Republic of the Philippines
DEPARTMENT OF INTERIOR AND LOCAL GOVERNMENT

IMPLEMENTING RULES AND REGULATIONS of CLAUSE (g), NEDA BOARD RESOLUTION NO. 4, SERIES OF 1994

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ABBREVIATIONS

BWSA	-	Barangay Waterworks and Sanitation Association
CDOC	-	Cagayan de Oro City
COWD	-	Cagayan de Oro Water Districts
DILG	-	Department of Interior and Local Government
DOH	-	Department of Health
DPWH	-	Department of Public Works and Highways
IEC	-	Information, Education and Communication
IRA	-	Internal Revenue Allocation
IRR	-	Implementing Rules and Regulation
LGC	-	Local Government Code
LGU	-	Local Government Unit
LWUA	-	Local Water Utilities Administration
MOU	-	Memorandum of Understanding
MWSS	-	Metropolitan Waterworks and Sewerage System
NAWASA	-	National Waterworks and Sewerage Administration
NBR4S94	-	NEDA Board Resolution No. 4, Series of 1994
NBR5S89	-	NEDA Board Resolution No. 5, Series of 1989
NEDA	-	National Economic and Development Authority
NGO	-	Non-governmental Organization
N-R-W	-	Non Revenue Water
NWRB	-	National Water Regulatory Board
O&M	-	Operation and Maintenance
PD	-	Presidential Decree
PW4SP	-	Provincial Water Supply, Sewerage and Sanitation Sector Plans
RTC	-	Regional Training Center
RWSA	-	Rural Waterworks and Sewerage Association
WD	-	Water District
WSC	-	Waterworks Sanitation Company
WSS	-	Water Supply and Sanitation
WSSDO	-	Water Supply and Sanitation Development Office

I. EXECUTIVE SUMMARY

1. Background

With the enactment of the Local Government Code of 1991 (LGC), the decentralization and devolution of power, services, responsibilities and activities from national government offices to Local Government Units (LGUs) become inevitable. These include the provision of water supply, sewerage and sanitation services.

A "Water Supply Sector Reform Study" was conducted for the Government between 1992 to 1993 by a team of local and foreign consultants. The consultant team chiefly developed recommendations with respect to sectoral policies and timetable for reforms in the water sector. Among these recommendations is the amendment of NEDA Board Resolution No. 5, Series of 1989 (NBR5S89) in line with the Government's policy on decentralization and devolution of powers and services.

Together with other water sector reform proposals, the NEDA Board approved the amendment of NBR5S89 in March 1994. Clause (g) of NEDA Board Resolution No. 4, Series of 1994 (NBR4S94) has reinforced the delineation of responsibilities in the water sector giving greater responsibilities to the LGUs. The following institutional arrangements are now in place with respect to agency participation in water supply development:

(a) MWSS shall be held responsible for Level III water systems (house connections) in Metro Manila and adjacent areas;
(b) LWUA shall support only financial viable Level III water supply projects in areas outside MWSS jurisdiction and where such services have been ceded by LGUs to LWUA;
(c) DILG shall provide support to LGUs with respect to institution development, as well as in the identification of needs and priorities for water supply development; and
(d) DPWH, together with DILG and DOH, shall provide technical assistance to the LGUs in the planning, implementation, and operation and maintenance of water supply facilities.

In view of the apparent need to define in detail the roles of LGUs and the national sector agencies, the Government deemed it necessary that Implementing Rules and Regulations (IRR) of Clause (g), NBR4S94 be prepared. As an initial step, a " Concept Paper" was developed in December 1994 to February 1995 which identified key sector concerns, presented a draft IRR and suggested certain transitory arrangements.

This report recommends, for Government's consideration, a set of IRR that operationalizes Clause (g) of NBR4S94. These are based on the findings of the Concept Paper and the case studies conducted for the purpose. Specifically, this report aims to :

(a) formulate and finalize the detailed IRR that will govern the full implementation of Clause (g) of NBR4S94;
(b) establish and clarify the transition arrangements that will facilitate the smooth transfer of roles and responsibilities from national agencies to LGUs;
(c) identify and define the responsibilities which will remain with the national agencies and those to be fully assumed by LGUs;
(d) formulate the questionnaire to be used for LGU capability assessment and design the methodology for its administration;
(e) provide the basis for the formulation of a technical assistance program for strengthening LGU water supply project implementation capabilities; and
(f) plan the initial start-up activities.

The Terms of Reference for the Consultant who was commissioned to draft the IRR is appended.

2. IRR in Brief

A glimpse of the IRR is shown below.

Rule 1	-	Present the full text of Clause (g), NBR4S94.
Rule 2	-	Defines the roles of LGUs at various stages of development. It contains as well, a provision for the formation of Waterworks and Sanitation Company (WSC)
Rule 3	-	Indicates the organization structure, functional chart and Board composition of the WSC. Other stipulations are the WSC's relationship with the Barangay Waterworks and Sanitation Associations (BWSAs), its autonomy of operations, systems management and reporting requirements.
Rule 4	-	Contains policy statements on participatory approach, and BWSA formation and registration. Likewise, it defines the BWSA operation and supervising powers.
Rule 5	-	Illustrate the Water Supply and Sanitation Project Development Processes. The activities of sector agencies and the corresponding time schedule to undertake them are enumerated in each of the project development processes.
Rule 6	-	Spells out the details of the LGU Capabilities Program including the components, funding, reporting and effectivity.
Rule 7	-	Defines the roles of DILG, DPWH, DOH and NWRB.
Rule 8	-	Establishes the coordination and collaboration mechanisms.
Rule 9	-	Presents a sample Memorandum of Understanding (MOU) among national government agencies based in province/city and the LGUs. The MOU stipulates the working arrangements among the parties concerned.

Rule 10	-	Stipulates a two-year transitory period and allows certain working arrangements during said period.
Rule 11	-	Ensures greater private sector participation in water and sanitation development. Specifically, it envisages more private sector involvement in engineering works and construction.
Rule 12	-	Presents miscellaneous provisions on monitoring and evaluation, and the effectivity of the IRR.

3. Support to LGU Capability Assessment

Rationale - With the LGUs assuming greater role in water supply and sanitation development, their capabilities should be enhanced and/or built. As a preliminary step, an assessment of LGUs' capability must be undertaken by DILG. Towards this end, this paper seeks to recommend a framework of undertaking such assessment.

Contents - The framework contains the objective of the assessment, evaluation parameters, a set of questionnaires and interview guides, methodology and a time capsule.

Expected Output - An "LGU Capability Assessment Framework" is recommended for DILG's consideration.

4. LGU Training Program

Training is a vital component in the LGU Capability Building Program. Proper packaging of training modules is crucial. Training courses shall have to be designed by experienced experts. Creative training approaches shall be employed to ensure effective results. Valuable training materials will developed and also serve as references upon completion of the cources.

In this report, a sample LGU Training Program is presented with the end in view of producing a replicable material for future use. This can be improved further. The contents of LGU Training Program are:

(a) Training Courses (By module)
(b) Description of Training Courses
(c) Outlines of Training Courses
(d) Recommended Duration of Training Courses
(e) Trainees and Trainors
(f) Training Schedules.

5. Case Studies

Background - Three case studies were formulated, representing three alternative methods of managing waterworks systems, namely: privately-managed, Water District-managed and LGU-managed. Lessons learned from each of the waterworks systems were documented and served as inputs in the drafting of the IRR.

Highlights and key lessons learned from the case studies are reflected in the matrix indicated in the following page.

Table 1
LESSONS LEARNED IN THE MANAGEMENT OF WATERWORKS SYSTEMS

Management Method	Institutional	Financing	Operation and Maintenance
Private	1. Franchise granted by Congress 2. Private Ownership 3. Board of Directors 4. A General Manager heads the management team 5. Policies set by the Board 6. Operation by the Management Team 7 Employs occasionally Foreign Consultants for technical assistance	1 Private investment 2. Funding from own resources, revenues and private lending institutions. 3 Water rates are regulated by NCRB 4. Minimum charges: ₱ 70 - Residential ₱ 88 - Commercial 5. 88% collection efficiency	1. 100% service coverage 2. Facilities: Deep well water sources with turbine pumps; pipelines 3. 21-hour operation 4. 58,000 gallon-capacity tank 5. Two standby generators 6. Central Warehouse 7 Efficient, properly-trained repair crew 8. N-R-W is below 20% 9. WQCS is regularly undertaken.
Water Districts	1. Board of Directors from various Sectoral Camps 2. Vigan is under a LWUA management advisor 3. CDOC is adequately managed, being a 3-time Most Outstanding WD in the past 4. Draws great support from LWUA 5. Complete policies on all aspects of development and operations 6. Institutional Development Program 7. Regional Training Center (CDOC)	1. Financing mainly from LWUA 2. Collection efficiency 3. Water tariff structure (Refer to the Case Studies)	1. Service coverage is 82% (CDOC and Vigan) 2. Facilities: • Deep wells (CDOC) • Spring and well water sources (Vigan); 3. 24-hour operation 4 NRW = 23% (CDOC) = 30% (Vigan)

Management Method	Institutional	Financing	Operation and Maintenance
Local Government Units	1. Operating as Department under the office of the Mayor (Iligan) 2. Mayor appointed a department head to manage waterworks system (Iligan) 3. Mayor also the general manager (Villanueva, Misamis Oriental) 4. Varied objectives of running the water system	1. Government (NAWASA) investment in 1956 but improvements were financed by the City Government 2. Revenues from operation are flowed back to the general fund. 3. Water tariffs are approved/regulated by the Sanguniang Bayan (City Council) 4. Water tariff is possibly the lowest in the country (Min: ₱ 6.00 from first cu.m.) (Iligan) 5. Water collection is performed by Treasurer's Office	1 60% coverage (Iligan) 2. Facilities: spring and well water sources; pumping system; water reservoir; treatment wells, pipelines 3. With Level I facilities in the rural areas 4. N-R-W is around 50% 5. Some service areas are served 24 hours but many areas receive water from 12-16 hours/day due to low pressure 6. WQCS is regularly done

II. IMPLEMENTING RULES AND REGULATIONS (IRR)

This Chapter presents in detail the final draft of the Implementing Rules and Regulations (IRR) that will govern the full implementation of Clause (g) of NBR4S94. The IRR consists of fifty-two (52) Articles grouped into twelve (12) titles or Rules, each Rule addressing distinct concerns or issues.

Rule 1 (Articles 1-3) simply represents the full text of NBR4S94, while Rule 2 (Articles 4-13) defines the roles to be played by the LGUs in the development of water supply and sanitation and in the formation of Waterworks and Sanitation Companies (WSCs) and the Barangay Water Works and Sanitation Associations (BWSAs). Rule 3 (Articles 14-21) presents the organizational structure, functions and responsibilities of the WSCs including their relationship with the BWSAs, the roles of which are, in turn, defined in Rule 4 (Articles 22-27).

The rules and guidelines governing the development of projects are presented in Rule 5 (Articles 28-29), while the mechanics involved in the capabilities building programs for LGUs, among others, are spelled out in Rule 6 (Articles 30-34). The roles to be played by the concerned national government agencies are defined under Rule 7 (Articles 35-38). The mechanisms for the smooth and effective coordination and collaboration among and between the national and local entities concerned with the promotion and development of the water supply and sanitation sector are contained in rule 8 (Articles 39-40).

A draft sample of the Memorandum of Undertaking (MOU) recommended for adaption by the LGUs is presented in Rule 9 (Article 41), while the proposed transition arrangements between the LGUs and the other parties concerned are provided under Rule 10 (Articles 42-46).

Rule 11 (Articles 47-50) provides for the involvement of the private sector in the development of water supply and sanitation projects. Lastly, Rule 12 (Articles 51-51) contains miscellaneous provisions involving, among others, the appropriate monitoring and evaluation mechanisms and also sets the effectivity of the IRR.

RULE 1
CLAUSE (g), NEDA BOARD RESOLUTION 4, SERIES OF 1994 (NBR4S94)

Article 1. Title - These Rules shall be known and cited as the Implementing Rules and Regulations (IRR) of Clause (g), NBR4S94.

Article 2. Purpose - These IRR are promulgated to define the intent of Clause (g), NBR4S94 and to ensure its common interpretation, thereby facilitating the devolution of waterworks and sanitation services to the Local Government Units (LGUs).

Article 3. NBR4S94, Clause (g) - "With respect to the delineation of responsibility in the sector, NEDA Board Resolution No. 5 (S. 1989) is amended to allow LGUs to implement all levels of water supply projects consistent with the government's decentralization and devolution process, mandating LWUA to implement only financially viable projects and further defining the roles of the agencies in the sector. The proposed amendment is as follows: Level I (point source system), Level II (communal faucet) and Level III (house connections) water supply projects may be implemented by the concerned LGUs within their respective jurisdiction. LWUA shall implement only financially viable Level III water supply projects in areas outside the MWSS jurisdiction. DILG's participation shall consist of general administration and institution building, such as assistance to the LGUs in the formation of RWSAs and/or BWSAs as well as in the identification of water supply systems. MWSS shall be responsible for Level III water systems in Metro Manila and adjacent areas. DPWH, together with DILG and DOH, shall provide technical assistance (within a period of about 2 years) to LGUs in the planning, implementation and operation and maintenance of water supply facilities."

RULE 2
THE ROLES OF THE LGUs

Article 4. Area of Jurisdiction - LGUs shall have the primary responsibility for water supply (regardless of service level) and sanitation development except in those areas covered by other legislation , e.g. Metropolitan Waterworks and Sewerage System (MWSS) and the "financially viable" Water Districts (WDs).

A "financially viable" WD means that it could cover operation, maintenance and repair costs, cover debt servicing (principal interest) as depreciation - which ever is the greater, pay taxes when due, and allow certain revenues to be utilized for future capital expansion.

A WD has jurisdiction over political boundaries of one or more than one city/municipality. This includes the urban fringe and rural areas. Most often, WD service coverage extends only within the urban area. Therefore, as an interim arrangement, the concerned LGU or LGUs shall be responsible for the provision of water supply and sanitation services to such urban fringe and rural areas.

In the event that a WD shall expand its area coverage to outlying municipalities, as authorized by law, the affected LGU or LGUs shall relinquish its/their responsibility of providing the necessary services. In such instance, there should be mutual agreement among the concerned parties.

An LGU-managed waterworks system may graduate from its present government-controlled status and form a WD. Subsequently, a WD may graduate and be privatized.

Article 5. Preparation of Provincial Water Supply, Sewerage and Sanitation Sector Plans (PW4SP) - The Municipal, City and Provincial Development Offices concerned of the LGUs shall prepare and periodically update the PW4SP that will define the strategies, priorities and approaches in the sector development of the province and its cities. The Sangguniang Panlalawigan and Bayan shall approve the PW4SP. Through the PW4SP, subprojects shall be identified, prioritized and selected. The need for water supply and sanitation subprojects shall be "demand-led". Meaning, the provision of water supply and sanitation subprojects should be based on demand and the willingness of the users to pay for the level of service of their choice.

Article 6. Financing and Cost Recovery - Generally, capital costs for the construction of water supply projects shall be financed mainly out of the concerned LGU's own resources, particularly, the Internal Revenue Allocations (IRA) and borrowings from government and private financial institutions. The IRA may serve as an equity.

For Level I (point source) service, the national government may extend financial assistance for construction of well equipped with handpumps as well as the development of a spring with a maximum of four kilometers pipeline and standposts at the end of the pipeline; provided, however, that the beneficiary communities shall donate the right-of-way where the pipeline will be passing through.

For Level II (communal faucet system) and Level III (house connection) services, the LGU shall ensure the availability of funds to develop the water source before negotiating for a loan. Source development cost serves as the LGU equity in the waterworks system. A groundwater source consists of a well, pump and accessories and the pumphouse. A spring source consists of a sump, reservoir and, in some cases, pump and accessories. A surface water source is comprised of an intake and a transmission pipeline from the river or lake to the location of the treatment plant.

Aside from the fact that the water supply facilities are social infrastructures, water is also treated as an economic commodity. Hence, investment in water supply development should be recovered. The following cost recovery arrangements shall be adhered to:

Level I Service - Partial Cost Recovery. Operation, maintenance and repair costs should be recovered.

