JAPAN INTERNATIONAL COOPERATION AGENCY

THE STUDY ON THE PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN IN THE REPUBLIC OF THE PHILIPPINES

VOLUME I-[2]

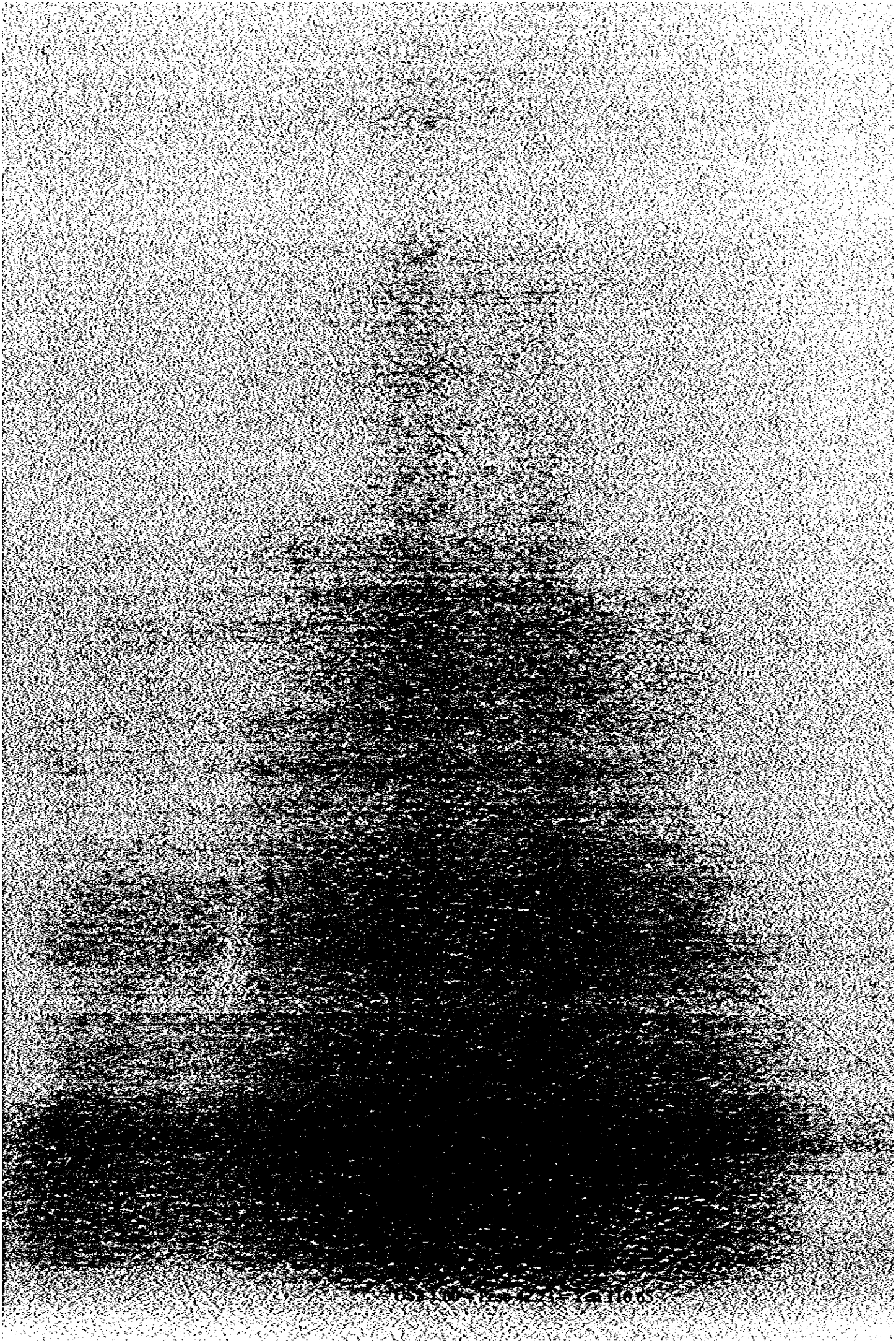
MAIN REPORT

PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN FOR THE PROVINCE OF

ANTIQUE

AUGUST 2000

NJS CONSULTANTS CO., LTD.



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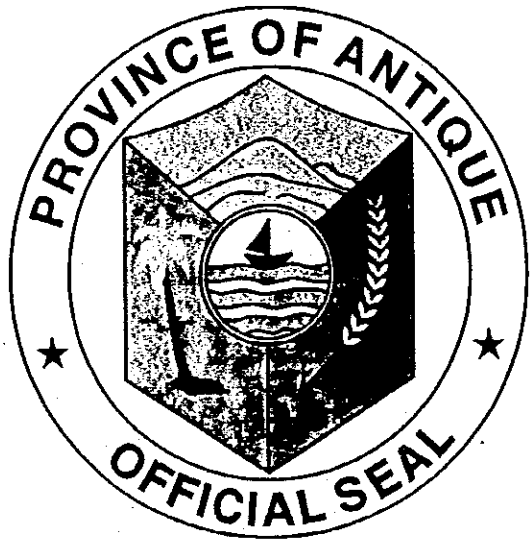


AUGUST 2000

NJS CONSULTANTS CO.,LTD.

PREFACE

In response to a request from the Government of the Republic of the Philippines, the Government of Japan decided to conduct the Study on Provincial Water Supply, Sewerage and Sanitation Sector Plans for Visayas and Mindanao and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA slected and dispatched the study team headed by Mr. Masatoshi Momose of NJS Consultants Co., Ltd. to the Philippines, 4 times between January 1998 and May 2000. In addition, JICA set up the advisory committee headed by Ms. Keiko Yamamoto, Development Specialist, Institute for International Cooperation, JICA between January 1998 and May 2000.

The team held discussions with the officials concerned of the Government of the Philippines, and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and the prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relations between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Philippines for their close cooperation extended to the Team.

August 2000

Kimio Fujita
President
Japan International Cooperation Agency

August, 2000

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Japan

Dear Mr. Fujita,

Letter of Transmittal

We are pleased to submit herewith the Final Report of the Study on Provincial Water Supply, Sewerage and Sanitation Sector Plan in the Republic of the Philippines.

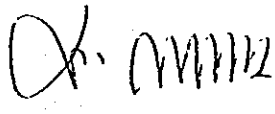
The Study was completed through the discussions with the officials of the Government of the Philippines and the field investigation during four visits from January 1998 to May 2000.

The Report was arranged as Summary Report which succinctly describes the study and recommendations for the sector develoment of provincial water supply, sewerage and sanitation for a total of twenty-one (21) provinces in Visayas and Mindanao areas. The Report covers not only the long-term and medium term development plans on water supply, sewerage and sanitation sector, but also institutional, operation and financial strengthening plan for the local governments.

In view of the urgency of water supply and sanitation improvement as well as the need for socio-economic development in the study provinces, we hope that the said plans will be realized in early stage.

We wish to take this opportunity to express our sincere gratitude to your Agency and the Ministry of Foreign Affairs. We also would like to show our appreciation to the officials of the Department of the Interior and Local Government, the JICA Philippine Office, and the Embassy of Japan in the Republic of the Philippines for their kind cooperation and assistance throughout our field survey.

Very truly yours,



Masatoshi Momose
Team Leader for the Study on
Provincial Water Supply, Sewerage
and Sanitation Sector Plan in
the Republic of the Philippines

Republic of the Philippines
PROVINCE OF ANTIQUE
OFFICE OF THE GOVERNOR

San Jose, Antique

MESSAGE

The formulation of the Provincial Water Supply Sanitation and Sewerage Sector Plan for the Province of Antique under the technical assistance of the Japan International Cooperation Agency (JICA) through the Water Supply and Sanitation Program Management Office (WSS-PMO) of the Department of the Interior and Local Government (DILG), is an attempt to have a blueprint to set the definite direction of future water supply and sewerage projects of this province and for sanitation security of our people.

