5.7.1 Technical Aspect

(1) Project Identification and Prioritization

1) Project conceptualization and series of procedures to select a project

Every year, the provincial government identifies and prioritizes projects based on perceived needs, the PPDO consolidates WATSAN data extracted from the Barangay and Municipal Development Plans and resolutions. The PPDO conduct fieldwork together with their counterparts at the MPDO in order to identify and support project needs. This is accomplished through a series of meetings with barangay people/officials. They then conduct the required survey in the barangay where the project may be located.

Barangay Council/s (BC/s) regularly submit barangay resolutions regarding priority projects to the municipality, in addition to their Barangay Development Plan. These project proposal/s are incorporated in the Municipal Development Plan. The Municipal Development Council, through its sectoral committee reviews, gives recommendations for endorsement to the Sangguniang Bayan (SB) for adoption and approval.

Before incorporating it into the Provincial Development Plan, the PDC through its sectoral committees endorses the municipal development plan for consideration and prioritization.

2) Criteria for selection of the projects

Project selection criteria are based on the indicators prepared by the NEDA Regional Office. These were meant to identify the existence of problems constraining the achievement of certain development objectives and/or to determine the perception of development potentials. However, it is still the Barangay Development Plan which was prepared by the barangay council and ratified during a barangay assembly, which serves as the benchmark for the realization of the people's aspiration.

To further ensure the sustainability of the project, it is essential to involve the people, starting from demand identification during the basic survey stage. This is especially true for Level I water supply systems. A simplified coordination mechanism showing responsibilities/activities required among concerned parties is necessary. Periodic follow-up by LGUs at the barangays is also important to ensure logistic support and manpower requirements of the LGUs.

After the submission of a project request by the barangay, a series of steps including identification, validation and prioritization has to be undertaken by the concerned LGUs. These steps result in considerable time consumed before funding is finalized. A systematic and coherent project identification and prioritization among concerned parties is required.

With reference to the implementation of the medium-term target plan, review and modification of selection/prioritization criteria is done by LGUs taking into consideration the said barangay profile. The LGUs, together with barangay officials, should prepare the requirements (including barangay profile) in an expeditious manner as part of their annual activities.

(2) Preparation of Feasibility Studies (F/S) and Detailed Design (D/D) of Facilities, and Contract Procedures

1) Water source development experience in survey, planning and design of facilities

The provincial government is able to conduct water source development for both spring and ground water sources. In the case of spring development, technical-related information is collected from the barangay. This involves the location of untapped springs and determining its discharge rate during the dry season. The preliminary topographic survey (elevation and distance) is then conducted to prepare the hydraulic profile of the transmission pipeline. For groundwater development, its technical feasibility is evaluated based on available technical data along with information from the barangay duly supported by field inspection of the existing wells.

2) Feasibility Study of water supply systems

The F/S for developing Level I, II & III water supply systems are usually done by the DPWH, PPDO and WD, respectively. In addition to the preliminary study on water source development, water production and water demand determined as required by the project. Tentative locations of communal faucets are identified in a Level II system. The hydraulic profile (pipe size, length) and size of the intake box / reservoir are determined using methods learned in the International Training Network (ITN) / DILG training seminar. The BWP design standard is also applied in this case. Finally, a cost estimate of the required facilities is made. The F/S report is submitted to the Provincial Governor for approval, while WD submits to LWUA for approval and funding.

3) Detailed Design (D/D) of facilities and tendering

The D/D of WATSAN facilities is also prepared by the PEO based on the F/S report. It must also be within the available budget. Design of Level II systems is made using existing manuals and references. Hydraulic calculation is limited to a single pipeline while the design of the spring box/reservoir is a standard design of the RWDC (Rural Waterworks Development Corporation). However, the PEO has no experience in planning and designing large waterworks facilities including pumping stations/water treatment facilities. The WD utilizes consultants in planning and designing of their waterworks systems.

Future water supply system/s will require water treatment facilities, particularly those using surface water sources. The Provincial WATSAN team or PEO and DEO will need more knowledge and experience in hydraulic analysis, structural calculation, and water treatment technology. Measures to increase the capacity of LGU technical staff in planning and design have to be considered. This may also involve training package or consultancy services for the provincial waterworks technical staff.

(3) Procurement of Materials and Equipment, and Facility Construction and Rehabilitation

1) Procurement of materials and equipment

In water supply sector, bidding is done to purchase materials (pipes, valves and fittings). The Pre-qualification, Bid and Awards Committee (PBAC) conducts the bidding and prepare bid documents.

Previously, the procurement system of the province caused considerable delays in project implementation. Efforts to correct this have been effected resulting to improved procurement system.

2) Construction, Supervision and Rehabilitation

Construction of WATSAN facilities is usually done by the LGUs, either by the municipal or the provincial office, whichever is the funding unit. For shallow well (jetmatic pump) installations, the barangay council and the BWSA undertake the project on a "bayanihan" (free or discounted labor) scheme. The PEO together with the MPDO and MEO manages Level II projects by hiring skilled laborers. The PEO construction section supervises the construction works, and the Planning & Programming Section monitors and evaluates the progress of the construction.

In spite of the LGUs' efforts, it is apparent that their present implementation capability is limited to a certain number of projects due to insufficiency of manpower resources and the shortage of supporting vehicles/equipment. Contracting-out to the private sector may be practical. It is also necessary to increase the number of experienced water supply engineers to consider and supervise future projects.

(4) Operation and Maintenance (O&M) of Facilities

1) O&M of facilities by service level

For Level I facilities, the BWSAs or beneficiaries are responsible for O & M; however their performance has not been quit impressive since not all BWSA caretakers were trained and equipped with O&M tools/kits. This can be due to the presence of numerous non-functioning/abandoned wells previously constructed by DPWH. Also, problems such as lack of spare parts, drying up of water source, and water quality problems such as colored water, salty water, etc. are like wise experienced by a number of BWSAs. In some case, the facility mal-function a few months after turnover, thus, the beneficiaries revert to using their private dug wells or getting water from other doubtful sources to meet their water needs.

O&M of Level I facilities is not properly done by BWSAs/beneficiaries due to lack of sense of ownership. There was a case, however, where the users contributed money to purchase spare parts when pump facilities broke down. It is necessary for the users to consider not only repair/replacement of mechanical parts but also re-development of wells and the future upgrading of the service level.

Other BWSAs especially those supported by their BCs have developed the capability to manage Level II water systems. However, when the system is expanded to Level II the LGU takes over designating municipal staff in the O&M and repair of the system, and in the collection and receipt of monthly tariffs. The system is managed like a business enterprise to cope with the O&M. requirements. In such cases, common faucets are maintained for free or at a minimum charge to cater to the needs of those who cannot afford to pay for an individual household connection. These have been some cases however, where expansion of distribution pipelines and additional service connections were undertake without considering on the technical aspects, e.g., capacities of water sources and distribution facilities. F/S and D/D should be prepared on a timely basis by qualified engineer/s to avoid the decrease of supply pressure and quantity.

2) Communication mechanism practiced in case of facility breakdown

It was observed that in cases where major repairs were required (non-functioning of hand pump parts, etc. for Level I), the BWSA or barangay council merely passed a resolution to the municipality/DEO - DPWH requesting for immediate repair. However, most BWSAs have inadequate knowledge of the channel of communication with LGUs or the private sector. The request for repair is therefore improperly addressed. A better communication system has to be prepared and put into service.

For major repairs of Level II and III (e.g. burst pipe/leakage), the municipal government facilitates the restoration/repair of the system. When the budget is insufficient, the waterworks/RWSAs submit a funding request to the municipal or provincial government. Under the LGC, the LGUs are responsible for developing a system that will ensure sustainable O&M of water systems.

(5) Water Quality Examination

It is not uncommon to find fecal contamination at some water sources in all service levels. Water quality problems usually occur during floods. This is aggravated by poor sanitation conditions in most villages – e.g. inadequate toilet facilities, improper construction of depositories/latrines, lack of sludge/sullage disposal management, and absence of drainage facilities.

The provincial water analysis laboratory conducts only bacteriological examination. Although the DPWH has a trained chemical engineer to perform the physical and chemical examinations, the on-availability of reagents curtail them from conducting the chemical examination. The Rural Sanitary Inspectors (RSIs) of the MHO collect the samples. Sampling and disinfection are done on an "as-needed" basis. Samples found positive for bacteria content are disinfected by sanitary inspectors.

The PHO does not have enough budget for water quality control. The provincial government has yet to address this problem. Meanwhile, the incidence of water-borne/related diseases and the percentage of contaminated sources of drinking water remain alarmingly high. There is an obvious need for a budget for water quality surveillance.

(6) Private Sector Capability for the Sector Project

For the Level I water supply facilities, locally based private contractors have no capability in the construction of deepwells up to 200ft. They have percussion drilling equipment. For difficult areas, qualified contractors from large cities may be tapped. Local contrac-

tors have adequate knowledge and experience in the construction of Level I & II water system facilities.

5.7.2 Institutional Aspect

(1) Implementing Capacity of LGUs

In spite of the LGUs' efforts, it is apparent that their present implementation capability is limited to a certain number of projects due to insufficiency of manpower resources, not clear procedure and the shortage of supporting vehicles/equipment. Contracting-out to the private sector may be practical. It is also necessary to increase the number of experienced water supply engineers and establish clear procedure to consider and supervise future projects.

Implementing capacity of municipal government is also limited, though a larger water supply system is managed by WDs with a higher expertise. Sanitation projects are under direct responsibility of municipalities and barangays with a coordination of the province. Commonly, qualified staff members are in short and training for the strengthening capacity building is not sufficient due to budgetary constraint. The assistance from existing WDs to the associations (Level I & II) may be one of the practical arrangements to ensure transfer of technical and management needs.

(2) Linkages among Concerns

The PPDO is a lead provincial office responsible for the implementation of WATSAN projects, works either directly or indirectly with the national government's local offices and municipalities as well as other provincial offices. There is, however, no established arrangement and responsibility delineation among the agencies involved in the WATSAN sector implementation in the province wherein interrelationship/linkages are clearly shown. Administrative and functional linkages are not spelled out, although in the area of PBME the province is adopting the participatory monitoring and feed back mechanism developed through UNDP-assisted project (refer to 5.10.1 Project and Sector Monitoring). Subsequently fragmental planning and implementation of sector projects happens, and a number of agencies and offices had overlapping activities and functions.

For tri-agency program such as DPWH, DILG and DOH implementing water supply projects, weak coordination had been demonstrated. There was difficulty in synchronizing activities which deals on physical construction of facilities (DPWH) as to activities that entails training of provincial and municipal water and sanitation task forces and for-

mation of BWSAs where target facilities will be constructed (DILG) and the installation of latrines and promotion of health and education programs (DOH). Effective and efficient WATSAN project implementation needs to the integrated approach in assistance extended by the NG agencies.

(3) Organizational Set-up

LGUs is composed of province, municipality and barangay, and these LGU's units have respective responsibilities in implementing WATSAN project. However, To endure the delivery of water and sanitation services, operating structure at the province, municipality and barangay levels and identified organizational tasks should be put in place, this will enable smooth implementation of the projects.

Before, organizing the association at the barangay level was undertaken by the PWDTF spearheaded by the DPWH. Since locally-funded water supply projects had been devolved to the LGUs, DPWH no longer initiated the organization of BWSAs. In the existing organization set up of the province, the implementation of the Provincial Water Program is placed under the PPDO and PEO. However, it has been observed that the provincial staff (and also municipal staff) responsible for planning, managing, coordinating, implementing and monitoring the WATSAN projects are unable to devote full time resulting from staff assigned to works of other various sectors.

(4) Operation bodies

In most cases, operating bodies for the Level I facilities are not organized or non-functioning. A considerable number of public wells are abandoned/non-functional due to lack of O&M, dried-up of wells and other reasons. Most of beneficiaries are not aware of the manner for O&M of the facilities. Beneficiaries still rely on LGUs even for a simple replacement of parts. Consequently, barangay council mostly takes care of O&M. Considering the current situation of beneficiaries involvement and experiences of abandoned/non-functional facilities, LGUs shall lead them to recognize the need of formation of association and participation for sound O&M of the facilities (Information dissemination to beneficiaries is a requisite), and encourage the formation of association responsible for facility O&M.

The organization responsible for the O&M of Level II has some complexity comparing with that of Level I facility. Most of Level II systems (and small Level III) in the province are mostly managed by BCs. The merger or consolidation of these operation bodies can be explored for more effective and efficient system operation as well as system ex-

pansions and new developments. This arrangement entails collaboration and agreement among concerned parties and the LGUs shall act as a coordinator and facilitator for the purpose.

The idea for Level II systems can also be adopted for the effective and efficient operations and development of the Level III water supply systems.

(4) Health and Hygiene Education with Typical Program

There was a time when PWDTF was active and performed the job of IEC campaign in selected barangays in the province. The current practice is that the PHO undertakes health and hygiene education as part of its regular programs. However, due to the lack of financial support to and manpower at the PHO, relevant activities are quite limited at the present time, unless it is a component of a DOH/UNICEF/NGO projects/program. It is recommended to put more attention to the needs of LGUs to ensure sustainable implementation for the development of the sector.

(5) Training programs

The central government agencies provide technical training for the LGUs staff on a project basis. The DILG-PMO conducted recently the "Trainers Training and Community Organizing Training/Workshop" for the WATSAN sector where some of the topics discussed touched a little on gender and development (GAD). Since LGUs have employed the cascade type assistance in implementing WATSAN projects, strengthening LGU's staff capability in technical and institutional training for effective and efficient for the project implementation is important and periodical trainers training program would be necessary.

The provincial government provides technical assistance to the municipalities and barangays on a project basis or when the training is requested. The PPDO, PEO and other departments and national government agencies who are members of the Provincial WATSAN Team usually conduct the training, which are aimed at strengthening the capability of O & M personnel at the municipal and barangay levels. The 3- day training course is to be participated in by BWSA officials. It covers technical and management matters of a Level I facility before its turnover. Effective training program/s should be continues by the LGUs to ensure demand-responsiveness in community development.

(6) Database management

The main problem concerning data-base management are the inadequacy of network coverage, outdated monitoring equipment, scattered data collection responsibilities, lack of continuous data records and lack of an integrated water resources database. Most data collection efforts are project related and are usually discontinued once the project is terminated. The provision of good database will contribute toward an effective and efficient sector planning and projects implementation. It is necessary to establish the database management system, at national and local levels, which defines what, when, by whom the data/information shall to be collected and where, how, how long it shall be kept.

5.7.3 Financial Aspect

(1) Budgetary Allocation to the Sector

Due to the limited resources of the province, it has to prioritize projects, which require capital allocation in the budget. The GOP recently issued an administrative order directing all government agencies, government corporations, and units (including LGUs) to implement austerity measures, i.e. to limit government spending and to cut capital outlays in order mitigate the negative effect of the peso devaluation. In view of the high social impact of the WATSAN sector, however, the province gives the sector funding priority.

The province pays for its capital expenditures using the 20% Development Fund (DF). An LGU may allocate more than 20%of its total IRA to capital projects on condition that the income of the LGU from all sources must first be applied to its contractual and statutory obligations. The PDC determines the sectoral allocation of the DF in the province.

Eastern Samar for the past years and up to the present has been investing 10% of its DF for WATSAN. As a result of these investments, household access to water has improved but sanitation access has remained low and alarming.

(2) Access to External Funds

The Provincial Government is open to finding out other means by which the province can access funds to the sources other than its IRA, local taxes, and economic enterprises. The limitation tat the province encounters is the lack of information by which it could access other financing options.

External assistance experienced by the province for the sector comes from foreign assisted projects in the past. Participation of the province in projects of foreign funding for

the sector was minimal or even nil. But with the devolution of the sector the LGUs pursuant to the LGC, the participation of the LGUs is increased. Before the devolution of the sector, the province was a beneficiary of foreign assisted projects through central agencies. After the devolution, the province became direct recipient of foreign grants.

The province has been a recipient of the UNICEF Fourth Country program for Children and Poverty Alleviation Funds which has a WATSAN components. It is also a beneficiary of the FW4SP Sanitation component, RW3SP and PW4SP. With the completion of the PW4SP, it is hoped that more external funds will reach Eastern Samar so that finally the WATSAN situation of the province will dramatically change for the better.

In addition to its own funds source and foreign assistance, the province can also access funds from other sectors, such as the private sector through any of the Build-Transfer-Operating scheme that can provide incentives to the private sectors by minimizing the bureaucracy.

(3) Cost Recovery Practices by LGUs and by Users

During the period when the DPWH was still constructing Level I water supply facilities, the DPWH organized RWSAs. In Eastern Samar, none of these RWSAs still exist. As a consequence, the users were unable to maintain their water systems, which had deteriorated for lack of maintenance. They had to depend on DPWH or LGUs in rehabilitating these water systems, some of which are beyond repair.

Cost recovery, in the sector is dependent on how the community perceives its role. If the beneficiaries develop a sense of ownership of the facilities, they will contribute to sustain the project and practice preventive maintenance and repair of the system when necessary. For financing capital expenditures, the beneficiaries extend free or discounted labor when building the facility.

Sustainability can only be achieved when people are empowered to actively participate in the planning, construction, operation and maintenance of their water systems so that they collectively solve their problem on access to potable and adequate water supply.

