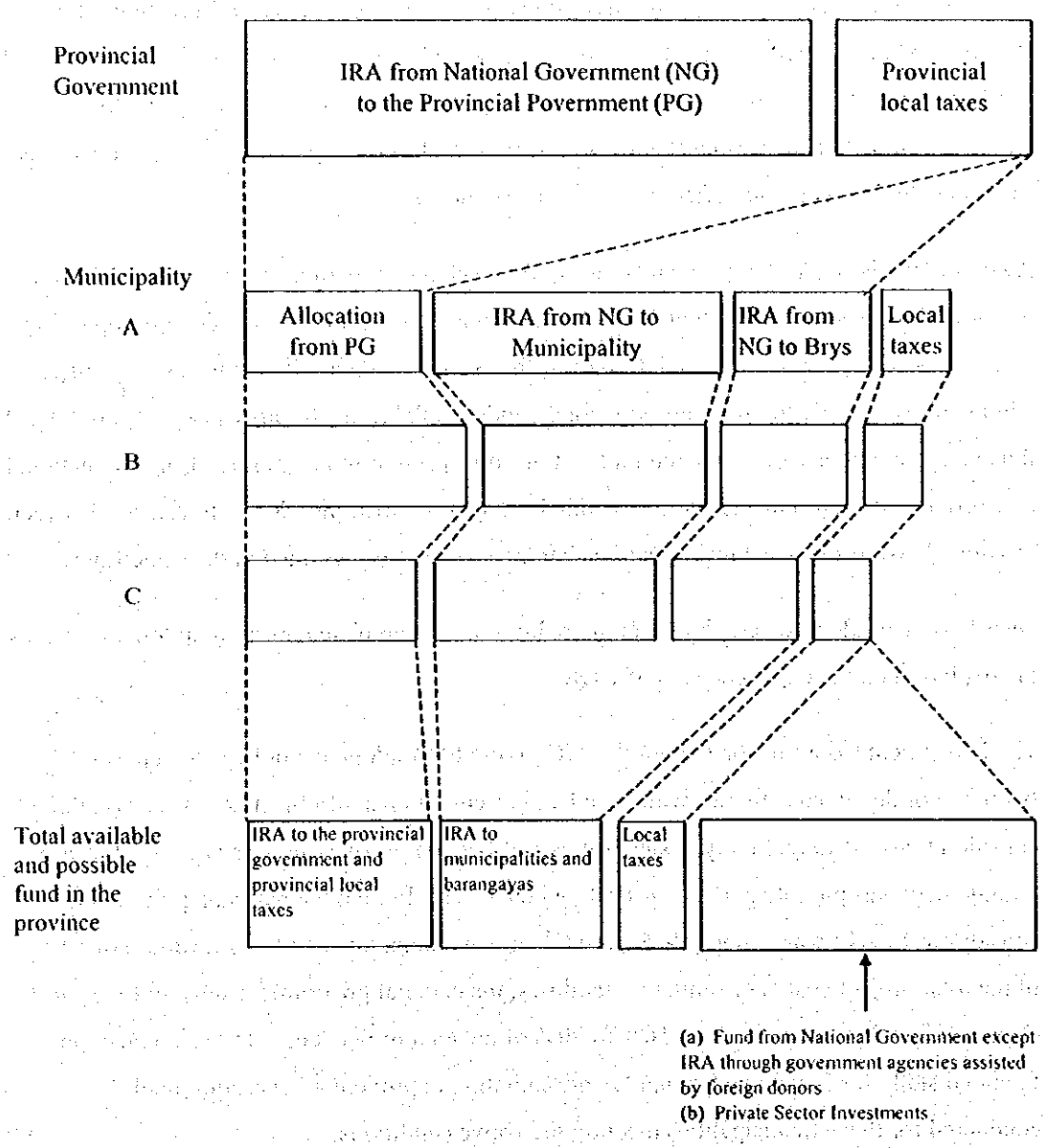
Distribution of IRA to respective municipalities is contemplated in assumption of various factors based on the experiences as of 1998.

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 5th and 6th class municipalities up to a maximum of 50% of the total project cost. For sanitation facilities, the national government subsidy for 3rd to 6th class municipalities shall be from 50% to 70% of the total project cost. In this connection, financial study for Level I water supply and sanitation improvement was 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