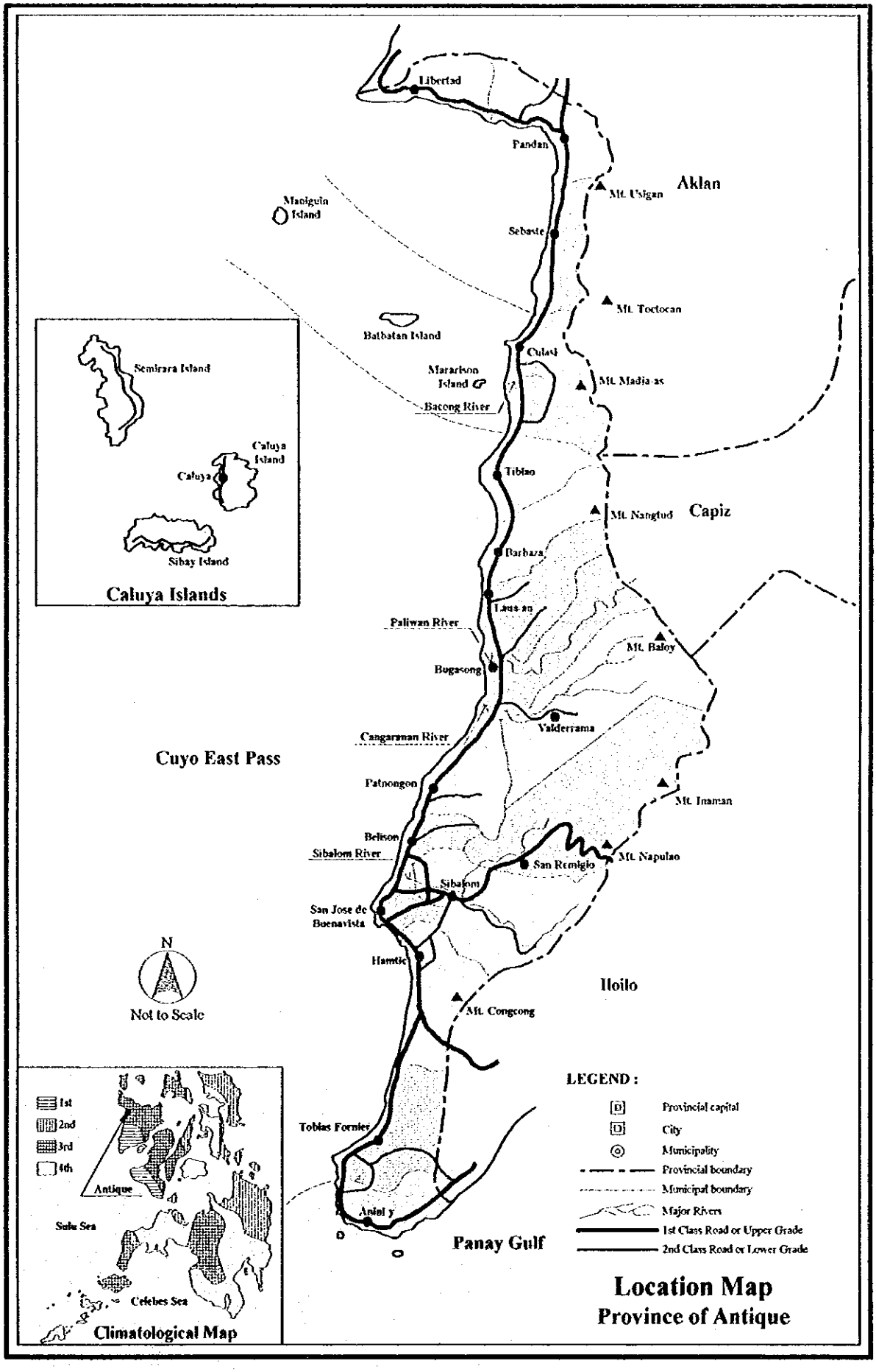
Water, an essential element to life, is a precious natural resource. We need water for our crops, in our households and in the near future, to generate electricity for our province so that power rates will be lowered to the level that could attract investors to Antique. Water can also be destructive. The destruction of our rainforest caused flashfloods that destroyed crops, livestock and made life miserable for some of us. The need to protect our watersheds and the restoration of our rainforest is crucial. It is toward this effort that our priority programs and projects are designed.

The plan aims for an effective and efficient management of our water resources to avoid contamination of our water systems from industrial waste, toxic substances from chemicals used in agricultural activities and carriers of water-borne diseases. Water plays a vital role in our social development efforts. Adequate and safe water supply is everybody's concern.

The special participation of the JICA consultants headed by Mr. Masatoshi Momose is gratefully acknowledged for sharing their technical expertise with the Provincial Sector Planning Team (PSPT). We are also grateful for the technical assistance and support of the Department of the Interior and Local Government.

The Provincial Government of Antique supports this plan and welcomes its implementation. I enjoin each and every Antiqueno to support this plan and participate in its implementation.

EXEQUIEL B. JAVIER
Governor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Cuyo East Pass
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Antique
Sulu Sea
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Climatological Map
Tobias Fornier
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Panay Gulf
LEGEND :
Provincial capital
City
Municipality
Provincial boundary
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PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

VOLUME I MAIN REPORT

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PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

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LIST OF ABBREVIATIONS

AC-PO	-	Area Coordinator-Project Officer
ADB	-	Asian Development Bank
AIDAB	-	Australian International Development Assistance Bureau
AIM	-	Asian Institute of Management
AIP	-	Annual Investment Plans
BC	-	Barangay Council
BDC	-	Barangay Development Council
BLGF	-	Bureau of Local Government Finance
BMGS	-	Bureau of Mines and Geo-Sciences (defunct), the now Mines and Geo-Sciences Bureau
BOD	-	Biochemical Oxygen Demand
BOD/Officers	-	Board of Director/Officers
BWP	-	Barangay Water Program
BWSA	-	Barangay Waterworks and Sanitation Association
CBO	-	Community-Based Organizations
CD	-	Community Development
CDA	-	Cooperative Development Authority
CDF	-	Countryside Development Fund
CDTS	-	Community Development and Training Specialist
CEO	-	City Engineering Office
CEP	-	Capacity Enhancement Program
CIDA	-	Canadian International Development Agency
CLGOO	-	City Local Government Operations Officer
CO-CD	-	Community Organization-Community Development
CP	-	Country Program
CPC	-	Country Program for Children
CPH	-	Census on Population and Housing
CPSO	-	Central Project Support Office
CSC	-	Civil Service Commission
D/D	-	Detailed Design
DA	-	Department of Agriculture
DANIDA	-	Danish International Development Agency
DAP	-	Development Academy of the Philippines
DBM	-	Department of Budget and Management
DBP	-	Development Bank of the Philippines
DECS	-	Department of Education, Culture and Sports
DENR	-	Department of Environment and Natural Resources
DEO	-	District Engineering Office
DF	-	Development Fund
DILG	-	Department of the Interior and Local Government
DOF	-	Department of Finance
DOH	-	Department of Health
DPWH	-	Department of Public Works and Highways
DSWD	-	Department of Social Welfare and Development
DTI	-	Department of Trade and Industry
EVS	-	Environmental Sanitation
F/S	-	Feasibility Study
FHSIS	-	Field Health Service Information System
FIES	-	Family Income and Expenditure Survey

