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JAPAN INTERNATIONAL COOPERATION AGENCY

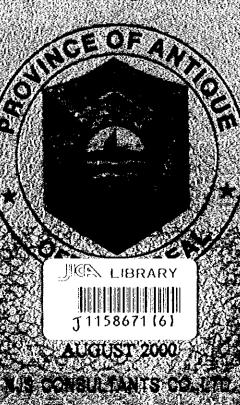
THE STUDY ON THE PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN IN THE REPUBLIC OF THE PHILIPPINES

VOLUME I - [2]

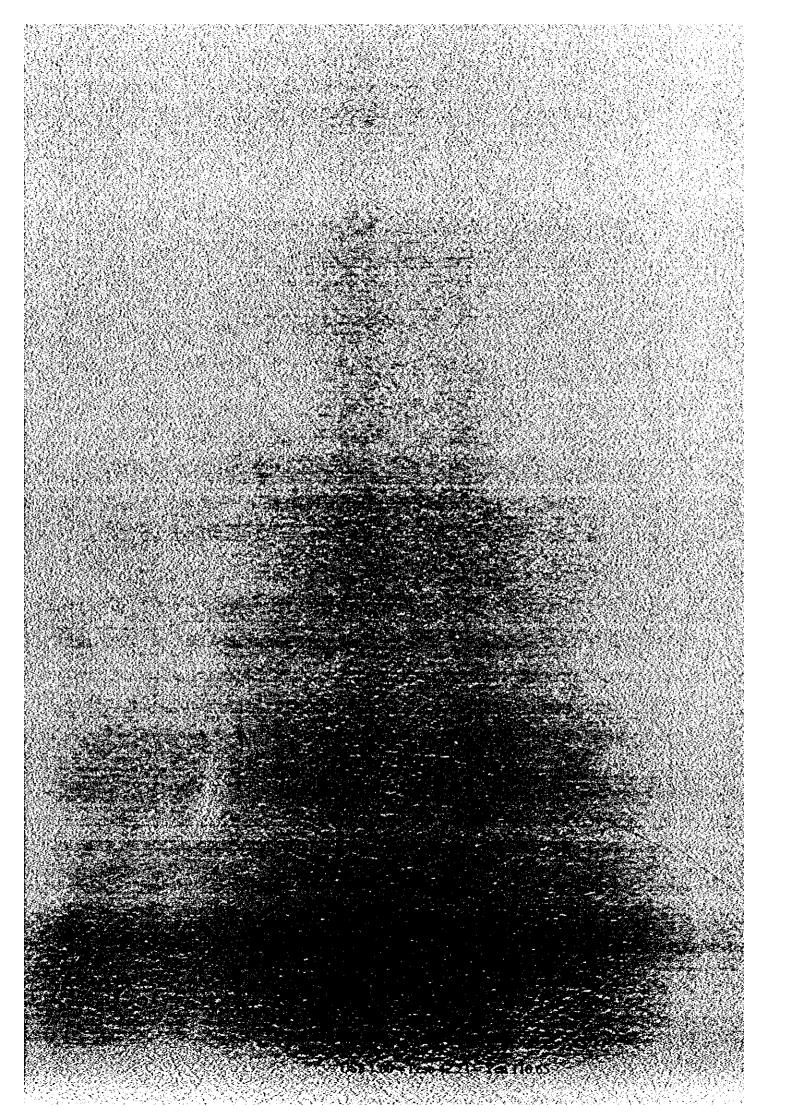
MAIN REPORT

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

ANTIQUE







JAPAN INTERNATIONAL COOPERATION AGENCY

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VOLUME I

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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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

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Kimio Fujita President Japan International Cooperation Agency

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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 socioeconomic 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,

(MAND

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.

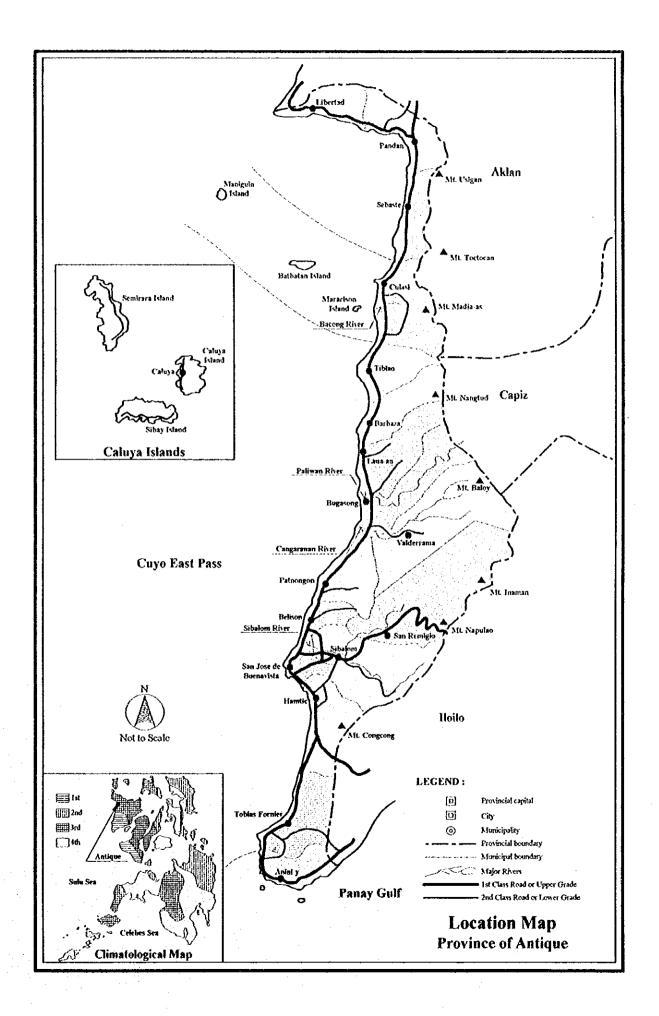
Water, an essential element to life, is a precious natural resource. We need water for our crops, in our households and in the near future, to generate electricity for our province so that power rates will be lowered to the level that could attract investors to Antique. Water can also be destructive. 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.