5.7.4 Institutional Arrangements/Capability of the Municipal Government

(1) General scheme in WATSAN project implementation

The municipalities through its MEO are responsible for the construction of infrastructure

facilities to service the needs of the residents of the municipality. For bigger projects, the LGU taps the PEO or simply bid out the project to local contractors. For WATSAN projects, if the barangay is not able to finance the project from its own funds, the BDC endorses the project to the municipality for funding assistance. If the municipality has available funds, it finances the said project. This is aside from the technical support of the MEO. If funds are not available at the municipal level, the request is elevated to the provincial government.

The municipality, through the MPDO, prepares municipal development plans and formulates an integrated economic, social and physical development plan. It identifies and prioritizes water projects and secures the necessary funding. The MEO provides technical services such as investigation and survey, engineering design, feasibility studies, and project management. On the other hand MSWDO on the other hand is responsible for the organization and training of the BWSAs, while other members of MTWG serves as resource persons during the training.

(2) Experiences in project implementation

Most of cases, Level I and Level II are developed by MEOs with barangays' counterpart (mostly labor). The PEO handles the development of Level II water supply projects when the municipalities consider such to be beyond their technical and financial capability. Operation and maintenance is the responsibility of the barangay government through its BWSA if the community structure is already in place. The municipal government extends assistance upon the request of the barangay officials subject to availability of funds. Otherwise, the provincial government is requested to help by the municipal LGU. In most cases, the barangay, municipal and provincial governments chip in some amount to cover the cost of construction.

When Level II systems are expanded to Level III management is taken over by the municipal government and this becomes an economic enterprise to cover the cost of O&M, repair and rehabilitation of the system and other contingencies. Employees of the municipality are required to do bookkeeping and accounting functions in addition to their regular accounting work without additional compensation. The account however is separated for the sole use of the water works project.

Since government projects are considered dole-outs by most barangays, cost recovery schemes are difficult to enforce. However, with the partnership of the BC and the BWSA people are beginning to appreciate the scheme but their capability to pay is rather low

which is P5 - 20 / month / HH as compared to the WD which is P90 - 120 / month /10 m3. For the meantime, the focus of BWSA operations is preventive maintenance so that disbursements of their meager funds can be minimized. Also, the BCs are encouraged to allocate funds for contingency use of the waterworks projects.

The Monitoring and evaluation (M/E) of WATSAN projects are done by the MPDO, MEO and RHU sometimes as a tem or by agency. They utilize the RPMES prepared by NEDA. Projects getting negative feed back are closely monitored. The report covers status of implementation, percentage of physical and financial accomplishment and slippage/problems as well as solution strategies or countermeasures.

M/E is usually the most neglected function in project implementation. Coordination between and among concerned agencies is rather poor. Data are not readily available or not reliable because monitoring reports are haphazardly done. In most waterworks projects implemented by LGUs, well logs are not maintained.

5.8 Community Development

5.8.1 General

This section presents the current status or the existing condition for community development (CD) in the Province of Eastern Samar for the WATSAN sector from the side of the government, on one hand; and the point of view of the people and the communities served, on the other. Thus, it traces the development of CD through policy measures promulgated and/or enacted on the national level and shows how CD has filtered down to the local level.

The discussions are focused on the experience of the LGUs in performing CD work with reference to the typical manner through which the participation of the community is secured for the sector, whether these be Level I, Level II or Level III projects. The experience reveals the degree of readiness of the LGUs in doing CD work by examining the structures and linkages in place in the province that may either enhance or be an obstacle to the successful execution of sector projects. It also provides the true state of information, education and communication (IEC) processes in the province in so far as these relate to the supporting sector projects.

The valuable information were taken from the following: (1) The interviews undertaken with LGU officials during the study period; (2) The answers to the CD/GAD Questionnaire distributed to select provincial and municipal officials involved in sector development; (3) The Result of the Barangay Key Informant Survey, a survey administered to the officials of the

select local communities (details are referred to the Supporting Report); and (4) Other documents researched on and provided by the national, regional, provincial, municipal and barangay level offices.

The other major part of this section presents the different levels of community participation in sector projects as determined by the people or the beneficiaries themselves. As such, it reveals the type and degree of involvement of the people in past sector projects and whether or not this involvement was adequate. It also illustrates the manner through which the beneficiaries want to actively participate in future sector projects, thereby demonstrating the predisposition and willingness of the community to commit themselves to new development projects.

The responses of the beneficiaries to the information desired are gender sensitive and were derived from the following: (1) The Result of the Group Interview Survey (details are referred to the Supporting Report); and (2) The Result of the Barangay Key Informant Survey; and (3) The results of studies conducted on CD by the national/regional/provincial agencies.

Due to time limitation, only two barangays were made to participate in the group interviews and three barangays in the key informant survey; but the results of these group interviews and surveys are highly indicative of the situation prevailing in the entire province in so far as participatory community development is concerned on both the government's point of view and the side of the community. The current CD status is not without it share of problems; but this is exactly the purpose of the study, that is, to improve the WATSAN sector's performance by plugging all leaks that may get in the way of the successful implementation of sector projects, CD included.

5.8.2 Provincial CD Structure and Linkages for WATSAN Sector Projects

The 1987 Philippine Constitution recognizes and mandates the participation of every Filipino in attaining overall national development. Thus, community development is utilized as a national strategy and has been adopted in the Medium Term Philippine Development Plan-1993-1998 (MTPDP) and the Updated MTPDP (1996-1998) to address the country's problems of poverty and unemployment. As a general policy, the Plan gives the greater masses of the people a voice in charting and implementing programs in the country while encouraging the collaboration of the private sector, non-government organizations and all other sectors of society in the formulation and implementation of plans, policies and programs supportive of the development goals of the country.

The Philippine National Development Plan: Directions for the 21st Century which was released early 1998 gives more focus to building the capacities of communities for self-reliance. By recognizing the people's self-dignity and inherent capacity to improve their own lives, community-based approaches will be utilized when delivering basic services to the people. Towards this end, a development planning system that institutionalizes the bottom-up planning process was adopted.

In the 1980s up to the early 1990s, sector projects under the Barangay Water Program (BWP) and those funded out of OECF, WB and ADB were required some level of community participation but this was limited to the provision of free labor by few beneficiaries during the construction of Level I facilities. The actual implementation of these projects was a collaboration of several agencies such as the DILG, PEO, PHO, DPWH and non-government organizations.

Water supply and sanitation are seen as one component in the over-all planning system or process undertaken by the Province of Eastern Samar.

5.8.3 Assignment of CD Specialist to Sector Projects

Presently, the Provincial Planning and Development Office (PPDO) has no community development plantilla position. However, it has one (1) trained staff member who has been designated CD worker but who performs tasks other than the WATSAN sector because of lack of manpower resource.

The Provincial Health Office (PHO), on the other hand, does not have any unit or even a staff whose main focus is to undertake, implement or conduct CD work.

The municipal planning and development offices (MPDO) generally do not maintain a CD unit. The same is true with the municipal health offices (MHO). Thus, WATSAN sector development work is attended to only when said programs are identified, prioritized and/or funded for implementation.

While both the PPDO and the PHO have the structure to undertake, conduct or implement CD, this is done only as part of or as a component of other projects. This apparent lack of identified major responsible players on CD in the LGUs creates a serious gap to the critical linkage and support of sector projects, from the provincial to the municipal and as far down as the barangay levels. Firstly, there is no CD framework in place and no permanent structure

within the LGUs that serve guideposts in doing CD work, except for the manner/experience done in the past BWP projects.

This leads to the second situation. CD work, to be successful, is a continuous and consistent undertaking. Without a CD framework, a permanent structure or identified responsible people for said undertaking, then any CD work started cannot prosper to its successful completion.

The third condition is really a question of whether the provincial and municipal officials are cognizant of and committed to the true importance of CD as a foundation activity for sustainable sector projects. This awareness on the importance of CD must be translated to giving full support – financial, human and material – to sector projects in their entirety. Although there is no existing position for a community development specialist in the province, or in the municipalities, the LGU officials are in agreement that there should be better community participation in future WATSAN activities and projects for the facilities to be sustained. However, there is a need to reorient staff who would be involved in sector-related projects in order for them to learn some up-to-date techniques and strategies that are otherwise not present in previous CD process.

5.8.4 Training on CD

The PPDO's CD worker is a social worker by profession and is familiar with CD work. In addition, she has attended a number of training on community organizing particularly focused on the WATSAN sector. These are: 1) in the preparation of manual in CO for WATSAN implementors sponsored by DILG-WSS and UNICEF, and 2) in the "Trainer's Training on Community Organizing and Organizational Development" conducted by DILG Regional Office VIII and UNICEF.

At present, the tasks generally performed by PPDO are those related to its major mandate which includes development planning, project development, monitoring and evaluation, data banking and implementation of infrastructure projects.

Even with the apparent lack of recent training for their staff, the LGUs showed willingness to facilitate CD training programs that are relevant to the achievement of the sector plan under preparation as borne out by the discussions with these officials and the Results of the Barangay Key Informant Survey.

Water district personnel also attended various training and seminars conducted by the Local Water Utilities Administration (LWUA) and other private training institutes focused on administrative, financial and technical aspects of level III water supply systems. The varied skills that WD staff learned can also be applicable to small systems and therefore can be replicated or transferred to BWSA/RWSA personnel.

5.8.5 Utilization of NGOs

The provincial government considers non-government organizations or NGOs as partners in development in Samar. There are only a few organizations presently working actively for the promotion of WATSAN-related projects. These are: Up-UP Samar Movement, Inc.; Eastern Samar Development Foundation; and Borongan Agro-Upland Development Foundation, Inc.

The links with the NGOs currently working in the province show that they have experience in dealing with the grassroots levels; they have knowledge of strategies on how to enter a community and blend with the local people. The provincial officials believe that tapping the assistance of the NGOs will not be difficult in the WATSAN sector. The list of NGOs that have a track record of doing work in the province is updated on a yearly basis (see Supporting Report for the List of NGOs and CBOs for Eastern Samar).

5.8.6 Existing Community Development Processes

(1) Manner of Participation in Sector Development

The practice of the LGUs in encouraging community participation for sector projects was generally confined to the organization of a BWSA for Level I systems, a RWSA for Level II systems and a water district or LGU waterworks for a Level III system or combination of a Level II and Level III system. Once formed, the organized BWSA, RWSA, LGU-WS and WD became responsible for soliciting the participation and involvement of the users-beneficiaries in ensuring the sustainability of the WATSAN organization and its various projects and activities.

For the BWSA/RWSA, the users' participation was usually in the provision of free labor and in the donation of cash during the construction phase of the sector project. Left to the central and local government planners was the responsibility for the other stages of project

development such as planning and design, monitoring and evaluation which included activities as project identification, site selection, water rate setting, and operation and maintenance. As a result, only a few BWSA/RWSA are presently in operation because WATSAN facilities have not been properly maintained and very few users continue to pay their water fees.

As suggested in the results of the group interviews conducted for this sector study, the people's participation in sector projects has been limited to project implementation, that is, in the provision of labor and in the donation of sites for the construction of facilities. Participation in site selection, the determination of level of service, or water fees still leaves much to be desired. The same interviews, however, show that both the male and female beneficiaries are now more receptive to playing a more dynamic role in sector projects. They professed willingness to form themselves into water associations, and the readiness to contribute cash, materials, as well as sites for the construction of WATSAN facilities. In addition, they want to assume higher responsibilities in managing, operating and maintaining the WATSAN facilities. This includes be trained and doing repair of facilities where beneficiaries themselves contribute time and resources to maintain the proper operation and undertake repair and/or expansion of the facilities.

Water supply, as a major component of sanitation, is in the forefront of the provincial sector development programs. Recently, the shift has been for allowing the beneficiary communities the freedom and optimum opportunity in presenting their own ideas on what they feel is in the best interest of the WATSAN sector.

Water Districts (WDs), on the other hand, generally practice participatory community development. Users-beneficiaries are consulted on practically all phases of project development, that is, from the start of the water district's operation, before loans to be contracted, and before water rates are set and/or adjusted. Maintenance of the WATSAN facilities before the water meter, however, remains the responsibility of the water district.

(2) Typical CD Work

The typical CD work is a carry over from the manner it was done in past sector programs. This includes the formation of the water supply and sanitation association that follow the general guidelines set forth by the government such as project orientation at the barangay level and the conduct of training participated by members of the beneficiary community.

More often than not, the agreement to organize the BWSA/RWSA was reached after one general assembly or organizational meeting called for the purpose. The BWSA/RWSA was tasked to operate and maintain the water supply and sanitation facilities. Their members are given different types of training, such as pre-organizational teach-ins, pre-operational and post completion training and operation and maintenance seminars.

In the Result of the Barangay Key Informant Survey among the barangay officials and other community heads, it was found out that the barangay councils are willing to pay for the training of volunteers on the operation and maintenance of constructed facilities. The same survey showed the willingness of local residents to contribute cash while others will provide free labor for the repair and maintenance works as a manifestation of their active involvement with the BWSA.

In forming the water districts, LWUA, in coordination with the LGUs concerned, conducts a series of sectoral consultation with the community. Since water districts are formed at the option of the LGU, LWUA first consults the people, through a series of public hearings, to arrive a consensus on whether or not to form the water district. LWUA also encourages the community to participate in the selection of the WDs' five-man board of directors, who are nominated from various sectors. Once formed and operating, the water district conducts regular dialogues with its concessionaires on various issues such as water rates formulation/adjustment, expansion program and other matters that may affect the people-WD relationship.

5.8.7 Information, Education and Communication (IEC) as Foundation Activities for Community Development

The province does not have an integrated IEC program on sector plans and programs. As such, CD, as the effective tool for getting full support and cooperation of the people toward the sustainability of WATSAN sector projects, is loosely established. The lack of an integrated provincial IEC program creates a gap in linking the municipalities and the barangays, important entities that could help generate the complete flow of community participation on sector projects. The provincial officials have attributed this non-full implementation of IEC projects to financial difficulties. They also complained of the lack of full understanding and, therefore, support of some LGUs for this activity.

On the other hand, the water districts (WDs) in general implement a systematic and comprehensive IEC program. Most WDs produce printed information materials such as newsletters,

leaflets and posters that are disseminated to the concessionaires. Regular press releases on WD development issues are submitted to local newspapers. There are some WDs that sponsor radio programs while others conduct regular dialogues with the community. Those that do not possess enough expertise are assisted by bigger WDs within the province/region (the concept of Godfather Water District) or by the Public Affairs Office of LWUA. A region-wide Water Information Network has been established with all WDs as members. This network undertakes regular public information drive and helps smaller WDs to disseminate information.

5.8.8 Health and Hygiene Education

Health and sanitation education is within the responsibility of the PHO and the MHO. These offices have their own health and sanitation education programs collaborated in by the PPDO, MPDO, the DECS and various NGOs. Other units that assist in health and hygiene education up to the barangay level are the Rural Health Units (RHU), the nutrition scholars, food handlers and the barangay health workers.

Municipal development, health staff, and NGOs jointly conduct house-to-house and school visits to discuss health-related matters. They also sponsor formal discussions through the Mother Class and Food Handlers Class.

The key informant survey and barangay group interviews revealed that the people recognize the importance of good health and hygiene practices. Most of them learned about health and sanitation matters mostly from health workers, health clinics, and hospitals. They also learned health education from radio and the school.

5.9 Gender

5.9.1 General

This section presents the current status or the existing condition for gender and development in the Province of Samar for the WATSAN sector from the side of the government, on one hand; and the point of view of the people and the communities served, on the other. As such, it elucidates on the evolvement of gender policies on the national level and shows how these have filtered down to the local level where gender responsive planning has become a requirement for all development efforts on the WATSAN sector. It also reveals the extent of the awareness that the people and/or beneficiary communities have on gender matters as seen

through their participation in past sector projects as well as their perceived participation in future projects.

Gender-related information were taken from the following: (1) The interviews undertaken with LGU officials during the study period; (2) The answers to the CD/GAD Questionnaire distributed to select provincial and municipal officials involved in sector development; (3) The Result of the Barangay Key Informant Survey for Eastern Samar administered to the officials of the select local communities; and (4) The Result of the Group Interviews for Eastern Samar conducted at the barangay level; and (5) Other documents researched on and provided by the national, regional, provincial, municipal and barangay level offices.

5.9.2 The Evolution of Gender and Development

The 1987 Philippine Constitution recognizes and ensures the fundamental equality of women and men before the law and cites their respective roles in nation building. The National Commission on the Role of Filipino Women (NCRFW), established in 1975, ensures the integration of gender concerns in all aspects of the project development. In 1991, Republic Act 7192, better known as "Women in Development and Nation Building" was enacted to strengthen the mandate of the NCRFW. The Act called for the allocation of a substantial portion of the official development assistance funds from foreign governments and multilateral agencies to support programs and activities for women.

The adoption of the Philippine Plan for Gender Responsive Development (1995-2025) paved the way for full participation of women and men in planning and implementation of technology for infrastructure projects, including those in the water supply and sanitation sector. In 1995, the Office of the President issued Memorandum Order No. 282 directing various government training institutions to incorporate "Gender and Development (GAD) Concerns and Programs" in their respective curricula in order to further institutionalize gender and development programs. The General Appropriations Act of 1997 mandated all departments, offices and agencies to set aside a minimum amount of 5% out of their 1997 appropriations to be used for projects designed to address gender issues. The LGC includes a provision giving political empowerment to women by creating sectoral seat for women to be elected in every local legislative assembly all over the country. To facilitate the whole process, a gender conscious system of data gathering, processing and generation has been established.