Level II and III Services - Full Cost Recovery. Operation, maintenance and repair costs, debt servicing, reserves for future water expansion and assets replacement, and payment of government taxes should be fully recovered.

The provision of water supply and sanitation services shall be based on the affordability and willingness of water consumers to pay for the services.

Article 7. Engineering Works - In general, the LGUs concerned shall conduct engineering surveys and designs, and prepare plans, specifications and programs of work for subprojects in accordance with national standards. However, related engineering services may be rendered by the private sector under the supervision of the LGUs.

Article 8. Memoranda of Agreement (MOA) - LGUs may enter, if they so desire, into Memoranda of Agreement with local DPWH, DILG and DOH offices concerned including Non-governmental Organizations (NGOs) in connection with the provision of technical and institutional development assistance.

Article 9. Public Bidding - Public bidding for the award of projects shall be conducted in accordance with the provisions of PD 1594, as amended, and other applicable rules and regulations on the matter.

Article 10. Approval of Contracts - The concerned LGUs shall have the authority to award and approve contracts for waterworks and sanitation subprojects.

Article 11. Formation and Registration of Waterworks and Sanitation Companies (WSCs) - LGUs shall form provincial and/or municipal WSCs that shall be primarily responsible for the total development of water supply and sanitation in the "poblaciones" or the urban areas in cities and also municipalities that can viably be covered by a central water system. The LGU concerned shall approve the registration of WSCs. The establishment of WSCs shall be dependent on the LGUs' demonstrated capability and capacity.

Article 12. Formation and Registration of Barangay Waterworks and Sanitation Associations (BWSAs) - The municipal LGUs shall initiate the formation of BWSAs and subsequently approve the registration documents of BWSAs. (Rule 4)

Article 13. Capability Building - The LGUs shall coordinate with DILG and other concerned national agencies in the development and implementation of a three-year capacity building program. (Rule 6)

RULE 3
WATERWORKS AND SANITATION COMPANY (WSC)

Article 14. Powers - Every duly registered WSC has the proper and capacity to:

(a) award and enter into contract/s with private contractors for the delivery of necessary services (i.e. construction, consulting services, supplies);

(b) manage the implementation of projects undertaken by Contractors;

(c) manage viably and sustain the operation, maintenance and repair of the water utilities, and appropriate sanitation facilities;

(d) administratively supervise the operations of BWSAs;

(e) purchase, receive, hold, convey, sell, lease, mortgage and otherwise deal with such real and personal property, as the transaction of the lawful business of the WSC as may reasonably and necessarily require;

(f) enter into with other WSCs merger on consolidation, as may be proven advantageous to their operation;

(g) establish pension, retirement and other similar benefits of its directors, officers and employees, subject to the financial viability of the WSC;

(h) call assembly of water users for the purpose of information dissemination, consultation, public hearing on water rates, and other important activities;

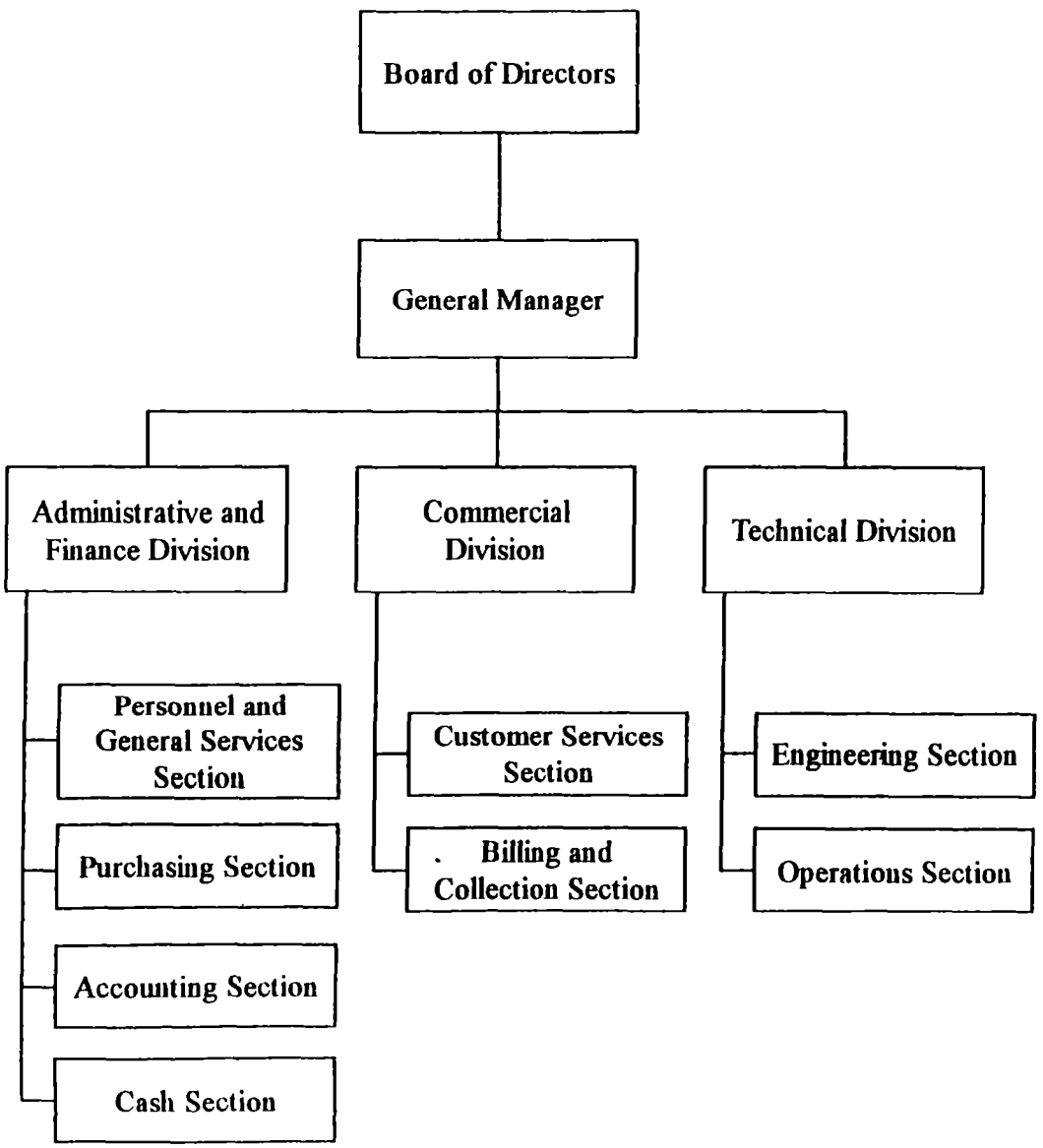
(i) initiate operational processes favorable to the WSC;

(j) decide on matters advantageous and favorable to the WSC; and

(k) hear and pass upon the annual report of WSC operations.

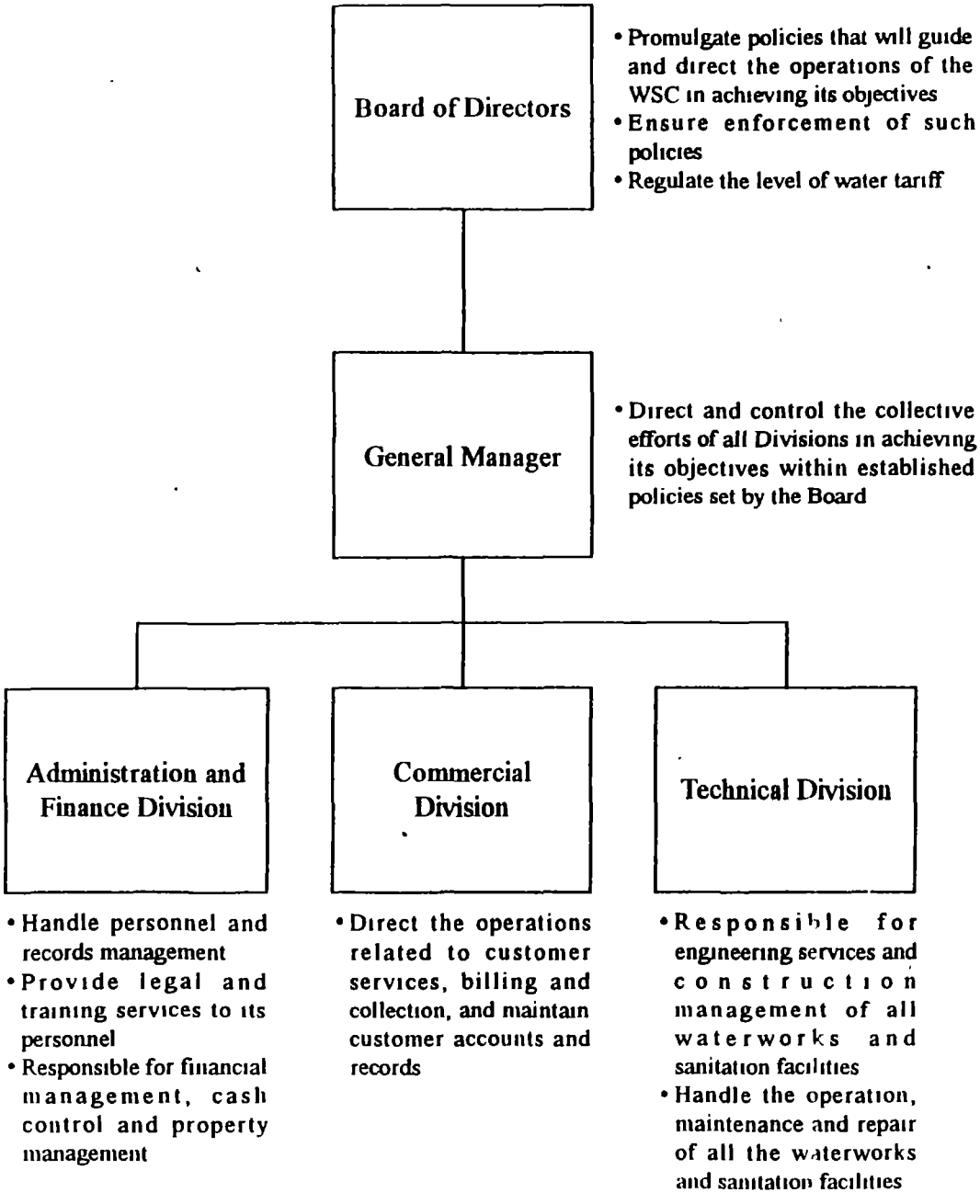
Article 15. Typical Organization Chart - The WSC shall have the following basic organizational structure:

Figure 1 - Typical Organization Chart



Article 16. Typical Functional Chart - The WSC shall have the following basic functional chart:

Figure 2 - Typical Functional Chart



Article 17. Composition of the Board of Directors (Board) - The Board shall be composed of the City/Municipal Engineer, the City/Municipal Health Officer, the Private Sector Representative, Women's Representative and the General Manager. A Board chairman shall be elected from among themselves.

If the WSC covers more than one city or municipality, the Board Composition shall be as follows: concerned City/Municipal Engineers (variable), two (2) Private Sector Representatives, Women's Representative and the General Manager. A Board chairman shall be elected from among themselves.

Article 18. WSC Personnel Complement - The Personnel complement of the WSC shall be multi-disciplinary, based on the inherent requirements of the organizational structure. At least a minimum of eight (8) persons can commence the operation of a WSC. The size of the organization shall be chiefly dependent on the magnitude of the waterworks system and the sanitation facilities built.

Article 19. Relationship with the Barangay Water and Sanitation Associations (BWSAs) - On behalf of the LGU, the WSC shall occasionally supervise the operations of BWSAs and shall assist them in their operations when such assistance is required by circumstances and when sought for by the BWSAs. Specifically, the WSC shall assist the BWSAs in major repair works, storage of spare parts of handpumps, guidance in bookkeeping and financial management and other related activities.

Article 20. Autonomy of Operations - The WSC shall, to the greatest extent possible, operate independently from the regular LGU functions; provided, however, that the Civil Service Commission and Commission on Audit rules and regulations are adhered to and faithfully complied with.

Article 21. System Management - With the purpose of sustaining a viable WSC operations, the following basic concerns shall be inculcated:

(a) water quality control and surveillance shall be periodically performed in-house and by representatives of the DOH;

(b) water, health and hygiene education shall be conducted regularly;

(c) high water fee collection efficiency of at least 90% shall be ensured;

(d) a reasonable stock of spare parts (WSC shall determine the level) shall be maintained;

(e) a responsive and effective customer relation program shall be formulated and implemented;

(f) data management system of the utilities shall be aptly maintained.

(g) appropriate guidelines on commercial practices and financial control and management shall be enforced.

Article 22. Reporting - The LGUs shall prepare, and submit annual reports of operations to the Secretary of Interior and Local Government within sixty (60) days from 31 December of each year.

RULE 4
BARANGAY WATER AND SANITATION ASSOCIATIONS

Article 23. General Provision - A BWSA shall be formed to manage public water systems and sanitation facilities constructed mainly in rural areas. The BWSAs shall initiate/assist in site identification, planning, implementation and evaluation of water supply project as well as guide in the construction and/or maintenance of household and community latrines (toilets). BWSAs shall be technically supervised by, as well as receive assistance from, the WSC.

Article 24. Powers - Every duly registered BWSA has the power and capacity to:

(a) award and enter into contract/s with private contractors for the delivery of necessary services (i.e. construction, consulting services, supplies);

(b) manage the implementation of projects undertaken by Contractors;

(c) manage viably and sustain the operation, maintenance and repair of the water utilities, and appropriate sanitation facilities;

(d) purchase, receive, hold, convey, sell, lease, mortgage and otherwise deal with such real and personal property, as the transaction of the lawful business of the BWSA as may reasonably and necessarily require;

(e) enter into with other BWSAs merger or consolidation, as may be proven advantageous to their operation;

(f) call assembly of water users for the purpose of information dissemination, consultation, public hearing on water rates, and other important activities;

(g) initiate operational processes favorable to the BWSA;

(h) decide on matters advantageous and favorable to the BWSA; and

(i) hear and pass upon the annual report of BWSA operations.

Article 25. Participatory Approach - This involves community participation, organization and development. In rural water supply and sanitation development, community participation at all stages (i.e. planning, construction and operation) is essential and should be vigorously pursued. Women, as the primary procurers and users of water, and nurtures of the sick shall be consulted and involved in all activities.

The concerned LGU shall lead in community organization and development together with the proposed water consumers. Moreover, non-governmental organizations (NGOs), civic and religious organizations, and health practitioners are encouraged to participate in this vital endeavor.

Initially, dialogue among potential water consumers shall be conducted followed with the registration of the group into a BWSA. As the BWSA becomes operational, community members are expected to be more active in their developmental activities.

Article 26. BWSA Formation and Registration - Municipal LGU concerned shall initiate the formation of BWSAs and shall subsequently register the BWSA. The DILG shall maintain copies of all registration documents submitted to the mayors. The DILG shall also periodically prepare status bulletin of BWSA registrations on a national level.

Article 27. BWSA Training Programs - The DILG in association with the LGUs and WSCs shall regularly conduct training programs for BWSA officials and members as a part of the Department's commitment to fully support their subsistence. (Refer to Rule 6). The BWSAs may, as appropriate, conduct internal hands-on training among its operators, bookkeepers and other related personnel.

Article 28. BWSA Operation - The BWSA shall be responsible for the sustainable operation of the water system as well as promote and ensure the proper sanitary practices of the community. Financial records of operations shall be maintained and annual summary of financial performance shall be submitted to DILG through the concerned LGU. The level and mode of payment of water fees shall be determined by the BWSAs. Billing and collection of water fees shall be pursued vigorously

Article 29. Supervision of BWSAs - BWSA operations shall be supervised in general by the WSC concerned or shall be delegated by the LGU to the WSC, if existing.

RULE 5
PROJECT DEVELOPMENT PROCESSES

Article 30. Water Supply Project Development Process - Refer to Appendix 1.

Article 31. Sanitation Project Development Process - Refer to Appendix 2.