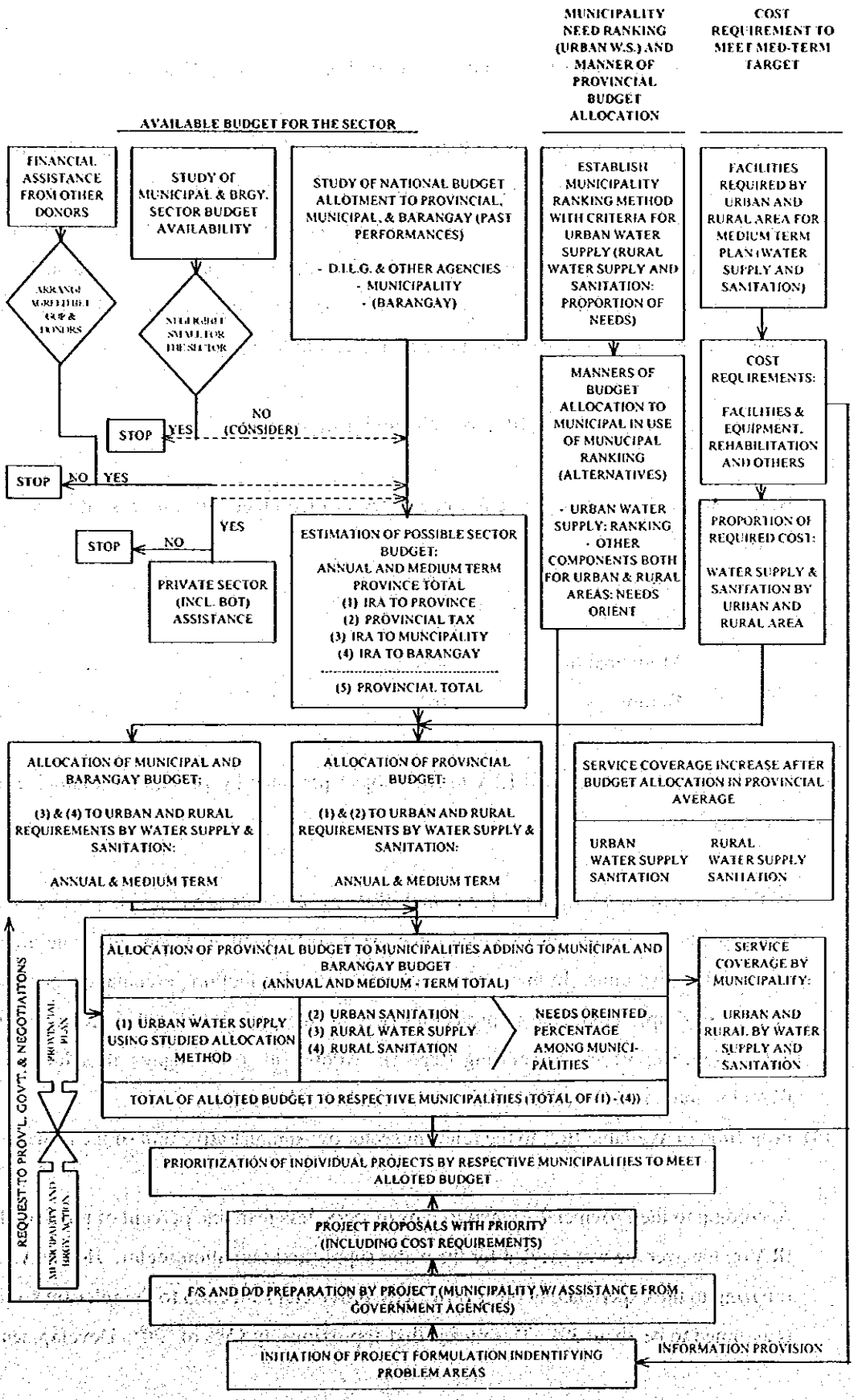


Figure 11.2.1 shows the calculation procedure with assumptions and Tables 11.2.1 and 11.2.2 present the calculation results. Calculation process is further described as follows:

(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 3rd Fiscal Year preceding the current year (e.g. 1997 to 1999). This 40% ratio is based on the Local Government Code in 1991. For the years 2003 to 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%

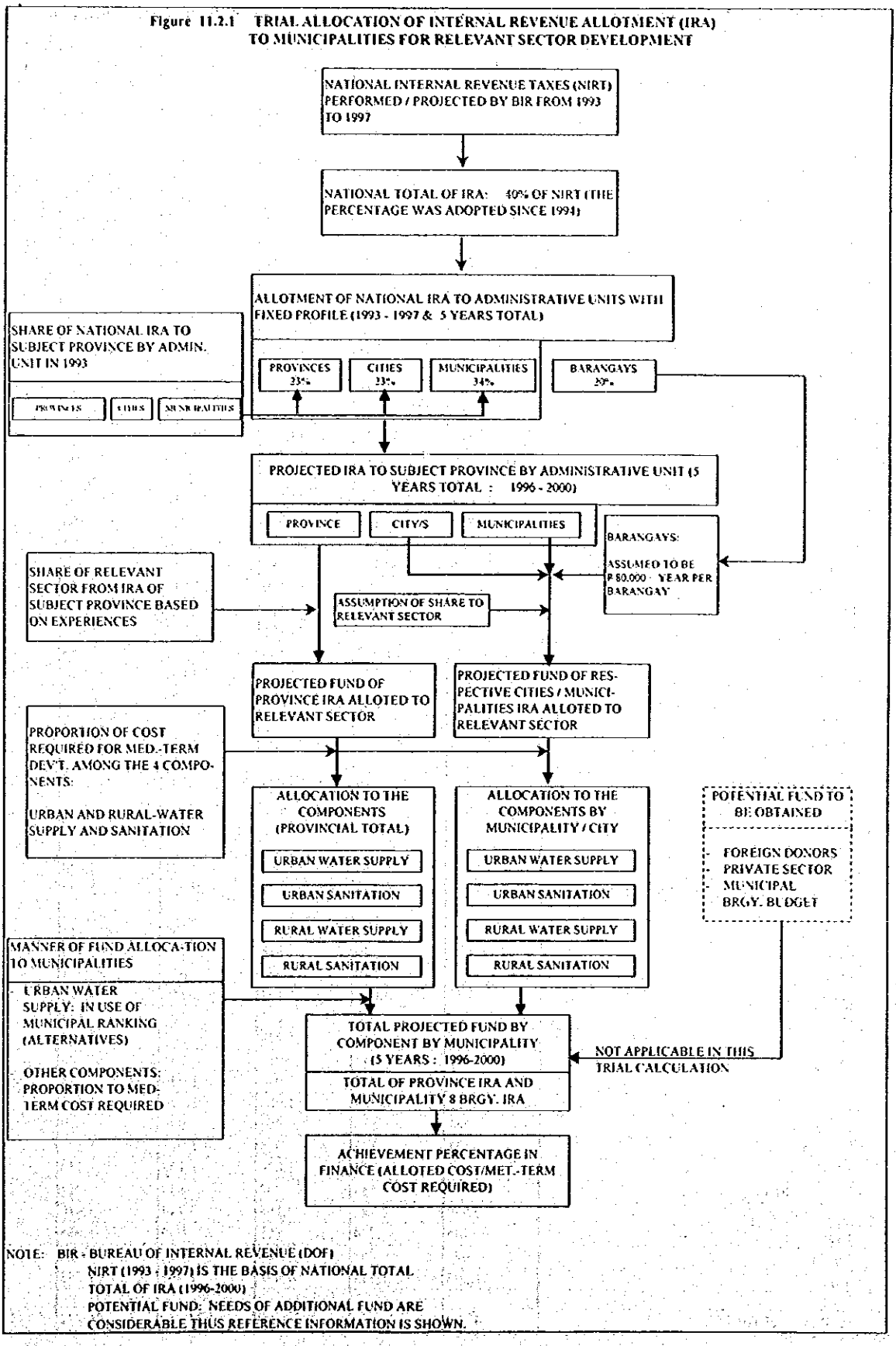
(3) Distribution of national total IRA to the subject province by provincial, municipal and barangay level

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 (₱80,000 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 3%. This means that approximately 15% of "20% Development