. JAVIER versior



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PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

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VOLUME I MAIN REPORT

TABLE OF CONTENTS

СН	HAPTER	Page No.
PRI	REFACE	
LE	ETTER OF TRANSMITTAL	
ME	ESSAGE OF THE GOVERNOR	
LIS	ST OF TABLES	a dha shi a agus dhe san an ear vi shi s
LIS	ST OF FIGURES	viii
LIS	ST OF ABBREVIATIONS	ix
EX	KECUTIVE SUMMARY	ES - 1
1 - 1 7 - 1	(a) A set of the se	
1.	INTRODUCTION	
. .		
1.1		1-1
1.2		1 - 2
· ·	1.2.1 Objectives of Sector Planning	1 - 2
	1.2.2 Scope of Sector Planning	
(† .	1.2.3 Financing of Sector Plan	and the particular states of the second states of the $1-4$ - 1
1.3	The Provincial Plan for the Province of Antique	u de la contrata de l
	1.3.1 Preparation of the Plan	1-4
		. We there uses the level of $_{1}$ and 1 - $5_{ m eff}$,
1.4	Acknowledgment	248.525 where the test 1.525 1.525 1.7
2.	PLANNING APPROACH FOR FUTURE SECTO	and the second
2.1		e - 1 - 2 - 1 -
2.2	Planning Framework	$e^{\frac{1}{2}}$ is the set of the product of the set $e^{\frac{1}{2}}e^{\frac{1}{2}}e^{\frac{1}{2}}e^{-$
2.3		a a transferit de la companya de la
2.4		ϕ as planting as δ_{1} to as provide as $\mathbf{\tilde{2}}$, $\mathbf{\tilde{2}$, $\mathbf{\tilde{2}}$
2.5		
2.6	8 T	2 - 5
- 2	2.6.1 Planning Principles	2 - 5
	2.6.2 Data Management	ана селана и селана и селана селан Матарита на селана с
	DOAUNACY AT DOADNE D	
э.	PROVINCIAL PROFILE	
21	Convert Contract Salars Area for her sealing a for	no reserve estale se la la conserve de la conserve
3.2	· · · · · · · · · · · · · · · · · · ·	
0.2	3.2.1 Meteorology	1997 - 19
		1997) (1996) (1997) (1997) (1997) (1997) (1997) (1996) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997)
	3.2.3 Topography and Drainage meter structure (1)	vona decadora granda na corgo 2 - 2 genergenadel€ ante aceurado (1, s. 3 - 3) -
3.3	Socio-economic Conditions	да станица, на слада на сторот 3 - 5 - Уманении, сти и сторот до сторот 3 - 5
	3.3.1 Economic Activities and Household Income	ywwernen egesternenden of til
		ne vo statu za se
	3.3.2 Basic Infrastructure 3.3.3 Education	андан ал ал ал ан байн ал ан ал Ал ан ал ан
3.4		
	3.4.1 Previous Population Development	

