

## 9.7 Human Resources Development and Training

The training is a planned strategy to strengthen individual competencies to meet appropriate standards of excellence to achieve the goals of the program. It is a planned process of helping and enabling other people acquire attitudes, skills and knowledge by themselves. The objectives of training are individual competence, organizational effectiveness and efficiency, and national development. Training helps ensure the availability of qualified and able manpower, the shortage of which is considered as one of the major obstacles to improvements in the water supply and sanitation sector.

In planning and implementing training activities, trainers must keep in mind that there are two processes simultaneously taking place - skill/knowledge acquisition and attitude formation. To illustrate the process, a brief exercise may be conducted during the session to show the two simultaneously occurring processes - those related to task and/or subject on one hand, and those related to attitude formation on the other.

### (1) Training Principles

The effective application of teaching and learning principles is vital to achieve optimal learning. Trainers must bear in mind the following principles:

- 1) Perceived Purpose: Participants should recognize why a particular topic is being discussed or presented, i.e., the relevance. This is the first element that should be established and agreed upon in any training activity.
- 2) Graduated Sequence: The subject matter should be presented in a logical sequence, which can be followed by the trainees.
- 3) Knowledge of Results: At every point during a training activity, participants must know how well they are performing, i.e., feed-back.
- 4) Appropriate Practice: If the objective of a training effort is to develop specific skills, there must be opportunities to practice and demonstrate these within the training activity.
- 5) Individual Differentiation: Attention must be paid to the fact that every person learns at a different pace.

### (3) The Training Process

- 1) Needs Assessment: The first step is to determine the problem to which a training solution will be able to make an impact. A careful analysis is necessary because the training should address and focus on precisely those deficiencies in knowledge, attitudes or skills that hinder reaching certain goals. However, one must bear in mind that not all problems or training alone can solve deficiencies. In most cases, complementing interventions will be needed.
- 2) Setting Learning Objectives: In the second step, the learning objectives need to be set. Training designers shall present these objectives in behavioral terms, i.e, what should a participant be able to do at the end of the training period (not what the session will accomplish). It is necessary to formulate them with care because they also serve as criteria for evaluation at the end of the training process.
- 3) Methods and Techniques: Different methods of training are appropriate for different types of learning; the methodology should be appropriate with the set learning objectives. Participatory methods, like group exercises, group discussions, role plays etc. are most effective in attitude formation. The choice of methodology is mainly based on the learning principles and objectives. Human factors, resources available (time, facilities) and the subject area will also affect the choice.
- 4) Evaluation of Training: Training evaluation assesses whether a course was adequately designed and implemented to meet the set objectives. There are four levels of evaluation presented. Each level focuses on a specific area and involves a specific set of standards and evaluation tools.

#### (4) The Training Design

Training design is more than simply putting up a schedule. It is a plan of action to be followed by a trainer in implementing his activities. It consists of:

- 1) Rationale: Why set up a training program in the first place, and why would people have an interest in it?
- 2) Learning objectives: Workshops should aim to develop a strong understanding of concepts like: participatory development, demand, etc. An ability to analyze and apply participatory development in their local setting or to articulate water supply and sanitation demand and supply concepts are key capacity building objectives. Methods

should be more participative and consultative, i.e., allowing planners to interpret the principles with an awareness of their local conditions.

- 3) Assumptions about the participants' background; define who would best benefit from the program - the target audience.
- 4) Curriculum: Determine what the potential trainees need to know before they participate in the program, decide on the training methods and materials, draw up session plans and sequence the sessions logically.
- 5) Evaluation: Decide how the program itself and the participants are evaluated.
- 6) Administrative aspects: The budget for the program, the total costs, possible costs to the trainees. Also important are things like housing (for the program itself, for facilitators and trainees), registration of trainees, logistics, etc.

#### (5) Responsibilities

Needs Assessments will be conducted as the basis for the design of the courses. Participants will be selected based on their tasks and responsibilities. The PWSU will establish and maintain a reference library and information/ documentation center, which will include training materials and equipment to service needs of the municipalities. The DILG, in coordination with the International Training Network (ITN) - Philippines and other agencies and NGOs, will provide inputs to these training activities.

The LGU role entails not only to run courses but also to ensure that training programs take place and are effective. As an alternative, training activities may be contracted out to well-functioning water districts. NMYC training centers were established; NMYC can be tapped to provide testing and skill certification for caretakers. NMYC regularly conducts plumbing and pipefitting courses and the national trades certification system. Finally, there are technical and vocational schools who may be tapped to provide technical training and to award diplomas and certificates to those who undergo their programs. These schools however, do not have at this time, any special courses for water and sanitation caretakers. A program can be set up with these institutions.

External training assistance must be viewed as participation within this process. Its purpose is to guide and motivate (not replace) local trainers. Local trainers need to go through the process of, e.g., designing courses or developing materials, etc. Many learning

opportunities are missed when non-local experts replace local trainers in doing need assessments, course designs, materials development, etc.

1) For staff operating Level I systems

- a) Preparatory orientation training activities will be organized leading to the formation of associations. These community-level orientation activities will consist of briefings about the health situation, the relationship between health, water supply and sanitation. The LGU program for water and sanitation improvement will be presented, including policies and procedures for accessing technical and financial support.
- b) Technical training of caretakers will consist of: water source protection (for deep wells, shallow wells, spring boxes and surface water intake structures); water quality protection; operation and maintenance of hardware (pumps, pipes), including simple replacements of parts; plumbing and pipefitting.
- c) Management training will include: fee setting, bookkeeping and funds management, preparation of improvement plans and monitoring and reporting requirements. Detailed policies of the LGU will be discussed.
- d) Current training activities and materials for the BWSAs by the DILG will be reviewed and adopted by the municipalities. UNICEF assisted DILG in updating these materials.

2) For staff operating Level II systems

- a) Preparatory orientation and training activities will be organized leading to the formation of associations. These community-level orientation activities will consist of briefings about the health situation, the relationship between health, water supply and sanitation. The LGU program for water and sanitation improvement will be presented, including policies and procedures for accessing technical and financial support.
- b) Training of technicians and operators will generally consist of: water source protection (for deep wells, spring boxes and surface water intake structures); water quality protection; water storage; chlorination; operation and maintenance of hardware (pumps, pipes), including simple replacements of parts; plumbing and pipefitting. Pump operation and electrical controls will be a major focus of this program; metering will be presented.
- c) Management training will generally include: organization aspects, operations policy formulation, water rate computation, preparation of bills, bookkeeping and

funds management, preparation of improvement plans and monitoring and reporting requirements.

- d) Training activities for the RWSAs prepared by LWUA will be reviewed and adopted by the municipalities.

3) For staff operating Level III systems

- a) Technical training of engineers, technicians and operators will generally consist of: water resources conservation and protection (for deep wells, spring boxes and surface water intake structures); water quality protection; hydraulics; transmission lines; water storage; treatment and chlorination; construction inspection; and operation and maintenance of facilities. Implementation of a metering program will also be discussed. Methodologies for feasibility analysis for system expansion will be presented.
- b) Policy and management training will include the full commercial practices system including budgeting and cost controls, bookkeeping and accounting, procurement, maintenance of stock inventories, rate formulation and capital budgeting. The policy formulation process and the various areas of policy for utility operation will be presented in detail. Long-range planning, financial analysis and review, and monitoring with reporting requirements will be discussed.
- c) The DPWH, LWUA and MWSS developed a comprehensive set of programs and materials for both technical and management training. Inputs from these three agencies and also from local water districts should be sought.

- 4) Training of PWSU staff and municipal liaison staff: Based on the task descriptions presented, the following training programs will be required. At least one program is conducted annually for each of the workshops and courses. The programs will explain the basic concepts and procedures. Succeeding programs will review the adopted policies and procedures and lay the bases for improving operations at the provincial and municipal levels. Municipal sector liaison staff will participate in these programs. They should be organized by the PWSU; except for the Provincial Coordinators' Workshop, which is best handled nationally by DILG to provide a wider base for sharing of experience among the PWSC. In addition, DILG will provide basic guidelines for the design and implementation of the workshops and courses.

- a) The Provincial Coordinators' Workshop will be an annual activity intended to facilitate the exchange of experience among the coordinators. New national

policies, opportunities and constraints will be discussed. Case studies will be presented. Sector management & technical experts will be invited to speak on current issues and trends.