The significance of RA 7192 has started to gradually filter down to the LGU levels. The DILG gives Gender Awareness Orientation and Training to its officials and employees, from

the central down to the municipal level. The purpose for this is not only to establish a common awareness on gender, but also to recognize that they are catalysts of growth and development for LGUs. In compliance with the policies enunciated in RA 7192, all government departments and agencies were directed to revise, review all their regulations, circulars, issuance and procedures to remove any gender bias. Thus, recent projects that national government agencies have incorporated gender concepts including the projects from the water and sanitation sector.

The DILG implements gender responsive WATSAN projects. The DPWH implemented in 1991 the First Rural Water Supply and Sanitation Project which adopted the "Women in Development" (WID) approach aimed to create support mechanisms to enable women to surmount problems regarding water and sanitation thereby increasing their productivity efforts and giving them greater participation in decision-making. Most of the water and sanitation projects of the DOH are directed towards the improvement of women's health and physical condition as well as their social status in the community. As such, the implementation of many health and sanitation projects, including water supply, utilizes the women's sector in the community.

5.9.3 The LGUs and Gender

Gender and development has not yet been fully filtered down in the province of Eastern Samar. The awareness of implementing gender sensitive projects, however, is slowly been realized. The inclusion or utilization of gender sensitive approach to planning of WATSAN projects has been limited, however, on the health, sanitation and hygiene projects.

5.9.4 Gender in WATSAN Sector Projects

(1) Gender Participation in Sector Development Projects

One of the objectives of the province-wide group interviews undertaken in this study was to assess gender sensitivity of the intended sector beneficiaries in the roles and modes of participation that they, as men and women, perceive for themselves in WATSAN projects. Another important objective was to identify potential service population and service level desired by the community, to assess the degree of involvement of both men and women in planning, managing, operating and maintaining WATSAN projects, and the willingness and capacity to pay of potential users.

The respondents in the group interviews were composed of 35 females and 26 males, the majority of whom belong to the 26-45-age bracket. The majority of the interviewees received elementary education, where the females outnumbered the male in this level. Some of the respondents graduated from high school, but with more females graduating as compared to the males. Only two respondents completed college, one male and one female. The occupation of a big majority of the male and female respondents was farming/fishing.

In the two barangays surveyed for the group interviews, the total number of barangay council members was 17. Of this number, 8 were males and nine were females. The barangay captains in both barangays were male.

On the formation/composition of the BWSA/RWSA and WD Board:

The key informants in the three barangays surveyed indicated that there was BWSA/RWSA in their respective barangays. Each of the three barangays also has a committee on water and sanitation within the barangay council.

There are five sectors represented in the water district's Board of Directors, one of which is the women's sector. More often than not, the educational sector almost always nominates/appoints a female educator.

On participation in WATSAN training:

Only 30% of the respondents (7 females and 11 males) was able to attend training programs for the year 1998. The majority of the respondents said they were aware of sector-related training, such as the caretakers' training, finance/collection and the repair/O&M training. More than 80% of the respondents was willing to attend training programs for the WATSAN sector and about the same percentage indicated that the training period desired was more than three days.

On participation in health and hygiene:

Only 2 out of 35 female respondents participated in health and education training compared to 10 out of 16 male respondents. Thus, a low 20% of the total number of respondents actually participated in any health and hygiene education and training. On water-related illnesses, it was found out that the men were afflicted with diseases such as diarrhea, gastro-enteritis and typhoid fever, while the most women had skin diseases and other diseases.

On participation in operation and maintenance:

The male respondents were consistent at indicating their willingness to participate in different activities of future WATSAN projects, including operation and maintenance tasks. The female interviewees, however, showed varying degrees of willingness to participate where only nine out of 36 wanted to be involved in O&M work. Most of the females said that a professional caretaker was responsible for minor repairs on the facilities, while the male interviewees indicated that it was mostly the male members of the community.

(2) Gender in Water Supply and Sanitation Practices

The same survey also indicated gender sensitivity in water supply and sanitation practices, as presented in the following findings:

Responsibility in Fetching Water

According to the 15 of 35 female respondents, the wife was still the one responsible for fetching water. Only eight female respondents said that the husband helped. The male and female children helped in the task, according to only four and five female respondents respectively. Three other female respondents pointed to "others" who fetched water for household use. For seven of the 26 male respondents, it was the husband was the one responsible for hauling drinking water for family use, although six of them admitted that the wife assisted in this task. For 11 male respondents, the male children were equally responsible for fetching water.

5.10 Existing Project and Sector Monitoring

(1) Sector Monitoring

The primary sources of sector data are the field office and staff of DPWH, DOH, LWUA, DILG and NSO. Other agencies, including NEDA and LGUs, use data from these agencies. Each of these agencies runs its own project and/or activity-monitoring system largely based on required reports of its field offices. Only the NSO gathers and assesses information nationwide on a regular basis as part of its Census on Population and Housing (CPH).

Periodical WATSAN sector monitoring shall be conducted aside from project monitoring to study and evaluate: existing sector development conditions, against national and provincial sector targets for making necessary arrangements at the sector level. The sector monitoring activities needs an appropriate budgetary allocation annually. Participatory monitoring with associations/barangays and municipalities would be practical and cost

saving method. Formulating sector development strategies and planning the development projects can not practiced without sector monitoring, so that establishment of sector monitoring and reporting mechanism with responsibilities for all concerned parties is an urgent requirement.

(2) Project Monitoring

Project monitoring has been conducted by different government levels depending on the characteristics of the project i.e., local funded or foreign assisted projects. However, only projects handled by the local offices of central government agencies are monitored, mainly focusing on physical accomplishments and capital expenditures of projects, by respective central government line agencies.

Monitoring activities under the Regional Development Council cover four components: Economic, Social Development, Infrastructure and Development Administration. Monitoring report on the foreign assisted infrastructure projects, including water supply project is submitted from PPDO to the national government agencies concnemd. Agencies to which the reports are submitted and reporting schedule are defined in the Implementing Guidelines of the projects. The monitoring report is also sent to the NEDA Central Office by the agencies. The central government agencies also report to the foreign assistance agencies such as ADB, WB, etc.

It was field confirmed at the NEDA Regional Office that there are some foreign assisted projects directly provided to the regional office, such as grass root assistance with a limited amount. The NEDA is not involved in the occasion of signing with the foreign donor for such projects. However, the reporting on the project is usually made from regional office to the central office of NEDA. In this connection, the central office of NEDA sometimes overlooks the projects. It is necessary to establish data management system to monitor all related projects.

There are no significant differences in the current project monitoring systems at the LGU level. The monitoring for WATSAN related projects are conducted under the Regional Monitoring and Evaluation System. The PPDO/MPDO concerned conducts monitoring from the start until completion of the project. Projects that are getting negative feedback and require validation and verification are closely monitored. The report covers status of implementation, finance, percentage of accomplishment and slippage/problems as well as evaluation and countermeasures. Figure 5.10.1 shows an example of UNDP assisted project illustrating the linkages among concerned agencies.

In both sector and project monitoring, the exchange of information between concerned agencies seems to be insufficient/not systematic, though there are opportunities to do so, like during the RDC regular meetings. In addition, the absence of a reliable data management system not only adds burden to the monitoring work but also causes wide dissatisfaction among project implementors themselves. The preparation of monitoring reports is seen by some as a nuisance to performing more important tasks, thus the monitoring reports are haphazardly done. When this happens, the reliability of information presented in the reports is compromised. An effective monitoring mechanism and data management system must be in place and put to work by the concerned agencies.

UNDP/PHI/93/010 PROJECT
PARTICIPATORY MONITORING FEEDFORWARD
AND FEEDBACK MANAGEMENT MECHANISM

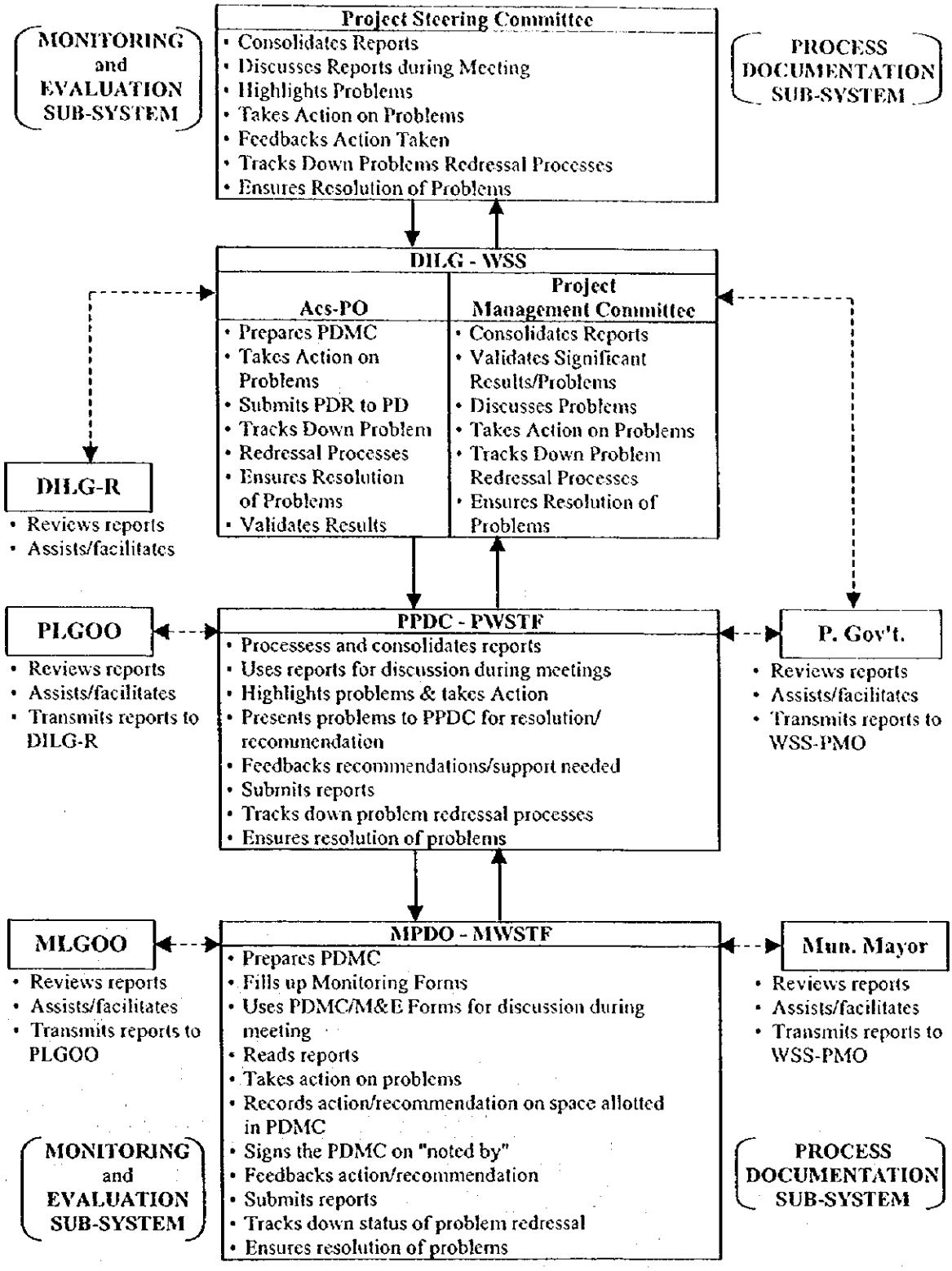


Figure 5.10.1 UNDP Monitoring Mechanism

Chapter 6

PAST FINANCIAL PERFORMANCE IN WATER SUPPLY AND SANITATION

6. PAST FINANCIAL PERFOMANCE IN WATER SUPPLY AND SANITATION

6.1 General

Based on the Local Government Code of 1991 and NEDA Board Resolution No. 4 (1994), the locally funded programs and projects for the water supply and sanitation sector have been devolved from the central government agencies to the LGUs since 1992. However, the central government still retains its role of providing support to LGUs in the form of technical, institutional capacity-building and limited financial assistance.

The financial arrangements which have been adopted and implemented, since the sector's devolution to the LGUs, by the province with a special attention to the subject sector are reviewed and discussed in this chapter. The past experience served as the basis to formulate for appropriate financial arrangements for the medium term development. The essential study components are: (1) LGUs' past financial performance; (2) past public investment and present plans; (3) LGUs' present financing sources and management participation in the sector, (4) existing practices by the LGUs on cost recovery and (5) affordability by users.

6.2 LGU's Past Financial Performance

The provincial government's past financial performance for the period covering the years 1995 to 1999 was investigated. Actual financial data were obtained for the years 1995 to 1998, while the financial figures in 1999 are only budgetary estimates. The municipalities' past financial performance in the same period (1995 to 1998) is not available.

6.2.1 Sources and Uses of Funds

(1) Sources of Funds in the Province

The sources of income of the LGU are Internal Revenue Allotments (IRA), local tax revenues, non-tax revenues such as grants, aids and subsidies, as shown below. At the present time, IRA is a major financial source of the LGUs.

(a) IRA -- LGU's share in the national internal revenue taxes is based on the collection of the 3rd fiscal year preceding the current fiscal year and is shown as follows: 1st year of effectivity of the LGC of 1991 – 30% (1992), 2nd year (1993) -- 35% and on the 3rd year (1994) and thereafter is 40% of the gross national internal revenue collections. A standard formula, which considers parameters such as population (50%), land area

(25%), and equal sharing (25%) is used to determine the LGU share in the IRA. Provided, however, that in the 1st year LGUs were, in addition to the 30% IRA which included the cost of devolved functions for essential public services, entitled to receive the amount equivalent to the cost of devolved personnel services.

(b) Tax Revenues – mainly consist of real property tax, accounting for an average of 4.12% of the total income of the province.

(c) Grants, Aids and Subsidies – the province have not received technical assistance grants from the ADB and other multi-lateral financial institutions.

(d) Other Income –there are no economic enterprises, but receives minimal income from various fees and charges on some services which include tax on delivery trucks, occupation tax, amusement tax, sand and gravel tax, mining claims, alien registration fee, secretary's fee and hospital income.

Based on the Local Government Code of 1991, 40% of the national internal revenue taxes of the 3rd fiscal year preceding the current year (from 1994 onwards) is allocated to the LGUs nationwide, specifically to the administrative units of (1) province (23%); (2) city (23%); (3) municipality (34%), and barangay (20%). Further, respective IRAs in different administrative levels are allotted to all administrative units concerned.

Table 6.2.1 presents the income and expenditures of Eastern Samar during the period of 1995-1999. Local tax revenues, which were 4.12% of the total income of the province, consist of real property tax, business taxes and licenses, and miscellaneous taxes. IRA's annual average share to total income was 95.88% on an annual average, which indicates that the province has historically been dependent on the IRA with its low tax and non-tax revenue collections.

The provincial government has no economic enterprises, but it receives municipal income, not on a regular basis from the following: fees and charges from small-scale mining and sand and gravel operations.

In order to mobilize fund sourcing, the 1987 Constitution and the 1991 Local Government Code granted the Provincial Government to have its initiative to create new revenue sources. The LGU financing options are discussed in Section 6.4 and in the Supporting Report.

Table 6.2.1 Income and Expenditures, 1995 - 1999

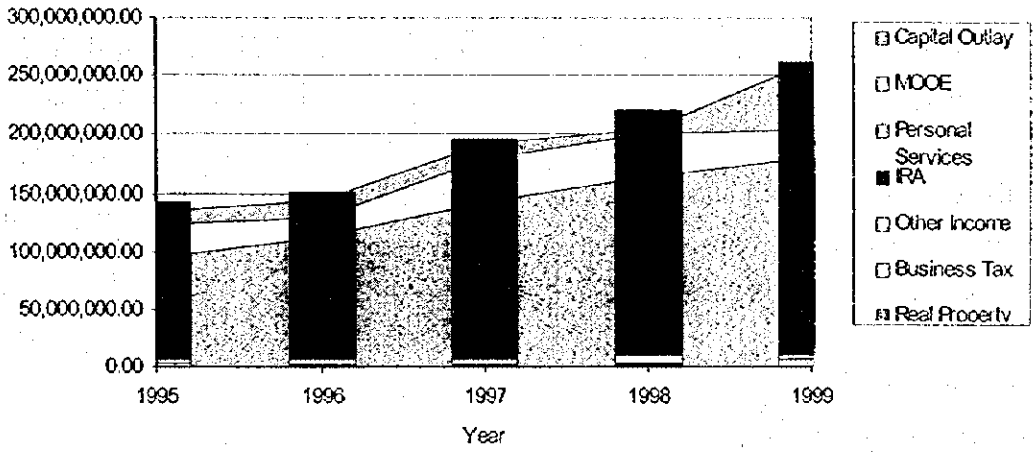
Unit: Pesos

PARTICULARS	1995	1996	1997	1998	1999
RECEIPTS					
Tax Revenue	3,848,127.73				5,992,000.00
Real Property Tax		913,246.37	1,057,123.97	2,160,000.00	
Business Tax		355,873.95	473,449.46	603,000.00	
Others	2,295,140.00	5,105,636.18	5,649,692.73	7,322,050.00	3,690,000.00
IRA	136,086,956	144,764,419	187,753,918	209,924,000	240,642,060
Other Revenue Source					
Sub-Total	142,230,223.73	151,139,175.50	194,934,184.16	220,009,050.00	250,324,060.00
EXPENDITURES					
Personal Services	94,007,592.54	112,198,726.05	141,757,207.39	163,391,694.26	181,087,173.00
MOOE	29,379,157.61	16,831,668.30	37,702,821.44	37,756,821.42	22,451,353.00
Others					
Sub-Total	123,386,750.15	129,030,394.35	179,460,028.83	201,148,515.68	203,538,526.00
NET OPERATING INCOME	18,843,473.58	22,108,781.15	15,474,155.33	18,860,534.32	46,785,534.00
Add: Borrowings					
Adjustments	13,680,589.10	9,136,631.80	8,570,985.48	3,118,789.53	
Less: Capital Outlay	10,493,944.31	15,988,783.61	12,882,884.07	2,430,548.59	59,166,911.00
NET INCOME	22,030,118.37	15,256,629.34	11,162,256.74	19,548,775.26	(12,381,377.00)

Source: Provincial Accountant's Office

Note: 1/ Includes Tax Revenues (Real Property Tax, Transfer Tax, Franchise Tax, Tax on Peddlers, Occupation, Immigration Tax, Mining Tax, Sand and Gravel Tax, Community Tax, Amusement Tax, Miscellaneous, etc)
2/ Includes Secretary's Fees, and other charges.