化氢氢氯 建汽料用具数用
eas the basis 3 - 9
3 - 10
3 - 13
Supplementation 3 - 13 tality 3 - 13
3 - 13 3 - 15
3 - 15
3 15
e 3⊈ 3 ⊈15
3. 注意: 1月27日 日本(本)(13-16)
and a second
COVERAGE BUILDING AND
2.1. 慧联纪》: 百万万 金融
and the second
24. COMPANY STATES 4-1
Service Level Standard 4 - 1
1. 157 TELEVILLE 4-3
4 - 5
4-9
$ = \frac{4 - 9}{4 - 12} $
- 17
Service Level Standard 4 - 18
prage (1) of the transmission of the 4 - 19 of the transmission of
where the second parameters the weight staff of $4 - 22$
AND REPORT OF THE PROPERTY OF A TOP OF
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电压用口口运行时 经公司 经济的 化乙酸钙 化乙酸钙 化乙酸钙 化乙酸钙 化乙酸钙 化丁酸钙 化丁酸钙 化丁酸钙 化丁酸钙 化丁酸钙 化丁酸钙 化丁酸钙 化丁
S - 1
14.000 5 - 2 /5
2) 5 - 3 (56665) 2 (5- 3)83(16676) (16666)
25 - 2660000 26- 28100000 50000 0002 28 - 280000 201000
12 - 2000 8000 areas and 15 - 58 8000 areas and 16 - 58 8000 - 59 and 16 and 16 areas 8 - 16 16 - 59 and 26 areas areas and 18 areas 16
1006405 - 20 51000 49930 1944 1955 - 52 51000 49930 1955 - 52 5000 49930 1950 1950 1950 1950 1950 1950 5000 49930 1950 1950 1950 1950 1950 1950 1950 195
1006.05 - 20 500 and 10 and 10 and 10 500 and 10 and 10 and 10 500 - 25 and 10 and 10 and 10 500 - 26 and Problems, and 10 and 10 500 - 26 and Problems, and 10 and 10 500 - 26 and 10 and 10 500 - 26 and 10 and 10 500 - 28 and 10 and 10 500 - 28 and 10 10 10 10 10 10 10 10 10 10
1006.05 - 20 Store areas when 685 - 55 20
1006.05 - 20 Store areas when 685 - 55 20
المرتبعة (1995) - 25 Stree and 20 with 1915 - 55 tor es and Problems (1996) - 18 (1996) -
المرتبعة (1995) - 25 Stree and 20 with 1915 - 55 tor es and Problems (1996) - 18 (1996) -
المرتبعة (1995) - 25 المرتبعة (1995) - 55 tor es and Problems المرتبعة (1996) - 16 es and Problems المرتبعة (1996) - 18 المرتبعة (1996) - 18 (1996) - 18 (199
المرتبعة (1995) - 25 المرتبعة (1995) - 55 tor es and Problems المرتبعة (1996) - 16 es and Problems المرتبعة (1996) - 18 المرتبعة (1996) - 18 (1996) - 18 (199
bit (0) S - 2/3 Star (0) S + 0 S - 5 S tor es and Problems Star (1) S + 0 S - 16 es and Problems Star (1) S + 0 S + 0 S - 18 Star (1) S + 0 S + 0 S + 0 S + 16 es and Problems Star (1) S + 0 S + 0 S + 16 es and Problems Star (1) S + 0 S + 0 S + 16 Star (1) S + 0 S
biccould 5 - 2 Star and Problems tor es and Problems the problems
1000000000000000000000000000000000000
$\frac{1000005 - 2}{5}$ for which is 25 - 9 tor share the second se
$\frac{10000000}{1000000000000000000000000000$
tor tor es and Problems y of the Municipal Government tor s for WATSAN Sector Projects tor Projects 5 - 30 5 - 31 5 - 33 7 - 0000324 5 - 33 7 - 0000324 5 - 33 7 - 0000324 5 - 33 7 - 0000324 5 - 34 mication (IEC) As Foundation (14)
$\frac{1}{1} = \frac{1}{1} = \frac{1}$
$\frac{1}{1} = \frac{1}{2} = \frac{1}$
$\frac{1}{1} = \frac{1}{2} = \frac{1}$
$\frac{1}{1} = \frac{1}{1} = \frac{1}$

