JAPAN INTERNATIONAL COOPERATION AGENCY

DEPARTMENT OF THE INTERIOR AND LOCAL GOVERNMENT THE REPUBLIC OF THE PHILIPPINES

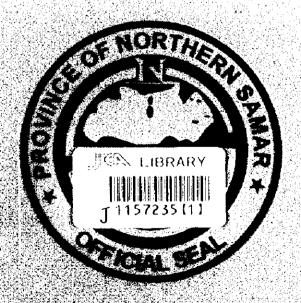
THE STUDY ON THE PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN IN THE REPUBLIC OF THE PHILIPPINES

VOLUME II - [4]

SUPPORTING REPORT

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

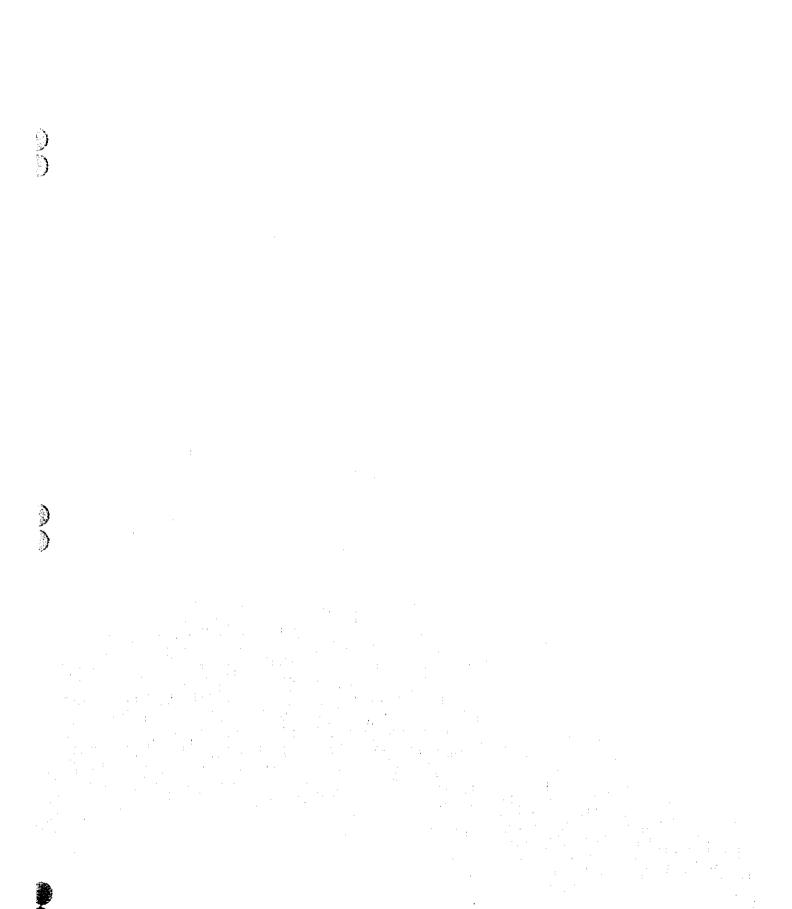
NORTHERN SAMAR

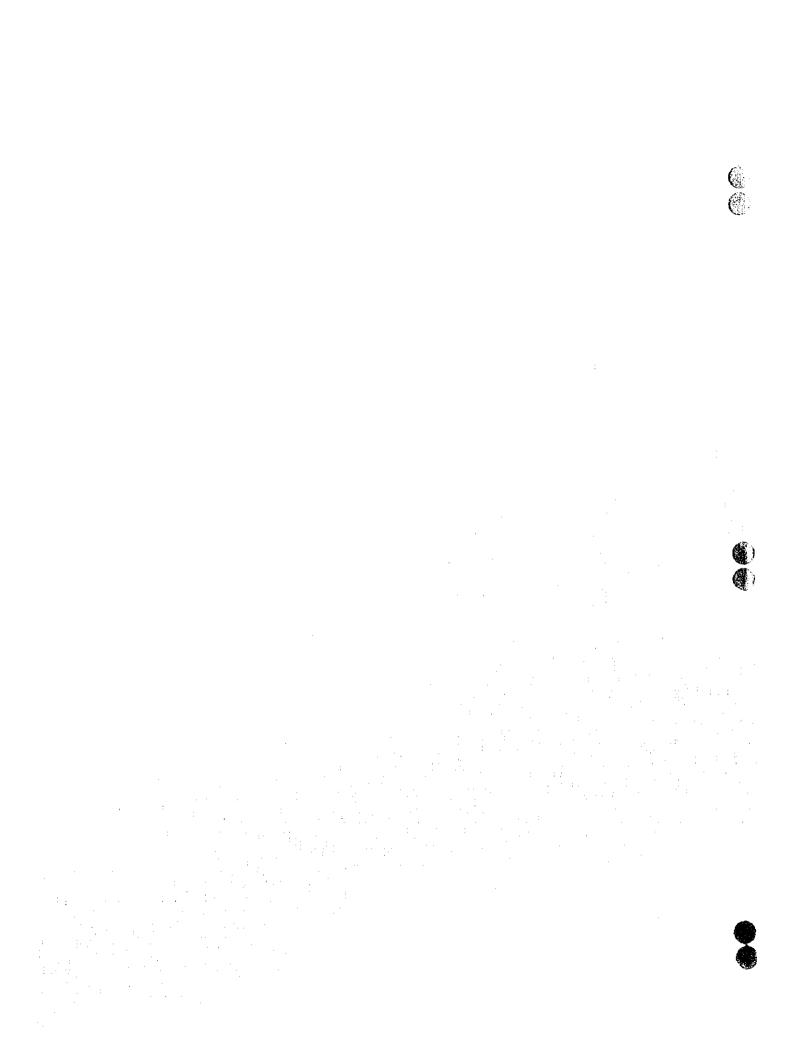


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JAPAN INTERNATIONAL COOPERATION AGENCY

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

VOLUME II

SUPPORTING REPORT