RULE 6
LGU CAPABILITY BUILDING

Article 32. LGU Capability Building Program - LGU capability building is a continuing activity. However, new institutional arrangements and approaches have evolved, thus, the formulation and immediate implementation of a three-year crash program is necessary. The DILG shall immediately formulate a three-year LGU Capacity Building Program (Program) geared towards increasing and developing the skills and experience of LGUs, WSCs, and BWSAs in executing and managing waterworks and sanitation projects/systems. Thereafter, a program effectiveness assessment shall be undertaken by an independent group to determine the impact of the program and the additional institutional needs of the LGUs.

Article 33. Components - The Program shall have the following major components:

I. Organizational Development - With the creation of WSCs, it is expected that growing pains will be experienced. As such, adequate organizational development guidance should be provided.

1. Water Supply and Sanitation Development Office (WSSDO), DILG (Article 35, Rule 7) - A more responsive DILG organization is necessary due to its leading sector role. A lean organization that will address the new roles of DILG should be studied.

2. Provincial and Municipal Waterworks and Sanitation Companies - The growth and organizational changes of WSCs should be monitored. Operations may become more complex over the years.

3. BWSAs - Proper guidance on BWSA operations is critical. Although organizationally small, the number of BWSAs to be formed and supervised is large.

II. Training Programs - Several training modules shall be developed to address the needs of various target groups. These are presented hereunder.

1. Organization and Management Courses

   (a) Participatory Approaches
   (b) BWSA Formation and Registration
   (c) WSC Formation and Registration
   (d) Records Management
   (e) Property and Inventory Control
   (f) Consumer Relations

2. Technical Courses

   (a) Water Supply
   (b) Water Resources Management
   (c) Water Quality Management
   (d) Operation and Maintenance
   (e) Well Drilling
   (f) Electro-Mechanical
   (g) Plumbing
   (h) Construction Management
   (i) Data Management System
   (j) Computer Applications
   (k) Water Loss Reduction

3. Financial Management Courses

   (a) Water Rates
   (b) Budgeting
   (c) Accounting and Bookkeeping
   (d) Financial Management and Control

4. Sanitation Courses

   (a) Environmental Sanitation
   (b) Wastewater Management
   (c) Health and Hygiene Education
   (d) Water Quality Control and Surveillance

5. Policy Formulation and Enforcement

   (a) Policy Maker's Seminar

III. Laws, Policies, Regulations and Manuals - Pertinent laws, policies and regulation affecting the sector (e.g. Water Code, Water Quality Standards, Environmental Laws, NEDA Board Resolutions) should be periodically reviewed and updated. Necessary operation and maintenance manuals appropriate for smaller systems should be formulated and applied. The preparation of provincial water supply and sanitation plans should be completed. More aggressive health and hygiene education should be pursued.

Article 34. Funding the Program - DILG shall finance the Program out of their budgetary allocation.

Article 35. Reporting - Upon completion of the LGU Capacity Building Program, the DILG shall submit a report to the NEDA Board detailing the results and impact of the Program.

Article 36. Effectivity - The preparatory activities and conduct of the Program shall commence immediately upon the effectivity of the IRR.

RULE 7
THE ROLES OF NATIONAL GOVERNMENT AGENCIES

Article 37. DILG - The main responsibilities of DILG are:

(a) Support the development of the sector through the LGUs.

(b) Establish and staff a Water Supply and Sanitation Development Office (WSSDO).

(c) Assist LGUs in mobilizing resources to support the sector like packaging and/or developing water supply and sanitation projects to be funded by bilateral and multilateral sources.

(d) Formulate and undertake a three-year capacity building program for LGUs in planning, implementation, monitoring and evaluation of water supply projects.

(e) Provide continuing institutional development assistance to LGUs such as in the conduct of training programs, technical assistance in the formulation of operational policies and regulations, and linkages with national government offices.

(f) Develop and maintain a national data management system on LGU operations like annual financial performance of WSCs (including collection efficiency and cost recovery), size of water systems, water resources, personnel and beneficiaries' profile.

(g) Coordinate sector activities of LGUs and national agencies. (Rule 8)

Article 38. DPWH - The following functions shall remain with the DPWH.

(a) Through its Bureaus and Services, set and/or update technical standards for engineering surveys, design, construction, and operation and maintenance of Level I projects and waterworks systems.

(b) Through its District Offices, assist LGUs in the conduct of engineering surveys, and in the preparation of plans, specifications, and programs of work.

(c) Through its District Offices, assist LGUs in construction management.

(d) Conduct technical researches in coordination with the LGUs.

Article 39. DOH - The prime responsibilities of DOH in the sector are:

(a) Set and, when appropriate, update standards on water quality testing, treatment and surveillance as well as sanitary practices.

(b) Conduct periodic water quality control and surveillance-related activities.

(c) Administer regularly health and hygiene education programs especially in areas where waterworks systems are expected to be constructed.

Article 40. NWRB - The major responsibilities of NWRB in the sector are:

(a) Regulate the use of water resources.

(b) Establish and manage a responsive water resources (especially water supply) data management system.

(c) Set general guidelines for the regulation of water tariff rates by the WSC Board.

RULE 8
COORDINATION AND COLLABORATION MECHANISMS

Article 41. Inter-Local Government Coordination - Provinces, cities and municipalities shall assist, coordinate and collaborate with each other as far as practicable in the collective efforts of improving the delivery of water supply and sanitation services to the Filipino people. The DILG shall initiate and maintain activities leading to the effective coordination among LGUs.

Article 42. Local-National Government Coordination - LGUs may avail of the technical, financial and institutional expertise of national agencies like LWUA, DPWH, DILG, NWRB and DOH. DILG, as appropriate, shall coordinate with other national agencies concerned on behalf of the LGUs.

RULE 9
SAMPLE MEMORANDUM OF UNDERSTANDING (MOU)

Article 43. MOU - Presented in Appendix 3 is a sample MOU which may be adapted by the LGUs in pursuit of more efficient and effective working relationship between LGUs and national agencies.

RULE 10
TRANSITION ARRANGEMENTS

Article 44. Rationale for a Transitory Arrangement - Following the enactment of the Local Government Code (LGC) of 1991 and the promulgation of NBR4S94, the LGUs shall, henceforth, assume greater role in the water and sanitation sector. This expanded role shall include implementing water supply and sanitation subprojects by themselves. However, LGUs' capacity to implement projects, which is still considered as weak, must be enhanced during the transition period. Moreover, LGUs will still have to adjust to their new role in the sector.

Article 45. Transition Period - A two-year transition period commencing this year is necessary to allow:

(a) adequate time to substantially disseminate and explain the institutional arrangement of the sector;

(b) the LGUs to build their capacity in planning and implementing projects, managing waterworks systems, effectively delivering sanitation improvement services, and the like; and

(c) the national agencies to redefine their in-house organization structure and functions.

Article 46. LGUs Assuming Greater Role in the Sector - To ensure better preparedness of the LGUs to implement projects, a 2-year capacity building program for LGU personnel shall be undertaken. In parallel, the development of responsive IEC materials shall be pursued. Coordination among LGUs, and between LGUs and national agencies shall be improved.

Article 47. DPWH - DPWH shall continue to implement ongoing foreign-assisted Level I projects until the completion period of such projects. No project extension shall be allowed. Projects in the pipeline shall conform to the stipulations of this IRR, meaning, the LGUs shall cause the construction of subprojects. Equipment (e.g. drilling rigs) used for water supply development by DPWH shall be transferred to the appropriate provincial engineering offices which shall be rented out or leased to duly accredited private contractors for use in water supply projects of the LGUs.

Article 48. Internal Revenue Allotment (IRA) - Further study shall be undertaken on the channelling of national government funds to LGUs including the utilization of IRA by LGUs.

RULE 11
PRIVATE SECTOR INVOLVEMENT

Article 49. Engineering - To the greatest extent possible, LGUs shall enlist the services of the private sector in the preparation of feasibility studies and detailed designs of waterworks systems.

Article 50. Well Drilling - Well drilling projects for all levels of water services initiated by LGUs shall tap the services of private well drillers such as those associated with the Well Drillers Association of the Philippines and other similar groups. The DILG shall ensure arrangements for the equitable distribution of qualified private drillers among the provinces as well as viable packaging of well drilling contracts.

Article 51. Construction of Waterworks Systems - LGU water supply projects undertaken by Administration shall be allowed to the barest possible so as to encourage greater private sector involvement in civil works and construction.

Article 52. Construction of Sanitation Facilities - LGUs may tap the services of the private sector in the construction of public toilets, urban drainage and, as appropriate, sewerage systems.

RULE 12
MISCELLANEOUS PROVISIONS

Article 53. Monitoring and Evaluation (M and E) System for Implementation of the Provisions of NBR4S94 - The DILG is tasked to monitor and evaluate the implementation of these IRR. The DILG shall formulate M and E parameters, develop a methodology, and prepare reporting requirements.

Article 54. Effectivity - These IRR shall take effect upon publication thereof in a newspaper of general circulation or as required by law.

III. LGU CAPABILITY ASSESSMENT FRAMEWORK

1. General

As a major prerequisite for effective decentralization and meaningful local autonomy, the overall competencies of local government authorities must be upgraded to enable them to assume the increased roles and responsibilities devolved to them under the Local Government Code of 1991, particularly with respect to the delivery of basic services to their constituents and their expanded roles in regional and local development. Many of the devolved responsibilities require new specialized knowledge and skills as well as new strategies and techniques, thus making capability building a fundamental requirement for effective local governance.

It must be emphasized, however, that since LGUs possess varying levels of capabilities and competencies, the formulation and implementation of a capability enhancement program for an LGU must be preconditioned upon the results of a prior capability assessment made on the concerned LGU. This is important because results of such assessment highlight the capabilities and limitations of a particular local government unit, thus pinpointing the weaknesses and other areas which need to be developed or enhanced so that the concerned LGU can perform effectively its expanded roles and responsibilities.

Some LGUs are invariably more advanced than the others in terms of political, economic and social status and resources. Such advantages, however, may be negated by the many problems and demands brought about by increased population and urbanization such as housing, transportation, peace and order, health and sanitation, and water supply. In almost all cases, however, the grant of additional functions or responsibilities to the LGUs, whether these are urban or rural, advanced or lagging, would strain their capabilities and resources to the limit. This is the over-riding reason behind the initiation of programs to enhance or develop the capabilities/competencies of LGUs with respect chiefly to the administrative, financial and technical aspects of governance, particularly those concerning the provision of basic services such as water supply and sanitation.

Any initiative at capability enhancement for a LGU has to be cognizant of the enabling environment for effective and creative governance as well as future thrusts and directions.. It has to determine the obtaining level of administrative, financial and technical capabilities of the concerned LGU. Assessment of local government capabilities should therefore be focused on these three major evaluation parameters.

2. Objective

Basically, capability assessments are undertaken to determine the strengths and weaknesses of local governments in relation to their mandated expanded roles and responsibilities devolved to them under the Local Government Code of 1991, one of which concerns water supply and sanitation development. In this respect, the objectives are:

(a) to determine the capability of LGUs to formulate, implement and sustain appropriate water supply and sanitation development strategies and programs in response to specific community needs and problems;

(b) to determine the capability of the said LGUs to generate sufficient funds as equity contribution or local counterpart funds for water supply and sanitation development purposes, and to allocate and utilize local financial resources in the most optimal and rational manner; and

(c) to determine the capability of the LGUs to mobilize sustained political and community-based support for such water supply and sanitation project.

3. Methodology

The process of capability assessment is comprised of four steps, namely:

(a) Formation of Evaluation Parameters,
(b) Development of Survey Instruments (including testing),
(c) Assessment proper, and
(d) Application of results in LGU Capability Building Program/s.

4. Evaluation Parameters

A. From Interview

I. Institutional (Competency of Provincial/Municipal LGU)

1. Availability of WSS policies, strategies, guidelines and manuals.

2. Development and enforcement of systems and procedures (administrative and technical) like:

(a) Organization and Management,
(b) Planning,
(c) Implementation,and
(d) Monitoring and Evaluation.

3. Technical

(a) Availability of -
(i) technical standards, and
(ii) standard designs.
(b) Ability to prepare plans and designs of WSS projects.

4. Financial

(a) Availability of Internal Revenue Allotment (IRA) for WSS.
(b) Extend of IRA (in percent) for WSS projects.
(c) Ability of the institution to secure parallel funding from other sources.
(d) Enforcement of accounting and auditing procedures.

II. Individual (Competencies of key staff)

1. Number of personnel to be involved in WSS development.
2. Educational qualifications and other training of key staff.
3. Years of experience of key staff.
4. Type and extent of incentives being received by key staff.

III. Sectoral (WSS Sector)

1. Knowledge on:
   (a) Water Code,
   (b) Sanitation Code,
   (c) Environmental Law,
   (d) Water Crisis Act,
   (e) NEDA Board Resolutions 4 and 5, Series of 1994,
   (f) Water Resources Assessment and Management,
   (g) Privatization Thrusts,
   (h) Non-Governmental Organizations,
   (i) Water Resources Chapter of the Five-Year Philippine Medium Term Development Plan, and
   (j) Data Management System.

2. Enforcement within the locality of pertinent codes/laws.

3. Extent of assistance from National Government Agencies.

B. Based on Practicum to be Conducted

Several sample Forms (i.e. Needs Analysis, Socio-Economic Survey, Assessment of Existing Water System) are appended which may be used as a reference to further assess the capability of LGUs to undertake survey work.

5. Questionnaire

LGU CAPABILITY ASSESSMENT

Respondent : _____ Interviewer : _____

Date : _____

EVALUATION PARAMETER (1)	YES (2)	NO (3)	NUMBER/ AMOUNT (₱) (4)	REMARKS (5)
1. Are WSS policies, strategies, guidelines and manuals available in your office?				
2 Have you developed administrative and technical systems and procedures in your Office?				
3. If so, what are they? (Please indicate the answers under remarks on Col. 5)				
4. Are technical standards and standard WSS designs available in your Office?				
5. Are these standards being used?				
6. Is your Office able to prepare plans and designs of WSS projects?				
7. Are you willing to spare part of your IRA for WSS development?				
8. How much are you willing to spare for WSS development in the next two years? (Please indicate you reply in Col. 4)				
9. Can your Office locate other funding sources aside from IRA, for WSS development?				
10. Are appropriate accounting and auditing procedures properly enforced? (Interviewer should validate the answer by checking completed books or accounts and financial statements)				
11 How may personnel are presently involved in WSS development? (Reply on Col. 4)				

EVALUATION PARAMETER (1)	YES (2)	NO (3)	NUMBER/ AMOUNT (₱) (4)	REMARKS (5)
12. Please enumerate the educational qualification of your key personnel. (Reply in Col. 4)				
13. How many years of working experience does your key staff have? (a) WSS (b) Other fields				
14. What are the incentives being given by your Office to your staff?				
15. In monetary terms, how much incentives are provided? (Average per person) (Reply on Col. 4)				
16. Please let us know if you are knowledgeable on any or all of the following: (a) Water Code, (b) Sanitation Code, (c) Environmental Law, (d) Water Crisis Act, (e) NBR4S94, NBR5S94 (f) Water Resources Assessment and Management, (g) Privatization Thrusts, (h) NGOs (i) Water Resources Chapter of the Five-Year Philippine Medium Term Development Plan, and (j) Data Management System. (Reply on Col. 2 or 3)				
17. Generally, are the laws, Codes, Act and the like listed above aptly enforced in your locality.				
18. What is the extent of national government assistance that you received annually? (Reply on Col 5)				

6. Rating System

The suggested rating system for the conduct of LGU Capability Assessment is as follows:

			Rating
A.	Interview		70%
	I. Institutional	(40%)	
	II. Individual	(40%)	
	III. Sectoral	(20%)	
B.	Practicum		30%
	Total		100%

7. Time Schedule

The conduct of the Assessment is variable depending on the size of the sample envisioned to be taken. Approximately, the interview may be undertaken in one to two hours while the practicum may be undertaken in a couple of days.

On the overall, this writer believes that the Assessment should be undertaken within a year period for a random sample of around 10 to 20 percent of the total number of provincial/municipal LGUs.

So as not to delay the implementation of the LGU Capability Building Program, the Assessment should be undertaken soonest possible time.