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



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

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

Unit: P 1,000

	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	310,840	342,108	382,016	424,038	470,682	1,929,685
(b) municipalities/city including barangays	588,815	644,238	714,978	789,463	872,142	3,609,636
Cuartero	22,344	24,415	27,057	29,840	32,929	136,585
Dao	22,748	24,875	27,590	30,449	33,622	139,283
Dumalag	22,527	24,640	27,337	30,177	33,329	138,009
Dumarao	31,250	34,128	37,801	41,668	45,962	190,808
Ivisan	18,970	20,757	23,039	25,441	28,107	116,314
Jamindan	34,034	37,216	41,278	45,554	50,301	208,383
Ma-ayon	25,885	28,232	31,226	34,380	37,880	157,603
Mambusao	26,854	29,346	32,527	35,876	39,594	164,198
Panay	29,496	32,125	35,481	39,014	42,936	179,051
Panitan	24,903	27,199	30,130	33,215	36,640	152,087
Pilar	25,695	28,087	31,139	34,353	37,921	157,195
Pontevedra	28,214	30,842	34,198	37,731	41,652	172,636
President Roxas	20,994	22,929	25,398	27,999	30,885	128,205
Roxas City (Capital)	169,682	186,372	207,675	230,106	255,004	1,048,838
Sapi-an	23,501	25,785	28,699	31,768	35,175	144,929
Sigma	21,568	23,568	26,122	28,810	31,795	131,863
Tapaz	40,151	43,723	48,282	53,082	58,411	243,649
(c) Provincial Total	899,655	986,346	1,096,994	1,213,501	1,342,824	5,539,320
4 Project fund of IRA to Relevant Sector by Administrative Unit						
(a) province	9,325	10,263	11,460	12,721	14,120	57,891
(b) municipalities/city including barangays	14,959	16,356	18,140	20,017	22,102	91,574
Cuartero	670	732	812	895	988	4,098
Dao	682	746	828	913	1,009	4,178
Dumalag	521	570	633	698	771	3,194
Dumarao	937	1,024	1,134	1,250	1,379	5,724
Ivisan	569	623	691	763	843	3,489
Jamindan	1,021	1,116	1,238	1,367	1,509	6,251
Ma-ayon	777	847	937	1,031	1,136	4,728
Mambusao	806	880	976	1,076	1,188	4,926
Panay	885	964	1,064	1,170	1,288	5,372
Panitan	747	816	904	996	1,099	4,563
Pilar	771	843	934	1,031	1,138	4,716
Pontevedra	846	925	1,026	1,132	1,250	5,179
President Roxas	630	688	762	840	927	3,846
Roxas City (Capital)	2,539	2,789	3,108	3,444	3,816	15,696
Sapi-an	705	774	861	953	1,055	4,348
Sigma	647	707	784	864	954	3,956
Tapaz	1,205	1,312	1,448	1,592	1,752	7,309
(c) Provincial Total	24,284	26,619	29,600	32,739	36,222	149,464

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	22,992	17,155	6,819	10,924	57,891
2. Municipalities					
Cuartero	1,462	1,806	193	637	4,098
Dao	3,063		452	663	4,178
Dumalag			1,067	2,127	3,194
Dumarao	3,481		974	1,268	5,724
Ivisan	2,369		431	689	3,489
Jamindan	1,357	3,557	263	1,075	6,251
Ma-ayon	1,636	2,223	292	576	4,728
Mambusao	2,116	1,712	639	459	4,926
Panay	1,393	2,809	296	873	5,372
Panitan	2,263		588	1,712	4,563
Pilar	3,029		528	1,159	4,716
Pontevedra	2,285	1,829	393	673	5,179
President Roxas	2,391	729	370	357	3,846
Roxas City (Capital)			8,634	7,062	15,696
Sapi-an	3,109		473	766	4,348
Sigma	1,098	2,049	298	511	3,956
Tapaz		4,354	612	2,343	7,309
3. Total	54,043	38,224	23,322	33,875	149,464

Fund" from national IRA are counted on sector projects. The same percentage is applied for the allocation of municipal IRA to the sector.

(5) Available IRA of municipalities by sub-sector

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

With regards to the distribution of provincial IRA for urban water supply to respective municipalities, weighing method with ranking is employed, which will be discussed in detail in Section 11.4. For the other components, provincial IRA is distributed to municipalities in proportion to their required costs in Phase I (refer to Table 11.2.2).

The projected provincial IRA to the sector during the period of 2001-2005 is estimated at ₱149.46 million, which is equivalent to 2.70% 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, urban water supply has the largest allotment of 36.1% (₱54.04 million out of the total ₱149.46 million) followed by rural water supply (25.6% or ₱38.22 million). Rural sanitation is allotted ₱33.9 million (22.7%) and is larger than that for urban sanitation (₱23.32 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, Roxas City (capital) has the largest allotment with ₱15.70 million (10.5%) followed by the municipality of Tapaz with ₱7.31 million (4.9%).

11.3 Additional Funding Requirements

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

Table 11.3.2 presents additional funding requirements of the province on the current price level (or shortfall in funding), which are figured out comparing with available fund for the relevant sector (IRA) in the province over the Phase I requirements. Other funds such as those provided by foreign assistance and local tax portions are kept blank to supplement upon confirmation of additional funds available. Out of ₱271.88 million required on 1998 price level for Phase I (2001-2005), IRA can fund only ₱149.46 million or 55.0% of the requirements. Hence, there is a shortfall of ₱148.97 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 Dumalag and Roxas City (100%) are the highest among municipalities. Majority is in the range between 40% and 60% to the respective requirements, while the provincial average is 55% (42% 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.

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 70-73% and between 51-53%, respectively. For urban and rural sanitation (household toilets), coverage will reach 87-90% and 73-77%, respectively based on the assumption that required private investments are followed.