ij

		5.9.4 Gender in WATSAN Sector Projects			5 - 39
	5 10	Existing Project and Sector Monitoring		1998 - B	5 - 41
	0.10	Existing Troject and occion monitoring			
		DAOT FINANCIAL BEDEODMANOE IN WATED CHDDI	V		
		PAST FINANCIAL PERFORMANCE IN WATER SUPPL	1		
	4. N	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		1 a. 4.	6-4
	. 1	•			6 - 5
		6.2.3 Financial Indicators			6-7
	6.3	Past Public Investment and Present Plans			
		6.3.1 Past and Current Annual Investment Plans			6 - 7
		6.3.2 Past and Current Breakdown of 20% Development Fu	nd the states of a		6 - 10
		6.3.3 Existing Plans of the LGUs for the Sector			6 - 11
	6.4	LGUs Present Financing Sources and Management Participation	on in the Sector		6 - 12
		6.4.1 Cost Sharing Arrangements / Counterpart Funding	$(x_{i})_{i=1}^{k} \to (x_{i})_{i=1}^{k} \to (x_{$	$(1,1) \in \mathbb{R}^{n}$	6 - 12
		6.4.2 ODA Assisted Projects and Grant/Aid	and the set		6 - 13
	2000 A.S.	6.4.2 UDA Assisted Hojeets and Orano And	District	×	6 - 18
	· · · ·	6.4.3 LGU-Financed and Managed Waterworks and Water J	District	1 A A	
	6.5	Existing Practices by the LGU on Cost Recovery	n an		6 - 19
	1.14	6.5.1 Capital Cost			6 - 19
		6.5.2 Operation and Maintenance Cost			6 - 20
	6.6				6 - 21
		6.6.1 Canital Cost Contribution	医结门 网络马马马	1.	6 - 21
	0.0	6.6.2 Operation and Maintenance Cost	er e prode a		6 - 21
	64 - V	2002 Operation and manifemane Cost 2002 Detailed and manifemane Cost			
				· . · · ·	
	7.	WATER SOURCE DEVELOPMENT			
	A - 4				
	∵7.1 ≦	General			7 - 1
	7.2				• –
	7.3		en en de la partici		7 - 5
	e).	731 Classification of Groundwater Availability	a ha a tu sh		7 - 5
·	$(\mathbf{x}) \in \mathbf{G}$	7.3.2 Groundwater Availability in the Province		and an end	7 - 6
	ad e	7.3.3 Groundwater Quality	1		7-9
			e to to to the		7-9
		spring sources	alas ar t		7 - 10
	7.5				
÷	ି 7.6 ୧	Future Development Potential of Water Sources	en grant fri de service d Kal	· · ·	7 - 10
	7.7	Water Source Development for Medium-Term Development	Jan		7 - 13
		· · · · · · · · · · · · · · · · · · ·	an see a sea an		
	8.	FUTURE REQUIREMENTS IN WATER SUPPLY AND			
	3. 9	SANITATION IMPROVEMENT		1 1 1	• 7
÷			an tang sa		
۰.	A	(O-minut		e 1.48	8 - 1
	8.1	General Targets of Provincial Sector Plan Tests and the Antonio Sector Plan			8-2
	8.2	largets of Provincial Sector Plan	an a		8-2 8-9
	8.3 <i>♀</i>	Projection of Frame Values		•	0-9
÷	с с.,	9.2.1 Domulation Projection			X_4
j.	an a	8.3.2 School Enfollment Projection (1) 247 44 14 14 14		a ⊈tit¶ić	8 13
÷		8.3.3 Projection of the Number of Public Utilities	est in the		8 - 14
÷	1.01	8.3.4 Planning Area and its Projected Population for Sewer	age	ter server	0.12
7.	11	835 Number of Households to be Served by Municipal So	lid Waste	uintee en l	C_{1}
	- A . OF	Collection System	월년 20년 월21년 월24	医白膜 经济济法	8 - 15
• •	.to 4 *	Types of Facilities and Implementation Criteria	alandimito	r 17.01	8 - 15
	8.4	8 4 1 Water Sumly	neighte n thi ceal bear	, - 3 . 11	8 - 16
		O. I.I. Hunder Complete	siglat mit co		
· .	6 - 24	8.4.2 Sanitation	er gegennen die Beeren Gebeer Gebeure Gebeure		ō - 25

iii

	8.4.3 Urban Sewerage 8-2	24
	8.4.4 Solid Waste 8-2	
8.5	Service Coverage by Target Year 8 - 2	
010	8.5.1 Water Supply search in excession at the zero of the state of the second state of	
	8.5.2 Sanitation 8-3	
	8.5.3 Urban Sewerage 8-	
	8.5.4 Solid Waste 8-	
8.6	Facilities, Equipment and Rehabilitation to Meet the Target Services 8 -	
0.0	8.6.1 Water Supply 8-3	
	9 () Openitation 9 (
	8.6.3 Urban Sewerage and Solid Waste 8-4	
8.7	Identification of Priority Projects for Medium-Term Development Plan 8 - 4	
0.7		11
9.	SECTOR MANAGEMENT FOR MEDIUM-TERM DEVELOPMENT	
9.1	General sector de la construction 9 - 1	1
9.1		
0.0		-
9.2	Sector Management in the sector secto	
1.0	9.2.1 Development of the Vision and a state of the state	-
14 - 14 A	9.2.2Sector Management9 - 39.2.3Service Provision Policies and Objectives9 - 3	
1.1	9.2.3 Service Provision Policies and Objectives and a service structure of the service of the se	-
÷ s	9.2.4 Operating Policies 9 - 1	-
$t = -\epsilon_{0}$	9.2.4Operating Policies9 - 99.2.5Regulatory Policies9 - 99.2.6Financing System9 - 9	
1. Jr.	9.2.6 Financing System 9-1	
	9.2.7 Other Available Financial Arrangements 9 -	-
9.3	Institutional Arrangements	
	9.3.1 Roles and Responsibilities of Agencies Concerned 9 -	
1.1	9.3.2 Institutional Arrangements 9-1	
9.4	Project Management Arrangements 9-2	
÷.	9.4.1 Project Approach / Strategy	
	9.4.2 Project Implementation Arrangements of a consequence of a consequenc	
9.5	Community Development	
	9.5.1 General (19.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	
	9.5.2 CD Structure and Linkage for Sector Projects	35
÷.	9.5.3 Training on CD	38
	9.5.4 Utilization of NGOs provide a state of the Beneral Percenter and Percenter of the Beneral	39
	9.5.5 Approaches to Participatory Community Development	39
	9.5.6 Information, Education, and Communication (IEC) 9-4	
	9.5.7 Health and Hygiene Education of the Active Active States and the states of the States of the 9-1	
9.6	Gender	46
	9.6.1 General 9-4	46
	9.6.2 LGUs and Gender	46
•	9.6.3 Gender Participation in WATSAN Projects (1991) and hence of the strength of 9.24	47
9.7	Human Resources Development and Training	48 ·
	and the second second of the second	
10.	COST ESTIMATES FOR FUTURE SECTOR DEVELOPMENT	
i y si	a state of the state	· -
10.1	General and most had particularly present of here the reline (11) bur 2 10 -	1
	Assumptions for Cost Estimates and an analysis of the second seco	1
10.3	Cost of Required Facilities and Equipment (10 - 10 -	6
41 - 11 41 - 11	10.3.1 Cost of Required Facilities and the second s	6
i. Na isi	10.3.2 Cost of Required Equipment and Vehicle	- 8
		. 8

iv

.