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

NORTHERN SAMAR



DECEMBER 1999
NIPPON JOGESUIDO SEKKEI CO., LTD.

PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

VOLUME II SUPPORTING REPORT

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PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

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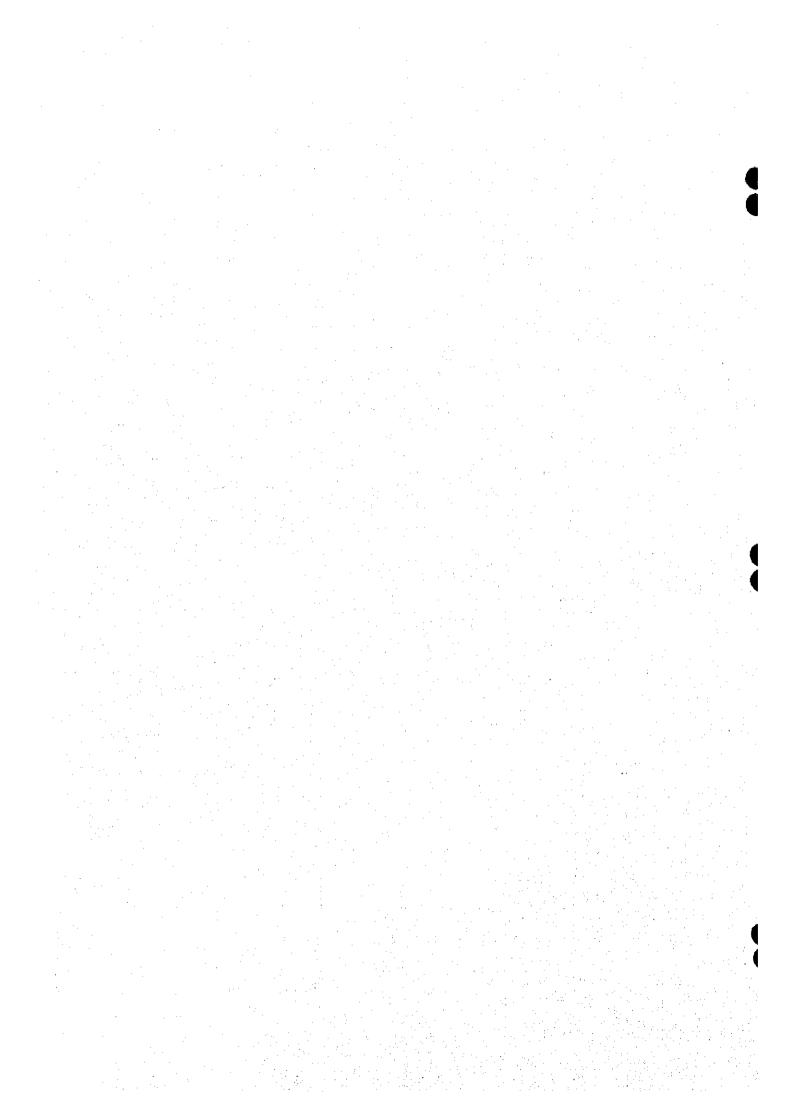
PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLAN

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BACKGROUND INFORMATION AND EXISTING CONDITIONS





- 1. INTRODUCTION
- 1.3 The Provincial Plan for the Province of Northern Samar
- 1.3.1 Preparation of the Plan