FW4SP	-	First Water Supply, Sewerage and Sanitation Sector Project
GAD	-	Gender and Development
GFI	-	Government Financial Institution
GO	-	Government Office
GOP	-	Government of the Philippines
GOJ	-	Government of Japan
GTZ	-	German Agency for Technical Cooperation
HH	-	Household
IBRD	-	International Bank for Reconstruction and Development
ICC	-	Investment Coordination Committee
IEC	-	Information, Education and Communication
IRA	-	Internal Revenue Allotment
IRR	-	Implementing Rules and Regulations
ITN	-	International Training Network
JICA	-	Japan International Cooperation Agency
JBIC	-	Japan Bank for International Cooperation (formerly OECF)
LBP	-	Land Bank of the Philippines
LGC	-	Local Government Code
LGEF	-	Local Government Empowerment Fund
LGU	-	Local Government Unit
LGUUWSP	-	Local Government Unit-Urban Water Sanitation Project
LWUA	-	Local Water Utilities Administration
MDC	-	Municipal Development Council
MDF	-	Municipal Development Fund
MEO	-	Municipal Engineer's Office
MHO	-	Municipal Health Office
MLGOO	-	Municipal Local Government Operations Officer
MOA	-	Memorandum of Agreement
MOOE	-	Maintenance Operating and Overhead Expenses
M/P	-	Master Plan
MPDO	-	Municipal Planning and Development Office
MS	-	Monitoring Specialist
MSL	-	Municipal Sector Liaison
MSLT	-	Municipal Sector Liaison Team
MTPDP	-	Medium-Term Philippine Development Plan
MWSS	-	Metropolitan Waterworks and Sewerage System
MWSTF	-	Municipal Water and Sanitation Task Force
NAMRIA	-	National Mapping and Resource Information Authority
NCRFW	-	National Commission on the Role of Filipino Women
NDCC	-	National Disaster Coordinating Council
NEDA	-	National Economic and Development Authority
NGOs	-	Non-Governmental Organizations
NIA	-	National Irrigation Administration
NMP	-	National Master Plan
NMYC	-	National Manpower Youth Council
NSCB	-	National Statistical Coordination Board
NSDW	-	National Standard for Drinking Water
NSO	-	National Statistics Office
NSMP	-	National Sector Master Plan
NWRB	-	National Water Resources Board
O&M	-	Operation and Maintenance
ODA	-	Overseas Development Assistance
OECF	-	Overseas Economic Cooperation Fund
PA	-	Provincial Administrator
PAF	-	Poverty Alleviation Fund

PAIASO	-	Provincial Accounting and Internal Audit Service Office
PBO	-	Provincial Budget Office
PD	-	Presidential Decree
PDC	-	Provincial Development Council
PEO	-	Provincial Engineer's Office
PHO	-	Provincial Health Office
PIO	-	Public Information Office
PIS	-	Public Investment Staff
PGSO	-	Provincial General Services Office
PLGOO	-	Provincial Local Government Operations Officer
PMC	-	Project Monitoring Committee
PMO	-	Project Management Office
PMU	-	Provincial Monitoring Unit
PNB	-	Philippine National Bank
POPCOM	-	Population Commission
PoW	-	Program of Work
PPAC	-	Philippine Plan of Action for Children
PPDC	-	Provincial Planning and Development Coordinator
PPDO	-	Provincial Planning and Development Office
PSPT	-	Provincial Sector Planning Team
PST	-	Provincial Sector Team
PTA	-	Parent Teacher Association
PTO	-	Provincial Treasury Office
PW4SP	-	Provincial Water Supply, Sewerage and Sanitation Sector Plan
PWSC	-	Provincial Water Supply and Sanitation Coordinator
PWSO	-	Provincial Water and Sanitation Office
RA	-	Republic Act
RDC	-	Regional Development Council
RDCC	-	Regional Disaster Coordinating Council
RHO	-	Regional Health Office
RHUs	-	Rural Health Units
RPMC	-	Regional Project Monitoring Committee
RSI	-	Rural Sanitary Inspector
RWSA	-	Rural Waterworks and Sanitation Association
SB	-	Sanggunian Bayan
SP	-	Sanggunian Panlalawigan
SRA	-	Social Reform Agenda
SSI	-	Supervising Sanitary Inspector
SWL	-	Static Water Level
TA	-	Technical Assistance
TESDA	-	Technical Education and Skills Development Authority
TCP	-	Teacher-Child-Parent
UNDP	-	United Nations Development Programme
UNICEF	-	United Nations International Children's Emergency Fund
VIP	-	Ventilated Improved Pit Latrine
WASAMS	-	Water and Sanitation Monitoring System
WATSAN	-	Water and Sanitation
WC	-	WATSAN Center
WD	-	Water District
WHO	-	World Health Organization
WID	-	Women in Development
WSSE	-	Water Supply and Sanitation Engineer
WSS-PMO	-	Water Supply and Sanitation-Programme Management Office
WW	-	Waterworks

EXECUTIVE SUMMARY ES

EXECUTIVE SUMMARY

1. Introduction

Background and Objectives

The Provincial Water Supply, Sewerage and Sanitation Sector Plan (PW4SP) for the province of Antique was prepared by the Provincial Sector Planning Team with technical assistance from Japan International Cooperation Agency (JICA). The PW4SP will be the basis for execution of sector development from proceeds of sector loan by foreign donors, LGU's budget including internal revenue allotment from the National Government and private sector investments.

The PW4SP covers a Long-Term Development Plan (2006-2010) and a Medium-Term Investment Plan (2001-2005) to achieve the provincial targets of water supply, sewerage and sanitation sector. The plan includes arrangements and logistics for implementation and measures to strengthen operational frameworks and institutional capabilities that embody community development and gender responsiveness. As an initial step towards capability building, the Study was designed with the end view of strengthening the LGU's capability in sector plan preparation through conduct of series of workshop and hands-on training.

Planning Approach for Future Sector Development

The primary bases of the PW4SP are national sector policies and strategies, as well as major legislation and regulations relevant to the sector. The guidelines for setting the provincial sector targets are the three national level plans: the Philippine National Development Plan (1999-2024), the Water Supply, Sewerage and Sanitation Master Plan of the Philippines (1988-2000) and the Updated Medium Term Philippine Development Plan (1996-1998). The GOP recently approved the IRR providing detailed arrangements on the devolution of WATSAN responsibilities and resources. Parallel to this are the current sector policies and strategies, to wit: i) self-reliance and local community management of services; ii) an integrated approach to water, sanitation and hygiene education; iii) cost sharing arrangement; iv) cost recovery of capital and O&M; v) private sector participation; and vi) an integrated water resources strategy.

The PW4SP will help ensure that sector investments are optimized in consideration of fund and water source availability constraints as well as planning capacity. It is envisaged that the Plan will be progressively updated as its implementation proceeds. Furthermore, future de-

tailed studies and plans for project implementation shall be conducted in the context of the PW4SP.

A data management system was established as a tool to come up with the outputs commensurate to the objectives of the provincial plan and at the same time reflect the planning approach. It will provide a map of relative needs in the province allowing for adjustment and updating when further information becomes available. Different scenarios may be worked out by planners using the program by changing key parameters based on planning assumptions and conditions.

Report Composition

Three (3) study reports were prepared as follows: i) Main Report (Volume I) which presents the results of the whole study consisting of 12 chapters; ii) Supporting Report (Volume II); and iii) Data Report (Volume III). Supporting materials including alternative studies and detailed calculations, and data/information constitute the last 2 reports.

2. Provincial Profile

The province of Antique is one of the 6 provinces comprising Western Visayas Region (Region VI) with San Jose de Buenavista as its provincial capital. Occupying the whole length of the western side of Panay Island, the province is composed of 18 municipalities with a total of 590 barangays, of which 72 are urban and 518 are rural. The province is classified as 3rd class. At the municipal level, Ten (10) municipalities belong to 5th class and the rests are higher classification. Population of the province was 431,713 in 1995 with an annual growth rate of 1.14% between 1990 to 1995.

Physical Features

There are 2 types of climate in the province. Type I, which is experienced in the southern part has two pronounced seasons, dry from December to May and wet from June to November. Type III, which is experienced in the northern part, has no very pronounced maximum rain period, with very short dry season lasting only from one to three months. The major geomorphic feature of the province is the eastern Cordillera consisting of continuous mountain ranges that bounds the northeastern to southeastern sides of the province with maximum elevation of 1,650 masl at Mt. Nausang.