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10 - 9

et j. s. j.

1

·, ·, ·,

3.10

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11. FINANCIAL ARRANGEMENTS

11.1	General	11 - 1
11.2	Projection of IRA	11 - 1
11.3	Additional Funding Requirements	11 - 8
	Medium-Term Implementation Arrangements	11 - 9
	11.4.1 Reference Scenarios in Different Funding Levels	11-9
	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 - 22
11.6	Cost Recovery	11 - 26
•		
12.	MONITORING FOR MEDIUM-TERM DEVELOPMENT PLAN	
	(1, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,	
12.1	General	12 - 1
12.2	Sector Monitoring	12 - 1
	Project Monitoring	12 - 5
12.4	Evaluation of Plan Implementation and Updating the PW4SP	12 - 8
: '	n an	

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PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

LIST OF TABLES / Art - A 1/4 SHE MAR ARA ARAABA

fable No.	Title	Page No
2.2.1	National Sector Coverage Targets	: 0: 0'
2.6.2	Structure of Overtionneire	2'- L'
2.0.2	Structure of Questionnaire	
	a ser de la companya	
3.1.1	Outline of Municipalities	3 - 1
3.2.1	Current Land Use sector and the first of the sector of the	
3.2.2	Drainage Areas and Flow Rates of Major Rivers	3 - 3
3.3.1	Provincial Outline on Public Services	
3.3.2	Public Facilities and Services by Municipality	3 - 7
3.4.1	Previous Population Development by Municipality	3 - 9
3.4.2		
3.4.3	Household Numbers and Household Size Transfer Barrier Degrades and Household Size	3.12
3.5.1	Number and Rates of Ten Leading Causes of Morbidity,	· J-12
		3 - 14
3.5.2	Reported Cases and Deaths of Notifiable Water Related and the second sec	
5.5.2	Diseases in 1998	
3.6.1	Municipal Solid Waste Collection and Disposal, which the fit for every set of	
	and Service Coverage, 1998	3 - 17
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 - 10
4.1.6	Operating Status of Existing Wells in the Province	4 - 12
4.1.7	Water Supply Service Coverage by Municipality	4 - 14
4.2.1	Sanitation Facilities and Service Coverage of Household	4 - 14
	Toilets, Urban and Rural, 1998	4 00
4.2.2	School Toilet Service Coverage by Municipality	4 - 20
4.2.3		4 - 21
4.2.5	Public Toilet Facilities and Service Coverage in 1998	4 - 22
5.3.1	Transition Functions of the DPWH, DILG and DOH	5 - 4
6.2.1	Income and Expenditures between 1995 - 1999	6 - 3
6.2.2	Past Internal Revenue Allotment to Province from Central Government	1.1
6.2.3	Actual Funds for Capital Expenditures (20% DF), 1994-1999	6-6
6.3.1	Previous Sector Investment to the Province by Concerned Agencies	6 - 6
6.3.2		6-8
	Annual Investment Plan, 1995-1998	6-9
6.3.3	Sector Allocation in the Annual Investment Plan, 1995-1998	6 - 10
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 - 19
6.6.1	Affordability in Water Supply and Sanitation Services	6 - 22
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
7.7.2	Detailed Groundwater Investigation Required	7 - 16
	~	1 - 10

vi

......