Figure 6.2.1
Income & Expenditure of Eastern Samar, 1995-1999



(2) Uses of Funds in the Province

Actual expenditures of the provincial government during the period from 1995 to 1998 show that personnel expenses comprise majority of expenses with an average of 72.23% to the total revenue as a result of devaluation. Maintenance and operating expenses of the province was 15.03%. In addition, the province has a capital outlay with an average of 10.53% to the total revenues. The funds for the water supply sector were part of the capital outlays of the province.

From 1995 to 1998, the province had an average of ₱ 18.82 million net operating income from operations. For 1999, the province has likewise projected a net operating income of ₱46.79 million. After deducting capital outlay amounting to ₱59.16 million, the province projects a net loss of ₱12.38 million.

6.2.2 Availability of Funds

As previously noted, the IRA comprises 95.88% of the total income of the province, which is tapped to finance most of its expenditures including capital outlays and even non-office expenses (incidental). According to the Provincial Treasurer's Office, the amount of IRA that will be received by the province is known in advance before the end of the preceding year. Thus, for budgeting purposes, the province just uses the actual amount of IRA it received in the preceding year as its estimate of IRA for the budget year. In the case where the IRA received is larger than that of the preceding year, the province prepares a supplemental budget.

Table 6.2.2 presents the historical IRA of the provincial government and its municipalities between 1995 and budget year 1999. As shown, the average IRA of the province was 1.06% of the provincial IRA nationwide in the period 1995-1998 and budget year 1999. Likewise, the total amount of IRA allotted to all its municipalities in the years 1995-1999 was 1.08% in average. The IRA percentage of each municipality to total municipal IRA nationwide is presented in Table 6.2.2, Supporting Report.

Based on the past financial performance of the province, IRA has been a major source of funds. At first, 20% Development Fund (DF) and 5% Calamity Fund are deducted from the total amount of provincial IRA. Then, the remaining portion of the IRA is combined with other income sources. Contractual and statutory items, which are covered by R.A. 324 (b) are deducted from the pooled income (75% IRA + all other income) before other appropriations are made.

Table 6.2.2 Internal Revenue Allotment to the Provinces, 1995 – 1999

Unit: Pesos

		1995	1996	1997	1998	1999
National	I. National Total of IRA	55,202,000,000	58,022,990,000	71,049,000,000	80,900,763,000	96,780,000,000
	(a) IRA to all Provinces	12,696,644,000	13,755,011,803	17,813,000,000	20,054,018,925	22,535,543,437
	(b) IRA to all Cities	12,696,460,000	13,345,287,700	16,341,270,000	18,627,875,490	20,370,081,167
	(c) IRA to all Municipalities	18,768,952,000	19,607,715,553	24,849,000,000	28,245,815,434	31,830,589,345
Provincial	II. IRA to Eastern Samar					
	(1) Total: (2) + (3)	335,606,346	359,014,194	453,344,355	522,216,064	598,554,723
	(2) Provincial Government	136,086,956	144,764,419	187,753,918	209,924,000	240,642,060
	Percentage (a)	1.07	1.05	1.05	1.05	1.08
	(3) Municipalities	199,519,390	214,249,775	265,590,437	312,292,064	357,912,663
	Percentage (c)	1.06	1.09	1.07	1.11	1.09
	III. Total Income of the Provincial Government	142,230,223.73	151,139,175.50	194,934,184.16	220,069,050.00	250,324,060.00
	Percentage of IRA	95.68	95.78	96.32	95.42	96.13
Municipalities	IV. Total Income of the Municipalities 1/	136,913,582	182,274,279	235,445,710	214,224,279	222,080,924
	Percentage of IRA	100.71	93.04	92.07	100.23	89.91
	V. IRA to Municipalities					
	TOTAL	199,519,390	214,249,775	265,590,437	312,292,064	357,912,663
	Arteche	7,777,115	8,359,023.00	10,589,317.93	10,633,381	12,200,424
	Balangiga	7,567,927	8,124,390.00	10,380,877.60	12,018,380	13,761,238
	Balangkayan	7,403,274	7,927,439.00	10,416,918.12	12,041,489	13,722,278
	Borongan (Capital)	18,436,747	19,798,596.00	20,002,619.13	31,899,545	36,647,323
	Can-Avid	9,531,984	10,211,885.00	13,148,695.90	13,451,084	15,417,580
	Dolores	13,348,731	14,368,445.00	18,237,205.15	21,102,437	24,339,157
	General Macarthur	6,594,488	7,101,621.00	8,992,205.63	10,322,466	11,800,915
	Giporlos	6,829,715	7,358,342.00	8,986,112.06	10,039,884	11,461,170
	Guiuan	11,971,501	12,959,467.00	15,955,527.08	18,093,848	20,956,072
	Hernani	5,155,522	5,568,003.00	7,295,807.68	8,305,630	9,487,960
	Jipapad	7,346,863	7,854,991.00	9,970,548.25	11,575,086	13,206,476
	Lawaan	6,297,729	6,777,375.00	9,516,143.27	11,004,508	12,599,142
	Llorente	13,490,051	14,410,689.00	17,095,343.29	20,042,597	22,923,155
	Maslog	7,127,344	7,605,471.00	9,598,792.44	11,205,955	12,752,745
	Maydolong	10,778,030	11,494,788.00	14,528,321.55	16,984,712	19,392,551
	Mercedes	4,388,588	4,743,583.00	6,194,485.80	7,019,427	7,997,750
	Oras	10,994,271	11,868,056.00	13,240,007.78	17,757,158	20,508,953
	Quinapondan	6,313,487	6,814,148.00	8,932,889.66	10,162,178	11,625,228
	Salcedo	7,926,330	8,558,263.00	10,504,591.26	12,024,776	13,789,738
	San Julian	7,174,099	7,715,631.00	9,829,893.15	11,216,208	12,780,386
	San Policarpo	6,197,801	6,687,964.00	8,709,753.04	9,910,729	11,350,291
	Sulat	7,728,477	8,141,595.00	10,643,440.93	12,230,300	14,000,790
	Taft	9,139,316	9,800,010.00	12,820,940.29	13,250,286	15,191,341

Source: Provincial Treasurer's Office

Note: 1/ Data for tax and other revenues income of the following municipalities: Arteche (1995), Balangkayan (1999), Borongan (1995, 1999), Gen. Macarthur (1998, 1999), Giporlos (1995 - 1999), Jipapad (1999), Lawaan (1995 - 1999), Maslog (1995 - 1999), Maydolong (1995 - 1999), Mercedes (1995-1999), Oras (1998, 1999), San Policarpio (1995, 1999) and Taft (1998) are not available.

Based on the income statement of the province, available funds of the province are mainly spent to cover personnel salaries, benefits, MOOE and capital expenditures. The provincial government's combined income from IRA and its tax, and non-tax revenues was just sufficient to cover operating, capital and non-office expenses. Thus, there was little surplus income that could be tapped for additional capital expenditures.

For the planned capital expenditures of the province, the 20% Development Fund (DF) of the IRA are appropriated. The percentages allotted as the DF are the minimum requirement that should be arranged for capital projects as stated in the memorandum circulars of the DILG.

Table 6.2.3 presents allotted funds for capital expenditures (20% DF) between 1995 and 1999. The 20% DF of the province was sufficient to cover the actual expenditures 1995 to 1998. For 1999, it is projected that the 20% DF amounting to ₱50.6 million will not be adequate to cover the capital expenditures of the province, which is projected at ₱59.166 million; thus resulting to a projected deficit of ₱8.56 million.

Table 6.2.3 Actual Funds for Capital Expenditures (20% DF), 1995-1999

Unit: Pesos

Year	IRA of the Province (a)	Planned 20% DF 1/ (b)	Actual Expenditures on 20% DF 2/ (c)	Surplus/(Deficit)
1995	136,086,956	27,217,391.20	10,493,944.31	16,723,446.89
1996	144,764,419	28,952,883.80	15,988,783.61	12,964,100.19
1997	187,753,918	37,550,783.60	12,882,884.07	24,667,899.53
1998	209,924,000	41,984,800.00	2,430,548.59	39,554,251.41
1999	240,642,060	50,604,687.40	59,166,911.00	(8,562,223.60)

Source: Provincial Treasurer's Office

1/ The 20% DF allotted may not be equal to the computed 20% of IRA.

2/ These figures are the capital expenditures shown in Table 6.2.1 from Provincial Accountant's Office.

6.2.3 Financial Indicators

In order to determine the debt servicing capability of the province, the formula used by the Bureau of Local Government Finance (BLGF) under the Department of Finance (DF) was employed. It takes into account the regular income of the LGU referring to revenues (real property and business taxes), receipts from economic enterprises, as well as fees and charges that are collected regularly. Receipts from borrowings, grants and inter-fund transfers are not considered as regular income.

The following is the formula adopted by BLGF in computing the debt servicing capacity. According to the MDF Policy Governing Board Resolution 4-95, the average annual growth rate to be used should not exceed 15%.

DSC =[{RINC 1 (1+AGR) + RINC 1} + IRA 2] x 20% - AMORT

Where:

DSC = debt servicing capacity of the LGU

RINC = regular income

AGR = average growth rate

IRA = internal revenue allotment

20% = debt servicing ceiling percentage imposed by the Local Government Code of 1991 under Section 324 (b).

AMORT = amortization of the LGU's outstanding loan

1 = current year

2 = preceding year

Based on the above formula, the amount of the debt servicing capacity of the provincial government was computed to be ₱43.92 million for the year 1999. This amount reflects the maximum loan that can be availed of from MDF. There were no loan borrowings. The local tax income in the current year and IRA of the province in the preceding year are ₱9.68 million and ₱209.92 million, respectively.

6.3 Past Public Investment and Present Plans

6.3.1 Past and Current Annual Investment Plans

The past and recent development of the water supply and sanitation sector in the province was undertaken by the provincial government and DPWH. The fund from the CDF (Countrywide Development Fund) was also availed of. The water supply sector spent a total of ₱18.3 million for the period 1995-1998 (refer to Table 6.3.1 and Figure 6.3.1). The largest investment registered so far is those for Level I water supply in the barangays with an aggregate amount of ₱10.1 million during the said period.

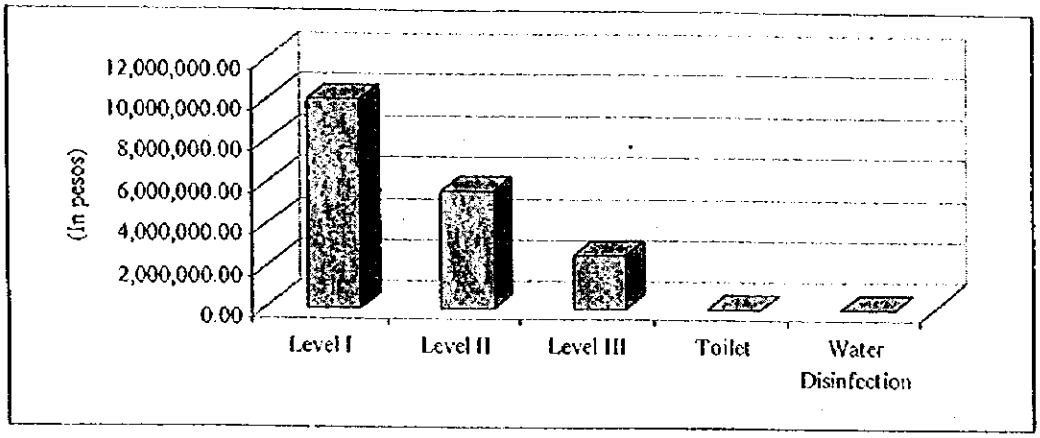
Table 6.3.1 Actual Amount of Sector Investment to the Province by Concerned Agencies, 1995 - 1998

Unit: Pesos

Funding Category		1995-1998					
Agency	Funds	Level I	Level II	Level III	Sub-Total	Toilet	Water Disinfection
DILG		9,649,160			9,649,160		
DPWH							
LWUA				1,825,727	1,825,727		
DOH	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
NGO (IPHC-DMSF)							
UNICEF							
PROVINCE		450,000	5,665,000	750,000	6,865,000		
MUNICIPALITY							
Prov./Mun./Rehab/Repair	(mainly completion of water						
Expansion	systems in barangays)			n.a.		n.a.	n.a.
Total		10,099,160	5,665,000	2,575,727	18,339,887		

Source: Various Government Agencies.

Figure 6.3.1
Actual Amount of Sector Investment to the Province
by Concerned Agencies, 1995 - 1998



(1) Budgetary Allocation to the Sector

The Budget Office of the province consolidates the budget proposal submitted by all offices of the Provincial Government. While, the DBM issues a Local Budget Memorandum every October of the preceding budget year to guide the provinces in their budget preparation. The sector obtains allotment from the 20% DF allocation by the Provincial Development Council (PDC).

Once the budgetary arrangement is completed, the local chief executive (Governor) endorses it to the SP for approval and appropriation. The SP usually approves the budget, ideally before January of the budget year. In case the budget is not approved, the province operates on a re-enacted budget, which is based on the last year's budget, until the budget for the current year is approved.

(2) Capital Expenditures in the Sector

The projects programmed for implementation in the province by sector, by funding source, and by implementing agency are consolidated and presented by the PPDO in the Provincial Annual Investment Plan (AIP). The AIP is based on the planned investment of the province, as well as on the submission to the PPDO from the municipalities on their planned investments for the coming year. The AIPs of Eastern Samar for the Sector from 1995 to 1998 are summarized in Tables 6.3.2 and 6.3.3.

Table 6.3.2 Annual Investment Plan, 1995 – 1998

Unit: Pesos

Item	1995	1996	1997	1998	Total	% Share
Construction (DW, SW, Spring Box, Reservoir, Tank) Various Foreign Assisted (OECF) National (DPWH/CDF/DILG/PAF2) Various Local Funding (Prov / Mun.)	300,000		4,847,070	4,997,050	10,144,160	55.1
Spring Development with L2 Various Foreign Assisted (OECF) National (DPWH/CDF) National/Local Funding (DOH) Various Local Funding (Prov./Mun.)	900,000	1,180,000	4,335,000	1,825,727	8,240,727	44.9
Spring Development with L3 Construction Levels 2/3 (Municipal) National (DPWH/CDF) Local funding (Municipal) Maintains/Rehabs/Improve L1/L2/L3 & SD (Prov/Mun) Expansion L2/L3 (Prov/Mun) Construction of Health Center/Stations-Barangay (DOH) Water Disinfection/Chlorination of Water Sources (DOH) Barangay Sanitation/Sanitary Toilets (DOH/DILG/MUN) Special Water Supply Projects (Gov't Center, Hospital – Local) – Municipal						
Total	900,000	1,180,000	9,182,070	6,822,777	18,384,887	100.00

Source: Provincial Planning and Development Office.

Table 6.3.3 Sector Allocation in the Annual Investment Plan, 1995 – 1998

Unit: Pesos

Item	1995	1996	1997	1998	Total
Level I Foreign Assisted National Local	 300,000		 4,847,080	 4,847,080 150,000	 9,694,160 450,000
Level 2/3 Foreign Assisted National Local	 900,000	 1,180,000	 4,335,000	 1,825,727	 1,825,727 6,415,000
Other : Expansion Repair/Maintenance Special Water Supply Projects (Gov't. Centers, Hosp.) – Local Water Quality Sub-Total Water Supply					
Health Centers Sanitation Toilet (DOH) Sanitation Toilet (Municipal) Sub-Total Sanitation					
Grand Total	1,200,000	1,180,000	9,182,080	6,822,807	18,384,887

Source: Provincial Planning and Development Office

Table 6.3.2 shows the annual planned activities in the water supply sector, the corresponding funding sources and the amount of investment from 1995 to 1998. (Table 6.3.3 summarizes annual sector investments by service level for the period 1994 to 1998). Given priorities in the WATSAN were the construction of deep wells, shallow wells, spring boxes, reservoirs and tanks as well as spring development under Level II which

appropriated 55% (₱10.14 million) and 45% (₱8.24 million), respectively of the WATSAN allotment for the period 1995 – 1998.