IV. DRAFT LGU TRAINING PROGRAM

1. General

Training shall be conducted at various stages, viz: national, provincial/municipal and community levels. Participants will come from national agencies or offices, provincial and municipal LGUs, WSCs, BWSAs and the beneficiary communities. Bulk of the training shall be with the WSCs, municipal LGUs and the beneficiary communities. Training on operation and maintenance and financial management shall be given topmost priority with the end in view of ensuring sustainability and self-reliance on the part of the water-users; and/or beneficiary communities who will eventually own and manage the water supply and sanitation facilities being put up.

2. Coverage

The initial courses to be offered shall cover the basic or fundamental activities to prepare or provide the would be managers and implementors of the WSCs and beneficiary communities with a measure of competence in the operation and maintenance of the water supply systems. As much as possible, these courses shall be conducted at the municipal and barangay levels and synchronized with the various stages of the program or project development. Among those to be offered are basic technical courses such as planning and design of system facilities, construction management, well drilling techniques, operation and maintenance, water quality control and surveillance and environmental sanitation; institutional build-up or enhancement courses concerning, among others, administrative issuances, laws and regulations, organization and management, and policy formulation and review; and financial courses touching on funding schemes, bank procedures, billing and collection, and bookkeeping and accounting.

A. Institutional

(a) Training of Trainors
(b) Administrative Issuances, Laws and Regulations
(c) Organization and Management
(d) Policy Formulation and Review
(e) Training Program
(f) Project Monitoring and Evaluation

B. Technical

(a) Planning and Design
(b) Construction Management
(c) Well Drilling
(d) Operation and Maintenance
(e) Water Code

(f) Water Quality Control and Surveillance
(g) Quality Control for the Construction and Development of Wells
(h) Environmental Impact Assessment System (including the preparation of "Project Description").
(i) Environmental Sanitation
(j) Health and Hygiene Education

C. Financial

(a) Funding Schemes (loans, grants, equities from domestic and overseas sources)
(b) Bank Procedures
(c) Billing and Collection
(d) Bookkeeping and Accounting
(e) Water Rates
(f) Financial Management and Control
(g) Auditing

3. Course Design Outline

The following are the elements of a Course Design:

(a) Rationale
(b) Objectives
(c) Course Contents/Outline
(d) Methodology
(e) Participants
(f) Facilitators, Trainors and Resource Persons
(g) Expected Outputs
(h) Date, Duration and Location of Training
(i) Recognition

4. Sample Course Designs

The sample course designs included herein, as with the other courses recommended for implementation in this section, are intended to develop among the training participants adequate understanding of the concepts and objectives of each particular course. These are also designed to develop the participants' awareness of their respective roles and enhance their capabilities or competencies as means to ensure efficient and effective performance of their identified roles and responsibilities or competencies as means to ensure efficient and effective performance of their identified roles and responsibilities. It must be emphasized in this connection, that the recommended course contents and the methodologies employed may be modified, enhanced or

simplified to adapt to situational needs or peculiarities of a particular group or locality. Sample course designs are presented in Appendix 4.

5. Annual Training Program

Annual Training Program should be developed to ensure an organized approach of planning and conducting training activities, as well as to properly allocate and utilize human and financial resources. A dummy training program is presented in the succeeding page.

6. Training Effectiveness Assessment

An assessment of the effectiveness of training courses conducted is crucial. Feedbacks and impact of Training undertaken should be determined so as to enhance future training endeavors and tools. A sample evaluation form is enclosed as Appendix 5.

19___ TRAINING PROGRAM

Course Title	No. of Sessions	Training Schedule	Venue/s	Number of		Budget				
				Participants	Facilitators/ Resource Persons	Training Materials	Per Diems, Transp. Exp.	Proposed Food	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

V. CASE STUDIES

CASE STUDY NO. 1
PRIVATELY OWNED AND MANAGED WATERWORKS

BALIBAGO WATERWORKS SYSTEM, INC.

I. INTRODUCTION

In June 1963, Congress granted the Balibago Waterworks System, Inc., (System) a franchise under Republic Act No. 3647 "to install, operate and maintain a water supply system in the adjacent barrios of Balibago, Santol and Malabanias in the Municipality of Angeles (now Angeles City), and Barrio Dau in the Municipality of Mabalacat, both in the Province of Pampanga."

As a pioneering private enterprise which ventured into the provision of water supply service, long the domain of government-owned or controlled/managed public utilities, the System has literally withstood the test of time as it continues to provide its concessionaires the benefits of an adequate and affordable water supply service.

II. GENERAL

1. Year of Establishment

   The Balibago Waterworks System was established in 1963 with the approval of its franchise by Congress. Starting its operations with one pumping station, the System now has nine operational pumping stations.

2. Population Coverage.

   The System presently provides water service to a population of 38,184 within its franchise area.

3. Organizational Structure

   A privately-owned corporation, the waterworks system is being managed by a general manager who is beholden to the Board of Directors and owners. The general manager takes overall responsibility for the smooth and viable operation of the company.

4. Personnel Profile

The System presently maintains a regular staff of 25 which include technicians and skilled personnel such as pump operators, plumbers, meter repairmen and a warehouseman. Contractual and temporary staff are occasionally hired as the need arises.

III. TECHNICAL DATA

1. Facilities

a) Source : Groundwater wells

b) Pumping System : Nine (9) pumping stations equipped with turbine pumps with capacities ranging from 25 to 40 HP.

c) Water reservoir : Elevated reinforced concrete reservoir, with a capacity of 58,000 gallons.

d) Others : Two standby generator sets of 115 KVA and 85 KVA capacities.

Water treatment facilities for two pumping stations (for aeration, sedimentation, clarification, chlorination and filtration).

2. Operational Status

a) A major rehabilitation of the System was done in 1992 which amounted to ₱ 8.0 million.

b) Consumers, both residential and commercial, are provided with individual connections and served 18 hours a day.

c) The demand and supply situation within the system's area of responsibility is as follows:

Demand : 186,184 cu.m.
Supply : 153,648 cu.m.

Gap or shortfall : 32,536 cu.m. or 17.47%

d) Current service connections total of 6,364.

e) Water quality is monitored and controlled periodically. Water samples are tested monthly following standard procedures.

f) Due to the efficient delivery of water services, water losses are negligible.

IV. FINANCIAL DATA

Financial statements were not provided by the System's management.

Pricing rates being imposed by the System are all subject to the review and approval of the National Water Resources Board (NWRB). Presently, the rates are as follows:

Consumption Block (cu.m.)	Residential	Commercial
0-10	₱ 70.40 (min)	₱ 88.00 (min)
11-20	₱ 7.85 per cum	₱ 9.45 per cum
21-30	8.00	9.60
31-40	8.15	9.90
41-50	8.30	10.10
51-60	8.50	10.40
61-70	8.65	10.50
71-100	8.95	10.70
Over 100	9.30	11.00

The System's collection efficiency during the past year was 85 percent while its bad debts was 11 percent.

V. LESSONS LEARNED

1. Management

The System is run by a group of devoted professional management team led by the general manager and the treasurer.

The all-out cooperation being extended by its properly trained and motivated employees to management is a replicable factor.

As necessary, foreign consultants are hired by the System to assist its staff on the technical aspects of operation.

2. Planning and Construction

The enabling law of the franchise which authorized the Balibago Waterworks System to operate the water utility has delineated the exact area of jurisdiction of the system and provided the general parameters and guidelines that would guide the system in setting its plans for development, expansion and improvement in both physical and institutional aspects of the System. The same is true with respect to the actual construction of the System's infrastructure and other facilities.

3. Financing

As a private corporation, the system has financed the construction of all its existing facilities out of the firm's capital funds and revenues.

4. Institutional

As a privately-owned water utility that provides a basic service to the public, the waterworks system operates within the regulatory powers of the Public Service Commission and the National Water Resources Board, the latter having the sole authority to approve the water system's pricing rates, among others.

5. Operation and Maintenance

The System's turbine pumps of 25 to 40 HP capacity are generally in operation for a period of 20 to 21 hours daily, generating in the process about 14,700 cu.m. of water. Two of the pumping stations have a storage tank with a capacity of 58,000 gallons. Standby generators of 115 KVA and 85 KVA capacity have been installed in two major pumping stations.

Pump operators are assigned in two shifts (day and night shifts) to ensure continuous and smooth pumping operations. Pumps are repaired once symptoms are detected.

A central warehouse is located at the main pumping station to facilitate the needs of pump operators and other maintenance and repair crews.

Busted pipes in the distribution network are fixed as soon as possible.

All house or consumer connections are metered.

The efficiency in handling water production and distribution is a key lesson that could be learned in this case.

6. Sanitation

The System is not yet providing sanitation services to its consumers. However, this matter is being studied.

CASE STUDY NO. 2
LGU-MANAGED WATER SUPPLY SYSTEM

ILIGAN CITY WATERWORKS SYSTEM

I. INTRODUCTION

Iligan City is one of the few remaining places in the country today which has enough fresh water resources to satisfy the needs of its present inhabitants and the projected demands of its growing population for the next two decades or more. However, only about 60 percent of the inhabitants is currently being served by the existing water system, which is owned and operated by the Iligan City government. The rest of the inhabitants, particularly those in the rural and blighted areas, get their water needs from individual springs and well sources.

In a bid to rationalize the system's operations and improve its services, the city government recently created a Committee on Water Supply as part of its Task Force on Infrastructure Utilities. The Committee subsequently submitted its report which includes recommendations for improvement in June 1993.

Among others, the report, which addresses the water needs of the inhabitants, particularly those in the more densely populated coastal areas of the city, contains recommendations for the improvement of the existing waterworks facilities and the rationalization of its organizational structure and management.

II. GENERAL

1. Year of Establishment

   The existing facilities of the waterworks system (System) were constructed in 1956 under an Early Improvement Project by the national government (NAWASA). The initial facilities which were constructed in 1935 were completely abandoned thereafter.

2. Population Coverage

   Only about 60 percent or 172,338 of the total population covered (262,557 as of end of 1994) is currently being served by the water system.

3. Organizational Structure

   Operating as a line agency under the city government, the system is being managed by a department head and four division chiefs. Policy directions come from the city government.

4. Personnel Profile

The System has a total number of 88 employees composed of technical, administrative, skilled and other support personnel.

III. TECHNICAL DATA

1. Facilities

a) Source : Developed springs such as the Ditucalan spring (main water source) and the Abaga spring; and groundwater sources.

b) Pumping system : Four (4) Booster pumps (small capacity pumps)

c) Water reservoir : Reinforced concrete ground reservoir (500,000 gal. capacity)

d) Treatment works : Chlorination

e) Pipelines : Transmission Lines - Ø10" to Ø20" x 35.5 kms.
Lateral - Ø2" to Ø8" x 42.0 kms.

2. Operational Status

a) Consumers in the urban fringe areas are provided with Level I facilities; those in the blighted areas are provided with Level II service; and those in the rural areas are served with either Level I and II facilities. Concessionaires with Level III service (within the city proper) are classified into residential, commercial/industrial and public.

b) The System is presently experiencing a very high unaccounted for water which is about 50% of total water production.

c) Current service connections total about 13,000 including communal faucets.

IV. FINANCIAL DATA

The following is a summary of the financial condition of the waterworks system for the three-year period ending 1993:

Year	Income (In million Pesos)	Expenses* (In million Pesos)
1991	5.0	4.8
1992	5.3	6.5
1993	9.0	7.2

* - EXPENSES: For wages and maintenance only. Capital expenditures come from General City Fiscal Resources.

Source of data: Office of the Iligan City Budget.

From the above figures, it can be inferred that the System incurred operational losses in 1992 but fully recovered in 1993 due mainly to the improvement of facilities and services.

The System has, allegedly, the lowest rates in the country. The minimum water rate is only ₱ 6.00 (1 to 15 cu. m. consumption). The succeeding rate per cu.m. consumption is only ₱0.50.

V. LESSONS LEARNED

1. Construction

   Most of the waterworks facilities were constructed in 1956 under the then NAWASA, an agency of the national government. Thereafter, all subsequent improvements, expansion and repairs on the System were undertaken by the city government.

2. Financing

   All the existing waterworks facilities, including those being put up under the on-going Fast Track Improvement Projects (except those constructed in 1956) were and are being fully subsidized by the city government. Expenditures of wages and maintenance of the System are being funded out of the System's revenues.

3. Institutional

a) Organization and Management

The waterworks System operates as one of the line agencies (departments) of the city government. It is being managed by a department head under the general direction or supervision of the chief executive of the city government.

Some functions that rightfully belongs to the waterworks System are being performed by other departments of the city government. For example, collection of water bills is actually performed by the City Treasurer's Office. This, plus the fact that water consumptions are sometimes billed for as few as two times a year, may account for the very high unaccounted for water and the System's low collection performance.

b) Policies/Strategies

Although the System seems to be adequately staffed in terms of personnel number, there is a need for a more rational institutional arrangement for a more definite and clearer delineation of responsibility and accountability. Management should have a single governing body such as a Board of Directors which would set goals, objectives and policies, and to whom management is solely accountable to make sure that such goals, objectives and policies are properly pursued and accomplished. Further, the water department should be financially self-sustaining and operationally autonomous. Functions inherent to the operations of the System such as collection of water bills should be the sole responsibility of the waterworks personnel. Along this line, collection targets should be set.

4. Operation and Maintenance

Although the water system operates on a 24-hour basis, not all the service areas are being served simultaneously throughout the 24-hour period on account of low water pressure, particularly during peak hours. Regular water service, however, is possible even during power outages.

Laboratory tests in the bacteriological, physical and chemical properties of water are conducted daily. Water samples are collected from selected strategic sampling points from the water sources to the various distribution outlets.

The existing transmission mains are considered under-designed, accounting for high pressure losses. The present accounted for water is placed at less than 50% of the total production estimate. There are numerous leaks between the service lines and the water meters.

5. Recommendations by Water Supply Committee

In its report, the Committee on Water Supply created by the city government to conduct a study on the present operations of the waterworks system, came out, among others, with the following recommendations:

- The Water Department should be financially self-sustaining, operationally autonomous and strictly accountable for quality service to the total service population.
- Provide a water supply and transmission main designed for at least 25 years into the future.
- Conduct water flow surveys of the existing water mains and distribution lines.
- Install flow measuring devices at or near all water sources.
- Raise accounted for water to 75% minimum.
- Generate and maintain updated drawings on all facilities including manholes, dams and reservoirs.
- Work for the reservation of a wider watershed area to suit the city's long-range needs.

If these recommendations can be implemented in the near future, sustainable and profitable operations of the System can be attained

CASE STUDY NO. 3
WATER DISTRICT-MANAGED WATER SUPPLY SYSTEM

METRO VIGAN

I. INTRODUCTION

The Municipality of Vigan, the capital of the province of Ilocos Sur, is one of the few urbanizing centers of population, which have preserved their Hispanic structures and other landmarks of distant past eras. In spite of this, however, the inhabitants of Vigan have long been enjoying the amenities of modern living, including the convenience of an efficient, affordable and adequate water supply service, now being provided by the Metro Vigan Water District.

The Metro Vigan Water District, which inherited the old facilities of the defunct NAWASA, was established to serve the water supply needs of the inhabitants of Vigan and the adjoining towns of Bantay and Caoayan, all in the province of Ilocos Sur. Its present facilities have been constructed and improved through a ₱ 15.6 million loan from the Local Water Utilities Administration (LWUA), the national government agency tasked with the promotion of water supply in provincial urban centers of population throughout the country.

II. GENERAL

1 Population Coverage

The water district is presently serving an estimated number of 14,000 inhabitants living in the three municipalities of Vigan, Bantay and Caoayan, all in the province of Ilocos Sur.

2. Organization Structure

As a government corporation, the Metro Vigan Water District, like all water districts throughout the country, is controlled by a five-man board of directors, each representing a sectoral group in the community and appointed by the Municipal Mayor or Provincial Governor who has jurisdiction over the district. The system is managed by a staff headed by a general manager, who is in turn appointed by the Board.

3. Personnel Profile

The district's personnel are deployed in various departments and provide technical (engineers), skilled (water production personnel), administrative and other specialized services (commercial) essential to the smooth and efficient operations of the water supply system. These are grouped into the administrative, commercial, construction and

maintenance and production departments.