- b) The Community Development Course is intended for trainers, community development specialists and municipal liaison staff. The scope of the course will include: Social marketing & public information programs, community organizing skills, training skills (needs assessment, design, implementation & monitoring).
- c) The Technical Course seeks to acquaint technical staff at the provincial and municipal levels on the physical aspects of the sector. Its scope will generally include: water resources, overview of water supply systems (source, transmission, treatment, storage, distribution), drilling and source development, water quality protection, feasibility study and design procedures and standards, and operation and maintenance.
- d) The Project Monitoring Seminar will provide an overview of the monitoring functions and the sector reporting requirements. The process of sector monitoring and updating the PW4SP will be presented in detail. Project monitoring procedures will also be discussed.

#### (5) Health and Hygiene Education

- 1) Policy: The LGUs shall establish hygiene education programs through appropriate methods and channels referring to on-going national program. These shall include immediate short-run programs: information campaigns; as well as long-term value formation interventions, possibly through the formal school system. If the LGUs are to attain the full economic benefits of improved water and sanitation services, household behavior and hygiene need to be addressed. Three approaches will be used:
  - a) Community-based Approach: Direct house-to-house campaigns can be implemented through the Rural Health Units, as part of their current functions. Meetings by house "clusters" to discuss relevant health issues can also be organized. This will also be done through direct person-to-person contact with PHO staff, the municipal health staff, midwives, sanitarians and the barangay health volunteers. Special presentations can also be done during the regular meetings of community-based socio-civic clubs. Various flip charts and IEC (Information, Education and Communication) materials are already available.
  - b) School-based Approach: Students are the main targets of this approach, either directly or through their teachers. Special focus activities, such as Water and Sanitation Week or Nutrition Week can be introduced with programs or

convocations to make the student aware of the issues and solutions. Posters, flip charts, and other audio-visual materials will be required.

- c) **Media-based Approach:** This approach utilizes radio and print media to introduce and reinforce health messages. Many NGOs and the Philippine Information Agency (in coordination with the DOH) have developed interesting and attractive materials.
  
- 2) **Responsibility:** The community development and training specialists at both provincial and municipal levels will be responsible for the health and hygiene education function. The CDTSSs will formulate an action plan and implementation will be done by the municipal liaison staff and other local officials. At the barangay level, its implementation will involve the close coordination among the midwives, the barangay health workers and the Committee on Health of the barangay council. Materials for this efforts have been previously developed and can be found with the various PHOs and RHUs. UNICEF provided strong support in the preparation of these materials.
  
- 3) A continuous health and hygiene education program will be launched by the LGU. Simple and clear messages and approaches will have to be defined. These messages may include the following: relationship among health, water supply and sanitation; sector opportunities and services available at the rural health units. The relevance of these, or other messages will have to be determined by the municipal sector liaison.

**Chapter**  
**COST ESTIMATES FOR**  
**FUTURE SECTOR DEVELOPMENT**

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**10**





## 10. COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT

### 10.1 General

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

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

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

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

### 10.2 Assumptions for Cost Estimates

#### (1) Unit Construction Cost

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

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

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

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

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

Urban water supply:

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

Rural water supply:

- Unit cost for four types of Level I wells (shallow well at 18m in depth and deep wells at 40, 80 and 120m in depth).
- Unit cost for deep well was estimated in combination of open hole with gravel packed well and natural gravel packed well based on water source study results. The profile of the two kinds of wells, gravel packed and natural gravel packed wells is assumed to be 95% and 5%. Required costs for iron removal facility shall be included as required for deep wells at high iron contained area (applied to 50% of deep wells in municipalities; Baungon, Danggagan, Don Carlos, Kadingilan, Kibawe, Lantapan, Libona, Manolo Fortich, Sumilao and Talakag).
- 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	<i>New System</i>					
	For 5,000 population	5,000	N/A	4,500	N/A	
	For 10,000 population	10,000	N/A	3,400	N/A	
	For 15,000 population	15,000	N/A	3,300	N/A	
	<i>Expansion</i>					
	For 5,000 population	20,437,500	5,000	N/A	4,100	N/A
For 10,000 population	31,332,500	10,000	N/A	3,200	N/A	
For 15,000 population	46,248,750	15,000	N/A	3,100	N/A	
Rural Water Supply	<i>Level II</i>	600	120	1,850	9,300	
	<i>Level I</i>					
	<i>Deep Well</i>					
	40 meter depth	263,700	N/A	N/A	17,580	
	80 meter depth	449,100	N/A	N/A	29,940	
	120 meter depth	626,000	N/A	N/A	41,740	
	<i>Shallow Well</i>	60,900	N/A	N/A	4,060	
	<i>Spring Development</i>	670,300	N/A	N/A	44,690	
						71,200
Sanitation	<i>Household Toilet</i>					
	Flush	21,300	N/A	N/A	21,300	
	Pour Flush	13,000	N/A	N/A	13,000	
	VIP Latrine	6,600	N/A	N/A	6,600	
	<i>Public School Toilet</i>	274,100	250	N/A	1,100	N/A
	<i>Public Toilet</i>	344,100	N/A	N/A	N/A	N/A
	<i>Urban Sewerage</i>				7,300	
<i>Disinfection of Level I Wells</i>	70					

- Public school toilet:

Unit cost for one facility with 5 toilet bowls to cover 250 served students.

- Public toilet:

Unit cost for one facility with 6 toilet bowls.

- Well disinfection:

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

Urban Sewerage:

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

(2) Unit Cost of Equipment

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

**Table 10.2.2 Unit Cost of Equipment and Vehicle**

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

(3) Sector Management Cost

Sector management cost consists of:

- Engineering studies (F/S, D/D and construction supervision) for water supply, public toilet and school toilet facilities.
- Community development and training including health & hygiene education and logistic support.

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

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

#### (4) Recurrent cost

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

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

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

##### Level III system:

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

##### Level II system:

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

Level I system:

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

School and public toilets:

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

Management cost:

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

### **10.3 Cost of Required Facilities and Equipment**

#### **10.3.1 Cost of Required Facilities**

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

During the medium-term development period, a total of 441.7 million Pesos will be required for construction of required facilities. Of the requirements, urban water supply and rural water supply will share 42.7% and 27.4%, respectively. While, remaining 29.9% will be required for urban and rural sanitation.

Table 10.3-1 Construction Cost of Required Facility by Municipality

Unit: P 1,000

Name of Municipality	Phase I (2003) Requirements						Phase I (2010) Requirements						Grand Total	
	Urban Area			Rural Area			Urban Area			Rural Area				
	Water Supply	Sanitation	Sub-total	Water Supply	Sanitation	Sub-total	Water Supply	Sanitation	Sub-total	Water Supply	Sanitation	Sub-total		
Baungon	2,944	822	3,766	4,089	3,803	7,892	26,448	1,512	38,478	66,438	670	5,764	6,434	72,872
Cabanglasan	1,683	64	1,747	3,030	3,894	6,925	34,081	2,280	43,676	80,038	305	11,433	11,738	91,775
Damulog	4,100	545	4,644		2,165	2,165	14,129	571		14,700	912	4,690	5,603	20,302
Dangcagan	640		640	5,972	617	6,589	19,327	650		19,978	2,953	5,092	8,045	28,023
Don Carlos	23,270	2,919	26,190	7,433	4,736	12,169	62,809	4,346	113,982	181,137	5,509	11,817	17,326	198,463
Impasug-Ong	2,206	915	3,121	10,360	3,616	13,976	29,110	2,219	45,968	77,297	973	9,122	10,096	87,393
Kadangilan	6,309		6,309	6,605	2,658	9,263	14,986	557		15,543	2,754	8,653	11,408	26,951
Kaliangan	11,468	3,690	15,158	2,040	2,285	4,326	50,899	2,451	78,271	131,620	1,919	5,187	7,106	138,726
Kibawe	3,989	137	4,126	7,578	878	8,455	3,132	567		3,699	1,885	10,665	12,550	16,249
Kitaotao	9,896	548	10,444	6,786	3,278	10,064	27,194	1,096	41,099	69,389	2,275	12,007	14,282	83,671
Lantapan	3,567	1,511	5,078	1,142	2,203	3,345	44,612	2,678	62,539	109,829	5,094	12,628	17,722	127,551
Libona	3,087	274	3,361	5,265	5,208	10,473	2,932	288		3,220	5,782	13,849	19,631	22,851
Malaybalay (Capital)	12,107	4,505	16,612	17,722	14,810	32,532	39,091	6,909	156,855	202,855	18,483	49,850	68,333	271,188
Maliitbog	680		680	9,861	1,629	11,490	13,546	303		13,850	912	5,998	6,910	20,760
Manolo Fortich		359	359		5,270	5,270	31,749	2,595	52,326	86,670	6,187	27,692	33,879	120,549
Maramag	87,742	11,204	98,946	6,243	2,676	8,919	125,807	12,978	287,262	426,048	1,797	5,056	6,853	432,901
Pangantucan	4,080	4,062	8,142	6,450	3,076	9,527	76,533	3,740	103,288	183,561	456	6,253	6,709	190,270
Quezon		938	938		1,645	1,645	44,992	3,112	81,738	129,843		19,288	19,288	149,131
San Fernando	10,337	2,467	12,803	9,916	5,430	15,346	42,544	2,044	61,554	106,142	365	11,484	11,849	117,991
Sumitilo		2,968	2,968	6,116	1,677	7,793	44,870	3,290	67,153	115,312	471	2,306	2,777	118,090
Talagag	410	548	958	4,604	4,630	9,234	4,994	855		5,849	5,976	17,642	23,617	29,467
Valencia		4,660	4,660		12,609	12,609	222,427	15,823	337,932	576,181		24,198	24,198	600,379
Provincial Total	188,513	43,136	231,649	121,213	88,791	210,004	976,213	70,865	1,572,121	2,619,198	65,679	280,676	346,354	2,965,553