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
Direct Cost							
1. Direct Construction Cost							
Urban Water Supply							
Level III System	0	14,813	22,220	22,220	14,813	74,067	471,028
Rural Water Supply							
Level II System	10,962	10,962	0	0	0	21,924	0
Level I Facilities	0	6,668	10,002	10,002	6,668	33,340	1,181,633
Urban Sanitation							
Household toilet	0	95	142	142	95	475	647
Public school toilet	0	1,261	1,891	1,891	1,261	6,305	30,355
Public toilet	0	3,037	4,556	4,556	3,037	15,187	6,870
Disinfection of Level I Deep Well and Shallow	9	17	17	17	17	78	0
Rural Sanitation							
Household toilet	0	407	610	610	407	2,035	10,725
Public school toilet	0	6,631	9,947	9,947	6,631	33,157	163,217
Disinfection of Level I Deep Well and Shallow	51	93	93	93	93	422	299
Urban Sewerage	N/A	N/A	N/A	N/A	N/A	N/A	375,541
Sub-total	11,022	43,985	49,479	49,479	33,023	186,989	2,240,316
2. Procurement of Vehicle/Equipment/Maintenance tools							
Well drilling rig and service truck with crane	0	0	0	0	0	0	26,782
Support vehicle	0	590	0	0	0	590	0
Well rehabilitation equipment	0	280	0	0	0	280	0
Maintenance tools	0	34	51	51	34	170	0
Water quality testing kit	0	3	5	5	3	15	0
Sub-total	0	907	56	56	37	1,055	26,782
3. Water Quality Laboratory	478	0	0	0	0	478	0
4. Sector Management Cost							
Engineering Studies							
Feasibility study and detail design	11,725	4,833	0	0	0	16,558	166,864
Construction supervision	438	1,735	1,945	1,945	1,296	7,398	74,162
Institutional Development	5,150	4,927	2,556	1,500	1,278	15,412	166,864
Sub-total	17,313	11,496	4,501	3,445	2,575	39,368	407,891
Total Direct Cost	28,813	56,388	54,036	52,980	35,634	227,890	2,674,988
Contingencies							
1. Physical Contingency	2,881	5,639	5,404	5,298	3,563	22,785	267,499
2. Price Contingency	4,593	13,959	18,474	23,460	19,628	80,112	N.A
3. Value-Added Tax (VAT)	2,366	5,146	5,148	5,148	3,436	21,244	N.A
Total Investment Cost	38,653	81,131	83,061	86,886	62,261	352,031	2,942,487
Total Investment Cost (excluding Price Contingency)	34,061	67,173	64,587	63,426	42,634	271,880	2,942,487

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

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	34,061	67,173	64,587	63,426	42,634	271,880
Expected available fund						
National						
Local (IRA)	24,284	26,619	29,600	32,739	36,222	149,464
Others						
Total	24,284	26,619	29,600	32,739	36,222	149,464
Shortfall in funding	9,777	40,553	34,987	30,687	6,411	122,416
(Additional Fund Requirements)	10,461	46,430	42,861	40,225	8,992	148,969

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

(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 68% and 50%, respectively, while urban and rural sanitation coverage will be at 83% and 70%. 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 50% and 48% which will cover 70% and 51% of the population. In order to attain the Phase I development target of 75% and 54% service coverage, it needs an additional IRA funding of 50% and 52%, respectively.

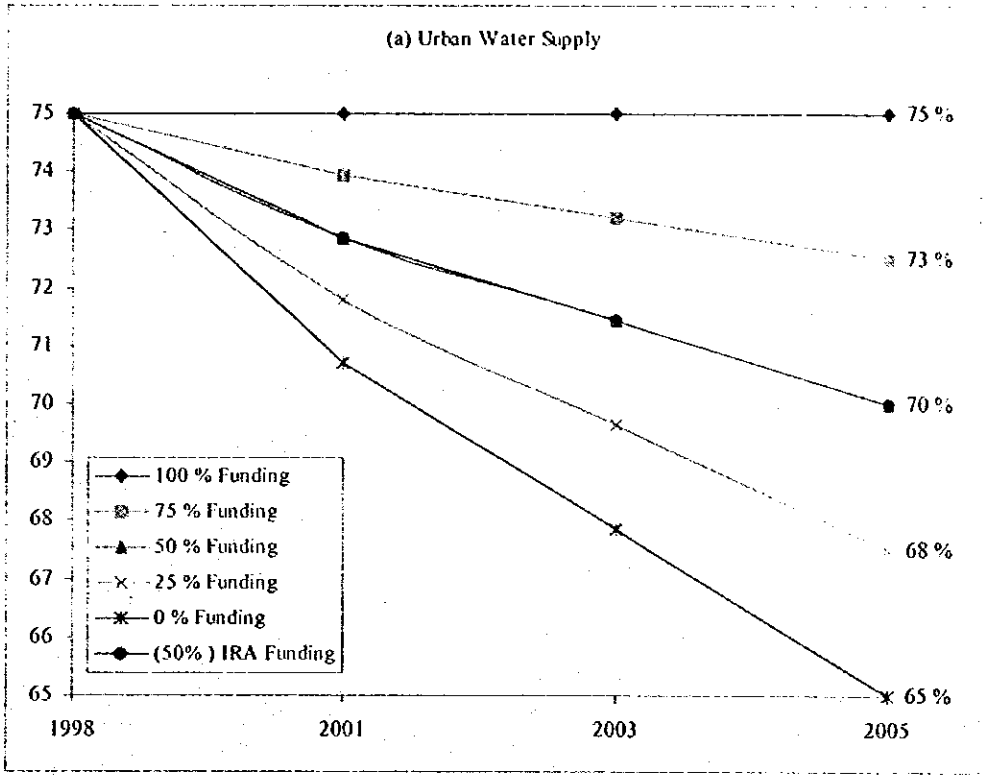
For urban and rural sanitation, 100% funding shall have coverage percentage of 93% and 80%, respectively. However, at IRA funding of 72% and 66% each, service coverage will only be at 89% and 75%. Thus, to meet the Phase I development targets of 93% and 80% of the population, an additional IRA funding of 28% and 34% is required.