III. TECHNICAL DATA

1. Facilities

a) Sources	:	Groundwater wells and developed springs.
b) Pumping System	:	Two (2) units - Vertical turbine pump (Diesel Engine) with a combined capacity of 61 lps.
c) Water Reservoir	:	Reinforced concrete reservoir with a capacity of 100,000 gallons or 840 cubic meters.
d) Treatment Works	:	Chlorination
e) Pipelines	:	The transmission and distribution network of the water system consists of various sizes of cast iron/cement-coated steel pipes (for transmissions); PVC (for lateral); and P.E./G.I. pipes (for distribution lines).

2 Operational Status

a) So far, water service (Level III or individual service connections) are provided only in the more densely populated areas and urban fringes of the district's service area. Like most water districts, water charges are based on a socialized schedule as fixed by the Board and approved by the LWUA.

b) Current total service connections is 2,328 serving an estimated number of 14,000 inhabitants.

c) Although the system is still experiencing a high "unaccounted-for-water" compared to the other more established water districts, owing to the fact that the system consists of old and new distribution lines, the interim management has instituted appropriate measures which have resulted in a significant drop of water losses.

d) Surplus diesel engines are being utilized for the system's pumping stations.

III. FINANCIAL DATA

Not readily available.

IV. LESSONS LEARNED

1. Planning

Planning and design, including the identification of project viability and desirability for major expansion and other system development are being done in-house with the technical assistance and advice provided by the LWUA.

2. Construction

Due to the fact that the district still lacks the resources and the technical capability to undertake major construction and expansion works in-house or by administration, these are usually contracted out to private construction firms, with the approval by and technical assistance from the LWUA.

3. Financing

The district's expansion and improvement projects were financed out of a long-term comprehensive loan in the amount of ₱ 15,643,000.00 from the LWUA.

4. Institutional

a) Policies and Strategies

Policies, goals and directions are set by the autonomous five-man Board of Directors.

b) Institutional Linkages/Arrangements

The district maintains close linkages with the various offices and agencies concerned with the promotion of the industry, particularly with the LWUA which extended capital loans to finance the construction and improvement of the district's existing water supply infrastructures and facilities. The district also receives technical, management and engineering assistance from the LWUA.

Currently, management of the Metro Vigan Water District has been taken over by the LWUA with the assignment of one of LWUA's management advisors from its Institutional Development Services as Interim General Manager for the said water district. One of the salient provisions of Presidential Decree No. 198 which provided the charters for both the LWUA and the water districts, authorizes the LWUA to take over the management of any water district which has availed of a loan from the LWUA and which the LWUA finds institutionally inadequate. The take-over however, is only temporary or interim in nature and that management of the district will be reverted back to the district as soon as proper and adequate institutional safeguards

are installed by the LWUA and that a new and qualified manager is available.

5. Operation and Maintenance

The district operates on a 24-hour basis daily, serving an estimated number of 14,000 inhabitants in the three municipalities comprising the service area of the district. All of the registered 3,238 connections are provided with water meters. Owing to the fact that the water system consists of old and new structures and facilities, some of which date back to as far as five or more decades ago, non-revenue water has been comparatively high, particularly before the term of the new interim general manager who was appointed by the LWUA. Presently, however, water losses on account of leaks, illegal connections or defective water meters have been considerably reduced. This has been translated into increased revenue for the district, enabling the district not only to finance some minor improvement projects but also to increase its debt service repayments to the LWUA.

CASE STUDY NO. 4
WATER DISTRICT-MANAGED WATER SUPPLY SYSTEM

CAGAYAN DE ORO CITY

I. INTRODUCTION

For over two decades now, the Cagayan de Oro City Water District (COWD) has been providing its service population with an adequate, affordable and efficient potable water service. Besides having the distinction of being the first water district to be formed, COWD is considered as one of the most efficiently managed and financially viable water districts in the country today. The district was among the first to be elevated to the LWUA HALL OF FAME for being adjudged by the Local Water Utilities Administration (LWUA) as the "Most Outstanding Water District" for three consecutive years (1986, 1987, 1988).

Established in August 1973, COWD has undergone two major phases of improvements, transforming itself from a sick, almost non-existent system into the most solvent and prized water district that it is today.

What made possible the unprecedented success of the COWD has been the continuing support it has been receiving from its service population, particularly the people's acceptance of its plans and programs and the changes in its water rates which is indispensable for the district's growth.

II. GENERAL

1. Year of Establishment

   The COWD was established in August 1973, taking over a bankrupt and an almost non-existent system from the defunct NAWASA and City Waterworks System.

2. Population Coverage

3. Organization Structure

   Like all water districts, the COWD is a government corporation controlled by a Board of Directors whose five members represent various sectors of the community. The system is managed by a staff headed by a General Manager.

4. Personnel Profile

   With an initial 30 workers inherited from its predecessors, the district is now composed of over 300 employees, deployed in six departments to handle various jobs

ranging from fieldmen to technical personnel to office employees. These personnel possess the necessary skills required for their respective jobs and further enhanced by in-house training programs, seminars and conferences. Additionally, as the seat of the Regional Training Center (RTC), COWD employees have easier access to training facilities and are thus exposed to greater opportunities for advancement.

III. TECHNICAL DATA

1. Facilities

a) Under Phase I Improvement (1975 to 1979):

- two R.C. reservoirs, each with 1.4 million gal. cap.
- a central booster pumping station in Macasandig with five (5) electrically-driven turbine pumps; one stand-by diesel engine, equipped with a chlorinator
- the Bugo pumping station, equipped with a chlorinator
- a 117,000 gallon R.C. reservoir in Bugo
- the two-storey administration building at Corrales Ave., and the Shop at Kauswagan
- 75 kms. of pipelines with Ø4" to Ø24"
- all service connections provided with water meters.

b) Under Phase II Improvement

- south wing extension of administration building and Operations' and Laboratory building
- 2,900 cu.m. capacity reservoir at Upper Buhun
- production well #10, including pumping facilities
- 76 cu.m. capacity steel reservoir
- 28,620 l.m. of pipelines under Phase II-A and 18,198 l.m. pipelines under Phase II-B
- two pumping stations, pipe crossings and modification works at existing wells
- electro-mechanical equipment and accessories, including chlorination facilities and generators under Phase II-C

2. Operational Status

a) Unaccounted-for-Water

From a very high 75.2% unaccounted-for-water in 1976, the district was able to reduce its water losses to a comparatively low 23% by the year 1992.

b) Service Connections

The water district boasts of a 100% metered service connections which totaled 41,365 as of the end of the year 1993.

c) Vehicle and Equipment

As of the end of 1993, the district has acquired the following vehicles and support equipment:

- 2 units Heavy Equipment
- 28 units Light Equipment
- 24 units vehicles
- 14 units VHF radio/mobile units
- 11 units VHF handled radio units
- 1 unit repeater system

IV. FINANCIAL DATA

1. Total Water Sales

By the end of 1992, the gross annual water sales reached the 70 million-peso mark. Actual collection, however was only about 50 million pesos leaving an arrear of over 12 million pesos.

2. Comparative Balance Sheets

By the end of 1993, its 20th year of operations, total assets and other debits of the system amounted to ₱ 192,158,058.29. Total liabilities and other credits registered exactly the same amount.

V. LESSONS LEARNED

1. Planning

Planning and design, including the identification of project viability and desirability for major expansion and system development are being done in-house with the technical assistance provided by the LWUA.

2. Construction

All construction works are being implemented by the district's Engineering Department, with the technical assistance and advice from LWUA.

3. Financing

The district's expansion and improvement projects were financed out of long-term comprehensive loans from the LWUA, specifically its Phase I (₱ 32 million) and Phase II (₱ 95.6 million) improvement projects; from the National Housing Authority (NHA) (₱ 1.92 million); and from the Northern Mindanao Development Bank (₱ 10 million).

4. Institutional

a) Organization and Management

The district is a government corporation governed by a five-man Board of Directors. Management staff is composed of the general manager, an assistant general manager and six department heads who are responsible for engineering, operations, repair and maintenance, commercial, management and finance.

b) Policies and Strategies

Policies, goals and directions are set by an autonomous five-man Board of Directors which meets once every week or at least four times a month to deliberate on matters to the water industry and which in one way or the other affect the operations of the water district.

c) Institutional Linkages

The district maintains close linkages with the various offices and agencies concerned with the promotion of the industry, particularly the LWUA which extended capital loans to finance the construction and improvement of its existing water supply infrastructures and facilities. The LWUA also provides technical, management and engineering assistance to the water district. Institutional assistance include training for water district personnel in the Regional Information Centers maintained by the LWUA, as well as on-the-job training rendered by LWUA advisors who visit the district regularly.

5. Operation and Maintenance

With the recent acquisition and installation of several standby power generators for its wells and pumps, the district has been able to operate 24 hours a day, seven days a week, offering uninterrupted water supply service even during water outages to its over

40,000 connectors. An adequate, well-trained staff under the district's Operations Department is responsible for this aspect of water district operation.

Working hand-in-hand with the Operations Department is the Repair and Maintenance Department. A well-equipped staff of technical and skilled personnel grouped into two divisions, namely: the Transmission/Distribution Service Connection/Water Meter Repair and Maintenance Division and the Production Facilities and Fabrication Division, provide a round-the-clock repair and maintenance service to ensure the smooth and continuous operations of the system's facilities and equipment.

VI. TRANSITION WORK PROGRAM

A. Introduction

At this stage, LGUs lack the institutional strength and capacity to undertake water supply development projects and to operate water systems since they are still adjusting to their new role mandated by the Local Government Code. Executing water supply projects have been, for a long period of time, a national government function. There is, however, a handful of exceptional LGU-managed water supply systems which can come as patterns or good sources of information on how a waterworks system can be properly managed. The most appropriate transition arrangements must be formulated with the end in view of ensuring LGUs' full assumption of their expected role.

Major institutional development efforts by national agencies are necessary to enhance the capacity of LGUs to handle water supply development projects. Then include the preparation of administrative policies or regulations, association with and coordination among national agencies in project implementation during the transition period, development of IEC materials and the dissemination of appropriate information including the documentation of success stories of LGU-managed systems to be used as guide or pattern by the LGUs.

Assessment of the most ideal transition period is crucial. Several factors must be considered in the determination of the right timing and devolution process.

During the transition period, government policy on the operation of RWSAs and BWSAs must be resolved. Should the government continue to use water user cooperatives vis-a-vis the LGU-managed water systems or combination thereof, the principle of demand driven supply should still be emphasized.

B. Rationale of a Transitory Arrangement

The changes in the institutional framework in the delivery of water service brought about by the LGC and the Resolution shall have to be accomplished. Operational arrangements shall have to be formulated to enable all concerned players to know, familiarize and eventually adapt to their new roles and responsibilities. These operational arrangements shall have to be undertaken during a transition period with the involvement of the national government, LGUs and those perceived to be portraying key roles in the promotion of LGU provided/managed water facilities (private sector, community). There is a critical need for transition arrangements wherein the LGUs will be given ample preparation and support to acquire the capability necessary for their new roles.

Proper information dissemination drive focusing on the expectations on and understanding of the transitory and future roles of LGUs and the national agencies shall have to be done. Proper information dissemination drive on the new arrangements shall precede all activities

during the transition period. This will enable LGUs to adequately grasp their new roles, determine what they can expect from the concerned national agencies and understand the prevailing conditions in the water sector. The LGUs need to fully understand, at the onset, theirs and the national agencies' transitory and future roles to avoid misconceptions, pinpoint responsibilities and ensure water service delivery to the communities.

Knowing what to expect, LGUs then need to fully prepare themselves to handle greater tasks especially on water development. A package of training programs and technical assistance projects are envisaged to be implemented to enhance and/or build the capacity of LGUs to perform projected new roles in water supply development. On-the-job training shall be a main component of the technical assistance. LGUs shall have to do the work with the guidance of national agencies at the start so that they can breakaway in the nearest future, having acquired the confidence and capability requisite to their discharge of functions.

National agencies shall have to fully adjust from their existing role to their perceived new role in the sector. Corollary to the capacity building of LGUs is the streamlining of the national agencies. There is a need for the national agencies to maintain a lean organizational structure once the water functions are already being performed by LGUs. Their functions and activities shall have to be adjusted to be responsive to the institutional changes. Such adjustments shall not only include institutional structure reforms (e.g. lean organization; combining officers), but also the streamliniring of operations and transfer to LGUs of resources (manpower, equipment)

Transitory period shall have to allow the LGUs and DILG to determine funding requirements for their projects and to locate funds. Under the LGC, the LGUs are responsible for the management and allocation of funds for numerous public services. There must be ample time and preparation for LGUs to assess their funding requirements for water supply projects, identify funding sources and await the establishment of mechanisms for their access to such funds.

C. Priority Activities

1. LGU Capacity Building Program - This includes: (a) assessing LGU capacity and needs; (b) enhancing the skills and knowledge of project proponents and implementors on water supply and sanitation development and management through training and information dissemination activities; (c) conducting organizational development; (d) reviewing and improving sector policies; (e) developing and applying information, education and communication materials or related training materials; (f) equipping the LGUs with computers, training aids, etc.; (g) improving training facilities and approaches; (h) assessing occasionally training effectiveness; and the like.

2. Project Packaging and Development - In response to the growing needs for water supply and sanitation facilities, as well as requirements for capacity enhancement and/or capacity building, the continuous packaging and development of new projects is urgently necessary.

Multiple project proposals should be prepared. These proposals should, however, be responsive to the needs of the local communities and the LGUs concerned.

3. Sector Coordination - As the tasks ahead is enormous and there are several national agencies involved in the sector, an effective coordination mechanism is direly required. Sincere and closer collaboration among stockholders is imperative.

4. Preparation of Information, Education and Communication (IEC) materials - IEC materials shall be prepared by LGUs with the assistance of DILG and other national agencies concerned. These materials should be responsive to the local situation. Substance, form, medium, dialect and culture must be considered.

5. Transfer of Construction Materials and Equipment - The conduct of inventory of construction materials and equipment emanating from past water supply projects is an initial step towards their eventual transfer to the LGUs. With the view of optimizing government resources, whatever materials and equipment stocks at hand by DPWH merits turn-over to adequately prepared LGUs. These will be used for projects to be developed for implementations in the next couple of years or so.

6. Accreditation of Drilling Contractors - With the projected magnitude of drilling jobs to be done, there is a need to plan such eventually. Provincial accreditation of drilling contractors will ensure availability of drillers in all provinces in the country. This is also a way of encouraging greater private sector participation in the water program of the government.

7. Preparation of Provincial Development Plans - To cultivate further the planning skills of LGUs; determine the medium and long-term targets and investment requirements of the sector; devise localized policies and strategies; and formulate action programs, the preparation of provincial development plans is a matter of course. Resources allocation and management are incremental elements of the whole process.

8. Preparation/updating of Operation and Maintenance (O & M) Manual/s - A comprehensive O & M Manual is necessary as one of the ingredients to ensure sustainability.