MINUTES OF DISCUSSIONS

THE INCEPTION REPORT

FOR -

THE STUDY ON PROVINCIAL WATER SUPPLY, SEWERAGE AND SANITATION SECTOR PLANS

FOR

VISAYAS AND MINDANAO

IN

THE REPUBLIC OF THE PHILIPPINES

AGREED UPON BETWEEN

THE DEPARTMENT OF THE INTERIOR AND

LOCAL GOVERNMENT

AND

THE STUDY TEAM OF

JAPAN INTERNATIONAL COOPERATION AGENCY

MR. NORMANDO J. TOLEDO

Director

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Services

Dept. of the Interior and Local Government

MANILA, JANUARY 26, 1998

Team Leader, Study Team Japan International Cooperation Agency

MR MASATOSHI MOMOSE

Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, dispatched the Study Team to the Republic of the Philippines on January 13, 1998 to conduct "The Study on Provincial Water Supply, Sewerage and Sanitation Sector Plans for Visayas and Mindanao" (hereinafter referred to as "the Study") in accordance with the Implementing Arrangement for the Study executed between the JICA and the Department of the Interior and Local Government (hereinafter referred to as "DILG") on August 27, 1997.

A series of discussions were made on the Inception Report for the Study between the Study Team and the officials of DILG and other agencies concerned. In the course of the discussions, both parties have agreed with the general approach and methodology, and implementation arrangements detailed in the Inception Report. Also agreed upon were the changes made as to which provinces are to be covered in 1st batch and 2nd batch (refer to 1. Study Area). The list of attendees in the series of discussions is presented in Appendix A.

1. Study Area

The subject twenty-one (21) provinces were grouped into four batches in the "Implementing Arrangement on the Study". However, a delay in the organization of the Provincial Sector Planning Team (PSPT) in the 1st batch provinces of Misamis Oriental and Surigao del Sur prompted their transfer to the 2nd batch. Instead, Davao del Sur and Davao Oriental from the 2nd batch whose PSPTs were already formed were moved up in their place. In this connection, the DILG completed to exchange MOA with the provinces on the participation and full support by the provinces.

The present study area covers the following 21 provinces grouped into four batches.

1 st BATCH	2 nd BATCH	3 rd BATCH	4 th BATCH
1. Agusan del Norte	l. Davao	1. Biliran	1. Aklan
2. Agusan del Sur	2. Misamis Oriental	2. Eastern Samar	2. Antique
3. Davao del Sur	3. Sarangani	3. Leyte	3. Capiz
4. Davao Oriental	4. South Cotabato	4. Northern Samar	4. Iloilo
5. Surigao del Norte	5. Surigao del Sur	5. Southern Leyte	5. Negros
		6. Western Samar	Occidental

With regard to Davao province, the separation into two provinces is currently under legislative process. Upon the formalization of an additional province, the total number of the provinces in the study area would be 22. The DILG has requested that the forthcoming province be included in the study area. The JICA Study Team will relay the request to JICA headquarters for consideration. The DILG is expected to complete the execution of the MOAs of the 2nd batch provinces by early July to catch up with the planned schedule. The required arrangements in terms of subject provinces and study period will be discussed between the DILG and JICA



-

1 - 2

2. General Approach and Methodology to the Study

The PW4SPs will be prepared with the full participation of the respective PSPTs together with DILG coordinators and the Study team in accordance with the approach and methodology outlined in the Inception Report. The following topics were confirmed during the discussions:

- (1) Planning framework for future sector development
 - a) Planning base year is 1997 for 1st and 2nd batches and 1998 for 3rd and 4th batches. Medium-term and long-term target years are 2005 (implementation program: year 2001 to year 2005) and 2010, respectively.
 - b) Plan will be prepared in compliance with "Implementing Rules and Regulations of NEDA Board Resolution No. 4".
- (2) Standard provision of school toilets

Discussions and confirmation on the provision of school toilets will be arranged with DECS.

- (3) Options on the sludge removal from septic tank and its disposal will be shown in the plan.
- (4) Model province for 1st batch is Agusan del Sur.

3. Sector Information Collection

The DILG and the JICA Study Team will continuously collect information on the projects/programs assisted by various financial sources. The information will be reflected in the plans.

4. Implementation Set-Up for the Study

In accordance with the Implementing Arrangements between the DILG and the JICA, the DILG shall:

- (1) Secure the safety of the JICA Study Team;
- (2) Assign DILG counterpart staff members who will coordinate and assist PSPTs at the provincial level;
- (3) Set-up PSPTs by respective provincial governments in the study area and secure budget to carry out the Study;
- (4) Through PSPT in each study area province; facilitate and coordinate in data gathering with municipal government and other agencies concerned, and participate in workshops and preparation of PW4SP;



6

(5) Facilitate coordination with concerned agencies like DPWH, DOH, NEDA, LWUA and with appropriate bodies.

The JICA Study Team shall:

- (1) Pursue technology transfer to the Philippine counterpart personnel in the course of the Study and;
- (2) Assist PSPTs in the preparation of the PW4SP.



