

JAPAN INTERNATIONAL COOPERATION AGENCY

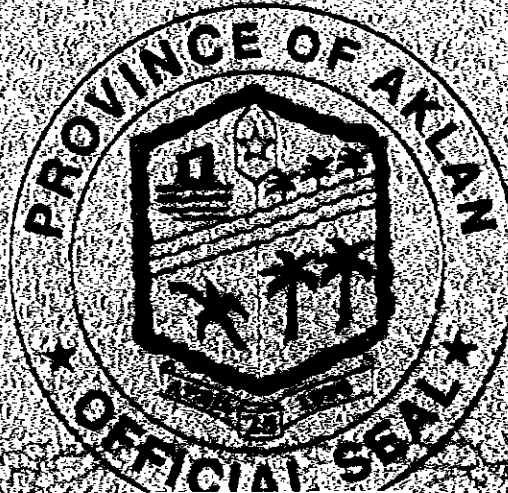
THE STUDY ON THE
PROVINCIAL WATER SUPPLY, SEWERAGE AND
SANITATION SECTOR PLAN
IN
THE REPUBLIC OF THE PHILIPPINES

VOLUME I - (I)

MAIN REPORT

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

AKLAN



JICA LIBRARY



J 1158670 (8)

AUGUST 2000

AJS CONSULTANTS CO. LTD.

JAPAN INTERNATIONAL COOPERATION AGENCY

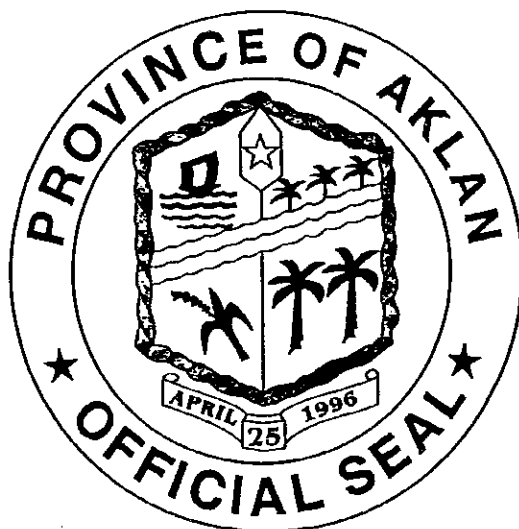
THE STUDY ON THE
PROVINCIAL WATER SUPPLY, SEWERAGE AND
SANITATION SECTOR PLAN
IN
THE REPUBLIC OF THE PHILIPPINES

VOLUME I

MAIN REPORT

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

AKLAN



AUGUST 2000

NJS CONSULTANTS CO.,LTD.



1158670(8)

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 selected 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 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.

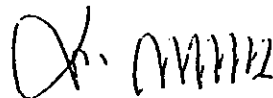
The Study was completed through the discussions with the officials of the Government of the Philippines and the field investigation during four visits from January 1998 to May 2000.

The Report was arranged as Summary Report which succinctly describes the study and recommendations for the sector development 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.

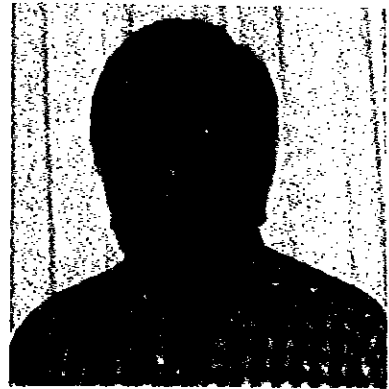
We wish to take this opportunity to express our sincere gratitude to your Agency and the Ministry of Foreign Affairs. We also would like to show our appreciation to the officials of the Department of the Interior and Local Government, the JICA Philippine Office, and the Embassy of Japan in the Republic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

FOREWORD



The Provincial Water Supply, Sewerage and Sanitation Sector Plan, or simply known as the PW4SP, was designed from the viewpoint of strengthening the LGUs capability in sector plan preparation through a series of workshops and hands-on trainings in this field. The advent of the new millennium has brought about bigger challenges in this sector, that there is no better alternative other than to face the pressing needs of this sector head on.