### 10.3.2 Cost of Required Equipment and Vehicle

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

**Table 10.3.2 Cost of Equipment and Vehicle**

Name of Equipment	Unit Cost (₱ 1,000)	Quantity (set)	Cost (₱ 1,000)
Truck-mounted rotary drilling rig	32,314	0	0
Truck-mounted percussion drilling rig	25,582	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	15	30,855
<b>Total Equipment Cost</b>			<b>58,507</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 of maintenance tools and one set of water quality testing kits shall be provided to all municipalities for O&M of Level I facilities (details are referred to Supporting Report).

### 10.3.3 Cost for Laboratory

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

### 10.4 Recurrent Cost

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

In the year 2003, the recurrent cost will increase to 36.7 million Pesos/year from 52.1 million Pesos/year in 1997, which is 42% increase from the base year corresponding to the implementation of the medium-term development.

**Table 10.4.1 Recurrent Cost**

Unit: P 1,000

Sector Component	Item	Base Year Existing Facilities	1999	2000	2001	2002	2003	Total (1999-2003)
Urban Water Supply	Operating Cost	8,920	8,920	9,652	10,750	11,848	12,581	53,751
	Spare Parts/Equipments	8,121	8,121	8,788	9,788	10,788	11,454	48,938
Rural Water Supply	Spare Parts/Equipments for Level II System	2,575	3,232	3,889	3,889	3,889	3,889	18,790
	Spare Parts/Equipments for Level I Facilities	10,497	10,497	10,862	11,411	11,959	12,324	57,053
Sanitation	Public School Toilets	5,267	5,267	6,312	7,880	9,447	10,493	39,398
	Public Toilets	1,290	1,290	1,299	1,313	1,326	1,335	6,563
<b>Total Recurrent Cost</b>		<b>36,669</b>	<b>37,326</b>	<b>40,802</b>	<b>45,030</b>	<b>49,258</b>	<b>52,076</b>	<b>224,492</b>

Chapter

**11**

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

## 11. FINANCIAL ARRANGEMENTS FOR MEDIUM-TERM DEVELOPMENT PLAN

### 11.1 General

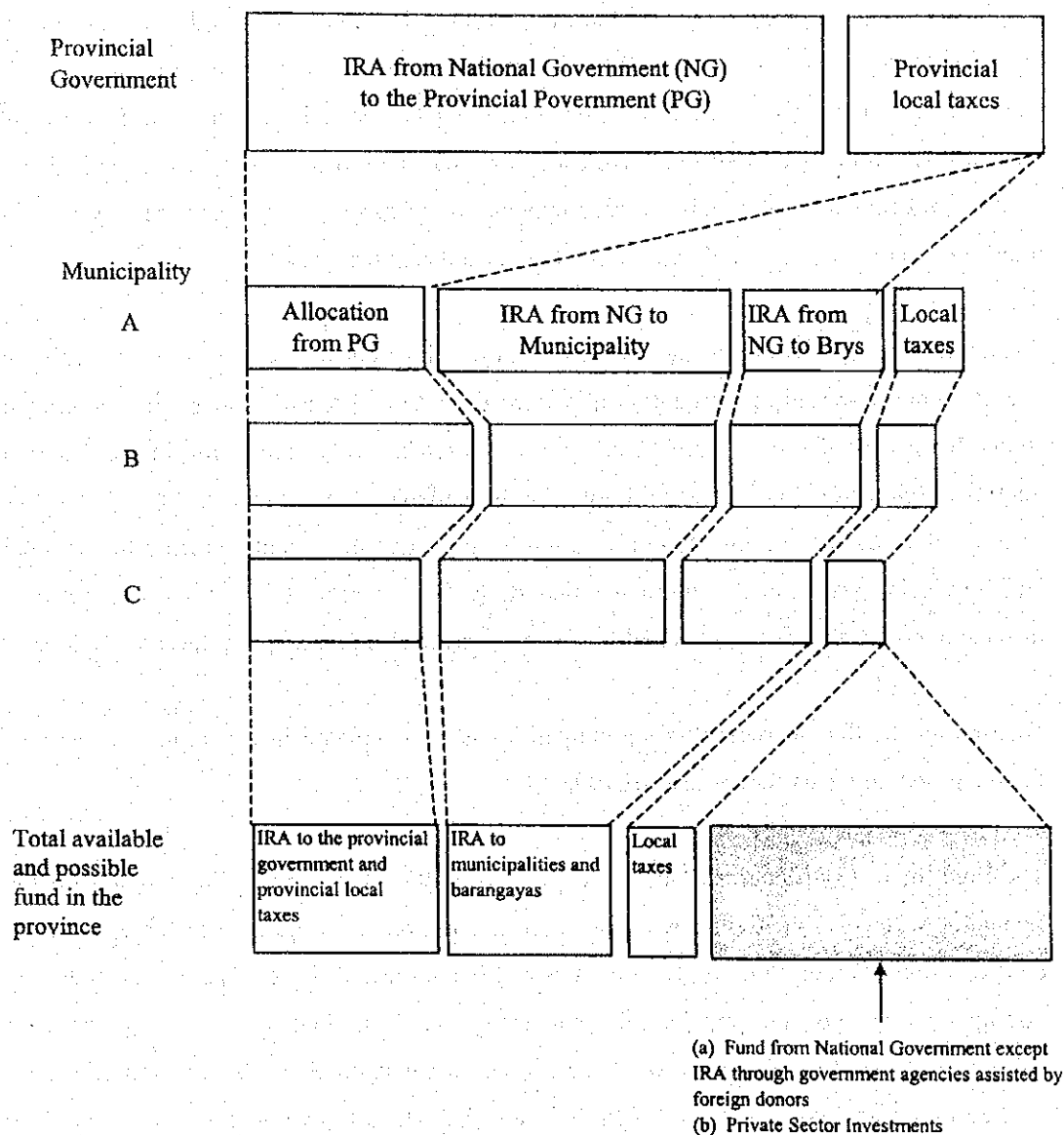
Financial arrangements to attain medium-term (Phase I) targets are sought taking into account potential funds. However, quantitative study is limited to the use of projected Internal Revenue Allotment (IRA). In this connection, this Chapter addresses to identify financial shortfall with reference to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

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

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

The Investment Coordination Committee (ICC) of NEDA adopted a policy "to support the financing of devolved activities with social and/or environmental-objectives" based on three considerations, namely: Equity, Externalities and Economies of Scale. The new cost-sharing arrangement was put into practice this year, which clearly limited the national government subsidy for Level I water supply to 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 conducted for those municipalities meeting the above conditions.