In the AIP of the province, a total investment cost of ₱18.38 million was planned both for water supply and sanitation sector during the period of 1995-1998. For 1998, the actual expenditure for the sector out of the 20% DF of the province was ₱2.48 million or about 36.39% of the required investments (refer to Table 6.3.4).

The AIP of the province must include the repair and maintenance items of water supply facilities.

6.3.2 Past and Current Breakdown of 20% Development Fund

The allocation of the 20% DF is guided by DILG Memorandum Circular No.95-215 as amended by Memorandum Circular No. 96-263 issuing 'the Policies and Guidelines on the Utilization of the DF and other related matters'.

As presented in Table 6.3.4 and graphically shown in Figure 6.3.4, there was no detailed breakdown of sectoral allotments for infrastructure and others. The water supply and sanitation was given low priority with a minimal share of only 5.91% of the planned amount from 20% DF in 1998. Prior to this year, there was no data available on the actual disbursements for all the sectors including WATSAN sector.

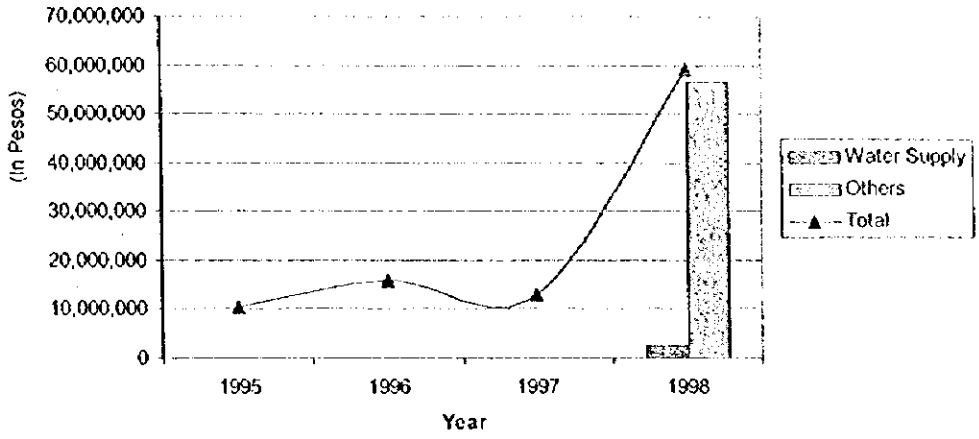
Table 6.3.4 Allocation of the 20% Development Fund, 1995-1998

Unit: Pesos

Year	Planned 20% Dev't. Fund	Actual Expenditures							
		Social Development	Economic Development	Infra-structure	Water Supply	Sanitation	Others	Sub-Total	% of Water Supply to Actual Disbursed Amount of 20% DF
1995	27,217,391.20	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	10,493,944.31	-
1996	28,952,883.80	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	15,988,783.61	-
1997	37,550,783.60	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	12,882,884.07	-
1998[v]	41,984,800.00	n.a.	n.a.	n.a.	2,483,000	n.a.	56,683,911	59,166,911.00	4.19

Source: Provincial Budget Office and Provincial Accountant's Office.
[v] The 1998 figures for expenditures are allotted amounts only. Actual figures are not available.

Figure 6.3.4
Allocation of the 20% Development Fund, 1995-1998



The provincial government provides the prioritized WATSAN projects with funds under the social services sector. Actual expenditures on 20% DF as shown in Table 6.2.3 are the same as those in Table 6.3.4 (sectoral disbursements) which reflect both capital outlays and exclude incidental expenses, etc. In 1998, out of the 20% DF of ₱ 41.9 million, disbursed amount to WATSAN sector was only ₱2.48 million (which is equivalent to 5.91% of the planned 20% DF or 4.19% of the actual total disbursements from 20%).

The Provincial Government is involved in the ADB-assisted Rural Water Supply and Sanitation Project which covers sixteen (16) provinces including Biliran, Eastern Samar and Southern Leyte in Region VIII. The RW3SP project consists of two parts. Part A covers Institutional Development including (i) a capacity-building and training program for LGUs; (ii) a community participation program to help the communities design and set up WSS management organizations for cost recovery, and operation and maintenance; (iii) a health and hygiene education program; and (iv) a water quality control and surveillance program. Part B covers construction and/ or rehabilitation of water supply facilities entailing simple and low-cost, point source development; provision of sanitation facilities in selected subprojects including public toilets and household toilets, and provision of consulting services to support Project implementation.

The total project cost is estimated at US$ 57.4 million including a foreign exchange component (US$ 20 million) and a local cost component (US$ 37.4 million). There are two loans, which will be utilized until 1 February 2002, with a combined total amount equivalent to US$ 37.0 million. These are: (i) loan of US$ 18.5 million equivalent from the Bank's ordinary capital resources (OCR), and (ii) a loan equivalent to US$ 18.5 million from the Bank's Spe-

cial Funds resources. The OCR loan will have an amortization period of 25 years, with a grace period of 5 years, an interest rate to be determined in accordance with the Bank's pool-based variable lending rate system for US$ loans, and a commitment charge of 0.75 percent per annum. The ADB loan will have a repayment period of 35 years, including a grace period of 10 years and a service charge of 1 percent per annum. The executing agency is the Department of Public Works and Highways (DPWH).

The National Government will provide 80 percent of the cost of water supply subproject, including the proceeds of the loans, in the form of grant financing through the budget for the development of rural WSS facilities. The LGUs concerned will contribute 10 percent in cash as equity and the beneficiary barangay will contribute the remaining 10 percent of each subproject cost in kind through labor for construction works, and donation of land for WSS facilities.

With respect to sanitation facilities (except for private latrines) and district laboratories, the Government will provide all required infrastructure and the LGUs and school administrations concerns will provide the required land as their respective equity contributions. The cost-sharing arrangements follow the Government's national standard policy for financing of all rural WSS programs.

DPWH will be the Executing Agency for the Project. It will manage and coordinate Project activities with other National Government agencies, including DILG and DOH. DILG will be the Implementing Agency for Parts A (i) and (ii); and DOH will be the Implementing Agency for Parts (iii) and (iv). With appropriate inputs from DILG and the communities, LGUs with TA from DPWH through its District Engineers Offices (DEOs) will design and construct, mainly through private contractors, the water supply facilities. The PMO-RWS, headed by a Project Director, and established for the implementation of foreign-assisted water supply projects including the Bank-financed second rural water supply sector project in the Philippines, will be re-established and suitably strengthened for the Project.

DILG will coordinate and implement capacity-building and community management training programs and, through NGOs, initiate community and LGU participation. In addition, DILG, through its own and NGOs resources and assisted by consultants, will carry out socioeconomic surveys and community participation activities for the subprojects. Decisions relating to site selection, subprojects design, and appropriate technology will be made at LGU level with the full participation of the beneficiary communities.

The responsibilities of BWSAs and LGUs will be as follows:

(i) At the community level, BWSAs already established (otherwise the barangay council), assisted by NGOs, will participate in the mobilization of communities and preparation of subproject proposals; and BWSAs, established as a precondition for award of contracts, will assist in construction and be fully in charge of O & M of the facilities;

(ii) The mayor, as chief executive of LGU (municipal level), will be responsible for managing the Project activities at the municipal government level in coordination with DEO and the local DOH office. The project activities at this level will be the selection and formulation of subproject proposals, implementation of subprojects and training.

(iii) At the provincial LGU level, the Governor of the province will have overall responsibility for a provincial board, which will appraise, through the provincial planning and development office and approve subproject proposals prepared at the municipal government level.

For cost recovery, the Government will ensure that BWSAs will provide for a part of the capital costs and all O & M costs (including depreciation) related to the WSS facilities constructed and/or rehabilitated under the Project as follows:

(a) for capital costs, BWSAs will provide 10 percent of the capital costs of the water supply facilities in kind; and

(b) for O & M costs, BWSAs will provide the full costs of both routine O & M costs and replacement of assets.

The provincial government will fund WATSAN sector project on the basis of observed financial arrangements.

(a) Logistic support with required funding

The LGUs through the course of project implementation shall ensure the provision of adequate logistic support with financial arrangements. The LGUs have not given priority to the requirements considering the budgetary constraint. The AIP needs to include the plan for the logistic support entailing manpower and vehicle allocation.

Further, the province shall determine financial arrangements for the implementation of Medium-Term Development Plan (2000-2004) to be prepared, entailing the share to the relevant sector from development fund of IRA and other financial sources to be availed.

(b) Raising funds and provision of subsidies to support capital development in municipalities

The province provides the subsidies to support capital development at the municipal and barangay levels through its 20% DF. However, barangays and municipalities that request funding must be prompt in submitting the necessary documents to PPDO for processing. Out of the 20% DF, the province may provide logistics for manpower requirement for devolved functions.

6.4 LGUs' Present Financing Sources and Management Participation in the Sector

6.4.1 Cost Sharing Arrangements / Counterpart Funding

The implementation of water supply projects was previously undertaken by the Provincial Planning and Development Office (PPDO), Provincial Engineering Office (PEO), THO, DILG, DPWH, LWUA and NGO. These offices/agencies were involved in overseeing planning and implementing RW3SP project. The PEO receive requests for assistance from barangay people. The request, however, are granted on a case to case basis, usually if the manpower, materials and budget are available.

Minimal allocation has been experienced, which is about ₱1.8 million in 1999. Although the experience of the province on the access to other donors is still minimal, there has been assistance from other donors such as UNICEF and ADB (Level I). Cost sharing among concerned parties (LGUs, central government agencies and barangay people) has been made within realistic arrangement/ current capacity (though the level of the practice is far from present GOP policy). The PLGU and the barangay usually share the cost.

Currently, the sector projects receive funds under the allotment for social services sector. According to AIP, the province allocates part of 20% development fund of IRA to the prioritized municipalities.

The following are other financial arrangements and issues based on discussions with Provincial Treasurer, Budget and Accountant Offices.

a) There is a priority list of water supply projects for various barangays, but there is no budget allocation made in advance to reflect in the AIP. There is a Local Committee to decide on priority projects for their financing, the members of which come from Budget Office, Treasurer's Office, PPDO and Accounting Office. All projects must have barangay resolutions.

b) The PEO implements the Provincial government funded projects under the General Fund. The implementation of these projects is closely monitored with reference to progressive disbursements. For the sector implementation, the following are the local funding sources and corresponding implementing agencies.

Funding Source	Implementing Agency
Provincial Government	PEO
CDF (Congressmen)	DPWH – District Office
Municipal Government	Municipal Government

A new cost-sharing scheme was authorized in 1998 in accordance with the policy on national government grants. It is stated that "this scheme shall be applied to all new ODA-assisted projects that are currently being packaged in support of LGUs". Programs of central government agencies that involve devolved functions, particularly those that have social and/or environmental objectives are implemented through a cost-sharing arrangement between the central government agency and LGUs.

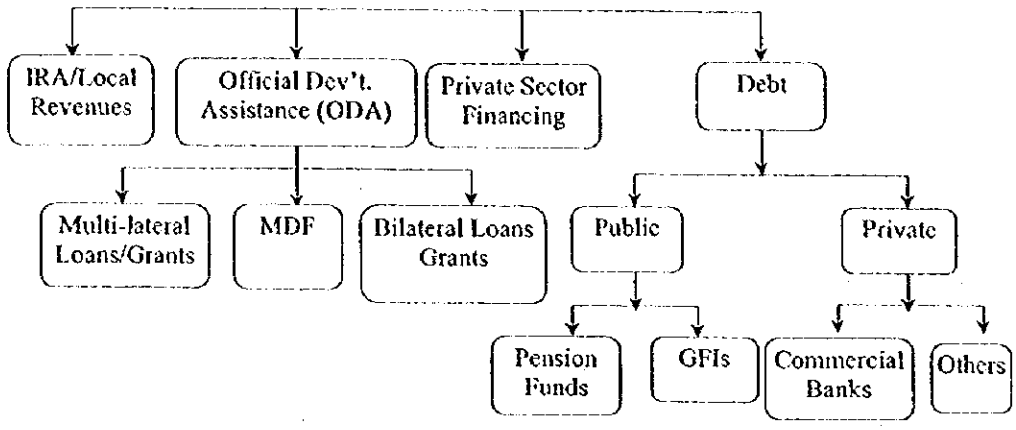
For any central government grants that are provided for the development of Level I water supply systems and sanitation facilities to the limited classes of municipalities, the LGUs and beneficiaries concerned shall share the capital cost required. No subsidies from the central government will be provided for the construction of Level II and III water supply systems.

6.4.2 ODA Assisted Projects and Grant Aid

Other external source of funds of the province is foreign assisted projects either directly coursed through the province as in the case of the UNICEF funds (grant) and JICA (grant) for technical assistance and ADB for Level I water supply projects. Water districts in the province likewise avail of funding through loans that are directly obtained from LWUA.

As of now, there was no NGO counterpart funding experienced by the Province. LGUs have thus financing options (refer to Figure 6.4.1): IRA, ODA, private sector financing and debt (both public and private sector debts). A more detailed discussion of the various LGU and private financing options is presented in the Supporting Report. Below are the major commonly availed or financing options by LGUs.

Figure 6.4.1 LGU Financing Options



Arrangement through Conduits

(1) Municipal Development Fund (MDF)

The MDF is a revolving fund created under Presidential Decree No. 1914 to provide LGUs access to foreign loans, assistance or grants. Operations of the MDF, as well as the evaluation and control of local government transactions of the fund are guided by the financial policies defined in the Joint Circular No. 6-87 of the DOF, COA and DBM. The policies include, among others, the following:

- On-lending terms for local governments or government corporations to be in accordance with the terms and conditions of the international agreements with foreign financial institutions;
- Loan repayments to conform with the terms and conditions of the corresponding Loan and Project Agreements;
- Annual debt service liabilities to all creditors to be at least 120 per cent of total net annual revenues from all sources after operating costs, unless otherwise provided in a mutual agreement among all parties concerned;
- Repayment to MDF to take precedence over all subsequent borrowings incurred;
- Payment of additional interest, charges and fees on amounts to be relent to local governments may be required by the Secretary of Finance in consultation or agreement with foreign lending institutions and LGUs/Project Cities to cover foreign exchange risks, commitment charges and front-end fees applied on foreign borrowings by lending institutions; and
- Internal revenue/specific tax allotments to be withheld by the DOF in case of default or arrearages for more than three (3) months.

The Policy on accessing loans through the MDF is currently under review by the central government to make the terms and conditions more concessional towards the LGUs.

(2) Governmental Financing Institutions (GFI)

In the past, the LGUs could not access financing institutions for direct assistance. But with the devolution of the sector to the LGUs, the LGUs could now access direct financing from banks and other financing institutions.

Among the GFIs through which LGUs can access ODA loans are the Land Bank of the Philippines (LBP) and the Development Bank of the Philippines (DBP). For the LGU to enter into a loan, the respective legislative council (Sangguniang Panlalawigan, SP for the Province; Sangguniang Panlunsod, SP for the City; and Sangguniang Bayan, SB for the Municipality) will authorize the Chief Executive Officer (Governor or Mayor, as the case may be). The collateral that the LGU may use in order to avail of loans from the bank could be any of the following: deposit hold out, public land and assignment of IRA.

In a deposit hold out loan, loanable amount is based on the amount in the time deposit account of the LGU in the bank. The LGU is allowed a maximum loanable amount of up to 90 per cent of the total amount of its time deposit account in the bank. One of the terms for this kind of loan includes deduction of amount due from the LGU's IRA deposited in that bank.

Another condition that the bank usually imposes on the loan is the signing of a MOA between the LGU and the bank, where the LGU guarantees that the loan will be honored despite a change in administration in the next election. Interest rate is not fixed.
Loanable amount may be based on the amount of time deposit of the province in the bank.

Other collateral accepted by the bank are: public land and assignment of IRA. Interest rate is not fixed but fluctuating depending on the current interest rates prevailing during repayment. Penalty charges are imposed whenever the IRA of the province is delayed.

(3) Foreign Lending Agencies

The external assistance to the Sector in the province comes from foreign assisted projects. Before the devolution of the sector, the province was a beneficiary of UNICEF health services and the ADB (Level I) financing assistance.

There is a World Bank-assisted project, the Local Government Unit-Urban Water and Sanitation Project (LGUUWSP), which was conceived in mid-1995 by the Government thru the DILG. The project is based on two underlying principles: "demand-driven approach in project development and implementation (the project shall provide services that the consumers want and are willing to pay for and that the services shall be managed at the lowest appropriate levels); and the "adoption of commercial principles" in the management/ operation of the water utilities by involving the private sector or the facilities must be operated as commercial entities, and water treated as an economic commodity.

The project promotes full cost recovery, that is, the tariff to be paid by the consumers should cover the cost of operation and maintenance and the repayment of the LGU DBP loan. The system shall be operated by a private operator under a long-term lease contract with the LGU. It aims to support the water supply requirement in the urban centers of approximately 250 small and medium sized municipalities, benefiting about 6 million people. There are two (2) sets of target markets, namely:

- Municipalities/ cities, irrespective of income class, which have not formed a water district; and
- Municipalities/ cities, irrespective of income class, which have water districts but are not in LWUA's current program of assistance (in which case, the LGU should secure a certification/ clearance to that effect). In the event that the local water district is receiving a loan from LWUA, it shall seek clearance from LWUA prior to entering into an agreement with LGU concerned in any program of system expansion/rehabilitation. The LGU equity ranges from 10-25% of the total project cost.