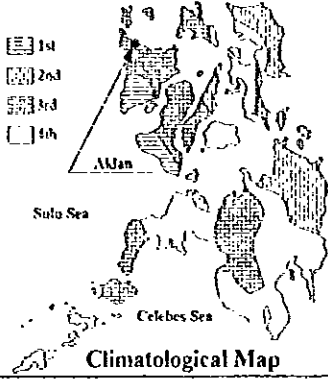
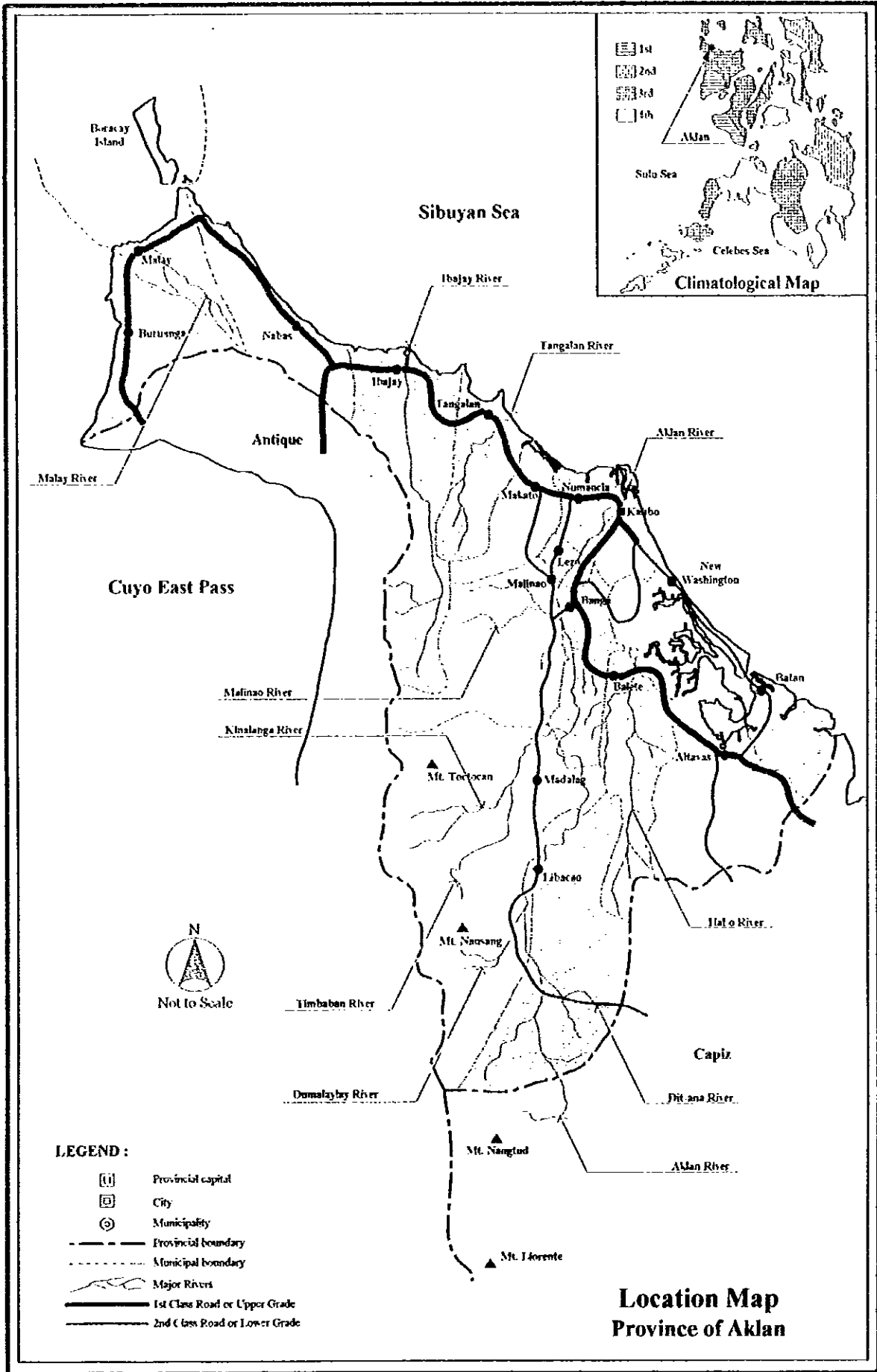
However, cognizant of the constraints in the capabilities of the LGUs in handling such very enormously technical task, it comes to us as a great help that the Provincial Planning Team was able to produce this plan with the generous technical assistance provided by the Japan International Cooperation Agency (JICA), for which we are more than grateful.






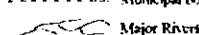

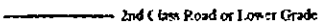
With its production, we are now able to translate national sector policies and strategies, major legislations and regulations into the provincial plan, making them more responsive to existing local conditions. Moreover, we are now also capable of integrating current local sector policies which provide detailed arrangements on water sanitation and resources, making us more ready to face the challenges of millennium age.

With the PW4SP in place, we are assured that sector investments are optimized considering planning capacity, fund and water sources availability limitations. This Plan will be updated as its implementation proceeds, and thus gives us such great assurance that future studies and plans for project implementation shall be conducted along this context.

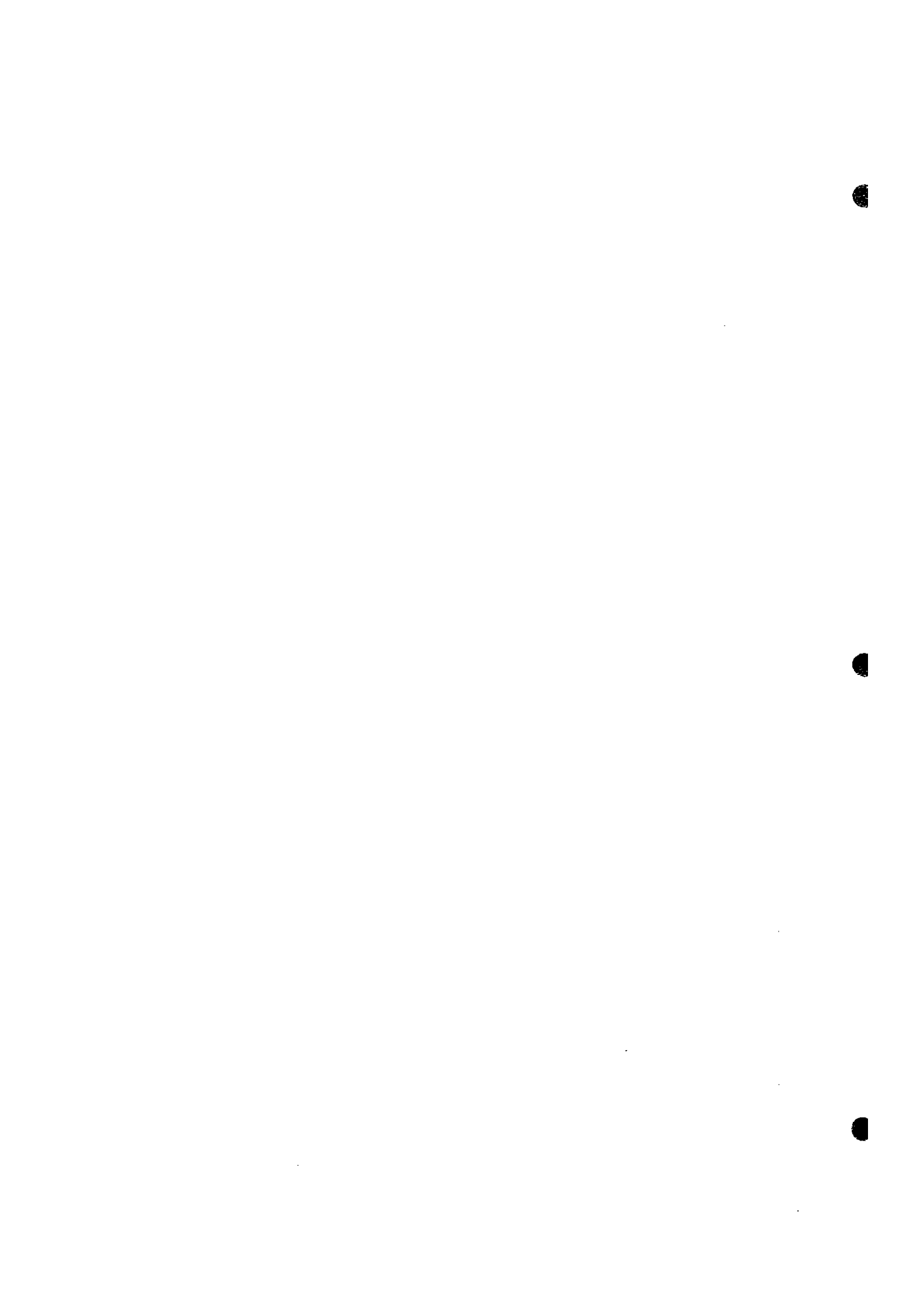
To all these, the people of Aklan under the present administration, who are the beneficiaries and stakeholders of this endeavor, shall be eternally and profusely thankful.