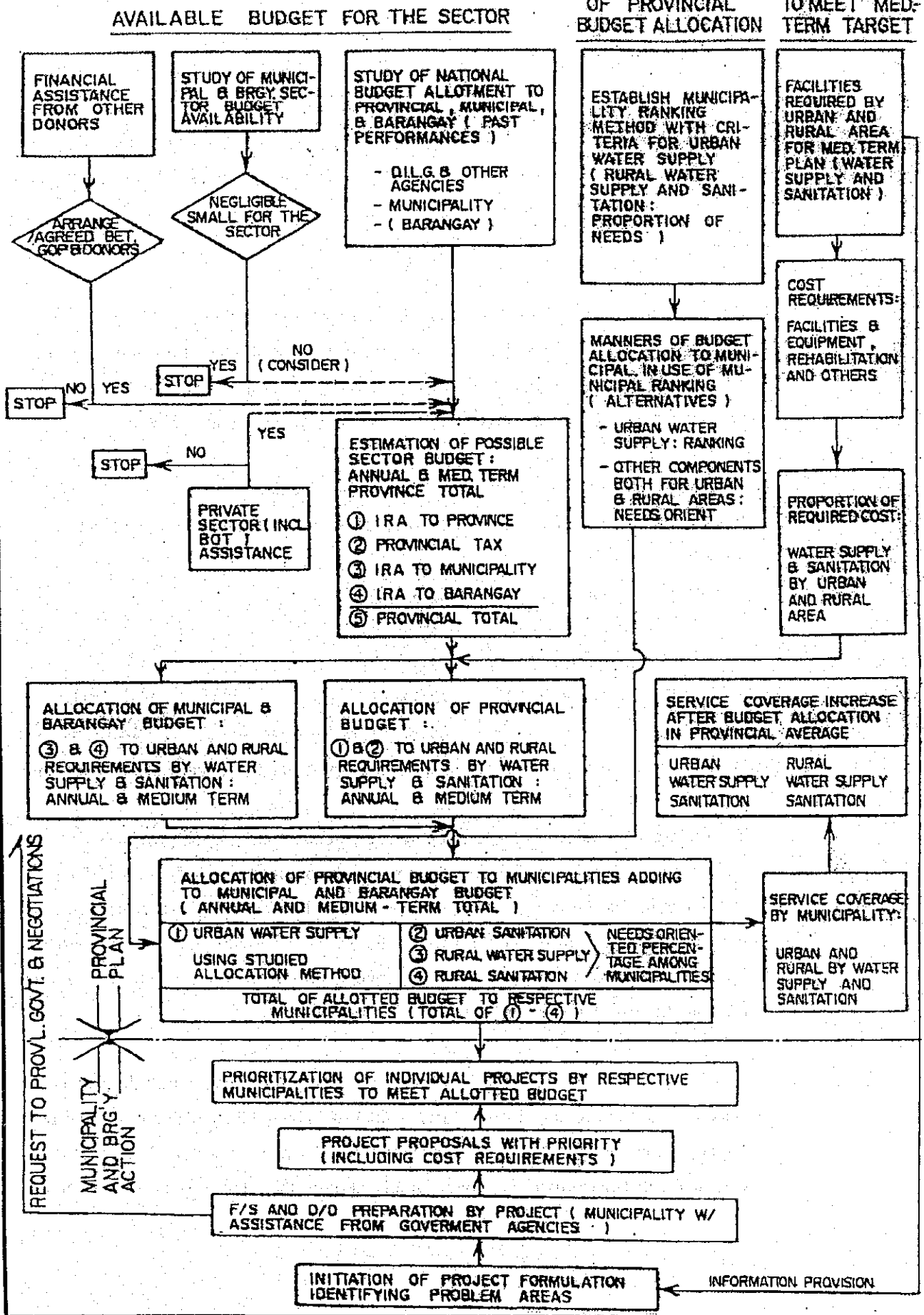
**Figure 11.1.1 Sector Budget Allocation**



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

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

Figure 11.1.2 GENERAL FLOW OF FINANCIAL ARRANGEMENTS FOR RELEVANT SECTOR DEVELOPMENT



## 11.2 Projection of IRA

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

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

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

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

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

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

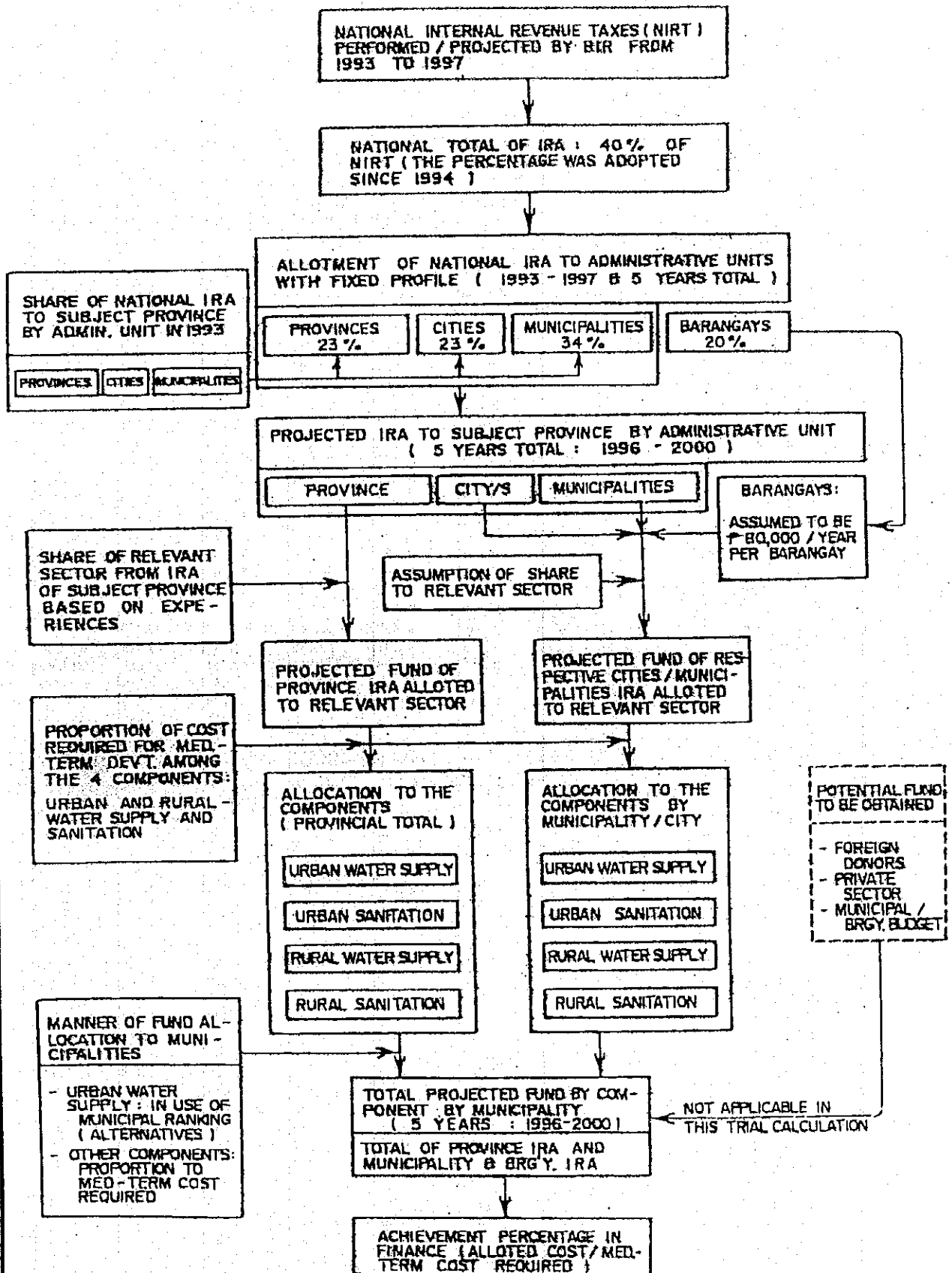
(3) Distribution of national total IRA to the subject province by provincial, municipal and barangay level

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

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

According to the Provincial Annual Report in 1997, about 3.28% of the provincial IRA on the average was availed for the water supply and sanitation sector. Referring to the experience in other provinces, provincial allocation to the relevant sector is assumed to be 5%.

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 OF IRA ( 1996 - 2000 )  
 POTENTIAL FUND: NEEDS OF ADDITIONAL FUND ARE CONSIDERABLE, THIS REFERENCE INFORMATION IS SHOWN.