There are four (4) major rivers that traverse the province. Sibalom River with a watershed of 719km^2 is the largest. About 47% of the total land area of the province constitute forestland.

Agricultural land is 26%, while grassland or open land area is 24%. The remaining few percent is either built-up or inland/fishpond/mangrove area.

Socio-economic Aspects

Antique is basically an agricultural province with rice and sugarcane as the principal crops. The major economic activities are farming and fishing. Marine and other aquatic resources are the other important commodities because of its relatively long coastline and the presence of several productive fishing grounds, especially along the Cuyo East Pass. At present, the province is promoting cottage industry and tourism as another income-generating activities.

The average annual family income of the province in 1994 was ₱ 42,393. Based on the established poverty threshold income of ₱ 47,133 per family in Region VI for 1994, about 64% of the total number of families lived within and below the poverty threshold.

All municipalities have electric supply, but with only 60% household coverage. Telephone service is also available in all municipalities. Land transportation is available by means of bus, jeepney, taxi and tricycle. Business establishments in the province total to only 33, likewise tourism-related facilities total to 22.

Provincial population growth rates had been fluctuating for the last 6 census years. The 1998 population was estimated to provide the planning base for this provincial plan. Considering the 1995 NSO classification of urban and rural barangays, rural population accounts for 74%, while the remaining 26% are urban.

The province has a total of 508 schools consisting of 444 elementary schools, 53 high schools and 11 tertiary/technical schools. A large part of the population had attained elementary or high school levels of education.

An indicator of health problems related to water supply and sanitation is the incidence of water-related diseases. The reported cases in the province were intestinal parasitism, diarrhea, conjunctivities, dengue fever, viral hepatitis, gastroenteritis/colitis, scabies and skin diseases.

Environmental problems related to wastewater discharge and unsanitary solid waste disposals are occurring in parts of the province. Major pollution sources in urban areas are domestic wastewater and dumped garbage. Only 16% of the total households in the province relied on the municipal refuse collection services.

3. Existing Facilities and Service Coverage

The service coverage of each sub-sector is estimated as percentages of served population/ households/utilities against the total number. In water supply, safe classification of Level I facilities is introduced and further categorized into public or private. Aside from household toilets, school toilets and public toilets are included in the sanitation components in view of public hygiene improvement. Preliminary discussions on solid waste management are also considered.

Water Supply

The province has 13 Level III systems operating under different types of ownership (authority or association) together with their service coverage. These are eight (8) Water Districts and five (5) LGU operated waterworks. Among them, Pandan WD and San Jose Rural WWs are comparatively larger systems, served population of which is more than 10,000. Common issues encountered in some waterworks (Barbaza WD, Bugasong WD) are rationing due to insufficient water pressure caused by limited water source, inadequate capacity of distribution pipes due to inappropriate planning and designing, and insufficient water quality examination. Collection efficiency of water charges is quite high at bigger waterworks, which is in contrast with smaller waterworks that experienced very poor collection due to weak management practice.

There are 214 Level II waterworks operating in the municipalities. The majorities of the waterworks are utilizing spring sources (212 systems), while 2 systems use deep wells. It is common problem that water quality examination is not adequately conducted. Some waterworks impose water charge of 5 to 30 Pesos/HH/month as flat rate, and the rest supplies water free of charge. Regarding repair works, the associations either collect required money from beneficiaries or resort to assistance of barangay. Likewise they request assistance of MEO/PEO case by case.

Level I facilities are common in rural barangays. Of the 16,500 operational Level I facilities, 96 percent are shallow wells. In the course of PW4SP preparation, 30% of the shallow wells were assumed as unsafe water sources. All deep wells, covered/improved dug wells and developed springs are regarded as safe water sources. Most of unsafe sources are located in nearby potential pollution sources, hence, for new construction of shallow wells, proper site selection and appropriate construction method shall be applied together with periodic water quality monitoring. Percentage shares between public and private Level I facilities for rural

water supplies are 17% and 83%, respectively. The share of developed springs in public facilities is only 3%.

About 71% or 324,300 of the present population (455,100 comprising 26% in urban area and 74% in rural area) are adequately served. Under area classification, 80% of urban population and 68% of rural population have access to safe water sources/facilities. Of the served population, 22% or 71,100 persons are served by Level III systems. About 68% or 221,200 persons depend on Level I facilities, while the rest relies on Level II systems.

Sanitation

The service coverage of sanitary toilets in the province is 73% or 64,878 HHs of the total households, which is well higher than the national coverage of 60%. These toilets consist of 4% flush type, 73% pour-flush type and 21% VIP/sanitary pit latrine. In municipalities that have high water service coverage (Sebaste, Belison, San Jose de Buenavista), high sanitation coverage occurs and adversely, in low water supply coverage (Valderrama, Barbaza), low sanitation coverage also occurs. Service coverage in urban area is 80%, while in rural area, the coverage is 71%. Although high percentage of sanitary toilets is disclosed in urban areas, problems arise from the unsatisfactory disposal of the effluent from the septic tanks or the direct discharge of wastewater to the local drains. Sullage management is unheard of. In urban areas, there are no sewerage systems.

The province has a total of 1,817 toilets installed at 497 schools. Only 54% of the students are adequately served by sanitary toilets (54% also for public school students). The present average ratio of 70 students per sanitary toilet is over the service level standard of 40 students per sanitary facility. Some of these facilities are not being used due to lack of water supply, destroyed plumbing fixtures and water tank seepage. Proper operation and maintenance are not usually done. There are 40 public utilities; public markets, bus/jeepney terminals, and parks or plazas. Out of 48 public toilet facilities in the existing public utilities, 71% are served with sanitary toilets. However, the manner of usage and maintenance are improper rendering the facilities unsanitary. At present, no specific arrangements are made for the operation and maintenance, as well as the collection of fees to cover such cost.

4. Existing Sector Arrangements and Institutional Capacity

Institutional Framework

The Local Government Code (1991) has essentially re-defined the roles, relationships, and linkages of central, provincial, municipal and barangay institutions in the provision of basic

social services, including water and sanitation. The new direction mandates the LGUs to play a larger role in planning and implementing water supply and sanitation projects. However, this has raised serious institutional capacity and resource reallocation issues.

At the central level, there are three line departments (DILG, DPWH and DOH) and two government owned and controlled corporations (LWUA and MWSS) responsible for planning and implementation of the sector projects. The role and responsibilities of these agencies have been defined by the NEDA Board: DILG's participation will consist of general administration and institution building, such as assistance to LGUs in the formation of waterworks/Rural and/or Barangay Waterworks and Sanitation Associations (RWSAs/BWSAs) and in the identification of water supply systems; LWUA shall implement only financially viable Level-III water supply projects in areas outside the MWSS jurisdiction; DPWH, together with DILG and DOH, will provide technical assistance to LGUs in the planning, implementation and operation and maintenance of water supply facilities. Other departments are concerned with macro-planning, national resource allocation decisions, as well as exercise of regulatory powers for tariff setting, environmental protection and management issues.

At the provincial level, the offices involved in WATSAN activities are the Provincial Planning and Development Office (PPDO), the Provincial Engineering Office (PEO), the Provincial Health Office (PHO) and other offices concerned. At the municipal/city level, planning offices, engineering offices and health offices of municipalities/cities are also involved. There are central agency field offices (DPWH and DILG) working on the sector. Water Districts (WD)/waterworks, RWSAs and BWSAs have been organized to deal with the actual delivery of services. Some LGUs implement and operate municipal or provincial water and sanitation systems. Water Supply and Sanitation Program Management Office (WSS-PMO/DILG at the central level), ad hoc inter-agency committees, and task forces have been organized to address coordination issues.