FLORENCIO T. MIRAFLORES
Provincial Governor



- LEGEND :**
-  Provincial capital
 -  City
 -  Municipality
 -  Provincial boundary
 -  Municipal boundary
 -  Major Rivers
 -  1st Class Road or Upper Grade
 -  2nd Class Road or Lower Grade

**Location Map
Province of Aklan**



PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

VOLUME I MAIN REPORT

TABLE OF CONTENTS

CHAPTER	Page No.
PREFACE	
LETTER OF TRANSMITTAL	
MESSAGE OF THE GOVERNOR	
LIST OF TABLES	vi
LIST OF FIGURES	viii
LIST OF ABBREVIATIONS	ix
EXECUTIVE SUMMARY	ES - 1
1. INTRODUCTION	
1.1 Sector Development in the Philippines	1 - 1
1.2 Provincial Sector Planning	1 - 2
1.2.1 Objectives of Sector Planning	1 - 2
1.2.2 Scope of Sector Planning	1 - 2
1.2.3 Financing of Sector Plan	1 - 4
1.3 The Provincial Plan for the Province of Aklan	1 - 4
1.3.1 Preparation of the Plan	1 - 4
1.3.2 Outline of the Report	1 - 5
1.4 Acknowledgment	1 - 7
2. PLANNING APPROACH FOR FUTURE SECTOR DEVELOPMENT	
2.1 General	2 - 1
2.2 Planning Framework	2 - 1
2.3 Sector Objectives	2 - 2
2.4 Current Sector Policies and Strategies	2 - 2
2.5 Major Legislation and Regulations Affecting the Sector	2 - 3
2.6 Planning Principles and Data Management	2 - 5
2.6.1 Planning Principles	2 - 5
2.6.2 Data Management	2 - 6
3. PROVINCIAL PROFILE	
3.1 General	3 - 1
3.2 Natural Conditions and Geographical Features	3 - 2
3.2.1 Meteorology	3 - 2
3.2.2 Land Use	3 - 2
3.2.3 Topography and Drainage	3 - 3
3.3 Socio-economic Conditions	3 - 5
3.3.1 Economic Activities and Household Income	3 - 5
3.3.2 Basic Infrastructure	3 - 5
3.3.3 Education	3 - 5
3.4 Population	3 - 8
3.4.1 Previous Population Development	3 - 8

3.4.2	Classification of Urban and Rural Areas	3 - 9
3.4.3	Present Population Distribution	3 - 10
3.5	Health Status	3 - 12
3.5.1	Morbidity, Mortality and Infant Mortality	3 - 12
3.5.2	Water Related Diseases	3 - 13
3.5.3	Health Facilities and Practitioners	3 - 14
3.6	Environmental Conditions	3 - 14
3.6.1	General	3 - 14
3.6.2	Water Pollution	3 - 14
3.6.3	Solid Waste Disposal	3 - 15
4.	EXISTING FACILITIES AND SERVICE COVERAGE	
4.1	Water Supply	4 - 1
4.1.1	General	4 - 1
4.1.2	Types of Facilities and Definition of Service Level Standard	4 - 1
4.1.3	Level III Systems	4 - 3
4.1.4	Level II Systems	4 - 5
4.1.5	Level I Facilities	4 - 7
4.1.6	Water Supply Service Coverage	4 - 10
4.2	Sanitation and Sewerage	4 - 15
4.2.1	General	4 - 15
4.2.2	Types of Facilities and Definition of Service Level Standard	4 - 15
4.2.3	Sanitation Facilities and Service Coverage	4 - 16
4.2.4	Sewerage Facilities	4 - 20
5.	EXISTING SECTOR ARRANGEMENT AND INSTITUTIONAL CAPACITY	
5.1	General	5 - 1
5.2	Sector Reforms	5 - 1
5.3	Sector Institutions	5 - 2
5.4	Sector Agencies at the National Level	5 - 5
5.5	Sector Agencies at the Local Level	5 - 9
5.6	External Support Agencies Active in the Sector	5 - 16
5.7	Project Management Arrangement, and Issues and Problems	5 - 18
5.7.1	Technical Aspect	5 - 18
5.7.2	Institutional Aspect	5 - 25
5.7.3	Financial Aspect	5 - 28
5.7.4	Institutional Arrangements/Capability of the Municipal Government	5 - 29
5.8	Community Development	5 - 30
5.8.1	General	5 - 30
5.8.2	Provincial CD Structure and Linkages for WATSAN Sector Projects	5 - 31
5.8.3	Assignment of CD Specialist to Sector Projects	5 - 32
5.8.4	Training on CD	5 - 33
5.8.5	Utilization of NGOs	5 - 33
5.8.6	Existing Community Development Processes	5 - 34
5.8.7	Information, Education and Communication (IEC) As Foundation Activities for Community Development	5 - 36
5.8.8	Health and Hygiene Education	5 - 37
5.9	Gender	5 - 37
5.9.1	General	5 - 37
5.9.2	The Evolution of Gender and Development	5 - 38
5.9.3	The LGUs and Gender	5 - 39