The overall cost estimated nationwide and implementation timetable of the project are as follows:

In US$ Million

Phase	World Bank	LGU	Total
1999 – 2002	23.3	13.7	37.0
2000 – 2004	60.0	20.0	80.0
2003 – 2006	100.0	33.0	133.0
Total	183.3	66.7	250.0

Relending terms are as follows:

1) World Bank funds shall be channelled thru the Development Bank of the Philippines (DBP) which shall relend them as sub-project loans to the LGUs.
2) The DBP sub-project loan shall include cost of feasibility study, technical design and construction of the water supply facility.

3) Basic terms of the loan are:

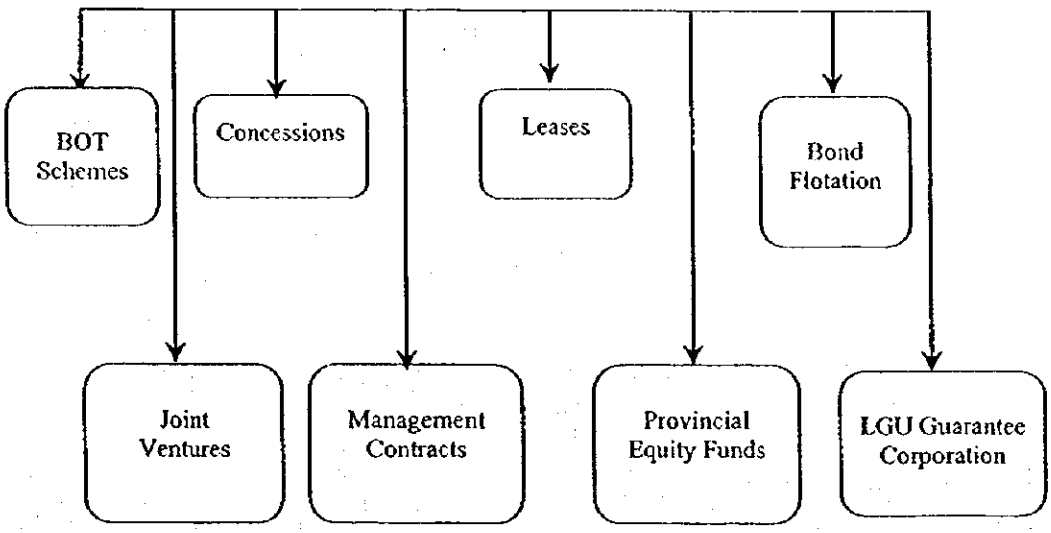
- Interest per annum; 15%
- Amortization Period; 15 years with 3-year grace period.

(4) Private Sector Financing Schemes

There are several private sector financing modalities that can be promoted to finance WATSAN sector projects particularly in urban areas, where service area coverage may warrant viability of WATSAN investments for a profit by the pririvate sector proponent. Further, Level III water supply expansion projects are now increasingly financed thru private sector financing mainly thru concession contracts and BOT schemes.

Figure 6.4.2 presents the different modalities for private sector financing that may be tapped by LGUs for financing water supply and sanitation sector projects. A more detailed discussion of the private sector financing schemes is presented in the Supporting Report.

Figure 6.4.2 Private Sector Financing



6.4.3 LGU-Financed and Managed Waterworks/Water District

Past Financial Performance of WDs and RWSAs/BWSAs

Currently, the priority in budget allocation is given to physical construction work, not to supporting activities to sustain the sector projects. The municipal government is providing

maintenance services. However, there is no preventive maintenance undertaken using appropriate manuals.

There are three (3) WDs in the province: Borongan, Sulat and Maydolong (Borongan WD has the largest number of metered connections with more than 1,300). Borongan WD has the largest amount of revenues with more than ₱366,000/ month, but there is no information available on the collection efficiency. There are also four (4) waterworks in the province with more than 100 connections per each WWs, but there is no information available for the water consumption figures and water rates being charged (refer to Table 6.4.1).

Two (2) WDs, Sulat and Borongan, incurred loans from LWUA amounting to ₱1.8 million and ₱15.67 million, respectively. In addition,. Llorente utilized loan with an amount of ₱1 million. No current arrears for these WWs are reported (refer to Table 6.4.2).

Table 6.4.1 Financial Indicators of Provincial/Municipal Waterworks in the Province (as of June 1998)

Waterworks	Description						
	No. of Metered Connections	No. of Flat Rate Connections	Average Monthly Rate	Average Consumption per HH	Average Expenditures	Average Revenue	Collection Efficiency
	Nos.	Nos.	Pesos/cu.m.	Cu.m./mo.	Pesos/mo.	Pesos/mo.	Percent (%)
Balangkayan WS	165	20					
Borongan WD	1,370	-	-			366,776	N.A.
Camada	-	30		N.A.	N.A.		
Salcedo WS	-	243					
Sulat WD	223	-	9.7			19,800	
Maydolong WD	216	-	9.0			19,530	
Llorente	117	-	10.0			10,500	

Source: Water Districts

Table 6.4.2 Loan Status of Provincial/Municipal Waterworks (as of June 1998)

Waterworks	Description			
	Total Loan Availed (1,000 Pesos)	Remaining Payment Period Months	Average Monthly Amortization	Current Arrears
Sulat WD	1,800,000	-		None
Maydolong WD	No loan	-		None
Borongan	15,669,268	300 moths		None
Llorente	1,000,000	-		None

Source: Local Water Utilities Administration

6.5 Existing Practices by the LGU on Cost Recovery

6.5.1 Capital Cost

In the previous arrangements, the capital cost for Level I system was free to the community, while operation and maintenance was the responsibility of the association. As for Level II systems, the capital cost was shouldered by the RWSA through loan or grants. Water charges collected by each association cover the cost of operation and maintenance and loan amortization. According to the Loan Department of LWUA, the new loan disbursement to RWSAs has been stopped.

For Level III system, WDs or RWSAs bear the entire capital cost financed by LWUA through loans with concessional terms of 8.5%-12.5% interest rate and repayment period extending up to thirty (30) years. Less capable WDs are granted soft loans that are interest free during the first five (5) years operation. In the occasion of the first assistance by LWUA, the loan for the full investment required could be provided for the WDs. For the expansion/rehabilitation works of the WDs, 90% of required investment may be granted by a loan and the remaining 10% shall be arranged by the equity of WDs. The cost of amortizing the loan and operation and maintenance of the system is recovered through monthly water bills. In case of LGU's operating Level III systems, the capital cost is managed by the LGU using part of DF and other financial sources (borrowings and aids).

Regarding the sanitation sector, the construction of the superstructure and the depository of household toilets is through self-help.

6.5.2 Operation and Maintenance Cost

The operation and maintenance cost for Level I and II water supply system is envisioned to be the responsibility of the users. As such, the users shall form an organization (or association) to handle the collection of water charges.

When DPWH had been undertaking the construction of Level I water supply facilities, the DPWH through DEOs and PEOs assisted to form many BWSAs. However, most of these BWSAs are no longer functioning, due to non-collection of water fees. As a consequence, the users had to go to the LGUs (usually barangay or municipal governments) to address the problem. In some cases, the users likewise requested the PEOs for assistance.

Although the DEO had no budget for operation and maintenance, it extended assistance in the form of materials (such as gaskets or joint pipes) from their supplies, if these items are available. Because of this situation, the emphasis was placed on the need of monthly contributions from the users for the O&M. While, some of the active BWSAs for Level I water supply collected monthly fees ranging from ₱10.00 to as much as ₱50.00 per household per month. Cost recovery for Level III systems, particularly those covered by Water Districts is managed through different systems. The households covered by the Water District can be disconnected in case of no payment by the users.

6.6 Affordability of Users

This sub-section presents the affordability of users by service level. However, base information for the analysis is limited to the results from field survey at selected barangays and from water districts in the province.

6.6.1 Capital Cost Contribution

Based on the group interview survey, some respondents replied that the participation in past construction activities of the BWSA was through cash contribution; provision of labor and donation of site.

All the respondents indicated their willingness to contribute in cash or in kind for the construction of WATSAN facilities in their respective barangays. Should they be required to contribute, the majority of the respondents preferred to give free labor during the construction of water supply facilities.

For future projects, however, the respondents indicated that they would participate and/or contribute to certain water supply activities. For the formation of BWSA, there were 22 respondents who would participate. It is also true that (10) male and (9) female respondents signified intention to participate in the selection of sites (5), construction of facilities (6), and the operation and maintenance.

With respect to the construction cost of private toilet, it seems that the cost is relatively expensive as compared with the family income. The estimated cost of flush type toilet facility is about 4.5 times higher than the median monthly family income in the province and since this is the case, subsidy may be provided by the LGU concerned.

6.6.2 Operation and Maintenance Cost

Based on the results of the key informant survey for Level I service, common problems that were encountered by the respondents range from defective pumps to the lack of funds for the maintenance work. This can be attributed to the fact that only about 50% of the beneficiaries pay for their water consumption. Further, it was noted by the respondents that the barangay councils provide direct assistance in the O & M of the facilities. They coordinate with the local government units (PHO/MHO) in extending technical and functional assistance to the BWSA. The barangay councils are also willing to pay for the training of community members/volunteers on the operation and maintenance of WATSAN facilities.

Only the respondents from Barangay Sulat reported that the beneficiaries pay for O & M cost of their water supply facilities. The respondents indicated that the residents pay a small amount, which is below ₱10.00 for water and they believe that this amount is already sufficient for the O & M of the WATSAN facilities. Meanwhile, the respondents from the two other barangays believe that the people should pay for water. The female BWSA officers were responsible for collecting the fees, according to the respondents from Barangay Sulat.

Referring to the results of the group interview survey (Level I services), majority of the respondents were members of BWSA, and two were engaged in the repair and maintenance work. Residents pay water fees amounting to about ₱5.00 per month. Since the amount of water fees collected is not sufficient to cover the O & M cost, the Barangay council ends up shouldering the O & M of water supply facilities.

For future facilities, majority of the respondents is willing to pay only ₱5.00 per month to cover the cost of O & M of facilities. About 29 respondents could pay water fees ranging from ₱6.00 to ₱10.00.

In the water districts or Level III waterworks, O & M expenses are basically covered by the user fees depending on the water consumption amount by water user category. The water charge system was established by LWUA to compel water districts to be self-sufficient, financially viable and be able to repay any loans obtained to improve water supply services.

Table 6.6.1 presents the affordability of households by service level. At present, the current water bills in the province seem to be within an affordable range based on experience, although the actual income level varies from municipality to municipality and barangay to barangay (urban barangay population have higher income than those in rural barangays, because

of the more diverse economic and commercial activities). It is further noted that the percentage of the monthly water bill is ver much lower than the standard affordable range for water supply service.

Table 6.6.1 Affordability in Water Supply and Sanitation Services

Income/ Level of Service	Amount (Pesos)	% to Monthly Income	Affordable Range (%) [4]
Median of Monthly Income [1]	5,122	-	
Average Level III: Monthly Water Bill [2]	50.00	0.97	5.0 or less
Average Level II: Monthly Water Bill	30.00	0.58	2.0 - 3.0
Mo. Level I Expenditures	5.00	0.09	1.0 or less
Private Toilet Construction Cost – Flush Type Toilet [3]	23,000	4.49	

Notes:

[1] 1994 Family Income and Expenditures Survey, NSO. Average mean income is ₱60,634 annually for Eastern Samar and median income is ₱43,826. In 1999, average mean income is ₱85,042 and ₱61,468 for the median income. For Region VIII, the mean income and median income in 1994 were ₱49,912 and ₱34,780, respectively and in 1999, the mean income is estimated to be ₱70,004 and median income is ₱48,780.75.

[2] Data from PSPT; It is assumed that 21 cu m. will be consumed per family.

[3] Current prices estimated in this study

[4] Based on the experiences mainly from LWUA, DPWH and DILG.

Chapter 7

WATER SOURCE DEVELOPMENT

7. WATER SOURCE DEVELOPMENT

7.1 General

The study on water source development covers the entire province in order to come up with water source potential exploitable mainly as domestic water supply. Emphasis is placed on groundwater availability due to its prevalent use and comparatively conservative development through the future in the jurisdiction of the provincial government. It is also advantageous to utilize groundwater for domestic water supply because of better quality and economical use. Nevertheless, with reference to river basin water resources management, surface water potential of major rivers was studied to provide information for the future use.

A "Groundwater Availability Map" was prepared, which identifies the areas with available potable water sources. The study has two major components: (1) interpretation of existing geologic and groundwater conditions, and (2) preparation of Groundwater Availability Map to show groundwater potential areas under three categorized areas. Furthermore, standard well specifications by municipality were also established to reflect in the medium-term sector development plan.

The major data used in the study were obtained from concerned agencies (NAMRIA, BMGS, NWRB, LWUA, DPWH and PPDO) and supplemented by the information gathered through questionnaires from relevant local offices in the field (including spring inventories with verifications). The field information directly collected by the Study Team was also used to increase the accuracy of the Map. Among the information, the Geologic Map published by BMGS, the Water Resource Investigation Report and the Well Inventory Database of NWRB are essential for the analysis of geological characteristics, projection of high yielding area and possible area with saline water intrusion, and classification of groundwater potential areas, respectively (details are referred to Table 7.1.2, Data Report).

The Groundwater Availability Map may be used for provincial level master plan and feasibility study at present. However, recommendations on the required investigations were presented for specific areas with scope of survey, as reference for LGUs, to conduct these prior to D/D and construction work. Aside from the requirements, updating the map is a requisite to gain more information on prevailing groundwater conditions using the questionnaires prepared for the study. An annual review and updating of the database will enable the LGUs to implement water source development on a project site basis.

An overview on current groundwater use with the conditions is summarized in Table 7.1.1 (well data collected from each municipality are presented in Table 7.1.1, Water Source Information, Data Report). There are 3,367 shallow wells, 223 deep wells and 164 developed springs in the province (functional sources). Majority of the wells is shallow wells. About 44% of these water sources are public facilities. Of the total existing wells, only 411 shallow wells and 161 deep wells are not functional at present. In addition to the above sources, 59 untapped springs are accounted.

Table 7.1.1 Existing Groundwater Sources in the Province

Category and Classification	Shallow Well	Deep Well	Spring	Total
1. Water source being availed				
a. Public sources	1,336	135	164	1,635
b. Privately owned sources	2,031	88	0	2,119
c. Number of water sources	3,367	223	164	3,754
d. % share of different sources	90%	6%	4%	100%
2. Water sources with problems and non-functional facilities				
a. Water quality problems*	1,347	0	0	1,347
b. Non-functional	411	161	26	598
3. Spring source information				
a. Undeveloped	-	-	0	0
b. Untapped	-	-	59	59

Note. 1: Number of water sources being availed at present including those with water quality problems.
2: Number of existing water sources with problems: being used, but with water quality problem/abandoned wells.
3: Number of springs availed, but not adequately protected; and those as candidate sources to be developed.
*: Assumed number of sources (unsafe category) based on the study on existing water supply facilities in Chapter 4.

7.2 Geology

Eastern Samar shares a common geologic features and history with the other two provinces comprising the Island of Samar. The lithologic units can be classed under two general rock suites: (1) the suite of igneous rocks of Cretaceous-Oligocene periods, comprising the core of Samar Island, and (2) the classic and non-classic sequence of rocks dated from Early Miocene to Pleistocene epochs found surrounding the core.

The Samar Central Highlands is a NNW-SSE trending mountain system of moderate to high relief extending from Catarman to Leyte Gulf through the western to southern parts of the province. The basement complex consists of metamorphic rocks of Cretaceous period. The exposure is limited and might be concealed under Miocene rocks at the southern part of the

Samar Central Highlands. The rock units of several ages are found in mountainous area. The youngest rock units are marine and terrestrial sediments of Oligocene to Miocene epochs in surrounding area of mountain range, and volcanic rocks as andesite flow of Oligocene epoch.

The southeastern peninsula was formed by marine and terrestrial sediments of Plio-Pleistocene epochs. Presently, the middle portion of the Homonnhon Island formed by volcanic and pyroclastic rocks are found in the southern side of the peninsula. The alluvial and fluviatile deposits are very limited along seashore and major rivers.

For the purpose of preparing the Groundwater Availability Map of the province, only rock units significant to groundwater storage and permeability are briefly described. The rock units in the province are classified into 3 main groups based on the geologic ages. In geologic age, these are the Miocene and Older Systems, the Plio-Pleistocene Series and Recent Deposits. The grouping of rock units is related to their potential as groundwater sources. The younger rocks are essential groundwater development because of their porosity and permeability relative to the older rocks. The distribution of these rock groups is shown in Figure 7.2.1, Geological Map. Its geological features are described below.

(1) Miocene and Older Systems

Rock units of Miocene and older have impermeability. They are classified as aquicludes. The oldest rocks in the province consist of a sequence of partly metamorphosed andesite and basalt lava flows, agglomerate and tuff with intercalated sedimentary rocks. It is naturally dense and impervious.