LIST OF ATTENDEES IN THE SERIES OF DISCUSSIONS

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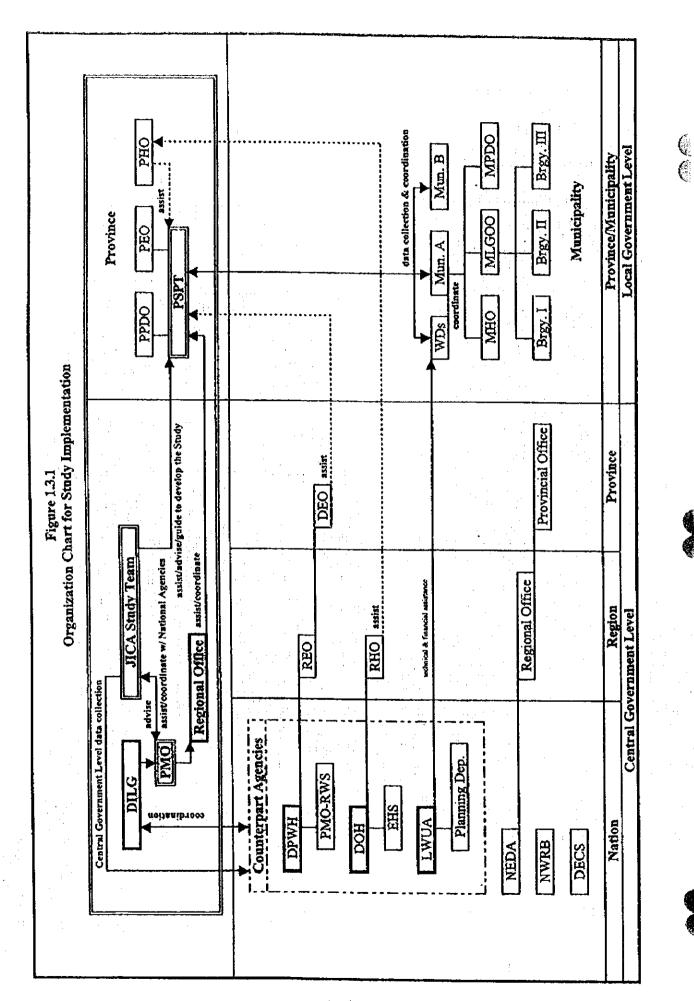
Socio-Economic/Financial Specialist

Water Source Development Specialist

Data Management Specialist







MINUTES OF DISCUSSIONS

ON

THE PROGRESS REPORT

FOR

THE STUDY ON PROVINCIAL WATER SUPPLY, SEWERAGE AND

SANITATION SECTOR PLANS

FOR

VISAYAS AND MINDANAO

IN

THE REPUBLIC OF THE PHILIPPINES

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AND

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JAPAN INTERNATIONAL COOPERATION AGENCY

MANILA, MARCH 18, 1998

MR. NORMANDO J. TOLEDO

Director

Office of the Project Development

Service

Dept. of the Interior and Local Government

MR. MASATOSHI MOMOSE

Team Leader, Study Team

Japan International Cooperation

Agency

The Stage I fieldwork for "the Study on Provincial Water Supply, Sewerage and Sanitation Sector Plan" started on January 13, 1998 and completed on March 23, 1998.

A series of discussions were held throughout the course of the Study, between JICA Study Team and officials concerned including DILG, NEDA, DOH, DPWH and other central government agencies and provinces. The general approach and methodologies, as presented in the Inception Report, have been employed for the fieldwork.

A Progress Report, which covers all outputs during the work period, was prepared entailing part of PW4SP for the respective provinces. The contents of the report were basically agreed upon on March 18,1998 between JICA Study Team and officials of the DILG. The list of attendees to the meeting is presented in Appendix A. The following issues/problems on the arrangements required for the implementation of the Study were discussed, and the Study Team will relay the modified arrangements required to JICA headquarters.

(1) Modified Arrangements Required for 1st batch Study

- 1) Due to the presidential election scheduled on May 11, 1998, the second workshop may be held from May 18 to May 22, 1998 after the election, and tentatively starting the 2nd field work on May 13, 1998.
- 2) The venue for the final workshop was requested by concerned PPDCs to be held in Mindanao rather than in Manila as originally planned. This is because of the financial constraint on the travel expenses required for 7 members of respective PSPTs under the current GOP instruction to LGUs to reduce its planned annual expenditures of up to 25%.
- (2) Provinces to be Covered by the 2nd Batch

The total number of provinces for the 2nd batch (5 provinces) will be kept as previously agreed between the two parties. However, Surigao del Sur will be omitted from the Study, since timely establishment of the PSPT by the province seems to be difficult. Instead of the said province, either the newly created Compostela Valley or Bukidnon(Region X) would be included.

The DILG will inform the Study Team of the possibility in the setting up of PSPT by the administration of Compostela Valley by the middle of June 1998. If not, DILG will make an advanced arrangement with Bukidnon.