5.9.4	Gender in WATSAN Sector Projects	5 - 39
5.10	Existing Project and Sector Monitoring	5 - 41
6.	PAST FINANCIAL PERFORMANCE IN WATER SUPPLY AND SANITATION	
6.1	General	6 - 1
6.2	LGUs Past Financial Performance	6 - 1
6.2.1	Sources and Uses of Funds	6 - 1
6.2.2	Availability of Funds	6 - 4
6.2.3	Financial Indicators	6 - 6
6.3	Past Public Investment and Present Plans	6 - 7
6.3.1	Past and Current Annual Investment Plans	6 - 7
6.3.2	Past and Current Breakdown of 20% Development Fund	6 - 10
6.3.3	Existing Plans of the LGUs for the Sector	6 - 11
6.4	LGUs Present Financing Sources and Management Participation in the Sector	6 - 12
6.4.1	Cost Sharing Arrangements / Counterpart Funding	6 - 12
6.4.2	ODA Assisted Projects and Grant / Aid	6 - 13
6.4.3	LGU-Financed and Managed Waterworks/Water District	6 - 17
6.5	Existing Practices by the LGU on Cost Recovery	6 - 18
6.5.1	Capital Cost	6 - 18
6.5.2	Operation and Maintenance Cost	6 - 19
6.6	Affordability of Users	6 - 20
6.6.1	Capital Cost Contribution	6 - 20
6.6.2	Operation and Maintenance Cost	6 - 21
7.	WATER SOURCE DEVELOPMENT	
7.1	General	7 - 1
7.2	Geology	7 - 2
7.3	Groundwater Sources	7 - 5
7.3.1	Classification of Groundwater Availability	7 - 5
7.3.2	Groundwater Availability in the Province	7 - 6
7.3.3	Groundwater Quality	7 - 8
7.4	Spring Sources	7 - 9
7.5	Surface Water Sources	7 - 9
7.6	Future Development Potential of Water Sources	7 - 10
7.7	Water Source Development for Medium-Term Development Plan	7 - 13
8.	FUTURE REQUIREMENTS IN WATER SUPPLY AND SANITATION IMPROVEMENT	
8.1	General	8 - 1
8.2	Targets of Provincial Sector Plan	8 - 2
8.3	Projection of Frame Values	8 - 9
8.3.1	Population Projection	8 - 9
8.3.2	School Enrollment Projection	8 - 14
8.3.3	Projection of the Number of Public Utilities	8 - 15
8.3.4	Planning Area and its Projected Population for Sewerage	8 - 16
8.3.5	Number of Households to be Served by Municipal Solid Waste Collection System	8 - 16
8.4	Types of Facilities and Implementation Criteria	8 - 16
8.4.1	Water Supply	8 - 16
8.4.2	Sanitation	8 - 23

8.4.3	Urban Sewerage	8 - 24
8.4.4	Solid Waste	8 - 25
8.5	Service Coverage by Target Year	8 - 25
8.5.1	Water Supply	8 - 25
8.5.2	Sanitation	8 - 26
8.5.3	Urban Sewerage	8 - 32
8.5.4	Solid Waste	8 - 32
8.6	Facilities, Equipment and Rehabilitation to Meet the Target Services	8 - 33
8.6.1	Water Supply	8 - 33
8.6.2	Sanitation	8 - 37
8.6.3	Urban Sewerage and Solid Waste	8 - 39
8.7	Identification of Priority Projects for Medium-Term Development Plan	8 - 40
9. SECTOR MANAGEMENT FOR MEDIUM-TERM DEVELOPMENT		
9.1	General	9 - 1
9.1.1	Purpose of Policy and Structural Adjustment	9 - 1
9.1.2	Perspectives	9 - 1
9.2	Sector Management	9 - 2
9.2.1	Development of the Vision	9 - 2
9.2.2	Sector Management	9 - 3
9.2.3	Service Provision Policies and Objectives	9 - 5
9.2.4	Operating Policies	9 - 5
9.2.5	Regulatory Policies	9 - 8
9.2.6	Financing System	9 - 9
9.2.7	Other Available Financial Arrangements	9 - 10
9.3	Institutional Arrangements	9 - 13
9.3.1	Roles and Responsibilities of Agencies Concerned	9 - 14
9.3.2	Institutional Arrangements	9 - 19
9.4	Project Management Arrangements	9 - 24
9.4.1	Project Approach / Strategy	9 - 24
9.4.2	Project Implementation Arrangements	9 - 26
9.5	Community Development	9 - 34
9.5.1	General	9 - 34
9.5.2	CD Structure and Linkage for Sector Projects	9 - 35
9.5.3	Training on CD	9 - 38
9.5.4	Utilization of NGOs	9 - 39
9.5.5	Approaches to Participatory Community Development	9 - 39
9.5.6	Information, Education, and Communication (IEC)	9 - 43
9.5.7	Health and Hygiene Education	9 - 46
9.6	Gender	9 - 46
9.6.1	General	9 - 46
9.6.2	LGUs and Gender	9 - 46
9.6.3	Gender Participation in WATSAN Projects	9 - 47
9.7	Human Resources Development and Training	9 - 48
10. COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT		
10.1	General	10 - 1
10.2	Assumptions for Cost Estimates	10 - 1
10.3	Cost of Required Facilities and Equipment	10 - 6
10.3.1	Cost of Required Facilities	10 - 6
10.3.2	Cost of Required Equipment and Vehicle	10 - 8
10.3.3	Cost for Laboratory	10 - 8

10.4 Recurrent Cost	10 - 8
---------------------	--------

11. FINANCIAL ARRANGEMENTS FOR MEDIUM-TERM DEVELOPMENT PLAN

11.1 General	11 - 1
11.2 Projection of IRA	11 - 1
11.3 Additional Funding Requirements	11 - 8
11.4 Medium-Term Implementation Arrangements	11 - 10
11.4.1 Reference Scenarios in Different Funding Levels	11 - 12
11.4.2 Alternative Countermeasures	11 - 15
11.5 National Government Assisted Level I Water Supply and Sanitation Project	11 - 17
11.5.1 Project Components	11 - 20
11.5.2 Project Requirements	11 - 21
11.5.3 Funding Requirements	11 - 21
11.6 Cost Recovery	11 - 27