307 S. - 1. - .

140101100		
	的现在分词是我们想到这是我们就是自己没事。他们就在这些不知道了。	
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	
an highlia	Public Toilets	8 - 8
8.2.5	Base Year Service Coverage of Municipal Solid Waste System	
0.2.0	in 1998	8 - 9
8.3.1	Regional and Provincial 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	
0.511	and 2010	8 - 14
× 8.3.5	Projected Public School Enrollment and Number of Public	
0.010	Utilities by Municipality	8 - 15
8.4.1	Summary of Urban Water Supply Development by Municipality/City	8 - 17
8.4.2	Standard Specifications of Level I Wells	8 - 21
8.5.1	Population to be Served by Target Year (Water Supply)	8 - 26
8.5.2	Additional Number of Households to be Served by Target Year	;
41.51 2 - 전 -	(Household Toilets)	8 - 30
8.5.3	Additional Number of Public School Student to be Served by	• ••
0.9.9	Target Year (School Toilets)	8 - 32
8.5.4	Additional Number of Public Utilities with Sanitary Toilets	• • • •
0.	by Target Year and the state of the sector and the best state of the sector and t	8 - 33
8.5.5	Population to be Served by Urban Sewerage in Phase II	8 - 34
8.5.6	Additional Number of Urban Households to be Served by	
0.5.0	Municipal Solid Waste System in Phase I	8 - 35
8.6.1	Water Supply Facilities Required by Target Year	8 - 36
8.6.2	Sanitation Facilities Required by Target Year	8 - 40
8.6.3	Number of Refuse Collection Trucks Required in Phase I	8 - 41
0.0.5		••••
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 Substant Bill Work out of the Southward of the Market	10 - 9
1 8 0	1. 1. 1. 1. 是中国中国主教教教学的考虑的学校,如何推广共产的工作。	1997 - 1997 1997 - 1997 1997 - 1997
11.2.1	Projected Internal Revenue Allotment for Medium-Term	
- 11 - 11 - 11 - 11 - 11 - 11 - 11 - 1	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 - 10
11.3.2	Additional Fund Requirement for the Medium-Term Plan	11 - 11
11.3.3	Internal Revenue Allotment for Water Supply and Sanitation	
<u>我们,我们</u> 们的时候。	Sector by Municipality (Medium-Term Development, 2001-2005)	11 - 12
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 slabsdog point as a wind baged by a god	11-19
and a second to the second second second	Municipal Investment Need Ranking	11 - 20
11.4.3	New Cost-Sharing Arrangement Between NG and LGUs	11 - 22
11.4.3	Itew Cost-onaming Intrangement Detriven ito and Dooo	
11.5.1		11 - 24
	GOP-Assisted Level I Water Supply and Sanitation Project Cost Cost-Sharing for the Project (Case 1): 1998 price level	11 - 24 11 - 25

Vii

1987 24 CO 3

.

PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

64

LIST OF FIGURES

 $\sim t_{\rm eq} \, {\rm gm}^2$

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 Antique	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	Provincial Service Coverage of the Province	
4.2.1	Provincial Service Coverage of Househald Tailut Data to the	4 - 16
	Provincial Service Coverage of Household Toilet Facilities, 1998	4 - 20
5.3.1	Functional Relationships	5 - 3
6.2.1	Income and Expenditures of Antique, 1995 - 1999	
6,3.1	Actual Amount of Sectoral Investments to the Province, 1995-1999	6-3
6.3.4	Allocation of the 20% Development Fund, 1995-1999	
6.4.1	LGU Financing Options	6 - 11
6.4.2	Private Sector Ringhoung	6 - 14
0.1.2	Private Sector Financing	6 - 18
7.2.1	Geological Map and the second of the second states are states and the second states are states and the second states are states and the second states are	- ·
7.3.1	Groundwater Availability Map	7 - 4 7 - 7
	and the second the second for the plant of the	
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
	which was a first prairie in any stick principal for	
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	
н. 1919 - Алтана 1919 - Алтана	for Sanitation Sector and an an anti-structure in the rest of the sector is the sector	11 - 14
11.5.1	Proposed Project Implementation Schedule	11 - 27
	and the second second the second s	ta de la
	all to from Merculated transform provide the soft of the	
	a scapets with the life. Applies with from states a scale of	
·	and whether a first to man strate the second states and	a antaria aga Antaria di Antaria
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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 M	ines and Geo.
2	Sciences Bureau	intos una Oco
BOD	- Biochemical Oxygen Demand	· · ·
BOD/Officers	- Board of Director/Officers	1
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	1
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 	- 1 t
CPC	- Country Program for Children	
СРН	 Census on Population and Housing 	2 °
CPSO	 Central Project Support Office 	
CSC	- Civil Service Commission	
D/D	- Detailed Design and the base state of the state	
DA	 Department of Agriculture 	· •
DANIDA	- Danish International Development Agency	$(1,1,\dots,1,1)$
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	<u>;</u>
DECS	 Department of Environment and Natural Resources 	
DEO	- District Engineering Office	
DEO	- Development Fund	·
DILG	- Department of the Interior and Local Government	\sim 1/ \sim
DOF	 Department of Finance 	Ref. 1
DOH	- Department of Health and a set of the set	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
DPWH	- Department of Public Works and Highways	$\mathcal{L}_{\mathrm{sp}} = \mathcal{L}_{\mathrm{sp}}$
DSWD	 Department of Young Works and Highways Department of Social Welfare and Development 	
DTI	 Department of Trade and Industry Environmental Sanitation 	
EVS		$f \in \mathbb{R}^{n}$
F/S	- Feasibility Study - Field Health Service Information System	
FHSIS	 Field Health Service Information System Family Income and Expenditure Survey 	
FIES	- ramity income and expenditure survey	