This rock unit is partly intercalated with sedimentary rocks. It is overlain by Miocene coralline limestone. It consists mostly of partly altered andesite, dacite, basalt lava flows, agglomerate and tuff. It is dense and is naturally impervious. This massive to thick bodied coralline limestone is characterized by fracture opening and solution channel ways storing and transmitting water from intake solution cavities.

(2) Plio-Pleistocene Series

Sedimentary rocks of this series have various range of the permeability. The Catbalogan formation, which is distributed in the northern part of Eastern Samar, includes the less compacted upper sandstone and conglomerate, the deeper more compacted shale, sandstone interbeds, and the tuff and clastic limestone. The less consolidated sandstone is reported to vary from negligible to over 30 m thick. The deeper and tighter sequence is estimated to exceed 1,000 m in thickness. The youngest age of this series, rock units con-

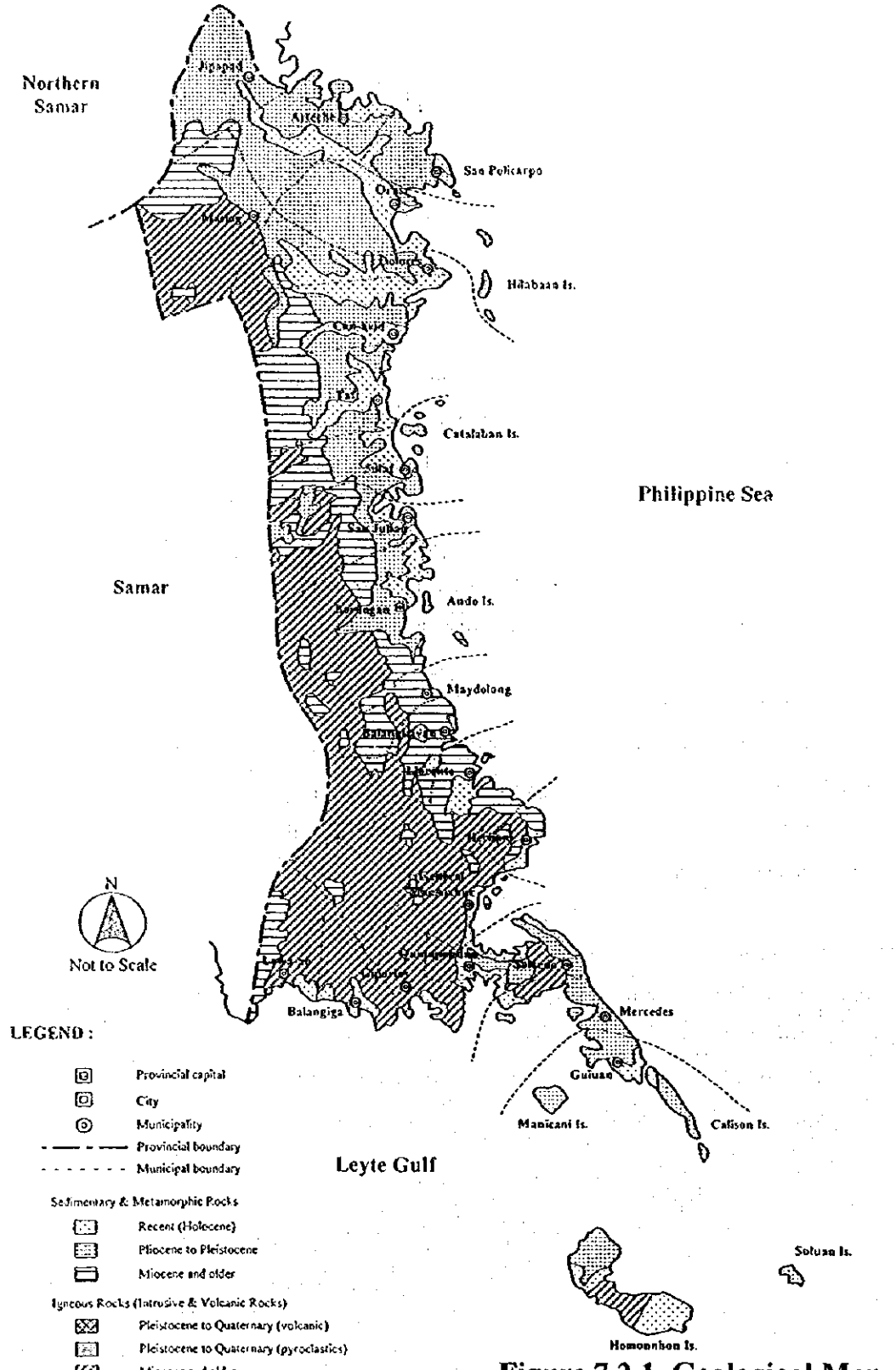


Figure 7.2.1 Geological Map
Province of Eastern Samar

sist of agglomerate (large boulders), tuff, conglomerate, sandstone, shale and local limestone.

(3) Recent Deposits (Holocene Series)

The Quaternary deposits consist mostly of unconsolidated alluvium and coral reefs. The alluvium is mostly fine sand, silt, mud, clay and minor coral reefs. They are irregular in form with varying thickness, width and length. They occur at the coastal plains, flood plains, beaches, swamplands and offshore area. The sand deposits are form negligible in the shale areas to over 20 meters thick at the some mouths of the large river floodplains. The coral reef has a thickness of about 10 meters. The coastal plain and river valley sand deposits are partly confined by a dense clay deposit.

7.3 Groundwater Sources

7.3.1 Classification of Groundwater Availability

For planning purpose, the provincial area is divided into the following sub-areas in terms of groundwater availability.

(1) Solo shallow well area

Solo shallow well area is defined in this study as area where only shallow well is available. These areas have water bearing rock formations extending not more than 20m in depth below the ground surface. Solo shallow well areas are usually located in alluvial and coastal plains, where recent unconsolidated materials overlie impervious rocks at shallow depth. The extent of completely solo shallow well area is limited, because most of the recent formations are thick or deposited on the Late Plio-Pleistocene series that usually have multiple aquifers located at greater depths.

(2) Deep well area

In deep well areas, the lower aquifers are located more than 20m below the ground surface. These areas could be found in portions underlain by the Plio-Pleistocene series and Recent formations. Most of these areas have more than one aquifer occurring at various depths. Areas where both shallow and deep wells could be developed are categorized as deep well areas.

(3) Difficult area

This area is not suitable for well development. The areas under this category largely consist of rock formations older than Miocene epoch. The groundwater availability in

the aforesaid rocks is very low and usually released in the opened rock fractures. Springs are the common sources of water supply in these areas.

In addition to the above classification, potential areas to have high yielding deep aquifers are also presented based on NWRB's geo-resistivity survey.

7.3.2 Groundwater Availability in the Province

The Groundwater Availability Map is presented in Figure 7.3.1. The major databases used in the preparation of the map were obtained from BMGS and NWRB. The methodology and study procedures with respective outputs are discussed in 7.3.2, Supporting Report.

Technical information on the wells by municipality is also shown in the Data Report. The groundwater development potential areas in the province for the future are summarized.

(1) Solo Shallow Well Area

The province has solo shallow well areas in southern coast, which cover approximately a few percent of the provincial area. The development of shallow wells is, however, possible in the "Deep Well Area" (recent alluvium and beach deposits), where shallow aquifers usually occur.

The essential definition of shallow well is to develop an unconfined aquifer. However, it is difficult to classify an aquifer clearly into whether confined or unconfined. In this study, therefore, well classification was derived from well depth of 20 m. In this connection, the shallow wells in the province are driven to depths ranging from 3.0m to 18.0m. These wells have static water levels from 1.8mbgs to 6.0mbgs and specific capacities from 0.2 lpsm to 10.7 lpsm, respectively.

(2) Deep Well Area

The deep well area covers approximately 45% of the province and is widely distributed in northern part of the province. The deep well area is composed of alluvial plain, fluvial terrace and low hills made of sedimentary rocks. The alluvial plain and fluvial terrace are composed of recent deposits of clay, silt, sand, and gravel, which forms a groundwater storage basin for some aquifers. While, the sedimentary formation of Plio-Pleistocene epochs consists of reef limestone, sandstone, conglomerate and pyroclastic in the central to eastern parts of the province.

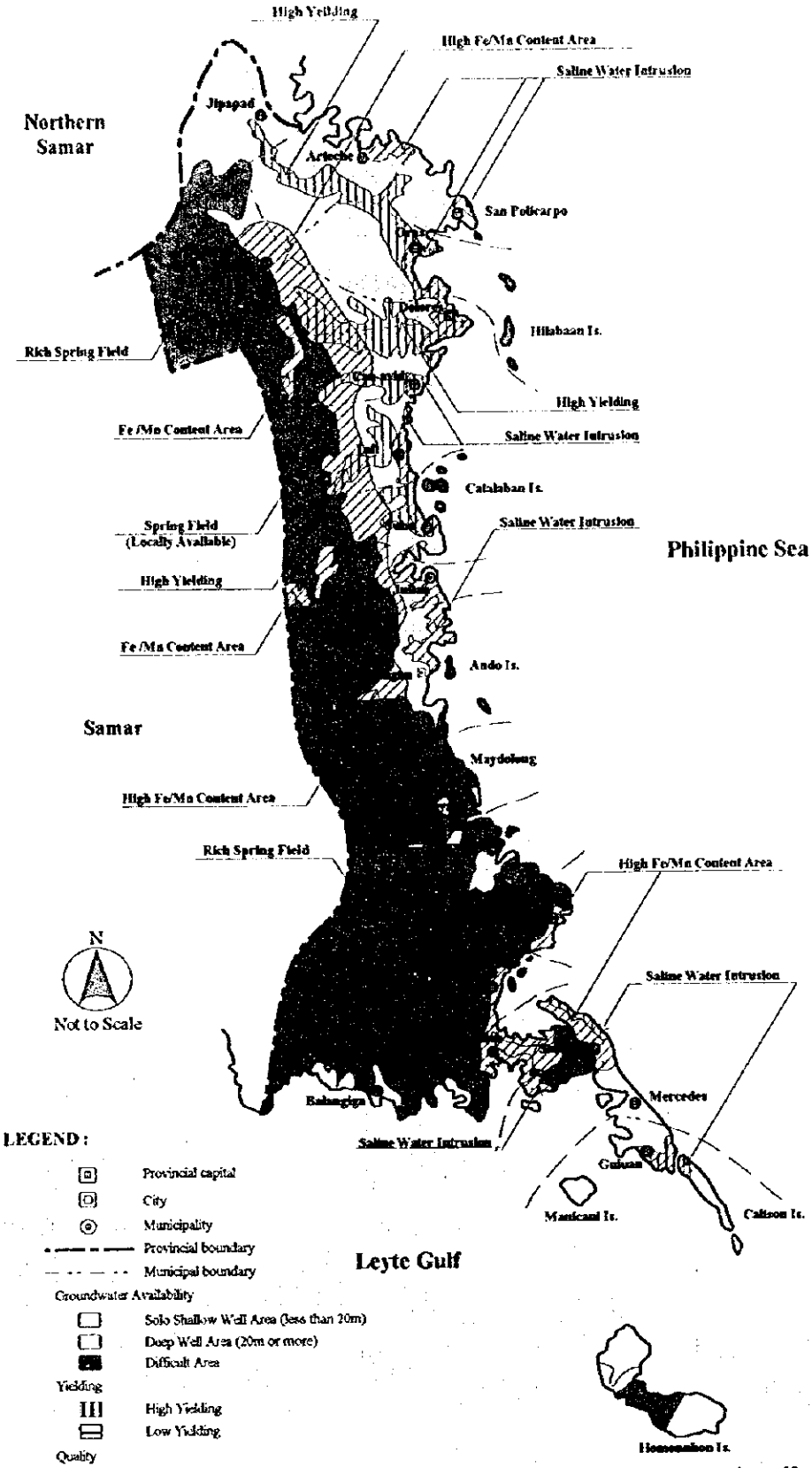


Figure 7.3.1 Groundwater Availability Map
Province of Eastern Samar

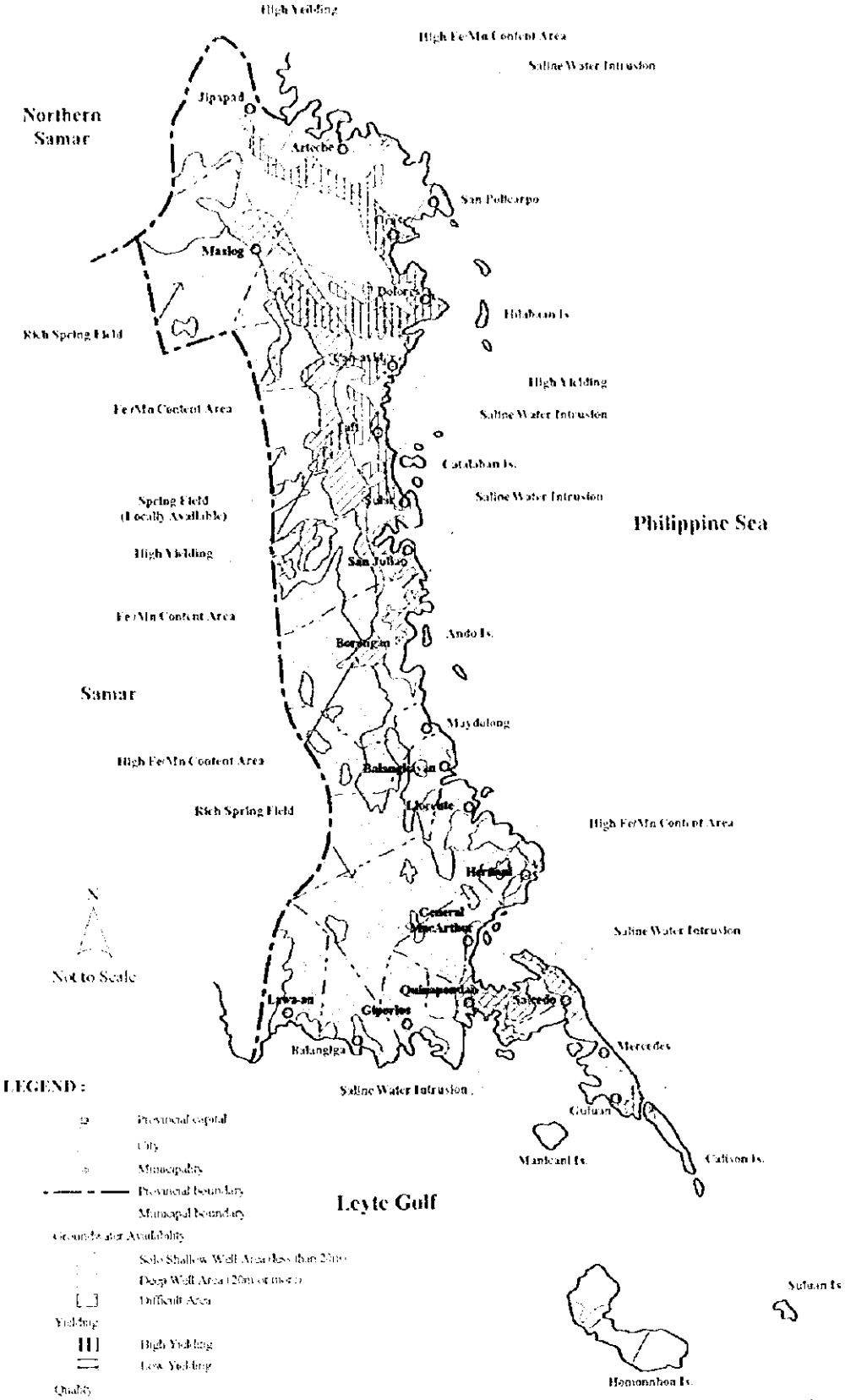


Figure 7.3.1 Groundwater Availability Map
Province of Eastern Samar

Considering the geological formation, the alluvial plain and fluvial terrace are categorized as a high potential area for deep well development, while the limestone bodies of Plio-Pleistocene epochs are classified as a medium-yielding area for deep well development. In alluvial plain and fluvial terrace, the average depth of the existing deep wells is 27.3 m with an average water level of 6.2 mbgs. Average specific capacity is about 0.3 lpsm (insufficient detailed data).

In southeastern peninsula and Homonnhon Island area made of Plio-Pleistocene series, groundwater database was not yet achieved due to none availability of deep well information during data collection period. When deep well development becomes necessary in these areas, the average depth of the planned deep wells would probably be 40 m with an average water level of 6 mbgs. The specific capacity will be good for Level II service.

(3) Difficult area

About 55% of the provincial area are classified as a difficult area to exploit groundwater, in which the Samar Central Highlands areas belong. These are located in the southern and western portions of the province.

The geology is made up of volcanic and igneous rocks of Oligocene to Miocene epochs. These rocks and formations are in dense, massive and consolidated conditions and have impervious characteristics. Groundwater occurs only in fissures or fault fracture zones.

7.3.3 Groundwater Quality

There is water quality problem in both shallow and deep wells in northern and coastal areas of the province (details are referred to Table 7.3.2, Data Report). Major water quality problems are ironic water and saline water intrusion. An area with ironic water problem is distributed belonging to the northwestern highland hills of the province, while saline water intrusion areas are located in some eastern coasts. The results of water resources investigation for the province conducted by NWRB and the general information from DPWH-DEO and PPDO revealed these problem areas and are shown in the Groundwater Availability Map in Figure 7.3.1.