12. MONITORING FOR MEDIUM-TERM DEVELOPMENT PLAN

12.1 General	12 - 1
12.2 Sector Monitoring	12 - 1
12.3 Project Monitoring	12 - 5
12.4 Evaluation of Plan Implementation and Updating the PW4SP	12 - 8

PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

LIST OF TABLES

Table No.	Title	Page No.
2.2.1	National Sector Coverage Targets	2 - 2
2.6.2	Structure of Questionnaire	2 - 8
3.1.1	Outline of Municipalities	3 - 1
3.2.1	Current Land Use	3 - 2
3.2.2	Drainage Areas and Flow Rates of Major Rivers	3 - 3
3.3.1	Provincial Outline on Public Services	3 - 7
3.3.2	Public Facilities and Services by Municipality	3 - 7
3.4.1	Previous Population Development by Municipality	3 - 9
3.4.2	Outline of Urban and Rural Areas in the Province	3 - 10
3.4.3	Household Numbers and Household Size	3 - 12
3.5.1	Number and Rates of Ten Leading Causes of Morbidity, Mortality and Infant Mortality	3 - 13
3.5.2	Reported Cases and Deaths of Notifiable Water Related Diseases in 1998	3 - 14
3.6.1	Municipal Solid Waste Collection and Disposal, and Service Coverage, 1998	3 - 16
4.1.1	Composition of Water Supply System/Facility by Service Level	4 - 2
4.1.2	Information on Existing Level III System	4 - 4
4.1.3	Information on Water District	4 - 4
4.1.4	Information on Existing Level II System	4 - 6
4.1.5	Information on Existing Level I Facilities	4 - 9
4.1.6	Operating Status of Existing Wells in the Province	4 - 10
4.1.7	Water Supply Service Coverage by Municipality	4 - 12
4.2.1	Sanitation Facilities and Service Coverage of Household Toilets, Urban and Rural, 1998	4 - 17
4.2.2	School Toilet Service Coverage by Municipality	4 - 19
4.2.3	Public Toilet Facilities and Service Coverage in 1998	4 - 20
5.3.1	Transition Functions of the DPWII, DILG and DOH	5 - 4
6.2.1	Income and Expenditures, between 1995 and 1999	6 - 3
6.2.2	Past Internal Revenue Allotment to Province from Central Government	6 - 5
6.2.3	Actual Funds for Capital Expenditures (20% DF), 1994-1999	6 - 6
6.3.1	Actual Amount of Sector Investment to the Province by Concerned Agencies, 1995 - 1998	6 - 7
6.3.2	Annual Investment Plan, 1995-1998	6 - 9
6.3.3	Sector Allocation in the Annual Investment Plan, 1995-1998	6 - 9
6.3.4	Allocation of the 20% Development Fund, 1995-1999	6 - 10
6.4.1	Financial Indicators of WD/Waterworks	6 - 18
6.4.2	Loan Status of Water District	6 - 18
6.6.1	Affordability in Water Supply and Sanitation Services	6 - 21
7.1.1	Existing Groundwater Sources in the Province	7 - 2
7.6.1	Groundwater Development Potential in the Province	7 - 12
7.7.1	Standard Specification of Wells by Municipality	7 - 14

Table No.	Title	Page No.
7.7.2	Detailed Groundwater Investigation Required	7 - 15
8.2.1	Provincial Sector Targets	8 - 3
8.2.2	Estimation of Base Year Service Coverage of Water Supply	8 - 4
8.2.3	Base Year Service Coverage of Household Toilets	8 - 6
8.2.4	Base Year Service Coverage of Public School Toilets and Public Toilets	8 - 7
8.2.5	Base Year Service Coverage of Municipal Solid Waste System in 1998	8 - 9
8.3.1	Regional and Population Projection by NSO	8 - 10
8.3.2	Projected Population by the NSO	8 - 11
8.3.3	Census Results and Projected Population of Municipalities	8 - 12
8.3.4	Population Projection by Urban and Rural Area: 1998, 2005 and 2010	8 - 13
8.3.5	Projected Public School Enrollment and Number of Public Utilities by Municipality	8 - 15
8.4.1	Summary of Urban Water Supply Development by Municipality	8 - 17
8.4.2	Standard Specifications of Level I Wells	8 - 22
8.5.1	Population to be Served by Target Year (Water Supply)	8 - 27
8.5.2	Additional Number of Households to be Served by Target Year (Household Toilets)	8 - 29
8.5.3	Additional Number of Public School Student to be Served by Target Year (School Toilets)	8 - 30
8.5.4	Additional Number of Public Utilities with Sanitary Toilets by Target Year	8 - 31
8.5.5	Population to be Served by Urban Sewerage in Phase II	8 - 32
8.5.5	Additional Number of Urban Households to be Served by Municipal Solid Waste System in Phase I	8 - 33
8.6.1	Water Supply Facilities Required by Target Year	8 - 34
8.6.2	Sanitation Facilities Required by Target Year	8 - 38
8.6.3	Number of Refuse Collection Trucks Required in Phase I	8 - 39
10.2.1	Unit Cost of Facilities by Type and Service Level	10 - 3
10.2.2	Unit Cost of Equipment and Vehicle	10 - 4
10.3.1	Construction Cost of Required Facility by Municipality	10 - 7
10.3.2	Cost of Equipment and Vehicle	10 - 8
10.4.1	Recurrent Cost	10 - 9
11.2.1	Projected Internal Revenue Allotment for Medium-Term Sector Development	11 - 6
11.2.2	Projected Allotment of IRA to the Relevant Sector by Component, (2001-2005)	11 - 7
11.3.1	Financing Requirement by Sector Component for the Province	11 - 9
11.3.2	Additional Fund Requirement for the Medium-Term Plan	11 - 10
11.3.3	Internal Revenue Allotment for Water Supply and Sanitation Sector by Municipality (Medium-Term Development/2001-2005)	11 - 11
11.4.1	Municipal Investment Need Ranking for Urban Water Supply	11 - 18
11.4.2	Distribution of Provincial IRA to Municipalities for Urban Water Supply	11 - 19
11.4.3	Municipal Investment Need Ranking	11 - 19
11.5.1	New Cost-Sharing Arrangement between NG and LGUs	11 - 22
11.5.2	GOP-Assisted Level I Water Supply and Sanitation Project Cost	11 - 23
11.5.3	Cost-Sharing for the Project (Case 1): 1998 price level	11 - 25
11.5.4	Cost-Sharing for the Project (Case2): 1998 price level	11 - 26