FW4SP	(;	First Water Supply, Sewerage and Sanitation Sector Project	
GAD	-	Gender and Development and a set of the set of the	
GFI	-	Government Financial Institution	
GO	-	Government Office: 474847 (37) 861 (1)	
GOP	_ '	Government of the Philippines	
GOJ	-		
GTZ	-	Government of Japan German Agency for Technical Cooperation	•
HH		Household	· · ·
IBRÐ		Household International Bank for Reconstruction and Development	
ICC	-	Investment Coordination Committee	
IEC	-	Information, Education and Communication	
	-		
IRA	-		
IRR	-	Implementing Rules and Regulations	1 / ¹
ITN	- 1	International Training Network	
JICA	-	Japan International Cooperation Agency	
JBIC	-	Japan Bank for International Cooperation (formerly OECF)	
LBP	-	Land Bank of the Philippines	
LGC	٠	Local Government Code	
LGEF	-	Local Government Empowerment Fund	and the second sec
LGU	-	Local Government Unit	
LGUUWSP	-	Local Government Unit-Urban Water Sanitation Project	
LWUA	-	Local Water Utilities Administration	200 - 10 C
MDC	-	Municipal Development Council	•
MDF	-	Municipal Development Fund	
MEO	-	Municipal Engineer's Office	25-2
MHO	-	Municipal Health Office	
MLGOO		Municipal Local Government Operations Officer	
MOA	-	Memorandum of Agreement	
MOOE	-	Maintenance Operating and Overhead Expenses	
	-		an a
M/P	-	Master Plan Municipal Planning and Development Office	
MPDO	-	Municipal Flaming and Development Office	
MS	-	Monitoring Specialist	
MSL	-	Municipal Sector Liaison	
MSLT	-	Municipal Sector Liaison Team	$M_{\rm eff}^{\rm eff}$
MTPDP	•	Medium-Term Philippine Development Plan	
MWSS	-	Metropolitan Waterworks and Sewerage System	
MWSTF	-	Municipal Water and Sanitation Task Force	The state of the
NAMRIA	-	National Mapping and Resource Information Authority	STAR STAR
NCRFW	-	National Commission on the Role of Filipino Women	
NDCC	-	National Disaster Coordinating Council	
NEDA	-	National Economic and Development Authority	2.3s(1
NGOs	-	Non-Governmental Organizations	
NIA	-	National Irrigation Administration	
NMP	-	National Master Plan National Manpower Youth Council	
NMYC	-	National Manpower Youth Council	
NSCB	-	National Statistical Coordination Board	- <u>1</u> 141
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	
		Overseas Development Assistance	
ODA OFCE	-	Overseas Economic Cooperation Fund	
OECF	-	Descinated Administrator	
PA	-	Provincial Administrator	2.24
PAF	÷	Poverty Alleviation Fund	

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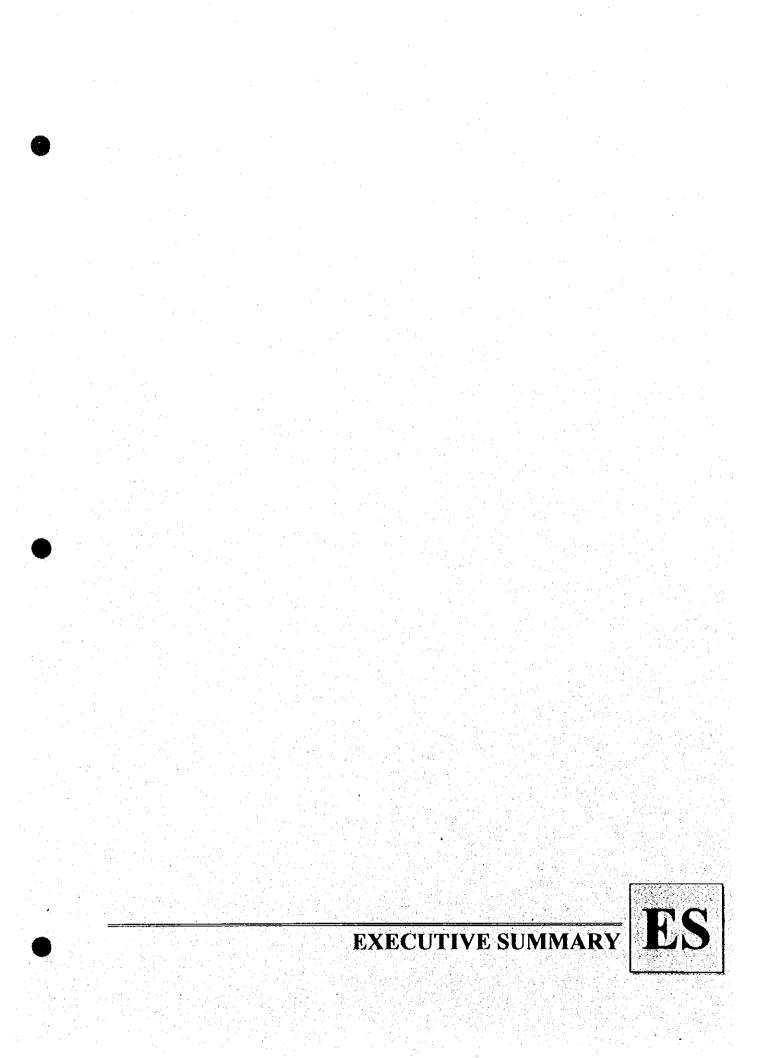
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PAIASO	-	Provincial Accounting and Internal Audit Service Office	
PBO	-	Provincial Budget Office	
PD	-	Presidential Decree	
PDC	•	Provincial Development Council	
PEO	-	Provincial Engineer's Office	
PHO	-	Provincial Health Office	
PIO	-	Public Information 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	
РТО	-	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	<u> </u>	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	
ТСР	-	Teacher-Child-Parent	
UNDP	. 1. -	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	<u> </u>	Water District	
WHO	-	World Health Organization	
WID	· · · - · .	Women in Development	
WSSE		Water Supply and Sanitation Engineer	-
WSS-PMO	1. <u>1</u> .3	Water Supply and Sanitation-Programme Management Office	
WW	• • • • •	Waterworks	
	· • .		

xi



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 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.