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

Unit: P 1,000

	1999	2000	2001	2002	2003	Total
<b>1</b> 40% of Actual/Projected National Internal Revenue Taxes of the 3rd Fiscal Year preceding the current year	94,880,480	104,049,760	115,801,280	127,449,920	142,317,600	584,499,040
<b>2</b> Internal Revenue Allotment to all LGUs						
(a) province (23%)	21,822,510	23,931,445	26,634,294	29,313,482	32,733,048	134,434,779
(b) cities (23%)	21,822,510	23,931,445	26,634,294	29,313,482	32,733,048	134,434,779
(c) municipalities (34%)	32,259,363	35,376,918	39,372,435	43,332,973	48,387,984	198,729,674
(d) barangays (20%)	18,976,096	20,809,952	23,160,256	25,489,984	28,463,520	116,899,808
(e) total IRA to all LGUs	94,880,480	104,049,760	115,801,280	127,449,920	142,317,600	584,499,040
<b>3</b> Projected IRA to Subject Province by Administrative Unit						
(a) province	392,835	430,799	479,454	527,683	589,240	2,420,011
(b) municipalities/city including barangays	692,358	755,680	836,836	917,280	1,019,956	4,222,110
Baungon	21,218	23,144	25,614	28,062	31,186	129,224
Cabanglasan	21,406	23,358	25,861	28,341	31,508	130,474
Damulog	17,228	18,762	20,727	22,675	25,162	104,555
Dangcagan	14,325	15,601	17,236	18,857	20,926	86,945
Don Carlos	29,606	32,243	35,623	38,973	43,249	179,695
Impasugong	39,123	42,803	47,520	52,196	58,163	239,806
Kadingilan	19,505	21,259	23,506	25,734	28,577	118,581
Kalilangan	21,485	23,453	25,975	28,475	31,666	131,054
Kibawe	24,258	26,424	29,201	31,953	35,466	147,301
Kitaotao	33,573	36,547	40,359	44,137	48,959	203,576
Lantapan	26,475	28,925	32,066	35,178	39,152	161,796
Libona	25,057	27,370	30,335	33,274	37,024	153,060
Malaybalay (Capital)	69,921	76,323	84,527	92,660	103,040	426,472
Malitbog	25,064	27,402	30,397	33,366	37,156	153,385
Manolo Fortich	38,290	41,820	46,344	50,829	56,553	233,837
Maramag	38,749	42,339	46,940	51,501	57,322	236,850
Pangantucan	30,680	33,498	37,110	40,690	45,259	187,238
Quezon	46,114	50,331	55,735	61,092	67,929	281,201
San Fernando	36,009	39,304	43,526	47,711	53,053	219,604
Sumilao	16,326	17,827	19,750	21,656	24,089	99,648
Talakag	37,219	40,591	44,914	49,198	54,667	226,590
Valencia	60,727	66,356	73,570	80,721	89,848	371,222
(c) Provincial Total	1,085,193	1,186,479	1,316,290	1,444,963	1,609,196	6,642,122
<b>4</b> Project fund of IRA to Relevant Sector by Administrative Unit						
(a) province	19,642	21,540	23,973	26,384	29,462	121,001
(b) municipalities/city including barangays	32,329	35,286	39,075	42,831	47,624	197,145
Baungon	1,061	1,157	1,281	1,403	1,559	6,461
Cabanglasan	1,070	1,168	1,293	1,417	1,575	6,524
Damulog	861	938	1,036	1,134	1,258	5,228
Dangcagan	716	780	862	943	1,046	4,347
Don Carlos	1,480	1,612	1,781	1,949	2,162	8,985
Impasugong	1,956	2,140	2,376	2,610	2,908	11,990
Kadingilan	975	1,063	1,175	1,287	1,429	5,929
Kalilangan	1,074	1,173	1,299	1,424	1,583	6,553
Kibawe	1,213	1,321	1,460	1,598	1,773	7,365
Kitaotao	1,679	1,827	2,018	2,207	2,448	10,179
Lantapan	1,324	1,446	1,603	1,759	1,958	8,090
Libona	1,253	1,369	1,517	1,664	1,851	7,653
Malaybalay (Capital)	3,496	3,816	4,226	4,633	5,152	21,324
Malitbog	1,253	1,370	1,520	1,668	1,858	7,669
Manolo Fortich	1,324	1,446	1,602	1,757	1,955	8,083
Maramag	1,937	2,117	2,347	2,575	2,866	11,843
Pangantucan	1,534	1,675	1,855	2,035	2,263	9,362
Quezon	608	664	735	806	896	3,708
San Fernando	1,800	1,965	2,176	2,386	2,653	10,980
Sumilao	816	891	987	1,083	1,204	4,982
Talakag	1,861	2,030	2,246	2,460	2,733	11,329
Valencia	3,036	3,318	3,678	4,036	4,492	18,561
(c) Provincial Total	51,971	56,826	63,047	69,215	77,086	318,145

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

Unit: 1,000 pesos

LGUs	Urban Water Supply	Rural Water Supply	Urban Sanitation	Rural Sanitation	Total
1. Province	51,647	33,209	11,818	24,326	121,001
2. Municipalities					
Baungon	1,632	2,266	456	2,108	6,461
Cabanglasan	1,266	2,280	48	2,930	6,524
Damulog	3,147		418	1,662	5,228
Dangcagan	385	3,591		371	4,347
Don Carlos	5,451	1,741	684	1,109	8,985
Impasugong	1,547	7,266	642	2,536	11,990
Kadingilan	2,402	2,515		1,012	5,929
Kalilangan	3,857	686	1,241	769	6,553
Kibawe	2,335	4,436	80	514	7,365
Kitaotao	4,911	3,368	272	1,627	10,179
Lantapan	3,426	1,096	1,451	2,116	8,090
Libona	1,708	2,913	152	2,881	7,653
Malaybalay (Capital)	5,253	7,690	1,955	6,426	21,324
Malitbog	428	6,214		1,027	7,669
Manolo Fortich			516	7,567	8,083
Maramag	9,633	685	1,230	294	11,843
Pangantucan	2,162	3,418	2,152	1,630	9,362
Quezon			1,347	2,361	3,708
San Fernando	4,032	3,868	962	2,118	10,980
Sumilao		2,832	1,374	776	4,982
Talakag	456	5,118	609	5,146	11,329
Valencia			5,009	13,553	18,561
3. Provincial Total	105,679	95,192	32,416	84,859	318,145

This means that 25% of "20% Development Fund" from national IRA are counted on sector projects. The same percentage is applied for the allocation of municipal IRA to the sector.

(5) Available IRA of municipalities by sub-sector

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

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

The projected provincial IRA to the sector during the period of 1999-2003 is estimated at ₱318.1 million, which is equivalent to 4.7% of combined provincial and municipal IRA. This percentage arrived as a result of adjustment in use of IRA for those municipalities, of which required cost is lower than the allotted IRA. With regard to the allocation to sub-sectors, urban water supply has the largest allotment of 33.21% (₱105.7 million out of the total ₱318.1 million) followed by rural water supply (29.9%). Rural sanitation is allotted ₱84.86 million (about 26.67%) and is larger than that for urban sanitation (₱32.4 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, Malaybalay (capital) has the largest allotment with ₱21.3 million (10.8%) followed by the municipality of Valencia (9.4%).

### **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 ₱634.1 million required for Phase I (1999-2003), IRA can fund only ₱318.1 million or 50.17% of the requirements. Hence, there is a big shortfall of ₱315.98 million in funding. It will become ₱381.67 million in consideration of price escalation with annual rate of 7%.