**PROVINCIAL WATER SUPPLY, SEWERAGE AND
SANITATION SECTOR PLAN**

LIST OF FIGURES

Figure No.	Title	Page No.
1.3.1	Flow Diagram of Sector Planning	1 - 6
2.6.1	Institutional Hierarchical System by the NEDA Coding	2 - 7
3.2.1	Major River Network Map, Province of Aklan	3 - 4
3.3.1	Distribution of Families by Income Class	3 - 6
3.3.2	Employment Distribution by Major Industry and Class of Worker	3 - 6
3.3.3	Population Distribution by Highest Educational Attainment	3 - 6
3.4.1	Previous Population Development of the Province	3 - 8
3.4.2	Present Population Distribution	3 - 11
4.1.1	Water Supply Coverage of the Province	4 - 14
4.2.1	Provincial Service Coverage of Household Toilet Facilities, 1998	4 - 18
5.3.1	Functional Relationships	5 - 3
6.2.1	Income and Expenditures of Aklan, 1995-1999	6 - 3
6.3.4	Allocation of the 20% Development Fund, 1995-1999	6 - 10
6.4.1	LGU Financing Options	6 - 13
6.4.2	Private Sector Financing	6 - 17
7.2.1	Geological Map	7 - 4
7.3.1	Groundwater Availability Map	7 - 7
9.2.1	Sector Management Model	9 - 4
9.2.2	IEC Program Implementation Flow (Provincial Level)	9 - 6
9.4.3	Activity Process Flow for Level I Facilities	9 - 27
9.4.4	Activity Process Flow for Level II Facilities	9 - 30
9.4.5	Activity Process Flow for Level III Facilities	9 - 33
11.1.1	Sector Budget Allocation	11 - 2
11.1.2	General Flow of Financial Arrangements for Relevant Sector Development	11 - 3
11.2.1	Trial Allocation of Internal Revenue Allotment (IRA) to Municipalities for Relevant Sector Development	11 - 5
11.4.1	Relation Between Funding Levels and Percent of Coverage for Water Supply Sector	11 - 13
11.4.2	Relation Between Funding Levels and Percent of Coverage for Sanitation Sector	11 - 14
11.5.1	Proposed Project Implementation Schedule	11 - 26

PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

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

List of Abbreviations

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
LGUWSP	-	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

List of Abbreviations

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 Aklan 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 WAT-SAN 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 detailed 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

Aklan is one of the four (4) provinces in Panay Island and belongs to Region VI, the Western Visayas Region. Kalibo is the provincial capital. The province is composed of 17 municipalities with 327 barangays, of which 36 are urban and 291 rural. The province is classified as 3rd class. At the municipal level, 11 municipalities belong to 5th class and the rest has higher classification. Population of the province was 410,539 in 1995 with an annual growth rate of 1.43% between 1990 to 1995.

Physical Features

The province has Type III climate under the Coronas classification. This type is characterized by an absence of very pronounced maximum rain period with a very short dry season lasting only from one to three months. The major geomorphic feature of the province is the western Cordillera consisting of continuous mountain ranges that bounds the western to southern sides of the province with maximum elevation of 1,650 masl at Mt. Nausang.

There are five (5) major rivers that traverse the province. Aklan River with a watershed of 1,688km² is the largest. About 59% of the total land area of the province constitute agricultural land. Forestland is 16%, while built-up area is not recorded. The remaining 25% are either grassland, open land or inland/fishpond/mangrove areas.

Socio-economic Aspects

The major economic activities of the province are farming and fishing. Principal crops cultivated are palay, coconut and bananas. With the whole stretch of its northern and northwest-

ern coasts facing the rich fishing grounds of Sibuyan Sea and Sulu Sea, respectively, the province also yields commercial marine fishery products. Swampy areas have also been converted into aqua-business ventures. At present, the province is promoting cottage industries and tourism as other income-generating activities.

The average annual family income of the province in 1994 was ₱ 70,376. Based on the established poverty threshold income of ₱ 47,133 per family in Region VI for 1994, about 57% of the total number of families lived within and below the poverty threshold.

All municipalities have electric supply, but with only 51% household coverage. Telephone service is also available in all municipalities. Land transportation is available by means of PUV, bus, taxi, rent-a car and tricycle. There are 1,785 business establishments and another 415 tourism facilities.

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 75%, while the remaining 25% are urban.

The province has a total of 427 schools consisting of 361 elementary schools, 53 high schools and 13 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 typhoid/paratyphoid, intestinal parasitism, diarrhea, conjunctivities, cholera, dengue fever, viral hepatitis, gastroenteritis/colitis, and scabies

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 13% 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 11 Level III waterworks operating under different types of ownership (authority or association) together with their service coverage. These are five (5) Water Districts, one (1) Municipal Waterworks and five (5) association/cooperative operated bodies. Common issues encountered 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 water charge collection due to weak management practices.

There are 61 Level II waterworks operating in the municipalities. The majorities of the waterworks are utilizing spring sources (56 systems), while 5 systems use shallow/deep wells. Utilization of spring source usually leads to less attention to the daily O&M practice, owing to gravity flow of water to the service area. However, expansion of distribution line and installation of additional public faucets are usually undertaken without appropriate technical study on the capacities of water sources and distribution facilities, resulting to decrease of supply pressure and quantity.

It is also common that water quality examination has not been conducted sufficiently. Regarding repair works, some waterworks collect money from beneficiaries and hire local contractor and others request for assistance of MEO, as required.

Level I facilities are common in rural barangays. Of the 21,500 operational Level I facilities, 60 percent are shallow wells. In the course of PW4SP preparation, 20% of the shallow wells were assumed as unsafe water source. All deep wells, covered/improved dug wells and developed springs are regarded as safe water sources. Most of these 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 15% and 85%, respectively. The share of developed springs in public facilities is 7%.