(3) Electric Resistivity Prospecting and Test Boring

Comparatively reliable data to evaluate the development potential of water source were collected for 1st batch provinces during the fieldwork. It is assumed that the conduct of the field test for groundwater analysis, given a limited period, cannot be able to contribute significantly to the level of accuracy in the preparation of M/P and F/S. The situation will remain the same for 2nd batch provinces. Accordingly, it is pet Texammended to conduct field test for this study.

J



The required areas and the scope of work/surveys, such as field tests, will be recommended in the PW4SP and will be considered during detailed design and construction stages.

(4) Time Constraint in Data Collection/Validation/Follow-up

It was found, both by the Study Team and the DILG through the fieldwork, the following problems on data collection/validation/follow-up:

1) The summary reports on the sector status prepared by NEDA Regional Office through UNICEF fund were field confirmed as the materials to provide approximate sector situations in the fact of no existence of sector related information at present.

2) Data collection by PSPTs had sometimes to be done at the barangay level, due to limited data available in the municipal level. Thus, additional time was required for PSPTs to access to remote rural barangays.

3) Comprehensive planning work by the province in Mindanao area is still initial stage. It is necessary for the activities to ensure much more time through intensive technology transfer to DILG coordinators and PSPTs.

Based on the lessons learned, the Study Team and the DILG recognized the need of the review on the allotted period for the activities. The Study Team will relay this matter to JICA headquarters.

(5) Cities to be Covered in the Preparation of PW4SP

Of the three classes of cities in the Local Government Code, only component cities, which are under the jurisdiction of the provincial government will be considered. The subject cities are as follows:

Province Component City
Surigao del Norte Surigao City
Davao Tagum City an

Davao Tagum City and Island Garden City
Leyte Tacloban City

Leyte Tacloban City
Western Samar Calbayog City
Capiz Roxas City
Iloilo Passi City

Negros Occidental Bago City, Cadiz City, La Carlota City, San Carlos

City and Silay City



LIST OF ATTENDEES IN THE SERIES OF DISCUSSION

ATTENDEES

- A. DILG
- 1. Mr. Orville M. Roque
- Ms. Ellen I. Pascua
- Mr. Rogelio B. Ocampo
- Ms. Fc Crisilla M. Banluta
- Ms. Charito Araza
- Ms. Maria Contessa Navarro
- Ms. Josephine Ramos
- Ms. Susan Mangoda
- 9. Ms. Crisanta Rapirap
- B. JICA Study Team
- Mr. Masatoshi Momose
- Mr. Nobuki Abe
- Mr. Kenji Takayanagi
- 4. Ms. Consuelo B. Estepa
- 5. Ms. Elizabeth L. Verzola

DESIGNATION

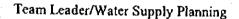
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Area Coordinator, WSS-PMO



Water Supply/Sanitation Engineer

Water Source Development Specialist

Community Dev't./WID Specialist

Socio-economic/Financial Specialist





MINUTES OF DISCUSSIONS

ON

THE DRAFT FINAL REPORT

FOR

THE STUDY ON PROVINCIAL WATER SUPPLY, SEWERAGE AND

SANITATION SECTOR PLANS

FOR

VISAYAS AND MINDANAO

IN

THE REPUBLIC OF THE PHILIPPINES

AGREED UPON BETWEEN

THE DEPARTMENT OF THE INTERIOR AND

LOCAL GOVERNMENT

AND :

THE STUDY TEAM OF

JAPAN INTERNATIONAL COOPERATION AGENCY

MR. BENITO R. CATINDIG

Assistant Secretary for Support Services and Regional Offices

Dept. of the Interior and Local Government

MANILA, AUGUST 27, 1998

MR. MÅSATOSHI MOMOSE

Team Leader, Study Team
Japan International Cooperation

Agency

The Stage II fieldwork for "the Study on Provincial Water Supply, Sewerage and Sanitation Sector Plan" (hereinafter referred to as "the Study") resumed on May 20, 1998 and will be completed on March 30, 1999. Upon completion of the 1st batch study, the study for the 2nd batch will start on August 30 with an "Orientation Workshop". It is further scheduled that the 2nd batch study will be finalized by February 1999 and 3rd batch work will be commenced before the completion of this fieldwork.

Major conditions and assumptions for the development of Medium-Term and Long-Term sector plans for the subject provinces under the 1st batch were discussed and finalized between respective PSPTs and the JICA Study Team (hereinafter referred to as "the Team") through Workshop No. 2 (held between May 26 and 28, 1998) and during planning work thereafter. In this connection, the target year for the Medium-Term development plan was revised from 2005 to 2003 in order to realize the plan earlier.

The Draft Final Reports for the five (5) provinces of the 1st batch were prepared and the final workshop was conducted between August 24 and 26, 1998 to present and discuss the contents of the reports. The contents of the reports were basically agreed upon on August 27, 1998 by the Team and officials concerned on the Philippine side. The list of attendees to the meeting is presented in Appendix A. The following were confirmed and agreed upon by both parties.