D. Methodology

1. Consultation among sector participants.

2. Development of an Action Plan to operationalize priority activities mentioned in Section c hereof.

3. Execute the Action Plan.

4. Review accomplishments after every six months for a period of two years.

E. Timing

1. Immediate commencement

2. Transitory period is about two (2) years.

APPENDIXES

APPENDIX 1

Water Supply Project Development Process

APPENDIX 1

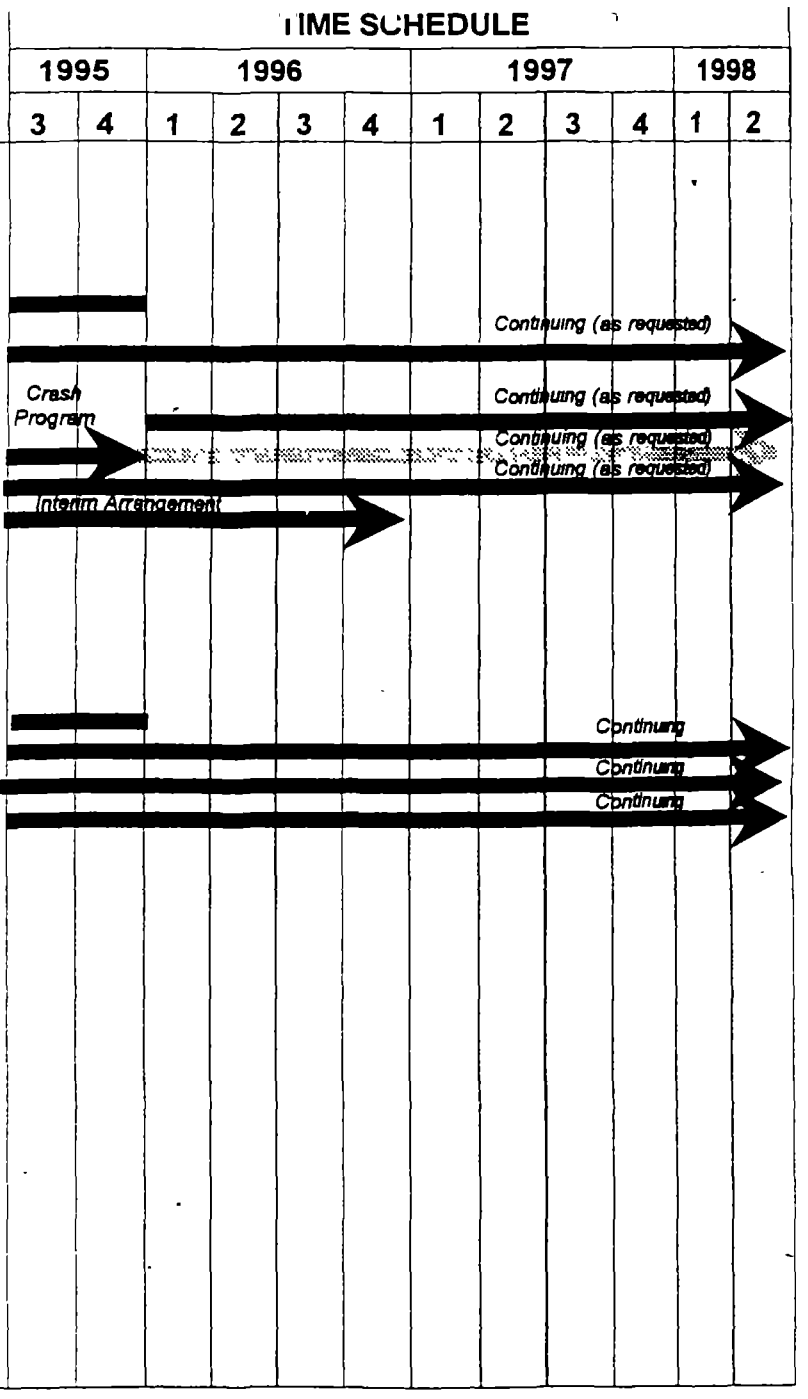
WATER SUPPLY PROJECT DEVELOPMENT PROCESS

AGENCY/ACTIVITY	TIME SCHEDULE
	1995: 3, 4 | 1996: 1, 2, 3, 4 | 1997: 1, 2, 3, 4 | 1998: 1, 2
LGUs	
A. Formation of WSC	Continuing →
1. Mayor and "Sangguniang" (Legislative body) members conduct preliminary discussions and consultations with proposed beneficiaries and other interested groups.	
2. "Sangguniang" with assistance from DILG prepare pertinent documents (e.g. feasibility study, project profile, water rates study) in preparation for the public hearing.	
3. The "Sangguniang" conduct a public hearing to determine acceptability of the proposed beneficiaries of the water supply project as well as their concurrence of the proposed level/s of water rates.	
4. "Sangguniang" receive nominees and appoint a representative of the private sector to the WSC Board.	
5 The Mayor or Governor appoints the members of the Board of Directors.	
6. The Sangguniang" deliberates and subsequently enacts a resolution to form a WSC indicating the names and terms of office of the duly appointed members of the Board of Directors.	
7. Mayor or Governor approves resolution and furnishes the DILG a copy thereof.	Crash Program →
B. Institutional Development	Continuing →
1. The WSC Board appoints a General Manager	
2. As appropriate, staff the WSC	
3. Formulate IEC Materials	
4. Conduct dialogues with potential water users	
5. Conduct information dissemination drive	
6. Assist in the conduct of training programs for WSC personnel administered by DILG	
7. Conduct water education sessions to water users	
8. Develop and implement confidence building approaches as part of LGU team building strategy	
C Data Collection and Data Banking	Continuing →
1 Conduct workshops on field surveying and data banking mechanics	
2. Undertake survey (mainly technical and institutional)	
3. Analyze data collected	
4 Develop and sustain a data bank following the Water and Sanitation Monitoring System (WASAMS)	

AGENCY/ACTIVITY	TIME SCHEDULE											
	1995		1996				1997				1998	
	3	4	1	2	3	4	1	2	3	4	1	2
LGUs												
D. Planning and Programming/Budgeting	In association with DPWH									Continuing		
1. Collaborate in updating water standards and targets												
2. Prepare/update provincial/municipal water supply and sanitation plans and programs												
3. Identify potential projects												
4. Formulate priority list of projects												
E. Project Financing										Continuing		
1. Determine possible funding sources												
2. Prepare budget												
3 Work for the release of funds												
4. Agree on reasonable water rates												
5. Bill and collect water fees												
6. Undertake bookkeeping and accounting procedures												
7. Enforce cost recovery arrangements												
F. Implementation										Continuing		
1. Prequalification, bidding and awarding												
2 Construction management												
a. Planning and scheduling												
b. Project supervision and monitoring												
c Reporting												
3. Project evaluation												
4. Project turn-over and acceptance			In association with DPWH									
G. System Operation and Maintenance										Continuing		
1. System operation												
2. Maintenance												
3. Repair												
4. Expansion												
5. Financial Management												
a. Agree on reasonable water rates												
b. Collect water fee												
c Bookkeeping												
d Auditing												
e. Enforce cost recovery arrangements												
6. Reporting or operational results										Continuing		
H. Coordination and/or Collaboration with National Agencies												
I. Program Monitoring and Evaluation												

AGENCY/ACTIVITY	TIME SCHEDULE											
	1995		1996				1997				1998	
	3	4	1	2	3	4	1	2	3	4	1	2
										Continuing →		
BWSA												
A. Formation of BWSA												
1. Barangay Council (BC) convenes to discuss a possible water and/or sanitation project												
2. BC conducts dialogue with community members												
3. BC prepares and approves resolution approving the water and/or sanitation project												
4. BC accepts nominations for and approves the appointment of BWSA Board												
5. BC approves resolution to form BWSA												
6. BC furnishes the municipal/city government of the registration documents												
B. Institutional Development												
1. BWSA Board appoints a BWSA Chairperson												
2. As necessary, hire a utility caretaker or any appropriate person												
3. Conduct information dissemination to water consumers												
4. Receive training program from LGU concerned or from DILG												
5. Develop and maintain a simple data management system												
C. Planning and Programming												
1. Identify potential projects in the community												
2. Prepare priority list of projects												
D Implementation												
1. Undertake or assist in the implementation of the projects												
2. Provide necessary counterpart funds and lot donation documents												
E. Financial Management												
1. Set reasonable water rate												
2. Bill and collect water fees												
3. Undertake simple bookkeeping and accounting procedures												
F. System Operation and Maintenance												
1. System operation												
2. Maintenance												
3. Repair												
4. Expansion												
5 Reporting of operational results												

AGENCY/ACTIVITY	TIME SCHEDULE



DPWH

A. Set or update technical standards (survey, design, construction, and operation and maintenance)
B. Assist LGUs in the conduct of engineering surveys, and in the preparation of plans, specifications and program of work
C. Assist LGUs in the construction management as well as in the initial O & M
D. Assist LGUs in the conduct of training programs
E. Assist LGUs in monitoring and evaluation of Projects
F. Provide funds for LGU projects following a set of criteria.

DILG

A. Prepare guidelines on the development of LGU water supply projects and the management of LGU Water Systems. [This includes LGUs role, creation of a WSC, designation of a water supply officer, linkages with national agencies; and operation and maintenance policies.]
B. Formulate 3-year capacity building program for LGUs.
C. Provide institutional development assistance
D. Develop and maintain a "data bank" on LGU operations
E. Coordinate sector activities of LGUs and other national agencies

APPENDIX 2

Sanitation Project Development Process

APPENDIX 2

SANITATION PROJECT DEVELOPMENT PROCESS

AGENCY/ACTIVITY	TIME SCHEDULE											
	1995		1996				1997				1998	
	3	4	1	2	3	4	1	2	3	4	1	2
LGUs												
A. Determine and assess the needs of communities for sanitation projects									Continuing →			
B. Prepare sanitation project priority list												
C Organize proposed beneficiary communities												
D. Conduct health and hygiene education programs												
E. Assist DOH personnel in the collection of water samples for testing												
F. Finance project through IRA												
G. Construct public toilets, urban drainage or sewerage systems												
H. Keep and manage project records												
DOH												
A. Set standards on water quality testing; treatment and surveillance as well as acceptable sanitary practices									Continuing →			
B. Conduct health and hygiene education program												
C. Assist LGUs in the implementation of their sanitation projects and programs												
D. Prepare IEC materials and disseminate the same to LGUs												

APPENDIX 3

Memorandum of Agreement on the Implementation of Various Water Supply and Sanitation Projects

MEMORANDUM OF AGREEMENT ON THE IMPLEMENTATION OF VARIOUS WATER SUPPLY AND SANITATION PROJECTS

This MEMORANDUM OF AGREEMENT (MOA) entered into by and between:

The PROVINCE (CITY) of _____, represented herein by its GOVERNOR (CITY MAYOR), Hon. _____(Name)_____, with principal office address at _____(Address)_____, hereinafter referred to as the provincial Local Government Unit (LGU);

The DEPARTMENT OF INTERIOR AND LOCAL GOVERNMENT, represented herein by its Provincial Local Government Operations Officer, _____(Name)_____, with principal office address at _____(Address)_____, hereinafter referred to as DILG.

The DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS, represented herein by its District Engineer, _____(Name)_____, with principal office address at _____(Address)_____, hereinafter referred to as DPWH; and

The DEPARTMENT OF HEALTH, represented hereinafter by its Provincial (City) Health Officer, Dr. _____(Name)_____, with principal office address at _____(Address)_____, hereinafter referred to as DOH.

- W I T N E S S E T H -

WHEREAS, in accordance with the Local Government Code of 1991 (RA 7160), it is a national policy that "... the State shall provide for a more responsive and acceptable local government structure institutional through a system of decentralization whereby local government units (LGUs) shall be given more powers, authority, responsibilities, and resources. The process of decentralization shall proceed from the National Government to the LGUs.";

WHEREAS, pursuant to NEDA Board Resolution No. 4, Series of 1994, all levels of water supply services (Level I - Point Sources, Level II - Communal Faucet System, Level III - House Connection) may be implemented by the concerned LGUs within their jurisdiction;

WHEREAS, in the Province (City) of _____, the LGUs are willing to assume the responsibility of providing water supply and sanitation services to their constituents outside of Water District/s jurisdiction.

WHEREAS, said National Government Agencies have committed to assist the Province (City) of _____ within their area of responsibility and resources.

NOW, THEREFORE, for and in consideration of the foregoing premises, the PARTIES to this MOA bind themselves to the hereunder arrangements.

SECTION 1. COVERAGE - This MOA shall cover the roles of LGUs, and the provincial offices of the DILG, DPWH and DOH in the implementation of water supply and sanitation projects in areas outside of Water District jurisdiction.

SECTION 2. RESPONSIBILITIES OF LGUs - The provincial and municipal LGUs shall be responsible for the following functions and activities.

(a) LGUs shall have the primary responsibility for water supply (all service levels) and sanitation development in areas not covered by the Water Districts (WDs).

(b) Provincial LGU shall prepare Provincial Water Supply, Sewerage and Sanitation Plans to select and prioritize subjects in their respective areas.

(c) Finance water supply and sanitation projects from own resources as well as from other funding sources.

(d) Conduct engineering surveys and designs, and prepare plans, specifications and programs of work for subprojects in accordance with national standards.

(e) When appropriate, conduct public bidding for the award of projects following the provisions of PD 1594 and other applicable rules and regulations on the matter; and award and approve contracts for waterworks and sanitation subprojects.

(f) Manage the implementation of projects by private contractors.

(g) Coordinate with DILG, DPWH and DOH on the capability build-up of LGUs.

(h) As appropriate, form a Provincial Waterworks and Sanitation Company (PWSC) and/or Municipal Waterworks and Sanitation Companies (MWSC) that will manage viably and sustain the operation, maintenance and repair of the water utilities and sanitation facilities.

(i) Approve the registration documents of BWSAs and assume administrative supervision over the operations of BWSAs.

SECTION 3. RESPONSIBILITIES OF DILG - The DILG shall be responsible for the general administration and institutional development building of the LGUs in connection with the implementation of water supply and sanitation subprojects, which shall include the following:

(a) Support the development of the sector through the LGUs.

(b) Assist LGUs mobilize resources to support the sector.

(c) Formulate and undertake a two-year capacity building program of LGUs.

(d) Provide continuing institutional development assistance to LGUs.

(e) Develop and maintain a national data management system on LGU operations like annual financial performance of WSCs (including collection efficiency and cost recovery), size of water systems, water resources, personnel, and beneficiary profile.

(f) Coordinate sector activities of LGUs and national agencies.

SECTION 4. RESPONSIBILITIES OF DPWH - The DPWH shall provide technical assistance to LGUs, which shall include the following:

(a) Through its Bureaus and Services, set and update technical standards for engineering surveys, design, construction, and operation and maintenance of projects and waterworks systems.

(b) Through its District Offices, assist LGUs in the conduct of engineering surveys, and in the preparation of plans, specifications and programs of work, if so requested.

(c) Through its District Offices, assist LGUs in construction management, if so requested.

(d) Conduct technical researches in coordination with the LGUs concerned.

SECTION 5. RESPONSIBILITIES OF DOH - The DOH shall be primarily responsible for water quality control and surveillance, which shall include the following:

(a) Set and, when appropriate, update standards on water quality testing, treatment and surveillance as well as sanitary practices.

(b) Conduct periodic water quality control and surveillance and other related activities.

(c) Administer regularly health and hygiene education programs especially in areas where waterworks systems are expected to be constructed.

SECTION 6. COORDINATION - All parties have manifested to effectively coordinate among themselves in order to attain a successful and meaningful implementation of waterworks and sanitation programs geared towards a viable and sustainable operation of waterworks systems and sanitation facilities.

IN WITNESS WHEREOF, the PARTIES of the MOA have hereunto affixed their signature this _____ day of _____ 1995 at _____.

Office of the Governor (City Mayor)

_____(Name)_____
_____(Position)_____

Department of Interior and Local Government

_____(Name)_____
_____(Position)_____

Department of Public Works and Highways

_____(Name)_____
_____(Position)_____

Department of Health

_____(Name)_____
_____(Position)_____

APPENDIX 4

Terms of Reference

Republic of the Philippines

DEPARTMENT OF THE INTERIOR AND LOCAL GOVERNMENT

NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

PREPARATION OF DETAILED IMPLEMENTING RULES AND REGULATIONS FOR CLAUSE (g) OF NEDA BOARD RESOLUTION NO. 4 (SERIES OF 1994)

TERMS OF REFERENCE (TOR)

A. INTRODUCTION

1. NEDA Board Resolution No. 4 of 1994 formalized the Government's acceptance of the recommendations contained in the Water Supply Sector Reform Study of 1993. It outlines the roles and responsibilities of National Agencies and Local Government Units (LGUs) in the water supply sector.

2. With the objective of operationalizing the Resolution, the National Economic and Development Authority (NEDA), together with the Department of the Interior and Local Government (DILG), has requested the International Bank for Reconstruction and Development (IBRD-World Bank) to provide technical assistance in the preparation of a Concept Paper that would clarify certain aspects of the Resolution particularly in respect of Clause (g) which covers the delineation of responsibilities and role of LGUs.

3. The Concept Paper which has now been prepared, identifies key Sector concerns, suggests transitory arrangements and presents an outline of the Implementing Rules and Regulations (IRR).