About 63% or 272,200 of the present population (432,400 comprising 25% in urban area and 75% in rural area) are adequately served. Under area classification, 75% of urban population and 59% of rural population have access to safe water sources/facilities. Of the served population, 21% or 57,200 persons are served by Level III systems. About 72% or 194,600 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 70% or 58,706 of the total households, which is well higher than the national coverage of 60%. These toilets consist of 19% flush type, 66% pour-flush type and 25% VIP/sanitary pit latrine. In municipalities that have high water service coverage (Kalibo, New Washington, Mumancia), high sanitation coverage occurs and adversely, in low water supply coverage (Balete, Madalag), low sanitation coverage also occurs. Service coverage in urban area is 86%, while in rural area, the coverage is 65%. 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 1,585 toilets installed at 352 schools. Only 55% of the students are adequately served by sanitary toilets (57% 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 86 public utilities; public markets, bus/jeepney terminals, and parks or plazas. Almost all public utilities (98%) 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 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), 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 made available for the purpose by their respective legislative bodies. Generally, implementation of level I and II systems are initiated by barangays while level III systems are initiated by municipalities. There has been no large scale WATSAN project implemented in the province since the BWP in 1980s. This was an USAID-assisted water supply project (level I & II). As such, the province's LGUs presently have limited project implementation capability. During the planning and implementation of future water supply projects, the province will still require assistance from national government line-agencies and even NGOs. Majority of level I and II operating bodies (barangays and BWSAs) are not aware of the importance of the maintenance of facilities. They will need to be guided by the province and the DILG. There are a number of WDs operating level III systems that supply water to urban areas. These WDs 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 Aklan. 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 about 91% of the total income.

Actual expenditures for the same period were 96.01% of the total revenue. These expenditures are further broken down into personnel (61.14%), capital outlay (12.56%), and operation and maintenance expenses (22.31%).

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 ₱40.41 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 1995-1999, the 20% DFs of the province were sufficient to cover the actual expenditures. For 1999, it is projected that the 20% DF will be more than adequate to cover the capital expenditures of the province, and there will be a surplus of more than ₱13.24 million.

The Provincial government has not given priority to WATSAN sector. In 1995, actual expenditures for WATSAN sector reached 3.57% of the 20% DF. However, this decreased to 2.1% of the 20% DF in 1999.

The sector projects in previous years were funded by UNICEF and 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 RWSAs bear the entire cost. Those for Level III 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 5.0% for Level III service. Thus, the current water rates seem to be within 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 Aklan province located in the northwestern part of Panay Island is complex and attributed mainly to tectonic and magnetic actions generated from Cretaceous to Quaternary time. 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 middle portion of the province. The physical geography of the province is characterized by broad lowland thickly covered by shale, sandstone and alluvium with maximum thickness of 150m at Kalibo. This plain is bounded on its western and southern side by continuous mountain ranges. This area extends far from inland until it encounters the foothills of the western highlands. There is one individual and small plain located in Malay. However, the thickness of this alluvium is only about 10m.

The Buruanga Peninsula, located at the northwestern margin of Aklan, is considered to be an uplifted block with a peninsular neck. This narrow N-S trending valley is now mostly covered with Pleistocene sediments, except where erosion has exposed the older rocks. In general, the fault-line structures are observed to be left lateral conforming to general movement of the Philippines. These geologic structures are believed to affect the movement of groundwater in the province.

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 55% of Aklan, while difficult area falls on the remaining area. Ironic water is observed in shallow and deep wells along the Aklan River, where the municipalities of Makato, Numancia, Lezo, Banga, Balete and Altavas are located. Groundwater with saline water intrusion is developed in most of northwestern seashore and in the municipality of New Washington. Slight acidic groundwater was reported in the municipalities of Altavas and Batan, due to oxidization within the volcanics vicinity.

Referring to the inventory of water sources prepared during the study, the province has 250 developed springs currently serving the province. Such spring sources come out from the Cordillera and from Buruanga Peninsula areas in the northwestern and western parts of the province. A total of 42 untapped springs for future development is reported in the same lo-

cation 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 56 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. Along the Aklan and Hal-o Rivers Valley, 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 groundwater database, prior to the detailed design or in the pre-construction stage. The municipalities that fall on this group are located in the northeast coastal 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 in consideration of securing existing service coverage and viable investment using available IRA both in urban and rural water supply as shown in Table 7.1. Sanitation sector target is applied in order to attain suf-

iciency 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 upgrading a provincial laboratory to support drinking water quality surveillance and monitoring activities are described.

Table 7.1 Present Service Coverage and Sector Targets

<i>Sub-Sector</i>	<i>Area/Type</i>	<i>Base Year Service Coverage</i>	<i>Provincial Sector Targets</i>	
			<i>Phase I</i>	<i>Phase II</i>
<i>Water Supply</i>	<i>Urban Area</i>	75	76	95
	<i>Rural Area</i>	59	60	93
<i>Sanitation</i>	<i>Urban HH Toilet</i>	87	90	93
	<i>Rural HH Toilet</i>	65	78	90
	<i>School Toilet</i>	57	70	90
	<i>Public Toilet</i>	98	100	100
<i>Sewerage</i>	<i>Urban Area</i>	0	<i>Not applicable</i>	50
<i>Solid Waste</i>	<i>Urban Area</i>	54	80	<i>Not applicable</i>

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 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. Level I facilities are adopted for rural water supply with limited application of Level II system where houses are clustered and suitable untapped springs are confirmed. 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 (dry type) are considered in rural area as an intermediate measure. 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

<i>Sub-Sector</i>	<i>Area/Type</i>	<i>Unit</i>	<i>Additional Service Coverage</i>	
			<i>Phase I</i>	<i>Phase II</i>
<i>Water Supply</i>	<i>Urban Area</i>	<i>Persons</i>	<i>15,564</i>	<i>83,592</i>
	<i>Rural Area</i>	<i>Persons</i>	<i>25,397</i>	<i>146,063</i>
<i>Sanitation</i>	<i>Urban HH Toilet</i>	<i>No. of Households</i>	<i>4,079</i>	<i>11,637</i>
	<i>Rural HH Toilet</i>	<i>No. of Households</i>	<i>13,362</i>	<i>33,628</i>
	<i>School Toilet</i>	<i>No. of Students</i>	<i>19,990</i>	<i>34,066</i>
	<i>Public Toilet</i>	<i>No. of Utilities</i>	<i>37</i>	<i>36</i>
<i>Sewerage</i>	<i>Urban Area</i>	<i>Persons</i>	<i>Not applicable</i>	<i>48,838</i>
<i>Solid Waste</i>	<i>Urban Area</i>	<i>No. of Households</i>	<i>10,983</i>	<i>Not applicable</i>