LGUs implement WATSAN projects using funds maid available by their respective legislative bodies. Generally, implementation of Level I & II systems are initiated by barangays, while Level III facilities are planned at the municipal level. The major WATSAN projects that have been implemented in Antique were the USAID-assisted BWP (Level I & II) in the 1980s and the ADB-assisted RW3SP (Level I). The implementing capacity of LGUs is still limited and needs to be strengthened. LGUs will require assistance from the national government line-agencies and NGOs when future WATSAN projects are implemented. A number of Level I/II systems exist in the province, but majorities of the barangays/BWSAs are not able to maintain these facilities well. These LGUs need to be trained through a joint ef-

fort of the province and the DILG. For water supply in the urban areas, there are WDs in the province, which possess a higher level of management expertise.

Monitoring activities in the province are done on a project basis and are limited to specific projects (such as projects assisted by national and/or external agencies). Moreover, monitoring is done only in terms of physical performance against financial requirements. There is wide dissatisfaction among implementors themselves with the existing monitoring system. Poor monitoring leads to the problem of reliability of information coming from the field. There is a need to establish a system similar to project-based monitoring which will have a direct link to performance. In addition, it should be conducted periodically in order to develop a more reliable database for the sector.

The current major institutional issues are: managing the transition process and establishing the LGU's leadership for the sector. Major resource realignments and capacity building initiatives are needed. At the local level, the LGUs' capability to handle sector projects needs to be developed to enable them to address their expanded role sufficiently. This will require substantial input and support.

Community Development

There has been very limited experience in the province in planning or implementing community development processes for the WATSAN sector projects in the Province of Antique. The manner by which CD/CO work is done is how it was done in past sector projects, particularly the Barangay Water Program. As such, there is an apparent lack of a permanent structure and of the identified major responsible players on CD in the LGUs, which 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. Also, training programs that should update the knowledge and skills of LGUs on this important activity have been very few and far between.

Gender Consideration

For some time now, the Province has been implementing gender-sensitive projects. Those that relate to the WATSAN sector, however, have been limited to health and sanitation, as well as hygiene projects. Gender and development, as a whole, has still to be fully integrated in the mainstream of projects planned and implemented for the province and its LGUs, including the WATSAN sector.

Key informant surveys and group interviews were conducted to determine the degree of community participation on the sector of barangay officials and their constituents, with emphasis on gender-related issues. In general, there is no gender bias in the manner by which WATSAN activities are being practiced:

- Water fetching responsibility – Most men claimed that they or their sons fetch water. But according to women, there is no designated gender responsible for fetching water. The responsibility lies on whoever is available.
- Operation and maintenance activities – Men were more involved in WATSAN activities, particularly in repair and maintenance of the facilities. But some women claimed that they are also responsible for minor repairs. However, they expressed that both women and men can participate in operating and maintaining WATSAN facilities.
- Barangay organizations - These are still male-dominated. Most chairpersons/heads are males, while women occupy the traditional roles, such as secretary or treasurer. This is due to being traditionally patriarchal especially for indigenous communities.
- Consultation and project participation – Both women and men were consulted and briefed on their roles and responsibilities in the planning, design and construction of WATSAN facilities. Actual participation during construction came mostly from men.
- WATSAN training – Most men received sector-related training. Both women and men have access to training and are interested to learn new skills.
- Health and hygiene – Both women and men equally recognized the importance of good health and hygiene practices. But women mostly attend health and sanitation training.

5. Past Financial Performance in Water Supply and Sanitation

Since the devolution of the water supply and sanitation project to the LGUs in 1992, the LGUs have been dependent on the Internal Revenue Allotment (IRA) for their financial requirements. For the period 1995-1998, the IRA of the province represented 91.45% of the total income.

Actual expenditures for the same period were 93.64% of the total revenue. These expenditures are further broken down into personnel (75.54%), capital outlay (2.10%), and operation and maintenance expenses (16%).

The funds for the development are part of the capital outlay of the province. The amount of debt servicing capacity of the provincial government is computed to be ₱58.26 million for the year 1999, which represents the maximum loanable amount through the MDF.

Funds for the capital outlay is mainly derived from 20% DF of the IRA. During the period 1995-1998, the 20% DFs of the province were sufficient to cover the actual expenditures. However, for 1999, it is projected that the 20% DF amounting to ₱47.97 million will not be adequate to cover the capital expenditures of the province, estimated at ₱ 94.03 million,

Previously, the Provincial government had not given priority to WATSAN sector. It was only in 1997 that funds were allotted to the WATSAN sector. In 1999, the situation improved with WATSAN expenditures reaching 4.83% of the 20% DF.

The sector projects in previous years were undertaken by PPDO, PEO and PHO. The PEO-Waterworks implements the provincial government funded projects under the General Fund. For sector project implementation, funding sources are provincial government, CDF (Congressmen) and the municipal government, while the implementing agencies are the PEO, DPWH-District Office and the Municipal Government, respectively.

With regard to the capital cost recovery for Level I water supply, it was free to the community in the past. For Level II systems, the capital cost is shouldered by the RWSAs through a loan or grant, while for Level III, the WDs or waterworks bear the entire cost. Those for WDs are usually financed by the LWUA for a period of up to thirty (30) years with interests ranging from 8.5-12.5 %. For less capable WDs, soft loans without interest for the first 5 years of operations are available. Regarding sanitation sector, construction of the superstructure and the depository of household toilet are through self-help.

The O&M cost for Level I and II water supply systems is the responsibility of the users. It is mandatory that the community shall organize themselves into an association that handles collection of water charges as well as O&M of the facility. However, most of the RWSAs and BWSAs reportedly face difficulty to manage the systems, since beneficiaries do not recognize the cost requirements. The monthly fees for Level I in the active association range from ₱5.00 - ₱30.00 /household /month. For Level III systems, the O&M cost is basically covered by the user's fees. LWUA's policy is to make WDs financially viable, self-sufficient and be able to repay their loans obtained to improve water supply services.

The percentage of water fee to median monthly household income is about 5.23% for Level III service. Current water rates are slightly over the affordable range. On the other hand, construction cost of household toilet seems to be expensive comparing with the family income.

6. Water Source Development

The study on water source development covers the entire province. It gives an emphasis on groundwater availability rather than surface water considering its economic advantages and current practices in potable water use.

The geology of Antique province located in the western portion of Panay Island is complex and mainly attributed to tectonic and magnetic actions generated from Cretaceous to Quaternary period. The high mountains of the province formed by the oldest rocks, largely volcanic origin, are the completely folded and faulted assemblages of igneous and metamorphic rocks. During late Miocene epoch, serpentinized igneous rocks of Cretaceous period to Oligocene epoch are assumed to have intruded through old fractures accompanied by faulting.

Overlying unconformably the basement complex is the Tertiary sequence of volcanic and sedimentary rocks, which forms the lower hills and the rolling areas in the western-half part of the province. Middle Miocene volcanism intervened with the deposition of the younger Oligocene to middle Miocene sedimentary rocks. Continuous accumulation of sediments in this rolling hills gave rise to the formulation of late Miocene to Pliocene sedimentary sequence, composed of sandstone, shale, limestone, mudstone and conglomerate.

Physiographic configuration is an expression of structures that are formed throughout the complex geologic evolution of the province and the whole of Panay Island. The main structures trend more or less, N-S, NE and NW. Tertiary rocks are generally folded. Normal or gravity faulting affected the Tertiary and Quaternary systems. In general, the structural trend of the province is attributed to steeply sloping terrains and moderate to steep dips.

For planning purposes in the development of groundwater sources, the provincial area is divided into solo shallow well, deep well and difficult areas. Solo shallow well areas in the province are limited. Deep well area covers about 30% of Antique, while difficult area falls on the remaining area. Ironic water problem is extended to most of the areas in the municipalities of Sibalom and Laua-an. Slight acidic groundwater is confirmed mainly in the municipality of Anini-y.

Referring to the inventory of water sources prepared during the study, the province has 280 developed springs currently serving the province. Such spring sources come out from the western slopes of the Cordillera. A total of 48 untapped springs for future development is

reported in the same location of developed springs. Other municipalities out of the above-mentioned area have few untapped springs.