4. To fully operationalize the intent and objective of Clause (g) of the NEDA Board Resolution, using the Concept Paper as basic guiding document, a detailed IRR needs to be prepared. This will be pursued by DILG in coordination with NEDA.

5. The Government intention to pursue the decentralization thrust particularly the delivery of water supply was clearly enunciated during the National Water Summit held on December 9, 1994. Hence, the need to put in place the mechanisms to work towards the furtherance of this thrust becomes a matter of priority.

6. This TOR will, therefore, cover the preparation of detailed IRR which would clearly delineate institutional responsibilities between concerned government agencies and describe the modus operandi to implement in full the provisions of the Resolution particularly Clause (g).

7. It is intended that the services of the Consultant who prepared the Concept Paper under a technical assistance provided by the World Bank will be engaged to continue the work, thus ensuring continuity and consistency of work. The funds for the purpose will be provided by DILG.

B. OBJECTIVES

8. The overall objective of this assignment is to put in place the mechanisms and guidelines needed to operationalize in full the provisions of Clause (g) of the NEDA Board Resolution. These mechanisms and guidelines will then be applied in the preparation of a proposed World Bank-assisted Local Government Units Water Supply Project which will spearhead the Government's decentralized development efforts in the water supply sector Accordingly, this TOR aims to:

(a) formulate and finalize the detailed IRR that will govern the full implementation of Clause (g) of the Resolution;

(b) establish and clarify the transition arrangements that will facilitate the smooth transfer of roles and responsibilities from national agencies to LGUs;

(c) identify and define the responsibilities which will remain with the national agencies and those to be fully assumed by LGUs;

(d) formulate the questionnaire to be used for LGU capability assessment and design the methodology for its administration;

(e) provide the basis for the formulation of a technical assistance program for strengthening LGU water supply project implementation capabilities; and

(f) plan the initial start-up activities.

C. SCOPE OF WORK

9. The Consultant's work will cover the preparation of detailed IRR and will include, but not necessarily be limited to, the following tasks:

(a) Enhancement of the Draft Outline of the IRR

(i) Based on the draft IRR outlined in the Concept Paper, hold discussions with concerned agencies principally NEDA, to ascertain whether the outline has already captures the basic and critical concerns that need to be covered by the IRR. Comments from LGUs will also be solicited.

(ii) Enhance the Outline based on the comments and recommendations raised by the LGUs and the Sector agencies.

(b) Formulation and Finalization of the IRR

(i) Recommend the appropriate organizational structure of the LGU Water Unit (or Utility) considering the following options:

- one municipality/city
- more than one municipality/city
- inter-provincial

(ii) Prepare typical functional and position charts of an LGU Water Unit (or Utility).

(iii) Include in the IRR the possible options available to finance water development projects of LGUs like equity, subsidies and other forms of grant money and loans.

(iv) Enumerate and define the functions which will remain with national agencies.

(v) Present a step-by-step procedure on how the LGUs may proceed in undertaking water development projects using Microsoft Computerized Project Management (CPM) format.

(vi) Describe the coordination and collaboration mechanism among LGUs and between LGUs and national agencies.

(vii) Draft sample Memoranda and Understanding (MOU) between/among LGUs and national sector agencies clearly stipulating the working arrangements.

(viii) Define the procedure to operationalize the transition arrangements and recommend duration of transition period.

(c) Operationalizing the IRR

(i) Develop a draft LGU Training Program which will serve as DILG's initial guide and which will be progressively refined during the course of implementation.

(ii) Assist DILG in conducting one-day conferences/ workshops to present and discuss the contents of the IRR.

(iii) Assist DILG in the initial start-up activities such as:

- preparation of a set of questionnaire to assess the capability of LGUs;
- formulation of methodology to administer the questionnaire;
- development of a Work Program to implement and manage the transition period; and
- preparation of LGU-Managed Water Supply Projects

D. FUNDING AND MANAGEMENT

10. The Consultant will be recruited by and be responsible to DILG for the execution of this TOR.

11. The DILG will provide funding for the Consultant's work on this assignment.

12. Management and supervision of work will be principally undertaken by DILG in close coordination with NEDA.

E. TIMETABLE

13. The consultant should commence work in January 1995 and should complete the work within two (2) months.

F. DELIVERABLE OUTPUTS

14. The Consultant is expected to produce the following outputs:

(a) a detailed IRR in its final form. It should have incorporated the comments and recommendations by concerned agencies and LGU.

(b) a set of questionnaire for LGU Capability Assessment including the methodology for administering it.

(c) a Consultant's final report describing therein the processed and methodologies in the IRR formulation and all other information which are very vital but cannot be presented as part of the actual IRR.

G. REPORTING

15. Regular reporting to and consultations with DILG shall be sustained throughout the duration of the assignment to ensure that the progress of work is well monitored and issues/concerns promptly acted upon.

16. The final copy of the IRR should be delivered to DILG with another copy for NEDA. Ten copies of the Consultant's Final Report should be submitted to DILG, other copies of which will be provided to other concerned agencies.

17. The final copy of the IRR and the Consultant's Final Report should be provided on a 3 1/2" computer diskette in WordPerfect 5.1 or higher format.

APPENDIX 5

1 - Operation and Maintenance of Level I Water Supply Facilities
2 - Well Drilling Techniques for Backyard Drillers
3 - Groundwater Management
4 - Operation and Maintenance of Piped Water Systems
5 - Water Quality Management and Chlorination Techniques

SAMPLE COURSE DESIGN 1

OPERATION AND MAINTENANCE OF LEVEL I WATER SUPPLY FACILITIES

A. RATIONALE

The Barangay Waterworks and Sanitation Association (BWSA) takes total responsibilities in managing the Level I water supply system upon its completion. The system must be properly operated, maintained and managed to provide adequate, convenient and potable water supply.

The Government establishes an enabling environment including the support for the establishment and efficient operation of BWSA by developing their capability in operating and maintaining (O&M) the water supply system.

For this purpose, a training seminar shall be conducted at the Barangay Level including a "hands-on" training (demonstration on O&M techniques).

B. OBJECTIVES

After completing this course,, the participants must be able to:

(a) identify the different types of Level I water supply projects;
(b) operate Level I water supply systems;
(c) detect common troubles that occur during handpump operations;
(d) identify the basic tools used in repairing Level I system;
(e) assemble and disassemble handpumps;
(f) identify their roles and responsibilities in the operation and maintenance of Level I water supply systems.

C. COURSE CONTENTS/OUTLINE

(a) Course Overview
(b) Various Types of Level I Water Supply Projects
    (i) Handpumps
    (ii) Shallow/Deep Wells

(c) Operation and Maintenance of Handpumps
  (i) Basic Techniques on How to Assemble and Disassemble Handpumps
  (ii) Pump Performance and Maintenance Check
(d) Operation and Maintenance of Deep Wells
  (i) Basic Techniques for Proper Operation
  (ii) Well Performance and Maintenance Check
(e) Various Tools/Equipment Needed in the Repair of Level I Water Supply Facilities
(f) Various Problems Encountered in the Operation and Maintenance of Level I Water Supply Facilities
(g) Roles and Responsibilities of
  (i) BWSA Officers and Members
  (ii) Operators and Caretakers of the Water Facilities
(h) Course/Training Recapitulation

D. METHODOLOGY

(a) Lectures/Discussions
(b) Actual Demonstration/Illustration
(c) Case Studies
(d) Field Trips/On-the-Job Training

E. PARTICIPANTS

(a) Municipal Engineer/Technician
(b) BWSA Officers/Caretakers

F. FACILITATOR, TRAINORS, RESOURCE PERSONS

(To be determined)

G. EXPECTED OUTPUTS

Before the end of the training/seminar, the participants are expected to have acquired sufficient knowledge and insights on the technical and institutional requirements of operating and managing water systems, particularly Level I water supply facilities, among others.

H. DATE, DURATION AND LOCATION OF TRAINING

(To be determined)

I. RECOGNITION

Participants with at least 80% attendance and who will pass the examination will be awarded Certificates of Satisfactory Completion, while those who fail in the examination and/or have less than 80% attendance will be given Certificates of Attendance.

SAMPLE COURSE DESIGN 2

WELL DRILLING TECHNIQUES FOR BACKYARD DRILLERS

A. RATIONALE

Backyard well drillers (small or "pacquiao" contractors) in the Philippines normally possess the traditional or native skills in drilling technology, but in most cases they lack the technical training and advanced knowhow necessary for the efficient and effective implementation of well drilling projects. These drillers, however, play a very important role in the development of water supply, as they are mainly responsible for undertaking the construction water wells (Level I) being put up in the rural areas throughout the country. It is for this reason, that the need to conduct backyard drillers to enhance their technical capabilities and maximize their efficiency and effectiveness in the implementation of local water supply projects has been recognized.

B. OBJECTIVES

After completing the training/seminar, the participants shall be:

(a) able to demonstrate appropriate techniques and procedures in the drilling of wells;
(b) knowledgeable on the basic concepts and principles of hydrogeology;
(c) familiar with the advanced technological aspects of well drilling; and
(d) knowledgeable of the government's policy and standard design for Levels I and II water supply projects.

C. COURSE CONTENTS/OUTLINE

(a) Course Overview
(b) Basic Hydrogeology
(c) Well Design Criteria
(d) Well Drilling Techniques
(e) Practicum
(f) Course/Training Recapitulation

D. METHODOLOGY

(a) Lectures/Discussions
(b) Actual Demonstration and Illustration
(c) Case Studies
(d) Hands-on operation of equipment

E. PARTICIPANTS

(a) Local small or backyard drillers
(b) BWSA caretakers
(c) Municipal level technicians

F. FACILITATORS, TRAINORS, RESOURCE PERSONS

(To be determined)

G. EXPECTED OUTPUTS

Before the end of the training/seminars, the participants are expected to have gained significant knowledge and insights on the course contents, particularly with respect to the appropriate techniques and procedures in well-drilling and the basic concepts and principles of hydrogeology. Additionally, the participants are expected to have familiarized themselves of the government's policy and standard design of Level I water supply projects.

H. DATE, DURATION AND LOCATION OF TRAINING

(To be determined by proponent)

I. RECOGNITION

Participants with at least 80% attendance and who will pass the examination will be awarded Certificates of Satisfactory Completion, while those who fail in the examination and/or have less than 80% attendance will receive Certificates of Attendance.

SAMPLE COURSE DESIGN 3

GROUNDWATER MANAGEMENT

A. RATIONALE

Years back, the country had been blessed with an almost limitless surface and groundwater resources, Today, however, this seemingly inexhaustible basic natural resource, particularly groundwater, has dwindled to an alarming proportion, making it imperative for all concerned to pause and take deeper look into the situation. Among others, this scarcity or deterioration of the country's fresh water resources may be attributed to the following:

(a) Lack of knowledge or concern on the natural and artificial factors that affect water resource balance.

(b) Lack of awareness on the proper utilization of groundwater to avoid overdrawing or overpumping which has resulted in the depletion of the aquifers.

(c) Failure to institute appropriate measures against possible contamination and deterioration of water sources.

No doubt, these inadequacies on the part of both water implementors and users, if not properly addressed, will result in situations where extremely expensive corrective or remedial measures to have to be made. It is largely for this reason that a course on groundwater management is deemed quite necessary, particularly on the part of LGUs and beneficiary communities, to ensure the proper conservation and utilization of this valuable basic natural resource.

B. OBJECTIVE

After completing the course training, the participants shall be:

(a) fairly knowledgeable of the factors that affect the water resources balance;

(b) sufficiently aware of the proper utilization and conservation of groundwater resources;

(c) able to institute appropriate measures or implement programs of action designed to ensure the conservation and protection of water resources against all forces that may cause their deterioration;

(d) able to establish suitable programs or mechanisms to effectively monitor and identify problems that may occur on the water sources and thus institute remedial measures; and

(e) able to establish an effective operation and maintenance (O & M) procedures and manage the production and distribution of the water resource.

C. COURSE CONTENTS/OUTLINE

(a) Course Overview
(b) Water Resources
(c) Surface Water
(d) Groundwater
(e) Water Quality
(f) Hydrologic Investigations
(g) Well Design and Hydraulics
(h) Well Drilling and Construction
(i) Well Rehabilitation and Maintenance
(j) Course/Training Recapitulation

D. METHODOLOGY

(a) Lectures/Discussions
(b) Film Slides Presentation
(c) Case Studies
(d) Field Trips/On-the-Job Training
(e) Others

E. PARTICIPANTS

(a) Provincial and Municipal Engineers
(b) Drilling Contractors

F. FACILITATORS, TRAINORS, RESOURCE PERSONS

(To be determined)

G. EXPECTED OUTPUTS

Before the end of this course, the participants are expected to have gained sufficient knowledge and insights on the course contents, particularly with respect to the various factors that affect the balance of water resources and the proper utilization and conservation of groundwater. In addition, the participants should have developed the capability to prepare suitable programs or establish appropriate mechanisms to monitor and identify problems that may occur on the water sources and in the process, institute remedial measures, among others.

H. DATE, DURATION AND LOCATION OF TRAINING

(To be determined)

I. RECOGNITION

Participants with at least 80% attendance and will pass the examinations will be awarded Certificates of Satisfactory Completion, while those who fail in the examination and/or have less than 80% attendance, will be given Certificates of Attendance.

SAMPLE COURSE DESIGN 4

OPERATION AND MAINTENANCE OF PIPED WATER SYSTEMS

A. RATIONALE

One of the most over-riding concerns of managers and operators of corporate utilities, particularly those engaged in the provision of basic services to the general public such as water supply, involves the operation and maintenance of the system's facilities and equipment. Many water utilities have been suffering from perennial losses mainly due to poor or inadequate operation and maintenance practices.

To ensure that would-be managers and operators of water supply facilities, particularly those in the barangay level, acquire a measure of competence in the performance of their tasks, a course or training/seminar on the operation and maintenance aspects of water supply systems will have to be conducted for them. among others, the course should include basic O & M techniques, chlorination practices, record-keeping and other related skills necessary for the water utility to improve its operation efficiency.

B. OBJECTIVE

After completing this course, the participants shall be:

(a) knowledgeable of the basis techniques in pump operation and maintenance;

(b) able to develop a sound record-keeping system for the system's equipment;

(c) knowledgeable of the basic plumbing techniques;

(d) able to establish an efficient and effective O & M program for the system's distribution facilities, including valves, hydrants, reservoirs, water meters, etc;

(e) able to conduct appropriate leakage detection, control and repair;

(f) able to implement safe and effective chlorination practices; and

(g) able to implement other O&M practices necessary for the water utility to improve its operation efficiency.

C. COURSE CONTENTS/OUTLINE

(a) Course Overview

(b) Operation and Maintenance of Pumps

- (i) Basic Techniques for Proper Operation
- (ii) Pump Performance and Maintenance Check
- (ii) Pump Packing and Lubrication

(c) Operation and Maintenance of Motors

(d) Basic Plumbing Techniques

(e) Operation and Maintenance of Water Meter and Appurtenances

- (i) Meter Installation
- (ii) Sizing of Meters
- (iii) Service Connections
- (iv) Maintenance of Valves and Hydrants

(f) Data Management System

- (i) Equipment Record
- (ii) Spare Parts Inventory
- (iii) Production/Consumption Record
- (iv) Records of repair works and replacement of parts

(g) Leak Detection Control and Repair

- (i) Theoretical
- (ii) Practicum

(h) Safe Chlorination Practices

- (i) Dosaging and Feeding
- (ii) Safe Chlorine Handling and Emergency Operation Procedures
- (iii) Operation, Maintenance and Repair of Chlorinators

(i) Preventive Maintenance Program

- (i) Draining/Cleaning of Tanks and Reservoirs
- (ii) Valve, Hydrant Exercise

(iii) Installation/Checking of Electrical Controls and Switches
(iv) Inspection/Lubrication of Pumps, Motors, Gate Valves and Meters
(v) System Efficiency Evaluation

(j) Course/Training Recapitulation

D. METHODOLOGY

(a) Lectures/Discussions
(b) Film/Slide Presentation
(c) Actual Demonstration and Practicum
(d) Case Studies
(e) Field Trips/On-the-Job Training

E. PARTICIPANTS

(a) Water Utility Managers/Supervisor
(b) Pump Operators
(c) Plumbers
(d) Maintenance Personnel
(e) Production Personnel
(f) Engineering Personnel

F. FACILITATORS, TRAINORS, RESOURCE PERSONS

(To be determined)

G. EXPECTED OUTPUTS

Before the end of the training/seminar, the participants are expected to have acquired sufficient knowledge and insights on the course contents such as basic techniques on the operation and maintenance of pumps, chlorinators and other facilities and equipment; basic plumbing techniques; sound record-keeping practices; effective leakage detection, control and repair techniques; among many others.