The necessary water supply facilities for Phase I include 18 deep wells/springs for 3,000 house connections in urban area, and 20 Level II systems with spring sources and 226 Level I wells/springs for rural area. For Phase II, 23 deep wells/springs for additional 20,900 connections and 2,440 Level I wells/springs are required for urban and rural water supplies, respectively. It is assumed that 50% of Level I facilities will be implemented by the LGUs. Rehabilitation requirements are assumed to be 10% of the total number of deep wells to be constructed under PW4SP. With regard to water quality examination, one (1) set of water quality test instruments/equipment will be necessary to upgrade the existing laboratory in Kalibo.

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 are no Level III system, a new system was recommended. Existing plan/s on the development of Level III/WD are also taken into account to determine respective systems of the municipalities.

Currently, 9 out of the total 17 municipalities/city have no Level III system in their urban areas. At present, there are on-going projects (Boracay Water Supply Project and expansion of Kalibo WD) financially assisted by JBIC.

Merging of municipal systems (physical arrangement) in long-term is considered. Integrated management systems shall also be sought. Conditions to be studied includes; water source availability, willingness by concerned municipalities and technical study on cost recovery/economic construction. Among them, Kalibo WD, Banga and New Washington were already studied for the integration both in physical and management systems.

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 4,079 household toilets, 20 public school toilets and 37 public toilets for urban area. In rural area, 13,362 household toilets and 72 public school toilets are necessary. Solid waste disposal will need 8 refuse collection trucks. For Phase II, urban area will require 11,637 household toilets, 27 public school toilets and 36 public toilets. In rural area a total of 33,628 household toilets and 401 public school toilets are necessary. It is assumed that half of the requirements of school toilets may be converted to classroom toilets from standard toilet building depending on technical conditions and adjustment with DECS.

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 policies 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 sup-

ply 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 and RWSAs for Level II and 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 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 Unit 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 II – for the formation of a water supply and sanitation association or a waterworks and sanitation cooperative; while Level III – 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 WATSAN 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. 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.

The investment cost for Phase I is estimated at about ₱223.6 million (in 1998 price level). A total of ₱154.1 million is required as the construction/rehabilitation cost (including cost for disinfection of well) in Phase I, of which urban water supply and rural water supply share 42% and 33%, respectively. While, the remaining 25% are required for urban and rural sanitation. With reference to urban water supply, some cost required would be managed by newly created WD/s, which is out of public investment to be undertaken by LGUs.

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 16 units of refuse collection truck. The total procurement cost is estimated at approximately ₱44.1 million. Out of the requirements, however, only 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 due to budgetary constraints and technical capability of LGUs at present. Likewise, annual recurrent cost in 1998 price level is estimated at ₱17.6 to ₱22.4 million/year during Phase I period.

Table 9.1 Investment Cost Required by Phase

Unit: 1,000 Pesos

<i>Item</i>	<i>Component</i>	<i>Phase I</i>	<i>Phase II</i>
Construction/ Rehabilitation	Water Supply		
	Urban Area	64,431	330,286
	Rural Area	50,858	329,430
	Sanitation		
	Household Toilet	2,843	8,413
	School Toilet	21,482	99,938
	Public Toilet	13,379	13,018
	Disinfection of Well	1,095	179
	Urban Sewerage	N/A	356,517
	Sub-Total	154,089	1,137,780
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	170	0
	Water Quality Testing Kits	15	0
		Sub-Total	1,055
Water quality Laboratory		478	0
Sector Management	Engineering Studies	19,582	100,693
	Community Development and Training	12,219	69,711
		Sub-Total	31,801
Total Direct Cost		187,423	1,334,966
Contingencies	Physical Contingency	18,736	133,497
	Price Contingency	66,088	N.A
	Value-Added Tax (VAT)	17,514	N.A
Total Investment Cost		289,761	1,468,463
Total Investment Cost (excluding Price Contingency)		223,611	1,468,463

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 4%. This means that approximately 20% 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 during the period 2001-2005 was estimated at ₱148.13 million. In the overall IRA allocation to the sub-sectors, rural water supply has the largest allotment of 37.3%, followed by urban water supply (35.9%). While, the share of rural sanitation is 14.9%, which is higher than that of urban sanitation of about 12%.

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 66% of the requirements as a provincial average. Hence, there is a big shortfall of ₱75.49 million in funding. It will become ₱91.30 million in consideration of price escalation with annual rate of 7% and VAT. In the municipal achievement percentage in finance, Buruanga, Libacao, and Madalag (100%) are the highest among municipalities. Majority is in the range between 74% and 90% to the respective requirements, while the provincial average is 66%.

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 that overall service coverage of the province 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 Madalag, Balete, and Kalibo that indicates that they are given priority for investments in all sub-sectors. The municipalities of Malinao and Lezo 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 is 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 including Level I water supply and public/school toilet facilities were identified to meet the conditions in provision of GOP-assisted project. There are eight (8)

eligible municipalities in terms of 5th and 6th municipalities for GOP-assisted Level I rural water supply in the province, while there are seventeen (17) 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 ₱89.2 million or ₱65.0 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 ₱39.2 million from ₱30.5 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 (₱39.2 million) and available IRA of LGUs (₱59.9 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 ₱48.7 million or 75% of the total project cost in the portion of loan. Out of GOP finance through the loan, ₱29.8 million or 46% of the total project cost shall be granted to the LGUs, aside from the 4% GOP counterpart fund. The remaining ₱18.9 million or 29% 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 ₱13.7 million from ₱11.6 million (1998 price level), considering price contingency and VAT, which is 23% of available IRA (₱59.9 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 ₱94/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 (₱266/HH/month in 2005). Based on the experience that water fee must not exceed

about 5% of income (average monthly water consumption of 15 m³), 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.