Table 11.3.1 Financing Requirement by Sector Component for the Province

Unit: 1,000 pesos

Sector Components	1999	2000	2001	2002	2003	Total 1999-2003	Total 2004-2010
Direct Cost							
<i>1. Direct Construction Cost</i>							
<i>Urban Water Supply</i>							
Level III System	0	37,703	56,554	56,554	37,703	188,513	976,213
<i>Rural Water Supply</i>							
Level II System	36,204	36,204	0	0	0	72,407	0
Level I Facilities	0	9,761	14,642	14,642	9,761	48,805	65,679
<i>Urban Sanitation</i>							
Household toilet	0	1,020	1,530	1,530	1,020	5,100	12,208
Public school toilet	0	7,401	11,101	11,101	7,401	37,004	58,657
Public toilet	0	206	310	310	206	1,032	0
Disinfection of Level I Deep Well and Shallow	7	13	13	13	13	58	0
<i>Rural Sanitation</i>							
Household toilet	0	4,930	7,396	7,396	4,930	24,652	44,402
Public school toilet	0	12,828	19,242	19,242	12,828	64,139	236,274
Disinfection of Level I Deep Well and Shallow	35	64	64	64	64	290	141
<i>Urban Sewerage</i>	N/A	N/A	N/A	N/A	N/A	N/A	1,572,121
Sub-total	36,245	110,129	110,850	110,850	73,926	442,000	2,965,694
<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	44	66	66	44	220	0
Water quality testing kit	0	3	5	5	3	15	0
Sub-total	0	917	71	71	47	1,105	26,782
<i>3. Water Quality Laboratory</i>	2,032	0	0	0	0	2,032	0
<i>4. Sector Management Cost</i>							
<i>Engineering Studies</i>							
Feasibility study and detail design	26,392	10,679	0	0	0	37,071	121,425
Construction supervision	1,448	4,164	4,074	4,074	2,716	16,694	53,967
<i>Institutional Development</i>	11,476	10,911	4,755	2,943	2,377	32,462	121,425
Sub-total	39,316	25,754	8,829	7,017	5,093	86,227	296,818
Total Direct Cost	77,593	136,800	119,749	117,937	79,066	531,364	3,289,293
Contingencies							
<i>1. Physical Contingency</i>	7,759	13,680	11,975	11,794	7,907	53,115	328,929
<i>2. Price Contingency</i>	5,975	21,805	29,644	40,320	35,011	132,754	N.A
<i>3. Value-Added Tax (VAT)</i>	6,612	12,589	11,499	11,499	7,669	49,868	N.A
Total Investment Cost	97,939	184,874	172,867	181,551	129,652	767,101	3,618,223
Total Investment Cost (excluding Price Contingency)	91,964	163,069	143,224	141,231	94,641	634,129	3,618,223

Table 11.3.2 Additional Fund Requirement for the Medium-Term Plan

Unit: 1,000 pesos

Item	1999	2000	2001	2002	2003	Total 1999-2003
Financing Requirement	91,964	163,069	143,224	141,231	94,641	634,129
Expected available fund						
National						
Local (IRA)	51,971	56,826	63,047	69,215	77,086	318,145
Others						
Total	51,971	56,826	63,047	69,215	77,086	318,145
Shortfall in funding	39,993	106,244	80,176	72,016	17,555	315,984
(Additional Fund Requirements)	42,793	121,638	98,219	94,398	24,622	381,671

Note: Shortfall in funding: Figures on top indicate current year price level.

Figures below indicate escalated price at 7% per year.

Municipal achievement percentages in finance are shown in Table 11.3.3 in provision of available fund originated by IRA against Phase I financial requirements. The percentage of Manolo Fortich and Quezon (100%) is the highest among municipalities, followed by Talakag (98%). Majorities are in the range between 40% and 60% to the respective requirements, while the provincial average is 50%.

#### 11.4 Medium-Term Implementation Arrangements

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

##### 11.4.1 Reference Scenarios in Different Funding Levels

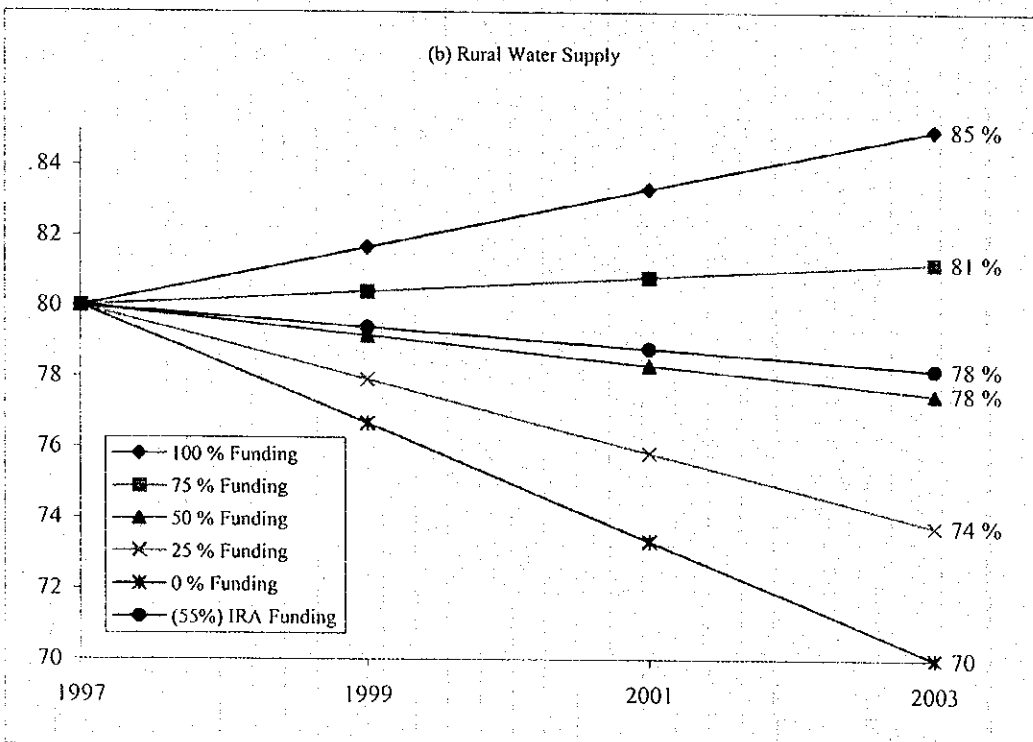
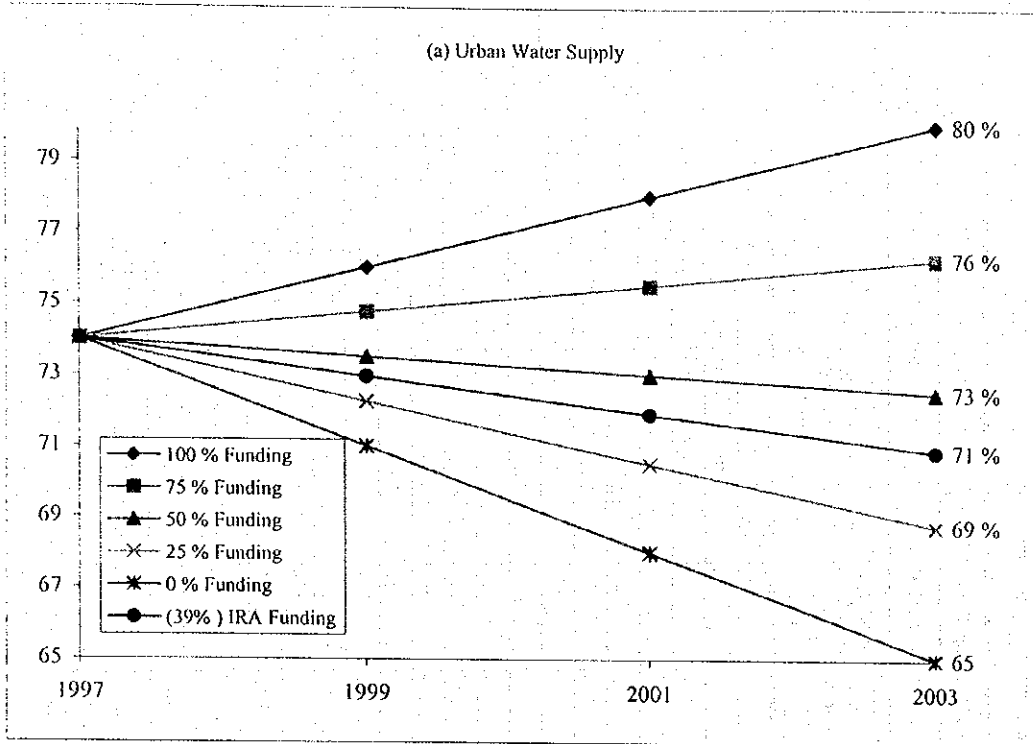
Achievement levels of service coverage in the target year are examined in assumption of five funding levels. It is regarded that the service coverage is increased in proportion to the investment during Phase I period. The relationships between funding levels and corresponding percentages of service coverage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