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

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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.

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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.

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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 719km² 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.

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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.

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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.

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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.

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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.

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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.

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Existing Sector Arrangements and Institutional Capacity

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Institutional Framework

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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-

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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.

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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.

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Community Development

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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.

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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 reasonin the mainstream of projects planned and implemented for the province and its LGUs, inreprint cluding the WATSAN sector is promotion to many the sector of the attention of the sector of the Mide

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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

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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 \$\$8.26 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 P47.97 million will not be adequate to cover the capital expenditures of the province, estimated at P 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 P5.00 + P30.00 /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, selfsufficient and be able to repay their loans obtained to improve water supply services.

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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.

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6. Water Source Development of the solution and the solution and the function of the solution of the solution

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.

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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

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

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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 preconstruction 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.

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7. Future Requirements in Water Supply and Sanitation Improvement

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Phased requirements for the sector development in the province are assessed to meet the proyincial targets established as percentages of beneficiaries or utilities to be served by subsector. 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.

Sub-Sector	Area/Type	Base Year	Provincial Sector Targets		
540-5600		Service Coverage	Phase I	Phase II	
Water Supply	Urban Area	80	a a fa 80 a an a	95	
	Rural Area	68	68	93	
Sanitation	Urban HH Toilet	80	90	93	
a se al carter de la c	Rural HH Toilet	71	85	90	
en e	School Toilet	54	80	90	
	Public Toilet	71	90 - 14 90 - 14 -	100	
Sewerage	Urban Area	0	Not applicable	50	
Solid Waste	Urban Area	60	80	Not applicable	

Table 7.1 Present Service Coverage and Sector Targets

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.

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

Table 7.2 Additional Service Coverage by Phase

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.

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For urban water supply, one Level III system is, in principle, considered for urban area of many 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.

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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

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- 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

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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 ongoing 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.

		Unit: 1,000 Pesos		
Item	Component	Phase I	Phase II	
Construction/	Water Supply	$11 \times 10^{11} \pm 10^{11} \pm 10^{11}$	1 12 1	
Rehabilitation	Urban Area	47,982	352,99	
the second second	Rural Area	0	414,92	
· · · ·	Sanitation			
	Household Toilet	2,830	5,94	
	School Toilet	44,132	108,11	
	Public Toilet	10,486	4,33	
	Disinfection of Well	1,167	17	
	Urban Sewerage	N/A	270,66	
	Sub-Total	106,597	1,157,14	
Procurement of Vehicle/	Well Drilling Rig & Service Truck	0	26,78	
Equipment/Maintenance	Support Vehicle	590	No.	
Tools	Well Rehabilitation Equipment	280		
and the second	Maintenance Tools	180		
	Water Quality Testing Kits	15		
	Sub-Total	1,065	26,78	
Water quality Laboratory		478		
Sector	Engineering Studies	13,408	114,40	
Management	Community Development and Training	7,994	79,24	
	Sub-Total	21,402	193,7	
Total Direct Cost		129,542	1,377,64	
Contingencies	Physical Contingency	12,947	137,70	
n an	Price Contingency	48,078	ALL N	
ran an bh' a tarta d'Anna. An	Value-Added Tax (VAT)	12,148	N	
Total Investment Cost	n generater per victoria da se ere	202,715	1,515,4	
Total Investment Cost (excl	uding Price Contingency)	154,567	1,515,4	

Table 9.1	Investment	Cost Req	juired b	y Phase 👘
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Total investment cost for Phase I is estimated at about P154.6 million. A total of P106.6 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 sct/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 P54.4 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.

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Likewise, annual recurrent cost in 1998 price level is estimated at P20.1 to P25.5 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.

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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 P36.55 million in funding. It will become P46.1 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.

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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 3^{rd} to 6^{th} 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.

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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 P41.9 million from P32.7 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 (P41.9 million) and available IRA of LGUs (P71.3 million), the required cost is covered by the available IRA.

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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 P52.2 million or 75% of the total project cost in the portion of loan. Out of GOP finance through the loan, P32.9 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 P19.3 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 P16.0 million from P13.4 million (1998 price level), considering price contingency and VAT, which is 22% of available IRA (P71.3 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 P68/HH/month in 1998). For Level II water supply systems, full cost recovery is required for all capital and recurrent cost (P114HH/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 (P269/HH/month in 2005). Based on the experience that water fee must not exceed

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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.

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