Among the water quality problems of the province, high iron contents is serious with a high percentage of affected existing wells (much numbers of shallow and deep wells) in northern areas. The problem is extended to most of the areas in the municipalities of Arteche, Can-

avid, Dolores, Jipapad, Maslog, Oras and Taft. Acidic groundwater is also observed within these municipalities, where volcanic rocks are distributed.

7.4 Spring Sources

Spring is a natural outlet of groundwater at the ground surface. It occurs when water table intersects the ground surface, usually along the contacts of pervious and impervious rock formation and through rock features. Because of the intense fracturing, particularly older formation, and the presence of large solution openings in limestone, secondary permeability is induced to the rocks that favors spring development.

For the study, springs are categorized into developed, undeveloped and untapped springs. A developed spring is utilized with sanitary protection provided, otherwise it is classified as undeveloped spring, which is considered as unsafe water source. An untapped spring, as the name implies, is unutilized and flowing in its natural state.

Based on the inventory of water sources prepared throughout the study, the province has 164 developed springs currently serving the province. Such spring sources come out from high mountain areas in the western part of the province. Of these springs, 83 have discharge rates of less than 2.0 lps (2.0 lps is enough for Level II water supply with service population of about 2,000 and can be applicable to grade up for Level III water supply), while 38 springs exceed discharge rates of 2.0 lps. Other 43 springs have no data on discharge rates at present. Most of these springs are not dried up during a drought year or dry season with yields varying from 0.05 lps to 76.6 lps. The technical information of springs in each municipality is presented in Table 7.4.1 Existing Spring Sources, Supporting Report.

7.5 Surface Water Sources

The major surface water sources in the province are Oras, Dolores, Ulot, Taft, Borongan, Suribao, Llorente and Balangiga Rivers. The Jicontrol River is tributary of the Dolores River. There is one gauging station at the Jicontrol River in the province.

Surface water use in the province totaled to 3.84 m^3/sec according to the NWRB's water rights registration database as of March 1997. All of the water rights were registered for irrigation purpose. The diversions for major flume, which are operated by NIA and private associations, are located at Balangkayan, the Llorente River; at Dolores, the Dolores River; at Laawan, the Balangigan River; at Oras, the Oras River; and at San Julian, the Borongan

River. Most of surface water rights had been registered in the late 1970's.

Data on river flow together with maintenance flow and water use of the major rivers/streams were obtained from available runoff records at the gauging stations (refer to Table 7.5.1, Supporting Report). The inflow to and the outflow from the respective municipalities are estimated as the exploitable potential of the major rivers in the province as shown in Table 7.5.2, Supporting Report.

Water quality analyses at selected rivers were conducted during this study. Except for color, the examined water quality at each river meets the Class "A" limitation of "DENR Fresh Water Quality Criteria". It is noted that mining activities on copper were prevalent in the Taft River watershed at the Borongan City. These operations have caused contamination of the surface water by heavy metals.

7.6 Future Development Potential of Water Sources

(1) Groundwater

Based on the study of existing water sources, groundwater is considered as a safe and more economical source for future water supply requirements of the province.

Shallow wells are the possible source for Level-I service. Considering the existing wells in the province, the potential aquifers for shallow wells occur between 3.0 mbgs to 18.0 mbgs. One disadvantage of shallow wells is the lowering of water level during dry season that reduces the discharge of the wells. Another disadvantage is the usual high susceptibility of shallow aquifers to direct infiltration of surface pollutants.

In general, deep wells have better water quality and invariable yields when developed with appropriate technology. This depends if the wells tap to comparatively deeper aquifer. It reduces the hazards of groundwater pollution. In addition, lowering of groundwater level does not affect the discharge, since usual confinement of deep aquifer rises water level above the aquifers. In Recent deposits and Plio-Pleistocene series, good aquifers apparently occur from 20m to 80m in depth (insufficient detailed data).

Additional wells can still be developed to meet future water supply demand of the province. For future planning purpose, the Groundwater Availability Map includes basic information for municipal groundwater development with the following information: well type, well yield, water quality and static water level. Aquifer formations are shown in

Table 7.6.1 Groundwater Development Potential in the Province

Area	Groundwater Development Potential	Water Quality	Area Feature
Northern Lowlands Hills & Eastern Seashore Area	This district is classified as deep well area. The water table in seashore is generally shallow and that in lowland hills is deeper. Areas with high yielding deep wells are distributed along rivers. The fluviatile deposits are found widely in areas along Dolores and Oras Rivers. There are numerous spring sources existing on the eastern slope-side of the Samar Central Mountains. Most of the water supply systems with Level-II service use spring source. Spring discharge rates in this district are comparatively small and they are scattered.	Two kinds of groundwater quality problem are found: saline water intrusion in seashore belts facing to the Philippine Sea and high Fe/Mn contents near the western mountains along the highway.	In the rimming the Samar Central Highlands in the northern sector of the province, numerous sinkholes exist with different dimensions. The coastal area is characterized by low rolling hills with elevations rarely exceeding 300 masl. Generally, the coastline is very irregular.
Samar Central Highlands Area	Most area of this district is classified as difficult area. Deep wells are constructed in some structural basin. Solo shallow well area is found in the western and southern coasts. Spring is the only potential water source in this district. Level III water supply systems fed spring, since they are located near populated areas.	Cupreous rocks are found in mining sites operated until 1994. These operations had caused contamination of the spring and surface water by heavy metals.	The Samar Central Highlands is N-S trending mountains of moderate relief extension from Leyte Gulf to the province of Northern Samar. Volcanic rocks of old geologic age cover the top of highlands.
Southern Peninsula & Homonhon Island Area	This district has deep well area and difficult area. Deep well areas cover 80% of this district. The depths of deep wells are comparatively shallow (less than 40m) because of saline water intrusion. Spring source is limited.	Saline water intrusion and high Fe contents are found in the southern peninsula area.	This district covers the southern peninsula, Homonhon Island and coral islets.

Table 7.6.2, Supporting Report. The groundwater development potential in the province is shown in Table 7.6.1.

The well design with gravel placement is required for additional well development. However, the natural gravel packed well for Level-I water supply is also adaptable within limited areas in the province. The percentages of the natural gravel packed wells in the expected municipality area are assumed in Table 7.6.3, Supporting Report. The construction ratio of natural gravel packed well to the total requirements of the province is assumed merely at 5%.

Most of the Level-I deep well facilities had been designed with well materials made of either galvanized iron, mild steel or low carbon steel. In the area where groundwater with acidic pH is observed, anti-metallic (polyvinyl chloride; PVC) for well casing pipes and screens, and anti-corrosive metals (stainless steel; SUS) for pump facility are required. The municipalities requiring such countermeasures are recommended in Table 7.6.4, Supporting Report. The ratio of deep wells using PVC materials to the total requirements of the province is assumed at more than 30%.

(2) Spring

A total of 59 untapped spring sources identified by the PSPT is listed in Table 7.6.5 Untapped Spring Source Identification, Supporting Report. The list includes detailed data on barangay name, owner, discharge rate in dry season, transmission line length and elevation difference between spring source and served area. Such springs are mainly located in the eastern coastal (near populated) areas. Other southern and northwestern areas have few untapped springs. Of these springs, 17 untapped springs with discharge rates ranging from 0.5 lps to 115.7 lps (actual data base) are generally applicable for Level II water supply. Two untapped springs in the municipality of Can-avid have discharge rates of 11.6 lps and 115.7 lps (enough yield for Level III water supply), while other 15 untapped springs have discharge rates ranging from 0.5 lps to 4.6 lps. Spring development potential in the province is shown in Table 7.6.5, Supporting Report.

(3) Surface Water

The potential surface water volume exploitable from major rivers for the use of domestic water supply was estimated by municipality. It was arranged in this calculation to ensure maintenance flow of the rivers under the drought flow in the 10-year return period with due consideration of the present water rights.

The calculation results are shown in Table 7.5.2, Supporting Report. In particular, municipalities situated in the Dolores, Taft, Suribao and Llorente River basins are privileged to use larger amount of river water.

7.7 Water Source Development for Medium-Term Development Plan

For the preparation of the medium-term development plan in terms of water source development, standard and/or tentative specifications of wells by municipality were prepared. In case of that municipalities have no complete standard specifications, tentative specifications were estimated because of no sufficient well data at present. The parameters, such as: proportion of well type, well depth, static water level and specific capacity are shown in Table 7.7.1. These were established using the well information from NWRB and the province (detailed database is included in Table 7.1.1, Data Report), and the hydrogeological assessment presented in Table 7.6.2, Supporting Report.

Groundwater source availability (well and spring) is reflected in Table 7.7.1 that was assumed based on water sources study considering the limited information on geology, topography, water sources inventory, etc. The groundwater source availability indicates the general profile of the different types of groundwater source available in the municipalities. Hence, the descriptions have no projected meaning on future development values of its groundwater source. Considering the present water sources utilization, the percentages of spring development compared with well development for the future demand of the entire province are studied in Chapter 8 of this report.

Shallow wells are currently used in some municipalities. The municipal areas are categorized into deep well and solo shallow well areas considering the on-going practices. The proportions (%) by deep well and shallow well area are determined with reference to groundwater development potential in the Groundwater Availability Map. Furthermore, well locations are assumed in terms of rural and urban areas by municipality using the classification of rural and urban barangays.

For municipalities without any well data, the well parameters are estimated using the data of adjoining towns, provided they have similar hydrogeologic features.

Table 7.7.1 Standard/Tentative Specification of Wells by Municipality

Municipalities With Classification		Type	Proportion (%)	Standard Specification					Availability of Sources
				Depth Range (m)			SWL (m)	Sp. Cap. (lpsm)	
Arteche	Rural	SW	0	-	<D<	-	-	-	Fair DW and Few SP
		DW	90	80	<D<	-	-	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	40	<D<	-	-	0.9	
Balangiga	Rural	SW	10	6	<D<	18	3.0	0.2	Poor DW and Rich SP
		DW	0	-	<D<	-	-	-	
	Urban	SW	60	6	<D<	18	3.0	0.2	
		DW	0	-	<D<	-	-	-	
Balangkayan	Rural	SW	10	5	<D<	18	3.0	0.2	Poor DW and Rich SP
		DW	0	-	<D<	-	-	-	
	Urban	SW	20	5	<D<	18	3.0	0.2	
		DW	0	-	<D<	-	-	-	
Borongan	Rural	SW	0	-	<D<	-	-	-	Fair DW and Few SP
		DW	20	21	<D<	40	-	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	10	21	<D<	40	-	0.9	
Can-avid	Rural	SW	0	-	<D<	-	-	-	Good DW and Rich SP
		DW	60	20	<D<	60	15.0	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	20	<D<	60	3.0	0.9	
Dolores	Rural	SW	0	-	<D<	-	-	-	Good DW and Rich SP
		DW	80	40	<D<	80	-	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	30	<D<	40	3.0	0.9	
Gen. Mac Arthur	Rural	SW	0	-	<D<	-	-	-	Poor DW and Rich SP
		DW	10	40	<D<	-	-	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	50	40	<D<	-	-	0.9	
Giporlos	Rural	SW	10	3	<D<	18	3.0	0.2	Poor DW and Rich SP
		DW	0	-	<D<	-	-	-	
	Urban	SW	0	-	<D<	-	-	-	
		DW	0	-	<D<	-	-	-	
Guiuan	Rural	SW	0	-	<D<	-	-	-	Fair DW and Rich SP
		DW	70	40	<D<	-	-	0.4	
	Urban	SW	0	-	<D<	-	-	-	
		DW	10	40	<D<	-	-	0.9	
Hernani	Rural	SW	10	5	<D<	18	3.0	0.2	Poor DW and Rich SP
		DW	0	-	<D<	-	-	-	
	Urban	SW	80	5	<D<	18	3.0	0.2	
		DW	0	-	<D<	-	-	-	
Jipapad	Rural	SW	0	-	<D<	-	-	-	Fair DW and Few SP
		DW	90	80	<D<	-	-	0.2	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	25	<D<	40	6.0	0.6	
Lawaan	Rural	SW	10	3	<D<	18	3.0	0.2	Poor DW and Rich SP
		DW	0	-	<D<	-	-	-	
	Urban	SW	20	3	<D<	18	3.0	0.2	
		DW	0	-	<D<	-	-	-	
Llorente	Rural	SW	10	5	<D<	18	3.0	0.2	Poor DW and Rich SP
		DW	0	-	<D<	-	-	-	
	Urban	SW	50	5	<D<	18	3.0	0.2	
		DW	0	-	<D<	-	-	-	

Table 7.7.1 Standard/Tentative Specification of Wells by Municipality

(cont'd)

Municipalities With Classification		Type	Proportion (%)	Standard Specification: Depth Range (m)			SWL (m)	Sp. Cap. (lpsm)	Availability of Sources
Maslog	Rural	SW	0	-	<D<	-	-	-	Poor DW and Few SP
		DW	10	120	<D<	-	-	0.4	
	Urban	SW	0	-	<D<	-	-	-	
		DW	50	80	<D<	-	-	0.6	
Maydolong	Rural	SW	0	-	<D<	-	-	-	Risky DW and Rich SP
		DW	0	-	<D<	-	-	-	
	Urban	SW	0	-	<D<	-	-	-	
		DW	0	-	<D<	-	-	-	
Mercedes	Rural	SW	0	-	<D<	-	-	-	Fair DW and Poor SP
		DW	40	40	<D<	45	3.0	0.2	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	40	<D<	45	3.0	0.6	
Oras	Rural	SW	0	-	<D<	-	-	-	Gppd DW and Few SP
		DW	100	40	<D<	80	15.0	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	25	<D<	50	3.0	0.9	
Quinapondan	Rural	SW	0	-	<D<	-	-	-	Fair DW and Rich SP
		DW	40	20	<D<	40	3.0	0.4	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	20	<D<	40	3.0	0.9	
Salcedo	Rural	SW	0	-	<D<	-	-	-	Fair DW and Few SP
		DW	30	40	<D<	-	-	0.2	
	Urban	SW	0	-	<D<	-	-	-	
		DW	50	40	<D<	-	-	0.6	
San Julian	Rural	SW	0	-	<D<	-	-	-	Fair DW and Rich SP
		DW	100	20	<D<	53	10.0	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	20	<D<	53	3.0	0.9	
San Policarpio	Rural	SW	0	-	<D<	-	-	-	Fair DW and Few SP
		DW	100	20	<D<	30	3.0	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	20	<D<	30	3.0	0.9	
Sulat	Rural	SW	0	-	<D<	-	-	-	Fair DW and Rich SP
		DW	40	20	<D<	40	5.0	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	20	<D<	40	15.0	0.9	
Taft	Rural	SW	0	-	<D<	-	-	-	Fair DW and Rich SP
		DW	50	20	<D<	40	5.0	0.6	
	Urban	SW	0	-	<D<	-	-	-	
		DW	100	20	<D<	40	15.0	0.9	

For the furtherance in collecting accurate information to design the concrete specifications of the planned wells, the following recommendations are made (details are referred to Chapter 7.7.1, Supporting Report). Prior to the detailed design or pre-construction stages, additional detailed groundwater investigations entailing the water quality examination and the construction of test wells shall be conducted. The municipalities that fall on the construction of test wells are Dolores and Can-avid. Table 7.7.2 summarizes the requirements.

Table 7.7.2 Detailed Groundwater Investigation Required

Municipality	Area	Investigation Activities and Specification
Arteche, Can-avid, Dolores, Oras & San Policarpio	Urban	Groundwater Database; Parameters to include geologic log, well structures, SWL, discharge and water quality Test Wells; two deep wells (Dolores and Can-avid) depths of 100m, diameter of 200 mm and length of well screen 25m Installation of Test; Pumping Test & Water Quality Examination Water Quality Examination to include Fe, Mn, pH, Ca, Mg, etc.
Balangiga, Balangkayan, G. Mac Arthur, Giporlos, Hernani, Lawaan, Maydolong & Quinapondan	Rural & Urban Areas	Water Quality Examination of Spring Sources to include: Physical; Turbidity, Color & TDS Chemical; pH, Total Hardness, Alkalinity & Acidity Major Cation; Na, K, Ca & Mg Major Anion; CO_3, HCO_3, Cl & SO_4 Trace Elements; Cu, Fe & Mn Bacteriological; Bacteria & Coliform

Groundwater development for water supply in urban areas (Level-II and -III systems) may require the construction of deep wells with larger casing diameter of 6 inches or more to ensure larger production rates. In these cases, short spacing intervals between the adjacent wells often cause the well interference due to the large lowering of pumping water level when the adjacent wells are operated simultaneously in a longer period. As the remedy of the problem pump-operation with excess electric consumption and deterioration of deep well life may be obliged. Thus, appropriate spacing interval and number of wells to be constructed per km^2 shall be considered. Table 7.7.1, Supporting Report presents reference information on spacing arrangements for planned wells.

Spring sources, proposed by barangay level, for future developments are shown in Table 7.6.4, Supporting Report. They shall also be investigated to confirm the development possibility in the following items: (1) location and type of spring sources, (2) fluctuation of discharge rates throughout the year, (3) distance from spring sources and proposed served areas, and (4) elevation differences between the two points.