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

Unit: P 1,000

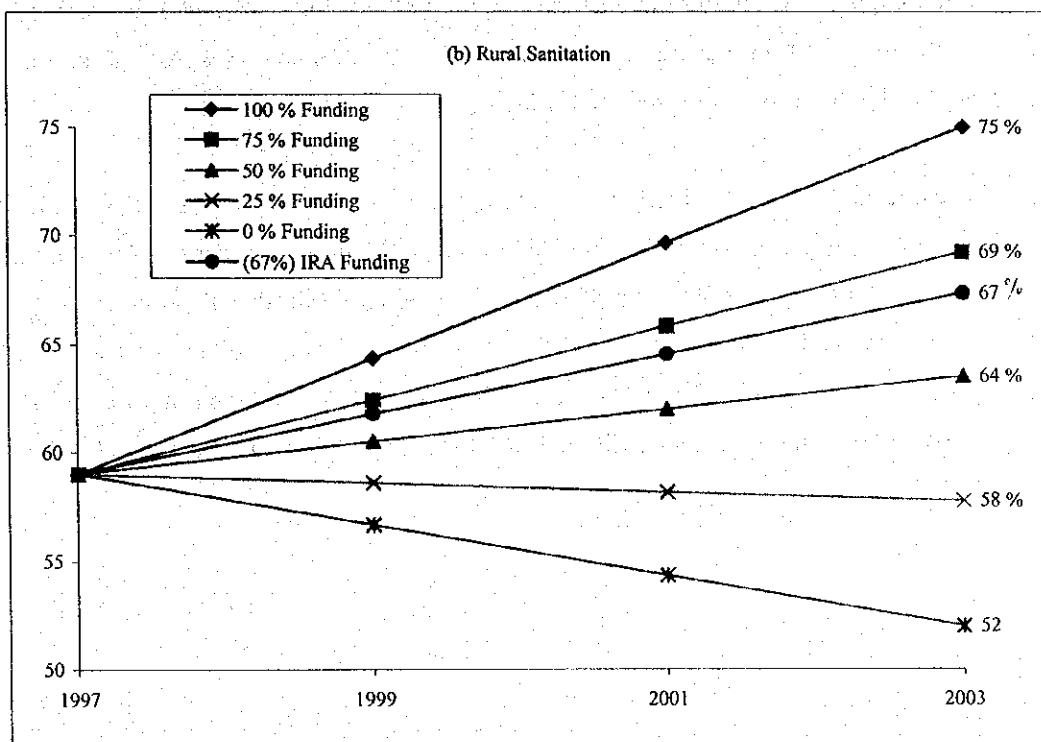
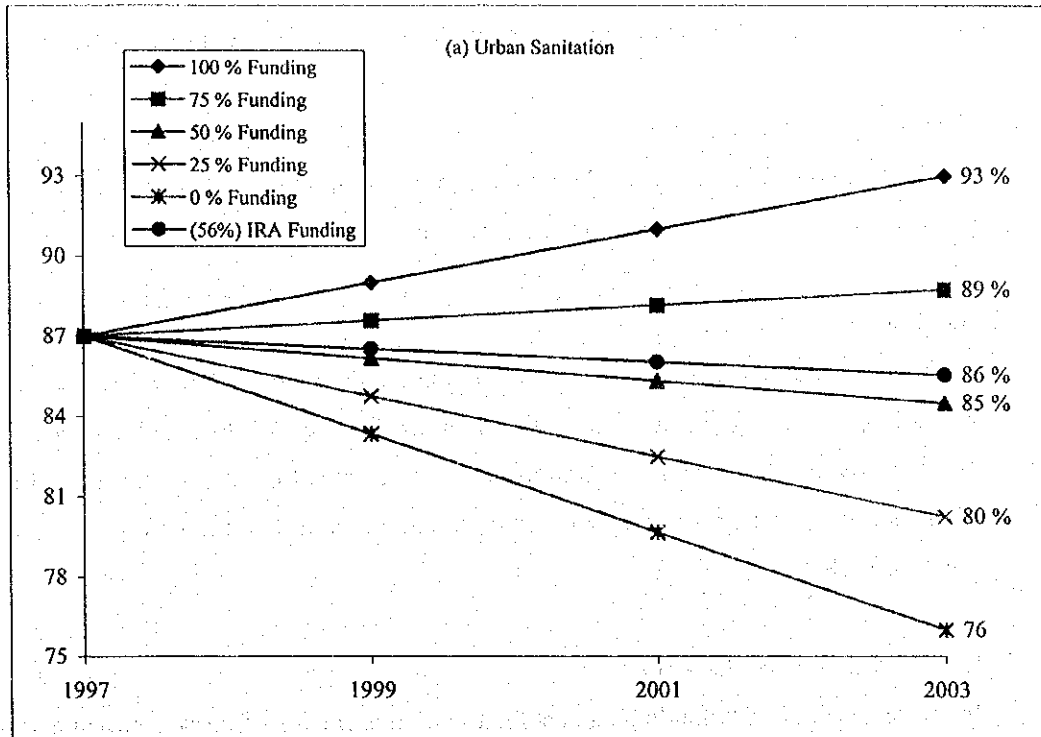
Name of Municipality	IRA Allocation to Municipalities											Phase I Investment Cost Requirement (b)	Achievement Percentage (%) in Finance (a)/(b)		
	Urban Water Supply			Rural Water Supply			Urban Sanitation			Rural Sanitation				Available Fund of Municipality (a)	
	Allotted from Provincial Government	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
Baungon	2,496	1,632	4,128	1,120	2,266	3,386	298	456	754	1,137	2,108	3,244	11,513	16,738	69
Cabanglasan	1,150	1,266	2,416	830	2,280	3,110	90	48	138	1,162	2,930	4,091	9,756	12,450	78
Damuilog	2,739	3,147	5,886				222	418	640	688	1,662	2,350	8,876	9,776	91
Danggagan	533	385	918	1,636	3,591	5,228				264	371	635	6,781	10,379	65
Don Carlos	6,381	5,451	11,832	2,037	1,741	3,778	873	684	1,557	1,392	1,109	2,501	19,667	55,076	36
Impasugong	1,620	1,547	3,167	2,838	7,266	10,104	324	642	966	1,085	2,536	3,621	17,858	24,548	73
Kadangilan	6,381	2,402	8,783	1,810	2,515	4,324				823	1,012	1,835	14,943	22,359	67
Kailangan	2,496	3,857	6,353	559	686	1,245	1,084	1,241	2,325	721	769	1,489	11,413	27,974	41
Kibawe	2,496	2,335	4,832	2,076	4,436	6,512	110	80	190	335	514	849	12,383	18,064	69
Kitaoao	6,381	4,911	11,293	1,859	3,368	5,228	223	272	495	993	1,627	2,620	19,635	29,446	67
Lantapan	1,696	3,426	5,122	313	1,096	1,409	487	1,451	1,938	698	2,116	2,815	11,284	12,093	93
Libona	2,725	1,708	4,433	1,443	2,913	4,355	148	152	300	1,522	2,881	4,402	13,490	19,864	68
Malaybalay (Capital)	2,496	5,253	7,750	4,855	7,690	12,545	1,307	1,955	3,262	4,152	6,426	10,578	34,135	70,562	48
Malitbog	548	428	976	2,702	6,214	8,916				541	1,027	1,568	11,460	17,473	66
Manolo Fortich								516	516	0	7,567	7,567	8,083	8,083	100
Maramag	6,381	9,633	16,014	1,711	685	2,396	3,143	1,230	4,373	828	294	1,121	23,904	154,874	15
Pangantucan	2,496	2,162	4,658	1,767	3,418	5,185	1,186	2,152	3,338	938	1,630	2,568	15,749	25,368	62
Quezon							0	1,347	1,347			2,361	3,708	3,708	100
San Fernando	2,496	4,032	6,528	2,717	3,868	6,585	749	962	1,711	1,582	2,118	3,700	18,525	40,416	46
Sumilao				1,676	2,832	4,507		1,374	1,374	554	776	1,330	7,212	15,450	47
Talakag	133	456	589	1,261	5,118	6,379	223	609	833	1,363	5,146	6,509	14,311	14,634	98
Valencia							1,350	5,009	6,358			17,102	23,460	24,794	95
<b>Total</b>	<b>51,647</b>	<b>54,031</b>	<b>105,679</b>	<b>33,209</b>	<b>61,983</b>	<b>95,192</b>	<b>11,818</b>	<b>20,596</b>	<b>32,416</b>	<b>24,326</b>	<b>60,532</b>	<b>84,859</b>	<b>318,145</b>	<b>634,129</b>	<b>50</b>

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



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

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



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



Three reference scenarios are discussed on different levels of funding. These scenarios will be referred to in combination of alternative countermeasures discussed in Section 11.4.2. Using computer-based programs, these scenarios may be modified by policy makers according to the updated information and policy on the available fund and sector targets.