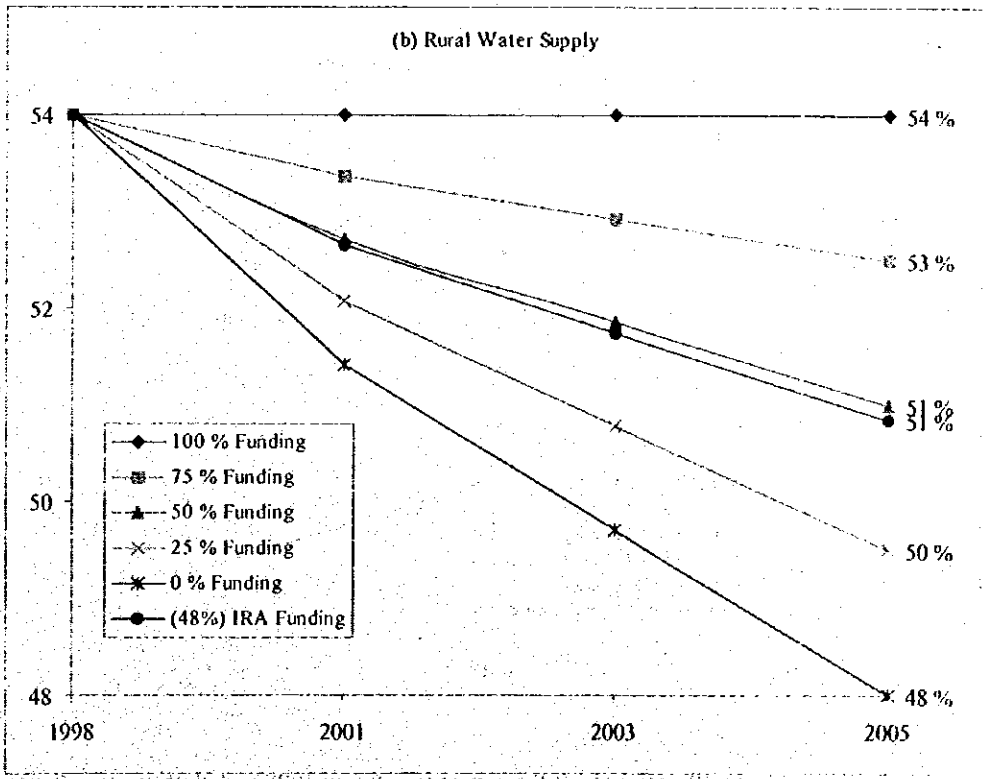
Table 11.3.3 Internal Revenue Allotment for Water Supply and Sanitation Sector by Municipality
(Medium-term Development, 2001-2005)

Unit: P 1,000

Name of Municipality/City	IRA Allocation to Municipalities												Available Fund of Municipality (a)	Phase I Investment Cost Requirement (b)	Achievement Percentage (%) in Finance (a)/(b)
	Urban Water Supply			Rural Water Supply			Urban Sanitation			Rural Sanitation					
	Allotted from Provincial Government	Allotted Municipality Fund	Total	Allotted from Provincial Government	Allotted Municipality Fund	Total	Allotted from Provincial Government	Allotted Municipality Fund	Total	Allotted from Provincial Government	Allotted Municipality Fund	Total			
Cuartero	2,299	1,462	3,761	2,127	1,806	3,933	365	193	557	881	637	1,518	9,769	22,659	43
Dao	1,150	3,063	4,213				435	452	887	565	663	1,228	6,328	12,880	49
Dumalag								1,067	1,067		2,127	2,127	3,194	3,194	100
Dumarao	1,150	3,481	4,631				659	974	1,634	809	1,268	2,078	8,342	14,387	58
Ivisan	1,150	2,369	3,519				435	431	866	606	689	1,295	5,679	11,294	50
Jamindan	2,299	1,357	3,656	3,088	3,557	6,645	366	263	628	1,064	1,075	2,138	13,068	25,487	51
Ma-ayon	2,299	1,636	3,936	2,258	2,223	4,482	435	292	727	716	576	1,292	10,436	22,558	46
Mambusao	1,150	2,116	3,266	1,892	1,712	3,603	844	639	1,483	638	459	1,097	9,449	25,567	37
Panay	1,150	1,393	2,542	2,128	2,809	4,937	362	296	659	792	873	1,665	9,803	19,109	51
Panitan	1,150	2,263	3,412				365	588	953	793	1,712	2,505	6,870	8,290	83
Pilar	1,150	3,029	4,178				435	528	963	783	1,159	1,942	7,083	12,462	57
Pontevedra	1,150	2,285	3,435	1,773	1,829	3,602	519	393	911	783	673	1,455	9,403	23,589	40
President Roxas	2,299	2,391	4,690	741	729	1,470	513	370	883	493	357	849	7,893	18,360	43
Roxas City (Capital)								8,634	8,634		7,062	7,062	15,696	15,696	100
Sapi-an	2,299	3,109	5,408				362	473	835	494	766	1,260	7,504	9,701	77
Sigma	2,299	1,098	3,397	1,546	2,049	3,596	362	298	660	516	511	1,028	8,680	14,016	62
Tapaz				1,602	4,354	5,956	363	612	975	993	2,343	3,336	10,267	12,630	81
Total	22,992	31,051	54,043	17,155	21,069	38,224	6,819	16,503	23,322	10,924	22,951	33,875	149,464	271,879	55

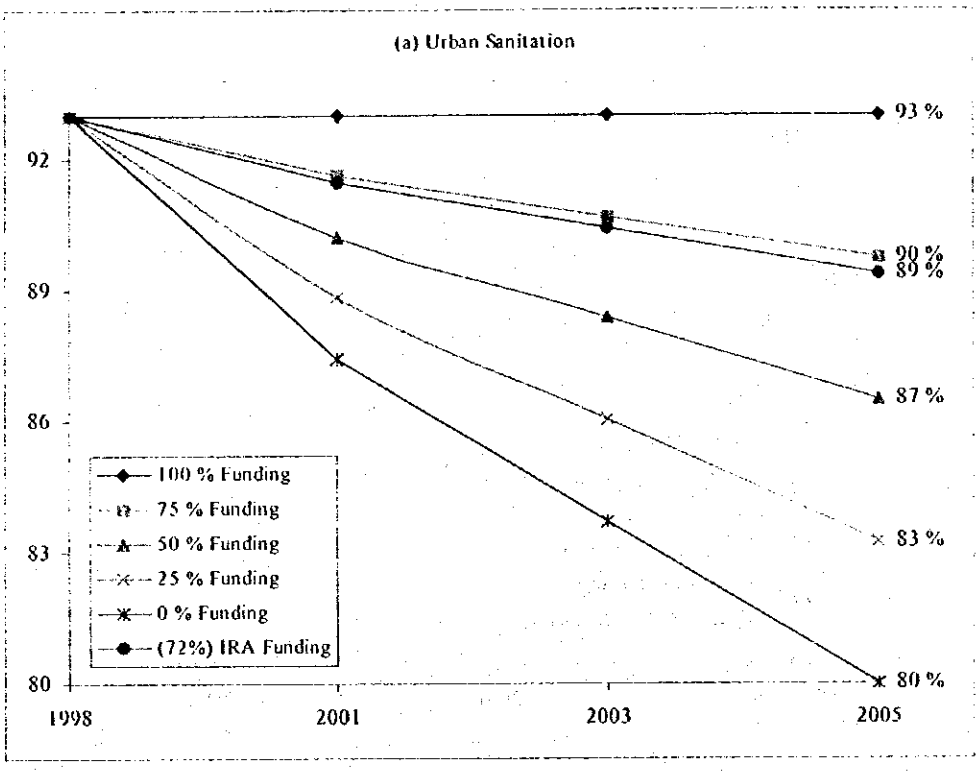
Figure 11.4.1 Relation Between Funding Levels and Percent of Coverage for Water Supply Sector