- Correction of typographical errors of the Draft Final Report will be undertaken by the Team prior to printing of the Final Report. The Final Report will be submitted by October 1998.
- 2. Adoption of the Plans by the Provincial Council (Sangguniang Panlalawigan) shall be facilitated by the DILG.
- 3. Inclusion of the Message of the Governor in the Main Report of respective PW4SPs.

With regard to the 2nd batch study, both parties have agreed on the general approach and methodology, and implementation arrangements adopted for the 1st batch study. Among them, the following are the basic conditions to be applied for the planning.





(1) Study Area

The DILG completed the exchange of MOA with the 2nd batch provinces on the participation and full support by the concerned provinces. The subject provinces are Misamis Oriental, Bukidnon, Davao del Norte, South Cotabato and Sarangani. The province of Bukidnon was selected for model province study.

(2) Planning Framework for Future Sector Development

- a) Planning base year is 1997 and Medium-Term and Long-Term target years are 2003 (implementation program; year 1999 to year 2003) and 2010, respectively.
- b) Plans will be prepared in compliance with the "Implementing Rules and Regulations of NEDA Board Resolution No. 4".

(3) Implementation Set-Up/Arrangements for the Study

The study will be conducted in accordance with the Implementing Arrangements between the DILG and the JICA, as done with the 1st batch study.

Both parties will make timely and effective arrangements through the study period to achieve the purpose of the Study within the set time-table based on the lessons learned from the 1st batch study. In this regard, the following are put into practice.

- a) Data collection by the PSPTs will be commenced in advance (overlapped activity with the preceding batch study) to ensure longer period for this activity as compared with the original time allotted.
- b) Planning period by the PSPTs will be extended by adjusting the timing for the conduct of 2nd worshop for data encoding and discussions to set-up planning fundamentals.
- c) Practical arrangements will be made to increase the opportunities for further collaboration in the planning work among PSPTs, DILG coordinators and the Team.

For the arrangement of the 3rd batch study, the DILG will confirm the subject provinces including the model province through the MOA by December 1998.



LIST OF ATTENDEES IN THE SERIES OF DISCUSSIONS

	<u>ATTENDEES</u>	DESIGNATION
A.	DILG	
	1. Mr. Normando J. Toledo	Director, Office of Project Development Services
	2. Ms. Ellen I. Pascua	Acting Program Manager, WSS-PMO
	3. Mr. Rogelio B. Ocampo	Chief, Planning Division, WSS-PMO
	4. Ms. Fe Crisilla M. Banluta	PW4SP Project Officer, WSS-PMO
В.	Other Agencies	
	1. Ms. Cristina Santiago	PIS, NEDA
C.	JICA Advisory Committee	
	1. Ms. Keiko Yamamoto	Chairman, Advisory Committee
	2. Mr. Keiichi Kanaya	Member, Advisory Committee
D.	JICA Headquarters	
	1. Ms. Akiko Hayashi	Second Development Study Division, Social Development Study Depart.
E.	JICA Study Team	
	1. Mr. Masatoshi Momose	Team Leader/Water Supply Planning
	2. Mr. Nobuki Abe	Water Supply/Sanitation Engineer
	3. Mr. Kenji Hiramatsu	Institutional Specialist
	4. Ms. Consuelo B. Estepa	Community Dev't./Gender Specialist
	5. Ms. Elizabeth L. Versola	Socio-Economic/Financial Specialist
	6. Mr. Emmanuel L. Patingo	Data Management Specialist

4

MINUTES OF DISCUSSIONS

ON

THE DRAFT FINAL REPORT (2nd BATCH)

FOR

THE STUDY ON PROVINCIAL WATER SUPPLY, SEWERAGE AND

SANITATION SECTOR PLANS

FOR

VISAYAS AND MINDANAO

IN

THE REPUBLIC OF THE PHILIPPINES

AGREED UPON BETWEEN

THE DEPARTMENT OF THE INTERIOR AND

LOCAL GOVERNMENT

AND

THE STUDY TEAM OF

JAPAN INTERNATIONAL COOPERATION AGENCY

MR. BENITO R. CATINDIG

Assistant Secretary

Dept. of the Interior and Local Government

QUEZON CITY, FEBRUARY 22, 1999

MR. MASATOSHI MOMOSE

Team Leader, Study Team

Japan International Cooperation Agency

The Stage II fieldwork for "the Study on Provincial Water Supply, Sewerage and Sanitation Sector Plan" (hereinafter referred to as "the Study") resumed on May 20, 1998 and will be completed on March 30, 1999.

The study for the 2rd batch started on August 30,1998 and will be completed with the final workshop scheduled between February 24 and 26, 1999. During the finalization stage of the 2rd batch study, the study for the 3rd batch was started with an "Orientation Workshop" on February 8 to 10, 1999. It is further scheduled that the 3rd batch study will be finalized by the end of this year.