Based on the existing well inventory, the depth of potential aquifers occurs between 20 to 96 meters in the recent deposits and the Plio-Pleistocene series. The development of deep wells is more advantageous than shallow wells considering the safe quality and invariable yield of deeper aquifers. In the southern part of the province, groundwater is characterized by slightly higher iron contents and acid pH. Such quality is caused either by groundwater itself, well materials eluded in acid water, or combination of groundwater and well materials. In this case, deep wells shall be designed with anti-corrosive materials such as PVC and SUS.

For the preparation of the medium-term development plan in terms of water source development, utilization of spring sources was given first priority, with special attention to the development of Level III systems. Groundwater source availability as second priority was presented by municipality with standard specifications of wells, including parameters such as well depth, static water level and specific capacity.

For the furtherance to design the concrete specifications of the planned wells, recommendations are made to conduct detailed groundwater investigations entailing the water quality examination and the preparation of database, prior to the detailed design or in the pre-construction stage. The entire province falls on this investigation area.

Untapped springs shall also be surveyed to confirm the development possibility in the detailed groundwater investigation. This will include items on the following: i) location and type of spring source; ii) fluctuation of discharge rate through the year; iii) distance from spring source and proposed served area; and iv) relative elevation between the two points.

7. Future Requirements in Water Supply and Sanitation Improvement

Physical Targets and Service Coverage

Phased requirements for the sector development in the province are assessed to meet the provincial targets established as percentages of beneficiaries or utilities to be served by sub-sector. Targets of service coverage for water supply in Phase I development were established to secure the existing service coverage in consideration of viable investment using available IRA for water supply sub-sector. In rural water supply, physical targets of Level I facility under on-going ADB-assisted project are adopted as shown in Table 7.1. Sanitation sector

target is applied in order to attain sufficiency and balanced distribution of the facilities in urban and rural area as embodied in the PNDP. Sewerage target is set for only part of urban centers in the long-term development, while solid waste management considered the medium-term household requirements. Logistic support is considered as a minimum requirement of LGUs for the implementation of PW4SP. The types and number of well drilling/rehabilitation equipment and supporting vehicle for Level I facilities are identified as reference information. Also, minimum requirements for setting up a provincial laboratory to support drinking water quality surveillance and monitoring activities are described.

Table 7.1 Present Service Coverage and Sector Targets

Sub-Sector	*Area/Type*	*Base Year*	*Provincial Sector Targets*	
		Service Coverage	*Phase I*	*Phase II*
Water Supply	*Urban Area*	*80*	*80*	*95*
	Rural Area	*68*	*68*	*93*
Sanitation	*Urban HH Toilet*	*80*	*90*	*93*
	Rural HH Toilet	*71*	*85*	*90*
	School Toilet	*54*	*80*	*90*
	Public Toilet	*71*	*90*	*100*
Sewerage	*Urban Area*	*0*	*Not applicable*	*50*
Solid Waste	*Urban Area*	*60*	*80*	*Not applicable*

Frame values are projected by municipality for respective sub-sectors; future population by urban and rural area, the number of students in public schools and the number of public utilities.

Required Facilities to Meet Target Services

Types of required facilities and their implementation criteria are determined according to service level standards as adopted by the NSMP and NEDA Board Resolutions. Urban population is planned to be served by Level III systems, however, existing Level I and II facilities are to be used during Phase I period. For rural water supply, Level I facilities to be constructed under the on-going ADB-assisted project are employed for Phase I requirements. However, it does not exclude from being implemented Level I and II facilities in urban area as individual cases in the future as well as Level III systems in rural area. Rehabilitation work is planned only for new deep wells (Level I) to be constructed under PW4SP, considering the difficulty of rehabilitation for existing wells constructed by means of traditional methods. Facilities for the provincial laboratory are determined, taking into account the existing facilities and the exigency to examine the water samples at the right time.

In sanitation sector, pour flush and/or flush type household toilets are planned, while VIP type household toilet and sanitary pit latrine are considered in rural area as an intermediate measure. Household toilets (limited to toilet bowl), school and public toilets to be provided under the on-going ADB-assisted project are taken into account for Phase I requirements. Sewerage program is planned in Phase II for limited urban area. The study on solid waste considered only the number of required trucks for the year 2005. Additional service coverage of the sector by phase is shown in Table 7.2.

Table 7.2 Additional Service Coverage by Phase

Sub-Sector	*Area/Type*	*Unit*	*Additional Service Coverage*	
			Phase I	*Phase II*
Water Supply	*Urban Area*	*Persons*	*11,219*	*87,602*
	Rural Area	*Persons*	*30,240*	*123,238*
Sanitation	*Urban HH Toilet*	*No. of Households*	*4,863*	*13,387*
	Rural HH Toilet	*No. of Households*	*16,574*	*29,269*
	School Toilet	*No. of Students*	*38,985*	*21,637*
	Public Toilet	*No. of Utilities*	*32*	*12*
Sewerage	*Urban Area*	*Persons*	*Not applicable*	*37,078*
Solid Waste	*Urban Area*	*No. of Households*	*9,880*	*Not applicable*

The necessary water supply facilities for Phase I include 13 deep wells/springs for 2,180 house connections in urban area and 336 Level I wells/springs for rural area. These Level I facilities will be constructed under the on-going ADB-assisted project. For Phase II, 23 deep wells/springs for additional 21,900 connections and 2,060 Level I wells/springs are required for urban and rural water supplies, respectively. Rehabilitation requirements are assumed to be 10% of the total number of deep wells to be constructed under PW4SP. The on-going ADB-assisted project will provide three (3) new laboratories for the municipalities of Bugasong, Culasi and T. Fornier. Aside from this, the Province made a plan to establish another laboratory at district hospital in Pandan for the medium term requirement.

For urban water supply, one Level III system is, in principle, considered for urban area of every municipality. In the municipalities with existing Level III system/s, the expansion of the existing system/s was first considered. In case there is no Level III system, a new system was recommended. Currently, 7 out of the total 18 municipalities/city have no Level III systems in their urban areas. Existing plan/s on the development of waterworks/WD are also taken into account to determine respective systems of the municipalities.

Merging of municipal systems (physical arrangement) in long-term is considered. Integrated management systems shall also be sought. Conditions to be studied include; water source

availability, willingness by concerned municipalities and technical study on cost recovery/economic construction.

Integration of small Level III systems for operation and management shall be sought, although these systems are currently managed individually.

Moreover, Phase I sanitation will require 4,860 household toilets, 41 public school toilets and 32 public toilets for urban area. In rural area, 16,570 household toilets and 152 public school toilets are necessary. Solid waste disposal will need 13 refuse collection trucks. For Phase II, urban area will require 13,400 household toilets, 14 public school toilets and 12 public toilets. In rural area a total of 29,300 household toilets and 449 public school toilets are necessary.

8. Sector Management for Medium-Term Development Plan

Institutional Framework

To effectively manage the development of the WATSAN sector, the provincial and municipal governments will have to make some adjustments in their current policies and structures. One glaring basic institutional need at the local level is a common vision and mission statement for the sector. A critical mass of people with resources, who share in the vision, must be identified and harnessed for sector management. LGUs will improve the physical infrastructure for water, sanitation, and related environmental services while acquiring permanent capabilities for planning, management and development of sustainable institutions in the sector. Local planners need to focus on long-term requirements.

In line with the proposed adjustments, the province will adopt the following policies and strategies for the development of the sector:

- Facilities management with emphasis on sustainability through community commitment and increased responsibility;
- Project selection and prioritization based on: i) beneficiaries' commitment and willingness to pay; ii) current water, sanitation and health conditions; and iii) potential for growth;
- Appropriate technology to local conditions and resources; economical facilities, not necessarily insisting on low-cost construction;
- An integrated approach in the provision of potable water supply, sanitation, and hygiene education;

- Equal provisions of water supply and sanitation services for rural and urban areas, and for wealthy and depressed areas;
- Policy and execution on consistent basis for cost recovery and rational cost sharing (subsidy);
- Private sector participation: The LGU will gradually transfer its technical assistance functions to the private sector. The LGU will provide needed incentives and establish the regulatory framework for private sector participation;
- Seeking potential sources of local and external funds (loans and grants) to finance the capital requirements of the sector;
- Broader concerns for environmental protection and management in sector development;
- Provision of water supply and sanitation services under emergency conditions

For the successful implementation of these polices and strategies, it is necessary that a common vision be shared by LGU officials and by a critical mass of its residents, who can focus their efforts and resources to achieve sectoral goals. For this purpose, the LGU should give priority to an "Information, Education and Communication Program" aimed at creating safe water and sanitation values in communities throughout the province.