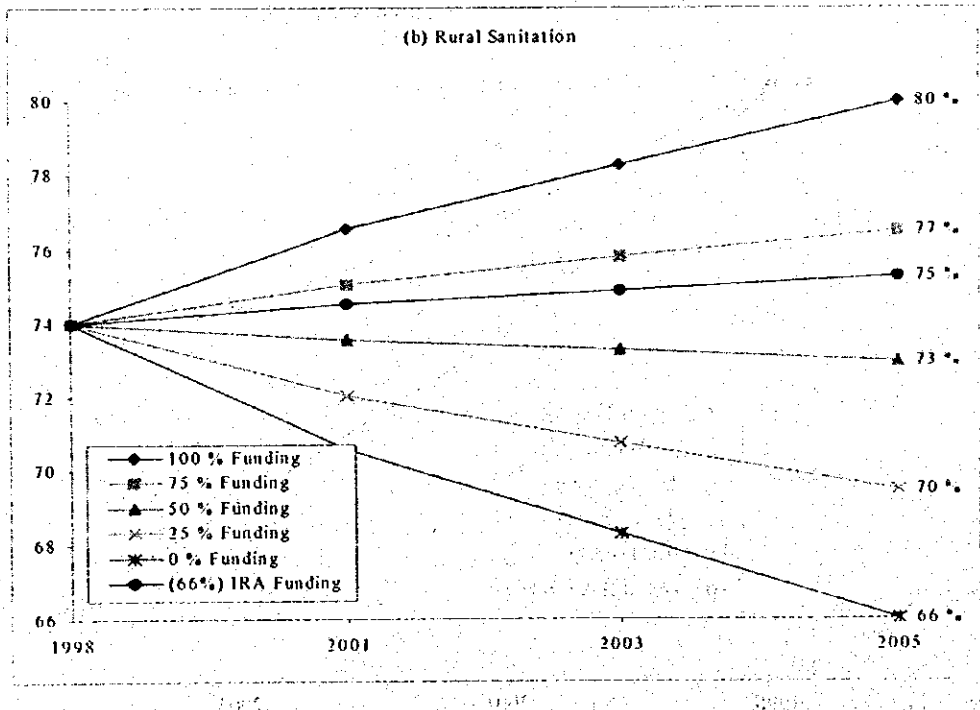




Note: Percentages of the coverage between 1998 and 2005 are simply prorated as the reference

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

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. There are four (4) priority municipalities namely Cuartero, Jamindan, Sapi-an, and Sigma.

With reference to the provincial fund allocation, it is assumed that 60% of the fund for urban water supply from provincial government is distributed equally 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 the municipalities are inadequate to meet the Phase I requirements for urban water supply, and on the average, projected accomplishment is only around 50.13%.

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 Cuartero, Panitan and President Roxas, which indicate that they are given priority for investments in all sub-sectors. The capital, Roxas City, 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.

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		
Cuartero	54	64	100	1.00	1.00	1.00	1.00	1
Dao	32	33	100	0.80	0.60	1.00	0.76	8
Dumalag	11	25	100	0.40	0.40	1.00	0.49	15
Dumarao	22	26	65	0.60	0.40	0.80	0.56	14
Ivisan	36	42	72	0.80	0.60	0.80	0.73	9
Jamindan	71	79	100	1.00	1.00	1.00	1.00	1
Ma-ayon	47	49	100	1.00	0.80	1.00	0.93	5
Mambusao	37	43	66	0.80	0.60	0.80	0.73	9
Panay	42	48	43	1.00	0.80	0.60	0.87	7
Panitan	31	33	62	0.80	0.60	0.80	0.73	9
Pilar	24	27	83	0.60	0.40	1.00	0.59	13
Pontevedra	37	41	43	0.80	0.60	0.60	0.70	12
President Roxas	58	60	100	1.00	0.80	1.00	0.93	5
Roxas City (Capital)	7	25	42	0.20	0.40	0.60	0.33	17
Sapi-an	66	68	100	1.00	1.00	1.00	1.00	1
Sigma	70	72	100	1.00	1.00	1.00	1.00	1
Tapaz	18	20	100	0.40	0.40	1.00	0.49	15
Provincial Total	25	35	64					

Note: 1. Scoring to Underserved and Unserved Percentage.

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

2. Weight Allocation to Score.

50	35	15	Allocated Weight

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

Unit: P 1,000

Ranking	Name of Municipality/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 (%)				
1	Cuartero	2,308	10.04	1,462	3,770	8,082	46.64
8	Dao	1,154	5.02	3,063	4,217	9,443	44.66
15	Dumalag						
14	Dumarao	1,154	5.02	3,481	4,635	8,750	52.98
9	Ivisan	1,154	5.02	2,369	3,523	7,668	45.95
1	Jamindan	2,308	10.04	1,357	3,665	5,532	66.25
5	Ma-ayon	2,308	10.04	1,636	3,944	7,807	50.53
9	Mambusao	1,154	5.02	2,116	3,270	10,984	29.77
7	Panay	1,154	5.02	1,393	2,547	4,954	51.41
9	Panitan	1,154	5.02	2,263	3,417	4,111	83.11
13	Pilar	1,154	5.02	3,029	4,183	8,003	52.26
12	Pontevedra	1,154	5.02	2,285	3,439	10,408	33.04
5	President Roxas	2,308	10.04	2,391	4,699	11,413	41.17
17	Roxas City (Capital)						
1	Sapi-an	2,308	10.04	3,109	5,417	6,937	78.09
1	Sigma	2,308	10.04	1,098	3,406	3,889	87.57
15	Tapaz						
Total		22,992	100	31,051	54,133	107,981	50.13

11.5.1 Project Components

(1) Water Supply and sanitation Component

There are two (2) eligible municipalities in terms of 5th and 6th municipalities for GOP-assisted Level I rural water supply in the province. The Level I facilities for the municipalities consist of 15 deep wells and 2 shallow wells.