With regard to the 2nd batch study, major conditions and assumptions for the development of Medium-Term and Long-Term sector plans for the subject provinces were discussed and finalized between the respective PSPTs and the JICA Study Team (hereinafter referred to as "the Team") during Workshop No. 2 between November 4 to 6, 1998 and also at the time of the planning work thereafter. For the entire duration of the planning work, the Team stayed intermittently in Davao City, Cagayan de Oro City and Malaybalay City for better collaboration with the PSPTs.

The Draft Final Reports for the five (5) provinces of the 2nd batch were prepared and discussed on the contents of the reports between the respective PSPTs and the Team during February 15 and 19, 1999. The contents of the reports were basically agreed upon on February 22, 1999 by the Team and the officials concerned in the Philippine side in consideration of the discussion results with PSPTs.

The list of attendees to the meeting on February 22, 1999 is presented in Appendix A. The followings were confirmed and agreed upon by both parties.

- Further modification/correction on the Draft Final Report will be undertaken by the Team prior to printing of the Final Report based on the discussions with PSPTs. The Final Report will be sent by May, 1999.
- Adoption of the Plans by the Provincial Council (Sanggunian Panlalawigan) will be pursued and facilitated by the DILG.
- 3. Inclusion of the Message of the Governor in the Main Report of respective PW4SPs.

Concerning the 3rd batch study, both parties have agreed on the general approach and methodology, and implementation arrangements adopted for the previous batch studies. Among others, the followings are the basic conditions to be applied for the planning.



(1) Study Area

The DILG completed the exchange of MOAs with the 3rd batch provinces regarding the participation and full support by the concerned provinces. The subject provinces are Northern Samar, Eastern Samar, Samar, Biliran, Leyte and Southern Leyte. The province of Leyte was selected for model province study.

(2) Planning Framework for Future Sector Development

- a) Planning base year is 1998 and Medium-Term and Long-Term target years are 2004 (implementation program: year 2000 to year 2004) and 2010, respectively.
- b) Plans will be prepared in compliance with the "Implementing Rules and Regulations of NEDA Board Resolution No. 4", Series of 1994.

(3) Implementation Set-Up/Arrangements for the Study

The study will be conducted in accordance with the Implementing Arrangements between the DILG and the JICA, as done with the 1st and 2nd batch studies.

Both parties will make timely and effective arrangements throughout the study period to achieve the purpose of the Study within the set time-table based on the lessons learned from previous batch studies. In this regard, the following will be put into practice.

- a) Data collection by the PSPTs will start in advance (overlapped activity with the preceding batch study) to ensure longer period for this activity as compared with the original time allotted.
- b) Planning period by the PSPTs will be extended by adjusting the timing for the conduct of the 2nd workshop for data encoding and discussions to set-up planning fundamentals.
- c) Practical arrangements will be made to increase the opportunities for further collaboration in the planning work among PSPTs, DILG coordinators and the Team.

For the arrangement of the 4th batch study, the DILG will confirm the subject provinces including the model province through a MOA by May, 1999.





ATTENDEES DESIGNATION A. DILG 1. Mr. Benito R. Catindig Assistant Secretary 2 Ms. Ellen I. Pascua Program Manager, WSS-PMO Mr. Rogelio B. Ocampo 3 Chief, Planning Division, WSS-PMO 4 Ms. Fe Crisilla M. Bauluta PW4SP Project Officer, WSS-PMO В. Other Agencies l. Ms. Christina Santiago PIS, NEDA *C*. JICA Advisory Committee 1. Ms. Keiko Yamamoto Chairman, Advisory Committee 2. Mr. Keiichi Kanaya Member, Advisory Committee D, JICA Study Team 1. Mr. Masatoshi Momose Team Leader/Water Supply Planning 2. Mr. Nobuki Abe Water Supply/Sanitation Engineer 3. Mr. Kenji Hiramatsu Institutional Specialist 4. Mr. Nobukatu Sakiyama Water Source Specialist 5. Ms. Consuelo B. Estepa Community Dev't./Gender Specialist Ms. Elizabeth L. Versola Socio-Economic/financial Specialist 7 Mr. Emmanuel Patingo Data Management Specialist

2. PLANNING APPROACH FOR FUTURE SECTOR DEVELOPMENT

2.6 Planning Principles and Data Management

2.6.2 Data Management

(1) Computer-based System

The data management system was established to support the Provincial Sector Planning Team (PSPT) in the preparation of the Provincial Water Supply, Sewerage and Sanitation Sector Plan (PW4SP). An essential task of data management is to organize various kind of data an effective and efficient information base.

A computer-based system was applied as a viable solution to process large amount of data and to minimize the human-error in calculation. For this particular project, a dynamic system is designed to allow the planner to adjust planning factors and update the information when further data becomes available.