Also to be given priority by the LGU are the following:

- Measures to set up, in coordination with appropriate national and local agencies, a coordinated regulatory framework considering, among others, the following: policies on water allocation and water rights (resolution of priorities and conflicts); setting and review of water rates; registration of WATSAN associations; water quality assurance; and the protection of water resources and enhancement of watersheds.
- Measures to avail of national and external funds, including MDF, in addition to local taxes and allocation from the IRA 20% Development Fund as a primary source of funds. National and external funds are diminishing but assumed to continue in the medium-term to be channeled through local offices of central agencies.

In the medium-term, a full-time Provincial Water Supply and Sanitation Unit (PWSU) shall be set up possibly under the PPDO. The LGU should ensure that adequate logistics and incentives are provided for the Unit. In the long term, the unit may be promoted to the same level as the PPDO. The PWSU will continue to implement, assist and monitor all water supply and sanitation services in cooperation with the municipalities that, for their part, will establish a Municipal Sector Liaison Team (MSLT). The WSS-PMO of DILG shall, however, continue to provide technical and managerial assistance in the formative years of the PWSU.

For institutional arrangements, the formation of community-based WATSAN associations to decide on and participate in the establishment, operation and maintenance of water systems shall be a prerequisite to availment of project support. These may be in the form of BWSAs for Level I systems, RWSAs for Level II and waterworks/WD for III systems. To provide the members with the necessary skills, training programs will be implemented by concerned national agencies and by the provincial and municipal governments. The community, especially women, shall have equal opportunities to be trained and involved in all phases of project implementation (planning, construction, and O&M) and in participating in health and hygiene education programs.

Community Development

To ensure, therefore, that the full participation of the beneficiary community in sustaining sector projects is realized, it is recommended that the LGUs provide the needed human, financial and other material resources for community development work to take-off. To institute the linkage among all the actors in sector development, a CD Unit should be established within the proposed Provincial Water Supply and Sanitation Office and a permanent CD Specialist be appointed to take charge of promoting, developing and coordinating CD and IEC programs of the province, even looking into how it can harness the participation of the private sector and train project beneficiaries. It is also recommended that a CD Specialist be assigned to the existing Municipal WATSAN Liaison Task Force to coordinate and implement all CD/CO and IEC work at the municipal level. At the barangay level, it is recommended that each Barangay Development Council (BDC) establish a WATSAN Committee that will coordinate all sector projects in the barangay as well as designate one person who can be trained on CD work.

The power of information, education and communication as a necessary foundation activity for CD has not been fully realized and maximized. It is, therefore, recommended that a comprehensive IEC program be conceptualized and implemented on the national, provincial and municipal levels, to promote a better awareness and understanding of the responsibilities of sector planners as well as the benefits due to the project beneficiaries so that the gains of the sector can be sustained on a long term basis.

It shall be the DILG who shall retain the central role as the national government agency that promotes and develops the capacities of the province and the municipalities in participatory CD approaches and IEC programs for the sector. It shall also encourage and institutionalize the participation of national NGOs, with local networks or offices that specialize in community management program and utilize these to enhance and assist the LGUs in organizing

project beneficiaries. Another national agency, the LWUA, shall on the other hand, continue to promote community participation in the formation of LGU-WS into water districts and to provide regular CD assistance particularly in consultation with the community on projects, loans, and water rates adjustments.

There are three ways that both the LGUs and the intended beneficiaries can participate in sector development: Level I – for the planning and implementation of sector projects and in the formation and management of a water supply and sanitation association or a waterworks and sanitation cooperative; Level 2 – for the formation of a water supply and sanitation association or a waterworks and sanitation cooperative; while Level 3 – for the formation of water districts or LGU-operated waterworks. Thus, it is important that the LGUs make the decision on the projects it can afford to implement.

To achieve this, the LGU must encourage active community participation and involvement through four approaches, which are (1) sharing relevant information on the project with the beneficiaries, (2) consulting with users on all phases of project development; (3) giving ample room to the beneficiaries to make project-related decisions; and (4) providing opportunities to the community to initiate actions for their own benefit.

On the other hand, recommended are four ways that beneficiaries themselves can participate in sector projects, some of which have been tried in the province. These are: (1) the provision of free labor and/or materials by community members; (2) the sharing of costs between project proponent and the users; (3) expressed participation of all parties through MOAs and, (4) the participation through a firm involvement and commitment of the community in the management, operation, maintenance of the system itself.

For Levels I and II, the WATSAN Unit should utilize the recommended Community Development Framework (modified from the UNDP-WATSAN Project) consisting of three phases of activities: Phase 1 is Formation of Organization; Phase 2 is Development of Organization; and, Phase 3 is Consolidation of Organization.

Gender Consideration

Since sustainability of WATSAN services depends on responding to the demands of men and women in the community, LGUs must recognize and give vital emphasis on the role of gender sensitive participation because the use, maintenance and financing of WATSAN systems require the participation of both the men and women. Thus, they should be given equal voice and opportunities in serving the community as well as in the planning, implementation and

monitoring and evaluation of sector projects. To ensure the gender responsiveness of WAT-SAN projects, the LGUs should be trained through a Trainor's Training Program on Gender Responsive Planning as envisioned by the Philippine Plan for Gender Responsive Development (1995-2025).

9. Cost Estimates for Future Sector Development

The investment cost includes direct cost for construction/rehabilitation of required facilities, procurement of vehicle/equipment, construction/upgrading of laboratory, sector management, physical and price contingencies, and value-added tax. Of the total requirements for Phase I, the required cost for Level I facilities and sanitation facilities undertaken by on-going ADB assisted project was excluded. The recurrent cost is incurred for operation and maintenance of facilities. Unit construction cost per person/household/ facility was first prepared under contract-out basis in 1998 price level. In this regard, the cost for procurement and distribution of toilet bowl for pour-flush toilets is only counted for household toilets. Investment cost required by phase for the province is summarized in Table 9.1.

Table 9.1 Investment Cost Required by Phase

Unit: 1,000 Pesos

Item	Component	Phase I	Phase II
Construction/ Rehabilitation	Water Supply		
	Urban Area	47,982	352,992
	Rural Area	0	414,920
	Sanitation		
	Household Toilet	2,830	5,945
	School Toilet	44,132	108,111
	Public Toilet	10,486	4,339
	Disinfection of Well	1,167	172
	Urban Sewerage	N/A	270,669
	Sub-Total	106,597	1,157,147
Procurement of Vehicle/ Equipment/Maintenance Tools	Well Drilling Rig & Service Truck	0	26,782
	Support Vehicle	590	0
	Well Rehabilitation Equipment	280	0
	Maintenance Tools	180	0
	Water Quality Testing Kits	15	0
	Sub-Total	1,065	26,782
Water quality Laboratory		478	0
Sector Management	Engineering Studies	13,408	114,469
	Community Development and Training	7,994	79,248
	Sub-Total	21,402	193,717
Total Direct Cost		129,542	1,377,647
Contingencies	Physical Contingency	12,947	137,765
	Price Contingency	48,078	N.A
	Value-Added Tax (VAT)	12,148	N.A
Total Investment Cost		202,715	1,515,411
Total Investment Cost (excluding Price Contingency)		154,567	1,515,411

Total investment cost for Phase I is estimated at about ₱154.6 million. A total of ₱106.6 million is required as the construction/rehabilitation cost (including cost for disinfection of well) in Phase I, of which urban water supply and sanitation share 45% and 55%, respectively.