While, there are seventeen (17) municipalities to meet the condition for GOP-assisted projects (limited to 3rd to 6th municipalities) in sanitation sub-sector. The sanitation component comprises 20 public toilets and 169 school toilets to the rural communities. Distribution of toilet bowl (pour flush only) is one of the component 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 11.4.3 Municipal Investment Need Ranking

Name of Municipality/City	Weighted Score by Sub-sector					Synthetic
	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Total Weighted Score	Municipal Investment Need Ranking
Cuartero	0.25	0.15	0.05	0.25	0.70	1
Dao	0.19	0.05	0.05	0.05	0.34	15
Dumalag	0.12	0.05	0.20	0.05	0.42	13
Dumarao	0.14	0.05	0.05	0.05	0.29	16
Ivisan	0.18	0.10	0.05	0.10	0.43	12
Jamindan	0.25	0.25	0.05	0.05	0.60	5
Ma-ayon	0.23	0.20	0.05	0.05	0.53	8
Mambusao	0.18	0.20	0.05	0.05	0.48	10
Panay	0.22	0.25	0.05	0.05	0.57	6
Panitan	0.18	0.10	0.15	0.25	0.68	2
Pilar	0.15	0.05	0.10	0.05	0.35	14
Pontevedra	0.18	0.20	0.10	0.05	0.53	8
President Roxas	0.23	0.25	0.15	0.05	0.68	2
Roxas City (Capital)	0.08	0.05	0.05	0.05	0.23	17
Sapi-an	0.25	0.10	0.05	0.05	0.45	11
Sigma	0.25	0.25	0.10	0.05	0.65	4
Tapaz	0.12	0.20	0.05	0.20	0.57	6

(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 5th and 6th classes of municipalities for sanitation component (refer to Table 11.5.1).

Table 11.5.1 New Cost-Sharing Arrangement between NG and LGUs

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

(2) Financial Viability

1) Conditions and Assumptions for Financial Study

- The cost-sharing between the GOP and LGUs is 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 ₱99.9 million (₱72.6 million in 1998 price level) referring to the implementation schedule of the project.

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

(Unit: Peso)

Category	Qty.	Unit Cost	Amount	GOP		LGU
				Foreign Loan	GOP/CP	
A. Const. & Civil Works						
Water Supply						
1. Deep Well (40m)	10	373,000	3,730,000			
2. Deep Well (80m)	5	551,000	2,755,000			
3. Deep Well (120m)	0	720,000	0			
4. Shallow Well	2	84,300	168,600			
5. Spring Development	0	737,600	0			
Sub-total a			6,653,600	2,546,838		4,106,762
Sanitation						
1. School Toilets	169	233,500	39,461,500			
2. Public Toilets	20	361,600	7,232,000			
Sub-total b			46,693,500	17,873,151		28,820,349
Land acquisition						
Land acquisition & Right of Way			85,000			85,000
Sub-total A			53,432,100	20,419,990		33,012,111
B. Equip./Logistic Support						
1. Support Vehicle	1	590,000	590,000	590,000		
2. Well Rehab. Eqt.	1	280,000	280,000	280,000		
3. Maintenance Tools	2	10,000	20,000	20,000		
4. Water Quality Test Kits	2	15,300	30,600	30,600		
Sub-total B			920,600	920,600		
C. Consultancy Services						
1. Hydrogeological Survey			1,148,000	1,148,000		
2. D/D and Const. Sv.			5,877,531	5,877,531		
Sub-total C			7,025,531	7,025,531		
D. Instiutional Devt.						
1. Capacity Enhanc. Prog.	L.S.		3,200,000	2,650,000	550,000	
2. Commu. Manag. Prog.	17	10,770	183,090	61,518	121,572	
3. Health & Hygiene Educ.	17	1,800	30,600		30,600	
4. Water Quality Surveil.	17	700	11,900		11,900	
5. NGO Assistance	17	1,200	20,400		20,400	
6. Administrative Support	L.S.		1,200,000		1,200,000	
Sub-total D			4,645,990	2,711,518	1,934,472	
E. Physical Contingency			6,602,422	3,107,764	193,447	3,301,211
Total (A+B+C+D+E)			72,626,643	34,185,403	2,127,919	36,313,322
GOP Total					36,313,322	
LGUs						34,134,522
Equity						2,178,799
LGUs + Equity						36,313,322
F. Others						
1. Price Contingency			24,451,005	13,412,248	778,725	10,260,032
2. Value Added Tax (VAT)			2,836,612		2,836,612	
Sub-total F			27,287,617	13,412,248	3,615,337	10,260,032
Grand Total			99,914,260	47,597,650	5,743,256	46,573,354

Note: (1) Equity of users includes land cost, right of way, labor, etc., equivalent to 3% of direct cost (excluding item F).

(2) N.A.: Not applicable

(3) Assumption/Conditions for Cost estimate

1) Direct cost: based on 1998 price level.

2) Pysical contengency: 10% of materials procured.

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

4) Value added tax; 10% materials produced.

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 provinc municipalities. Municipal tax is negligible small in the allocation to 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
b) For water supply sub-sector, IRA to municipalities with income classification of 5th and 6th classes is counted. The IRA allotted to the province is divided into two groups; classes 1st to 4th and 5th & 6th in proportion to the construction cost required. The provincial IRA for the eligible municipalities is considered for this project.
c) For sanitation sub-sector, IRA to the eligible municipalities is regarded as available fund. The manner of allocation of provincial IRA to the eligible municipalities (3rd to 6th) 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 ₱64,584,000 as a total of 5-year development program, consisting of water supply; ₱7,543,000 and sanitation, ₱57,041,000 (details are included in Table 11.5.1, 11.5.2 and 11.5.3, Supporting Report). The estimated IRA available is shown below.