H. DATE, DURATION AND LOCATION OF TRAINING

(To be determined)

I. RECOGNITION

Participants with at least 80% attendance and who will pass the examinations will be awarded Certificates of Satisfactory Completion, while those who fail in the examinations and/or have less than 80% attendance, will be given Certificates of Attendance.

SAMPLE COURSE DESIGN 5

WATER QUALITY MANAGEMENT AND CHLORINATION TECHNIQUES

A. RATIONALE

As more and more countries move toward industrialization, water experts and authorities all over the world today view the tremendous demand for fresh and safe drinking water supply with increasing alarm. For although the earth is practically made up of water, it must be one of nature's most appalling ironies that people of the world should now find themselves hard put at finding ways to fully satisfy their demand for this most basic need in life.

Even as water is a giver of life, it has also become a major cause of mortality. Hundreds and thousands of people all over the world, particularly the children, have died and are dying from diseases constracted by drinking water from polluted sources.

The Philippine government has, in recent years, launched an all-out campaign to improve the water supply and sanitation conditions in the rural and other depressed areas throughout the country. Towards this end, numerous water supply and sanitation plans and programs were being formulated and implemented, even as the concerned agencies and institutions in both the government and private sectors have intensified their efforts at finding ways and means to solve the many ills and problems besetting the water supply and sanitation industry. One of these pressing problems that is now being addressed to involves the efficient management of the quality of the country's water resources.

B. OBJECTIVE

After completing this course or seminar, the participants shall be:

(a) fairly knowledgeable of the present national standards and requirements for drinking water;

(b) able to recognize and control excessive amounts of foreign particles and organisms in water;

(c) able to identify and introduce treatment processes appropriate for any given quality of water;

(d) capable of demonstrating the proper techniques in the use of chlorine as a treatment agent;

(e) capable of instituting or recommending appropriate measures to protect or maintain the quality of water at the source, storage and distribution network of the water system; and

(f) knowledgeable or at least able to evaluate correctly the results of water laboratory examinations.

C. COURSE CONTENTS/OUTLINE

(a) Course Overview

(b) Public Health Aspects

(c) Importance of Appropriate Water Quality Control

- (i) National Standards for Drinking Water
- (ii) Pollution Control Regulations

(d) Various Factors Affecting Water Quality

- (i) Significance of Foreign Chemical Substances Found in Water
- (ii) Toxic Substances
- (iii) Pesticides and Herbicides
- (iv) Chemical Substances which are Health Hazards
- (v) Salinity

(e) Water Sources

- (i) Causes of Water Source Pollution and Contamination
- (ii) Protection of Water Sources
- (iii) Prevention and Control of Contamination at Water Source

(f) Treatment Processes for Water Supply Systems

- (i) Water Quality vs. Treatment Processes Required
- (ii) Application of Water Treatment Processes to Water Supply Systems
- (iii) Taste and Odor Control
- (iv) Iron, Manganese and Salinity Control
- (v) Water Treatment Equipment

(g) Distribution System

(i) Monitoring Water Quality in the Distribution System
(ii) Cause of Contamination in the Distribution System
(iii) Treatment, Control and Prevention of Contamination in the Distribution System
(iv) Corrosion Control Techniques
(v) Algae Control in Reservoir

(h) Water Quality Laboratory Analysis and Surveillance

(i) Sampling Techniques
(ii) Standard Methods for Water Quality Testing and Analysis

(i) Chlorination Techniques

(i) Disinfection as Part of the Treatment Processes
(ii) Proper Use and Maintenance of Chlorinating Facilities
(iii) Safety Practices and Installation
(iv) Emergency Procedures
(v) Chlorine Leak Detection and Repair Techniques
(vi) First Aid for Chlorine Accident Victims

(j) Course/Training Recapitulation

D. METHODOLOGY

(a) Lectures/Discussions
(b) Film/Slide Presentation
(c) Laboratory Demonstrations
(d) Case Studies
(e) Practicum

E. PARTICIPANTS

(a) Water quality technicians
(b) BWSA Caretakers

F. FACILITATORS, TRAINORS, RESOURCE PERSONS

(To be determined)

G. EXPECTED OUTPUTS

Before the end of the training/seminar, it is expected that the participants shall have acquired significant knowledge and insights on the course contents, particularly with respect to current national standards and requirements for drinking water and the importance of water quality protection and management. Additionally, the participants should be able to recognize, identify and control the excessive presence of foreign particles and organisms in water and be able to formulate and recommend appropriate measures to protect and maintain the quality of water at the source, distribution and storage facilities, among others.

H. DATE, DURATION AND LOCATION OF TRAINING

(To be determined)

I. RECOGNITION

Participants with at least 80% attendance and who will pass the examinations will be awarded Certificates of Satisfactory Completion, while those who fail and/or have less than 80% attendance, will be given Certificates of Attendance.

13. How do you conduct water quality control and surveillance.

14. Any plans for expansion? Please describe.

__ Yes __ No

15. What do you consider as your successes and failures in running your water system?

(a) Successes :

(b) Failures :

16. Additional comments/reaction

FORM 4
INITIAL ENVIRONMENTAL EXAMINATION

Location _____ Type of Water System _____

Actions Affecting Environmental Resources and Values (A)	Damages to Environment (B)	Recommended Protection Measures (C)	IEE (D)			
			No Significant Effect (D1)	Significant Effects		
				Small (D2)	Moderate (D3)	Major (D4)
A Natural biological Environment 1 Pollution/Contamination of Water Supply Source due to (a) liquid waste from toilets, (b) washing and bathing around the well/spring, and (c) use of insecticides by farmers in ricefields						
2 Effects on the natural ground features						
3 Effects on natural vegetation						
B Environmental Hazards Relating to Operations 1 Disposal of night soil from toilets close to the water source						
2 Inadequate O & M of hand-pump/electric pump resulting to breakdown						
3 Water use conflict						
C Water Quality and Quality 1 Deleterious effect on the quality of water						
2 Any possible result to deminish the quality of water						

Actions Affecting Environmental Resources and Values (A)	Damages to Environment (B)	Recommended Protection Measures (C)	IEE (D)			
			No Significant Effect (D1)	Significant Effects		
				Small (D2)	Moderate (D3)	Major (D4)
D Problems Relating to Planning and Design Inadequacies 1 Inappropriate location of Level I system						
2 Failure to incorporate protection to spring/well sources in the design						
3 Failure to attain desired discharge or yield of well/ spring						
4 Impairment of historical and cultural values						
E Problems During Construction 1 Construction site may cause grave danger to children						
2 Noise generated from well drilling equipment						

APPENDIX 6

Sample Training Course Effectiveness Evaluation Form

TRAINING EFFECTIVENESS EVALUATION FORM

Date : _____
Course Title : _____
Lecturer/Resource Person : _____
Venue : _____

Instruction : Please answer the questions and/or check the most appropriate reply to a question.

I. CONTENTS AND METHODOLOGY

1. Identify the topics which are most valuable and least valuable.

   Most valuable : _____
   _____

   Least valuable : _____
   _____

2. Identify additional topic/s which you feel should have been included in the course.

   (a) _____

   (b) _____

3. Did the various topics discussed meet your expectations?

   _____ Yes. If so, to what extent?
   _____ Completely
   _____ Moderately

   _____ No. If not, why? _____
   _____

4. What will topics discussed and "exercises" (case studies, practicum) be useful to you in your present job?

_____ Yes. If so, to what extent?
_____ Very useful
_____ Useful
_____ Limited use

_____ No. If not, please explain briefly. _____
_____

5. Evaluated the duration of the training.

_____ Long
_____ Just right
_____ Short

6. Evaluate the handouts/training materials provided.

_____ Poor _____ Good
_____ Fair _____ Excellent

7. Was the objectives of the training achieved?

_____ Yes _____ No

8. Assess the relevance of the training to your present job.

_____ Very relevant _____ Partial _____ None

9. If you feel that the training was not relevant, please offer suggestions for its improvement.

_____
_____
_____

10. Please provide your comments on the conduct of the training and likewise offer your suggestions for its improvement.

Comments: _____
_____
_____

Suggestions for improvement: _____
_____
_____

II. ON THE LECTURERS AND RESOURCE PERSON/S

1. Mastery of the subject matters/topics.

_____ Excellent _____ Good _____ Fair _____Poor

2. Methods and training techniques employed.

_____ Excellent _____ Good _____ Fair _____Poor

3. Ability to encourage group participation.

_____ Excellent _____ Good _____ Fair _____Poor

4. Quantity and quality of topics presented.

Quantity:

_____ Excellent _____ Good _____ Fair _____Poor

Quality:

_____ Excellent _____ Good _____ Fair _____Poor

5. Time allotment for open forum/discussion.

_____ Long _____ Just right _____ Short

6. Length of the lectures

_____ Long _____ Just right _____ Short

7. Other comments

_____
_____
_____
_____

III. ADMINISTRATIVE ARRANGEMENTS

1. Invitations and participants selection.

_____ Excellent _____ Good _____ Fair _____ Poor

2. Registration and reception

_____ Excellent _____ Good _____ Fair _____ Poor

3. Training facilities

_____ Excellent _____ Good _____ Fair _____ Poor

4. Meals and snacks

_____ Excellent _____ Good _____ Fair _____ Poor

5. Accommodation

_____ Excellent _____ Good _____ Fair _____ Poor

6. Training room/s

_____ Excellent _____ Good _____ Fair _____ Poor

APPENDIX 7

1 - Socio-Economic Survey Form for a Proposed Water Supply Project
2 - Water Supply and Sanitation Need Analysis
3 - Assessment of the Existing Water System
4 - Initial Environmental Examination

FORM 1
SOCIO-ECONOMIC SURVEY FORM FOR A PROPOSED WATER SUPPLY PROJECT

I. RESPONDENT'S IDENTIFICATION BLOCK

1. Name of Respondent: _____
2. Province: _____
3. City/Municipality: _____
4. Barangay: _____
5. Number of Household Members: _____

II. HOUSEHOLD INFORMATION

A.

Household Member	Age	Sex	Civ. Status	Place of Birth
1.				
2.				
3.				
4.				
5.				
6.				

B.

Educational Attainment	Employed	Unemployed	Self-employed
1.			
2.			
4.			
5.			
6.			

III. SHELTER/ENERGY

1. Kind of dwelling unit

[ ]	Single	[ ]	Apartment	[ ]	Others, specify
[ ]	Two-storey	[ ]	Duplex		_____

2. Description of house material

Light	Mixed	Strong
[ ] Cogon	[ ] Bamboo/wood	[ ] Wood
[ ] Cogon/bamboo	[ ] Wood/concrete	[ ] Concrete

3. Tenure of home lot

[ ] Owned [ ] Rented [ ] Others, specify _____

4. Tenure of dwelling unit

[ ] Owned [ ] Rented [ ] Others, specify _____

5. Fuel used for cooking

[ ]	Firewood	[ ]	LPG	[ ]	Charcoal
[ ]	Kerosene	[ ]	Electricity	[ ]	Others, _____

6. Type of lighting facility

[ ] Candle [ ] Kerosene [ ] Electricity

7. If you use electricity, how much do you pay?

₱ _____/Kw, ₱ _____/month

IV. WATER/SEWERAGE/SANITATION/DRAINAGE

1. Main source of water supply

[ ] Municipal/city waterworks system
[ ] Surface water [ ] Deep well

[ ] Artesian well
[ ] Private well with
  [ ] handpump
  [ ] electric pump
[ ] Others, specify _____
[ ] Spring
  [ ] developed
  [ ] undeveloped
[ ] River/stream

2. Average daily consumption (gal/day; drums/day; or cu.m/mo)

   _____

3. Water consumption cost per month (if any)

   ₱ _____/month

4. Would you be willing to avail of a piped water system being planned for the municipality?

   [ ] Yes [ ] No, Why?_____

5. How much would you be willing to pay for water used?

   ₱_____/cu.m. ₱_____/month

6. Type of toilet facility

   [ ] Flush type [ ] Water sealed
   [ ] Open pit [ ] Others, _____

7. Is there a sewerage system

   In the barangay? [ ] Yes [ ] No
   In the municipality? [ ] Yes [ ] No

8. Is there a drainage system in the barangay?

   [ ] Yes
   [ ] No
   [ ] open
   [ ] lined canal
   [ ] others, specify _____

9. Method of garbage disposal

   [ ] Burning [ ] Dumping, where _____
   [ ] Burying [ ] Others, specify _____

V. HEALTH

1. Most common illnesses of the household members

   _____

2. Where do you go if someone in the family falls ill?

   [ ] Herbolario
   [ ] Barangay Health Center
   [ ] Private clinic
   [ ] Hospital
   [ ] Others _____

VI. LIVELIHOOD

1. Primary source of income

   [ ] Employment
   [ ] Farming
   [ ] Fishing
   [ ] Livestock raising
   [ ] Business
   [ ] Others, _____

2. Other source of income, if any _____

3. Average monthly income of the family. ₱_____

4. What household appliances do you have?

   [ ] Radio
   [ ] Electric Fan
   [ ] Refrigerator
   [ ] Others, specify_____
   [ ] Television
   [ ] Stereo system
   [ ] VHS/Beta

VII. MIGRATION (Municipal/Barangay)

1. Do people

   come in the area ? [ ] Yes [ ] No
   go out of the area ? [ ] Yes [ ] No

If yes, specify reason/s

[ ] for employment
[ ] for education
[ ] for permanent settlement in the community
[ ] for reasons of peace and order
[ ] Others _____

2. Who are these people?

[ ]	Youth	[ ]	Young married couple
[ ]	Unemployed	[ ]	Employed
[ ]	Middle aged	[ ]	Out of school

3. How many persons?

[ ] 1-5.
[ ] 6-10
[ ] 10-20

FORM 2
WATER SUPPLY AND SANITATION NEEDS ANALYSIS

Respondent : _____ Date : _____
Position : _____ Brgy./Mun. : _____
Province : _____

1. Please describe the existing method/s of getting potable water supply in your locality.

2. What type/s of water supply facilities are needed in your locality? Please check.

   I. Poblacion and Urban Fringes (Suburbs/Peri-urban)

   __ Piped House Connection (Level III)
   __ Piped Communal Faucet Systems (Level II)
   __ Points Sources (Level I)
      __ Shallow Wells with Handpumps
      __ Deep Wells with Handpumps
      __ Developed Spring
      __ Rainwater Collector

   II. Rural Areas

   __ Piped _____
   __ Point Sources
      __ Shallow Wells with Handpumps
      __ Deep Wells with Handpumps
      __ Developed Spring
      __ Rainwater Collector

   __ Others (specify)
   _____
   _____
   _____

3. What is the total population of the municipality and the projected population of the area/s to be served with a water system (WS)?

   Total Population = _____
   Population to be served by the WS = _____

4. What sanitation facilities are needed in the community? Please check.

__ Toilet
- __ Household Toilet
- __ School Toilet
- __ Toilet/s for the market

__ Washing basin located at a safe distance from a well
__ Surface drainage around the point water source
__ Sullage

5. Please let us know the tools, operational guidelines and the like that are needed by your organization/community.

_____
_____

6. Can the municipal government provide funding for - (Please check)

(a) Part of construction cost? __ Yes __ No

(b) Seed money for the initial three (3) months of operation? __ Yes __ No

(c) To purchase limited, essential spare parts __ Yes __ No

(d) Generating Set __ Yes __ No

(e) Land __ Yes __ No

(f) Skilled Personnel __ Yes __ No

7. Are there competent private drilling contractors and civil work contractors in your area?

__ Yes __ No

8. Additional comments/reactions.

_____
_____
_____
_____
_____
_____