With reference to urban water supply, some cost required would be managed by newly created WD/s, which is out of public investment to be undertaken by LGUs.

Required equipment and vehicle for construction/rehabilitation of Level I facilities and solid waste management are roughly estimated: 1 set/unit each of well drilling equipment and service truck with crane; 1 set/unit each of well rehabilitation equipment and support vehicle; and 13 units of refuse collection truck. The total procurement cost is estimated at approximately ₱54.4 million. The works for Level I facilities and its supporting vehicle/equipment will be managed through the ADB-assisted project. However, those for maintenance of facilities will be required through the future. In this connection, one set/unit each of well rehabilitation equipment, support vehicle and maintenance tools/water quality testing kits is incorporated in the medium-term investment plan.

Likewise, annual recurrent cost in 1998 price level is estimated at ₱20.1 to ₱25.5 million/year during Phase I period.

10. Financial Arrangements for Medium-Term Development Plan

Financial arrangements to attain medium-term (Phase I) targets were sought focusing on available Internal Revenue allotment (IRA). The financial shortfall was first identified for this sector and recommendations were made to seek comprehensive logistics in terms of acquisition of various funds, augmentation of current practices in Government assistance to this sector and effective investments and cost recovery.

The projection of IRA to the relevant sector for Phase I period was made covering different administrative levels. Referring to the experience in other provinces, provincial allocation to the relevant sector is assumed to be about 3%. This means that approximately 15% of "20% Development Fund" from national IRA are counted on sector projects. The same percentage is applied for the allocation of municipal IRA to the sector. The fund available for this sector for 5-year implementation period from 2001 to 2005 was calculated as a sum of municipal and provincial allotments.

The combined provincial and municipal IRA to the sector for the period 2001-2005 was estimated at ₱118.02 million. In the overall IRA allocation to the sub-sectors, rural sanitation has the largest allotment of 40.11%, followed by urban water supply (38.7%). The share of urban sanitation is 21.2%. Rural sanitation was not allotted IRA funding since it is assumed that ADB assistance/financing will cover 100% of the requirements.

The shortfall in funding on the current price level was figured out comparing with available fund for the relevant sector (IRA) in the province over the Phase I requirements. IRA can fund only 76% of the requirements as a provincial average. Hence, there is a shortfall of ₱36.55 million in funding. It will become ₱46.1 million in consideration of price escalation with annual rate of 7% and VAT. In the municipal achievement percentage in finance, Anini-y, Caluya, Pandan, San Remigo, Sebaste, Tibiao, and Tobias Fornier (100%) are the highest among municipalities. Majority is in the range between 76% and 96% to the respective requirements, while the provincial average is 76% (58% in consideration of contingencies and VAT).

Under the above situation, different levels of funding availability are discussed with reference to service coverage. Alternative countermeasures are also discussed in view of: i) acquisition of external funds: ii) augmentation of sector finance under current arrangements (IRA and others); iii) introduction of private sector participation to mitigate public investment needs; and iv) effective and economical investments. It is common to all sub-sectors, excepting the rural water supply component which will be funded by ADB-assisted project, that the service coverage in the year 2005 would not sustain even the present levels in the provision of only projected IRA. Using computer-based programs, these scenarios may be modified by policy makers according to the updated information and policy on available fund and sector targets.

In the synthetic investment need ranking of municipalities covering four sub-sectors, the top ranking municipalities are Laua-an, Valderrama, Bugasong, and Caluya, which indicates that they are given priority for investments in all sub-sectors. The municipalities of Belison, Pandan, and San Jose de Buenavista are the least priority in terms of investment ranking.

With regard to Level I water supply and sanitation improvement, for which GOP may provide possible assistance, the DILG is assumed to be the Executing Agency and the province the Implementing Agency in the meantime. The project may be merged with those of 3rd batch provinces in preparation of the PW4SP. The implementation of a packaged project may be realized in the near future.

Project components, public/school toilet facilities, were identified to meet the conditions in provision of GOP-assisted project. There are eighteen (18) eligible municipalities to meet the conditions for GOP-assisted projects (limited to 3rd to 6th municipalities) in sanitation sub-sector. The required services will cover technical and institutional/community development aspects of the project. The overall project cost for the implementation period 2001-2005 was estimated at ₱96.1 million or ₱69.6 million in 1998 price level.

Two alternatives for the financial arrangements were studied, these are: i) Case 1-Utilization of IRA only; and ii) Case 2-Utilization of IRA and MDF.

For Case 1, GOP shall share 50% of the overall project cost in combination of the foreign assisted loan and government counter part fund. The remaining 50% shall be shared by the LGUs (47%) and beneficiaries (3%). Under this case, the IRA to be used by the LGUs will increase to ₱41.9 million from ₱32.7 million (1998-price levels), considering price contingency and VAT. As a result of cost comparison between the estimated project cost to be shared by the LGUs (₱41.9 million) and available IRA of LGUs (₱71.3 million), the required cost is covered by the available IRA.

For Case 2, the utilization of the MDF is considered in case the LGUs would fail to furnish IRA for the cost to be shared. The foreign loan may be availed of at the maximum financing limit of 75% of the overall project cost. GOP will possibly finance up to ₱52.2 million or 75% of the total project cost in the portion of loan. Out of GOP finance through the loan, ₱32.9 million or 47.2% of the total project cost shall be granted to the LGUs, aside from the 2.8% GOP counterpart fund. The remaining ₱19.3 million or 27.8% of the total project cost shall be utilized for financing the LGUs to secure their budgetary capacity through MDF. Under this case, the IRA to be used by the LGUs will increase to ₱16.0 million from ₱13.4 million (1998 price level), considering price contingency and VAT, which is 22% of available IRA (₱71.3 million).

Cost recovery and cost sharing shall be promoted to attain the planned target based on the principle that adequate water, sewerage and sanitation facilities should be paid for. For Level I water supply systems, LGUs and beneficiaries are required to share the capital cost. While users need to pay water charge up to 2% of their monthly income to sustain the system (maximum ₱68/HH/month in 1998). For Level II water supply systems, full cost recovery is required for all capital and recurrent cost (₱114HH/month in 2005, less than 2% of monthly income). For Level III water supply systems, a full recovery of capital and O&M cost is required (₱269/HH/month in 2005). Based on the experience that water fee must not exceed

about 5% of income (average monthly water consumption of 15 m^3), the monthly water rate seems to be affordable.

For sanitation in terms of household toilet, LGU's support is limited to the provision of toilet bowl for pour-flush toilets as an incentive to increase the distribution of water-sealed toilets. To expedite the sanitation sector improvement, introduction of specific loans with low interest rate and longer repayment period may be effective. For urban sanitation, to cover the construction cost of sanitary toilets, a linkage with existing housing loan may be established.

11. Monitoring of the Medium-Term Development Plan

The sector monitoring system must support a well-defined and accepted sector development process-model. This will include collection of information on the sector, process flow of raw data from the field to the central level, information analysis, and data feedback. With the sector monitoring system in place, planners should be able to take a fresh objective view of the way current strategies are implemented. A sector monitoring system should: i) reinforce the linkage between water supply, sanitation and health; ii) involve the beneficiaries; iii) be accepted by all sectors; iv) be practical and reliable; and v) be followed through with effective feedback.

A three-phased monitoring system is proposed with each phase progressively increasing the number and complexity of indicators to be used. Detailed implementation of the first phase requirements is presented in this PW4SP, including institutional arrangements. It is envisaged that this will be linked up with the national sector monitoring system being developed.

The actual situation of the sector will surely change, so that this PW4SP should be updated at least every five years. Based on the monitoring reports, an annual review of sector accomplishments compared with objectives and efficiency will be done. This will lead to the reformulation of objectives, strategies, new policies and policy revisions, and to an updated sector investment program.