Sub-sector	Provincial IRA	Municipal IRA	Total
Rural Water Supply:	3,687,000	3,856,000	7,543,000
Rural Sanitation:	10,967,000	22,951,000	33,918,000
Urban Sanitation:	6,620,000	16,503,000	23,123,000
Total:	21,274,000	43,310,000	64,584,000

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).

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

Financial Source	x 1,000 Peso	Percentage		Remarks
GOP	2,128	3	50	GOP counterpart
	34,185	47		Foreign Loan
LGUs	34,135	47	50	IRA
	2,179	3		BWSA equity
Total	72,627	100		

The GOP shall shoulder 50% of the overall project cost, utilizing the foreign assisted loan of 47% or ₱34.2 million and 3% or ₱2.7 million of the government counterpart fund. The remaining 50% of the overall cost shall be shared between the LGUs by 47% or ₱34.1 million and BWSAs (beneficiaries) by 3% or ₱2.8 million.

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 ₱43.8 million from ₱34.1 million (1998 price level). The required cost is covered by 68% of available IRA (₱64.6 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 ₱54.5 million or 75% of the total project cost in the portion of loan. Out of GOP finance through the loan, ₱34.2 million or 47% of the total project cost shall be granted to the LGUs, aside from 3% GOP counterpart fund.

The remaining ₱20.3 million or 28% 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

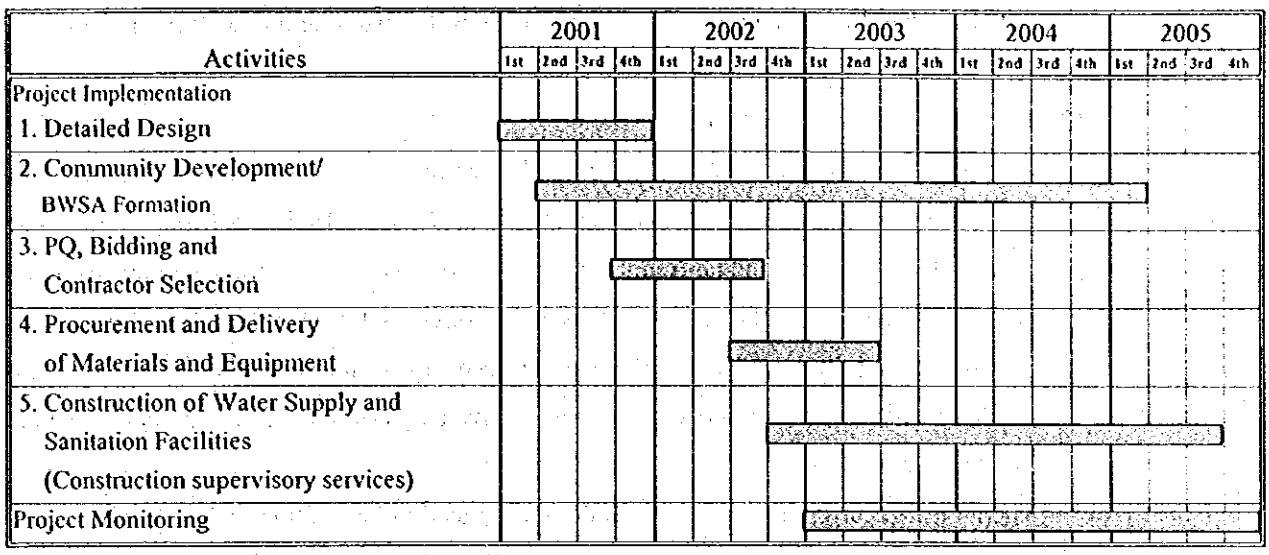
Financial Source	x 1,000 Peso	Percentage			Remarks
GOP	2,128	3	3	50	GOP counterpart
	34,185	47	75		Foreign Loan
	(20,285)	(28)			Foreign Loan for MDF
LGUs	13,850	19	47	50	IRA
	22,985	28			MDF through Foreign Loan
	2,179	3	3		BWSA Equity
Total	72,627	100			

Under this case, the IRA to be used by the LGU will increase to ₱16.4 million from ₱13.9 million (1998 price level), considering price contingency and VAT, which is 25% of available IRA estimated in the previous study (₱64.6 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



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 12.9 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 ₱4,384 in 1998. However, the users will have to pay water charge of up to 2% of their

monthly income or ₱88/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 1,838 to meet the target (refer to Table 8.5.1; population to be served of 9,574 people and household size of 5.21 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 1.6% 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 [1]	:	1.6%

Notes:

1) Provincial average monthly median income in 2005 (₱7,040 per household) is derived from 1994 Family Income and Expenditure Survey considering annual inflation rate of 7%. The monthly median income in 1998 is ₱4,384.

(3) Level III water supply systems

A full recovery of capital and operation & maintenance cost is required for Level III systems. To test the affordability, a comparative study was made between estimated water rate (based on standard monthly consumption; 15m³ per household) and projected income in year 2005. Total capital cost of Level III water supply system is ₱74.1 million for 2,908 households to be served. Assuming an annual inflation rate of 7% and 20 years repayment period, the annual capital cost to be paid is ₱2,405 per household. The monthly capital cost to be paid by each household is ₱200.4.

The monthly recurrent cost per household is estimated to be ₱60.8 (₱729.6/ year; refer to recurrent cost in Chapter 10 where operating cost is ₱10.6 million in base year for 14,529 households). Using an annual inflation rate of 7%, this recurrent cost is projected to be ₱97.6 per household in the year 2005.

The combined amount of capital repayment and recurrent cost in the year 2005 is ₱298/ 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 (4.2% of the household income) seems to be affordable.

(a) Estimated water rate for 15 m^3 (Pesos)	:	298
(b) Percentage of (a) to monthly median household income in 2005	:	4.2%

Notes:
1) Monthly median household income is ₱7,040 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; ₱14,100). 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 below.

(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 [1)]	:	6.6%

Note:
1) Monthly median household income is ₱7,040 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.