(1) The First Reference Scenario

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

(2) The Second Reference Scenario

An intermediate scenario with 50 - 75 %-funding ranges are considered. Urban and rural water supply coverage in the year 2003 is attained between 73-76% and between 78-81 %, respectively. For urban and rural sanitation (household toilets), coverage will reach 85-89% and 64-69%, respectively based on the assumption that required private investments are followed.

(3) The Third Reference Scenario

In the scenario of 25% funding against the total requirements of Phase I, urban and rural water supply coverage in the year 2003 will be attained at 69% and 74%, respectively, while urban and rural sanitation coverage will be at 80% and 58%. All sub-sectors will not be able to keep current service levels.

The allocated IRA funding of urban and rural water supply in the year 2003 will be 39% and 55% which will cover 71% and 78% of the population. In order to attain the Phase I development target of 80% and 85% service coverage, it needs an additional IRA funding of 61% and 45% respectively. While for urban and rural sanitation the allotted IRA funding are 56% and 67%. To cover the Phase I development target of 93% and 75% of the population it requires an additional IRA funding of 44% and 33%, respectively.

## 11.4.2 Alternative Countermeasures

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

### (1) Acquisition of external funds

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

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

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

### (2) Augmentation of sector finance under current arrangements

#### Increase of the IRA to the Relevant Sector

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

#### Local Taxes

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

#### Utilization of Other Local Funds

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

(3) Introduction of private sector

Privatization of Level III Waterworks System

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

LGU Guaranty Organization

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

(4) Effective and economical investment

Investment Need Ranking of Municipalities

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

The ranking for urban water supply is specifically studied considering three factors, while a sole factor of additional requirements is assumed to coincide with the priority of other sub-sectors. Synthetic evaluation of concerned sub-sectors is finally presented in the context of comprehensive improvement of this sector. The result for urban water supply is employed for allocation of provincial IRA to the municipalities in the concerned sub-sector. The synthetic ranking may be availed for the huge investment 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) municipalities identified as top four (4) priority municipalities namely Maramag, Libona, Don Carlos and Ladingilan.

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 fifth 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 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 Don Carlos and Damulog, which indicate that they are given priority for investments in all sub-sectors, Valencia is the least priority in terms of investment.

Table 11.4.1 Municipal Investment Need Ranking for Urban Water Supply

Name of Municipality	Evaluation Factor			Scoring by the Factor			Overall Weighted Score	Investment Need Ranking
	% of Underserved and Unserved Population in Base Year	% of Underserved and Unserved Population in Phase I	% of Population Unserved by Level III Systems in Base Year	Underserved and Unserved Population in Base Year	Underserved and Unserved Population in Phase I	Population Unserved by Level III Systems in Base Year		
Baungon	20	32	79	0.40	0.60	0.80	0.53	11
Cabanglasan	18	28	100	0.40	0.40	1.00	0.49	12
Daruilog	33	41	100	0.80	0.60	1.00	0.76	5
Danggagan	11	23	81	0.40	0.40	1.00	0.49	12
Don Carlos	40	48	91	0.80	0.80	1.00	0.83	3
Impasugong	18	29	57	0.40	0.40	0.60	0.43	17
Kadangilan	40	46	100	0.80	0.80	1.00	0.83	3
Kailangan	24	34	93	0.60	0.60	1.00	0.66	9
Kibawe	35	40	36	0.80	0.60	0.40	0.67	8
Kitaotao	31	40	100	0.80	0.60	1.00	0.76	5
Lanapan	16	25	93	0.40	0.40	1.00	0.49	12
Libona	45	50	60	1.00	0.80	0.60	0.87	2
Malaybalay (Capital)	12	28	12	0.40	0.40	0.20	0.37	18
Malitbog	16	25	100	0.40	0.40	1.00	0.49	12
Manolo Fortich	10	19	22	1.00	0.40	0.40	0.70	7
Maramag	61	66	89	1.00	1.00	1.00	1.00	1
Pangantucan	17	24	95	0.40	0.40	1.00	0.49	12
Quezon	6	12	47	0.20	0.20	0.60	0.26	22
San Fernando	20	34	100	0.40	0.60	1.00	0.56	10
Sumilao	2	18	64	0.20	0.40	0.80	0.36	20
Talakag	11	22	15	0.40	0.40	0.20	0.37	18
Valencia	6	16	44	0.20	0.40	0.60	0.33	21
<b>Provincial Total</b>	<b>26</b>	<b>35</b>	<b>71</b>					

Note: 1. Scoring to Underserved and Unserved Percentage.

2. Weight Allocation to Score.

Score	Range of Underserved and Unserved Percentage				Allocated Weight
	41 < % < 61	61 < % < 81	81 < % < 100	100 < % < 120	
1.0	41 < % < 61	61 < % < 81	81 < % < 100	100 < % < 120	15
0.8	31 < % < 40	46 < % < 60	61 < % < 80	81 < % < 100	15
0.6	21 < % < 30	31 < % < 45	41 < % < 60	61 < % < 80	15
0.4	11 < % < 20	16 < % < 30	21 < % < 40	41 < % < 60	15
0.2	1 < % < 10	1 < % < 15	1 < % < 20	21 < % < 40	15

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

Unit: 1,000 pesos

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 (%)				
11	Baungon	2,496	4.83	1,632	4,128	4,227	97.66
12	Cabanglasan	1,150	2.23	1,266	2,416	2,416	100.00
5	Damulog	2,739	5.30	3,147	5,886	5,886	100.00
12	Dangcagan	533	1.03	385	918	918	100.00
3	Don Carlos	6,381	12.36	5,451	11,832	33,412	35.41
17	Impasugong	1,620	3.14	1,547	3,167	3,167	100.00
3	Kadingilan	6,381	12.36	2,402	8,783	9,059	96.96
9	Kalilangan	2,496	4.83	3,857	6,353	16,465	38.59
8	Kibawe	2,496	4.83	2,335	4,832	5,728	84.36
5	Kitaotao	6,381	12.36	4,911	11,293	14,208	79.48
12	Lantapan	1,696	3.28	3,426	5,122	5,122	100.00
2	Libona	2,725	5.28	1,708	4,433	4,433	100.00
18	Malaybalay (Capital)	2,496	4.83	5,253	7,750	17,384	44.58
12	Malitbog	548	1.06	428	976	976	100.00
7	Manolo Fortich						
1	Maramag	6,381	12.36	9,633	16,014	125,982	12.71
12	Pangantucan	2,496	4.83	2,162	4,658	5,857	79.53
22	Quezon						
10	San Fernando	2,496	4.83	4,032	6,528	14,841	43.99
20	Sumilao						
18	Talakag	133	0.26	456	589	589	100.00
21	Valencia						
<b>Total</b>		<b>51,647</b>	<b>100</b>	<b>54,031</b>	<b>105,679</b>	<b>270,670</b>	<b>39.04</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	
Baungon	0.13	0.05	0.10	0.25	0.53	8
Cabanglasan	0.12	0.05	0.25	0.15	0.57	6
Damulog	0.19	0.05	0.25	0.20	0.69	2
Dangcagan	0.12	0.25	0.10	0.05	0.52	9
Don Carlos	0.21	0.10	0.15	0.25	0.71	1
Impasugong	0.11	0.05	0.10	0.20	0.46	13
Kadingilan	0.21	0.10	0.05	0.15	0.51	10
Kalilangan	0.17	0.15	0.05	0.05	0.42	15
Kibawe	0.17	0.05	0.05	0.20	0.47	11
Kitaotao	0.19	0.05	0.05	0.10	0.39	17
Lantapan	0.12	0.05	0.05	0.25	0.47	12
Libona	0.22	0.10	0.05	0.05	0.42	15
Malaybalay (Capital)	0.09	0.15	0.05	0.25	0.54	7
Malitbog	0.12	0.05	0.10	0.05	0.32	18
Manolo Fortich	0.18	0.05	0.05	0.15	0.43	14
Maramag	0.25	0.2	0.1	0.1	0.65	4
Pangantucan	0.12	0.25	0.15	0.15	0.67	3
Quezon	0.07	0.05	0.1	0.05	0.27	20
San Fernando	0.14	0.05	0.05	0.05	0.29	19
Sumilao	0.09	0.05	0.25	0.25	0.64	5
Talakag	0.09	0.05	0.05	0.05	0.24	21
Valencia	0.08	0.05	0.05	0.05	0.23	22