It is viable and economical t choose the microcomputer with software suitable for the average skills of the common user. In this connection, of the two types of software package available, database and spreedsheet, the latter method was selected. Among the available spreadsheet-type software, EXCEL was used. Excel support file conversion (opening and saving), multiple file opening, graphic presentation of data, What-You-See-Is-What-You-Get (WYSIWYG) formatting, scaleable font and view, etc. The following are the advantage and disadvantages of the spreedsheet method with reference to database method.

Advantage

- 1. Minimum programming skills
- 2. Friendly environment to users
- Graphics presentation of data at user's option.
- 4. Execution of data linkages at formula level entry
- 5. Guided formula creation using function wizard

Disadvantage

- 1. Repeated entry of same formula
- 2. Sorting or indexing is done manually
- 3. All data are loaded in memory, which require huge amount of memory.
- 4. Limited to static data linkages

Data management task starts from the collection of data using the questionnaire forms. The existence and accuracy of data are major concern at this stage to prepare main information bases. Using the microcomputer provided with EXCEL spreadsheet, data in the questionnaire forms are transferred into the forms constructed in EXCEL. Applicable policy, criteria and assumption are entered into key parameter tables. These data are then processed and finally consolidated into target forms. These final provide a map of provincial profile, service coverage, future requirements, cost estimates for future sector development, and funding requirements.

Table 2.6.1 Key Parameter

No.			Description of Key Parameter	Unit	Values
1.		Wate	r Supply		
	ş		Number of household to be served by Level I Facility	HH/Source	
	Š		Number of household to be served by Level II System	HH/Public Faucet	
	ဗ		Water Consumption Rate for Level III System	Liter/capita/day	
	Service Level	Sanit	ation		
	Š		Std. number of student to be served by a unit of Sanitary toilet	Student/Toilet	
			Standard number of toilets for a public utility	Toilet/Public Facility	
2.			Water Supply		
			UrbanWater Supply	% of Population	
			Rural Water Supply	% of Population	
ļ			Sanitation		
		E	Household Toilet	111 7 7	
		Plan	Urban Household Toilet	% of Household	
		E	Elush	% of Household	
	1	T	Pour Flush	% of Household	
		Medium Term	VIP Latrine	% of Household	: -
	٠.	ğ	Rural Household Toilet	% of Household	
		ž	Flush	% of Household	
	Provincial Sector Target		Pour Flush VIP Lanine	% of Household	:
	, a,			% of Household	
	, to		School Toilet Public Toilet	% of Public Student	
	ccı	ł	Solid Waste	% of Public Utility	
	Sign		Water Supply	% of Population	
	, Çi		Urban Water Supply	P/ - F D 1	
	7		Rural Water Supply	% of Population	
٠,	ž	1	Sanitation	% of Population	
		_	Household Toilet		
		جَ ا	Urban Household Toilet	% of Household	
		Term Plan	Flush	% of Household	
		5	Pour Flush	% of Household	
	ļ	L	VIP Latrine	% of Household	
	1	Long	Rural Household Toiles	% of Household	
		-	Flush Pour Flush	% of Household	
		1	VIP Latrine	% of Household	
	l		School Toilet	% of Household	
	ļ		Public Toilet	% of Public Student	
			Urban Sewerage	% of Public Utility	
3.	Pescen	1	of Level I Deep Wells to be Rehabilitated	% of Urban Population	 -
4.	Percent	iage c	I Sector Management Cost to Construction Cost	%	· · · · · · · · · · · · · · · · · · ·
			ibility and Detail Design	% of Construction Cost	
	7.11		struction Supervision	% of Construction Cost	
5.	Comm		Development and Training Cost	14 ALC AUSTROCTION COST	
			al III de la	% of Construction Cost	
			el I, II and Public Toile:	% of Construction Cost	
6.	1		el III System (Operating Cost)	Pesos/HH/year	
	=		el III System (Spare Parts/Equipment)	% of Construction Cost	·
	Cost		el II System (Spare Parts/Equipment)	Pesos/HII/year	
	Kecurrent	Leve	el I System (Spare Parts/Equipment)	Pesos/HH/year	 -
	Αž	Publ	ic School Toilet Maintenance Cost	Pesos/Toilet/year	
	Į		ic Utility Toilet Maintenance Cost	Pesos/Toilet/year	
7.	Allocat		actors/Percentages of IRA		
	1		n Provincial	%	
	ļ		n Municipality and Brgy.	%	
8.	Fundia	_	els/Percenatges for Different Financing Scenarios		
	1		Scenario	% Funding Available	<u> </u>
	1		Scenario	% Funding Available	L
	1		Scenario	% Funding Available	
	1		Scenario	% Funding Available	
	i	5th	Scenario	% Funding Available	i -





Table 2.6.2 Composition of Well Sources and Specific Capacity

		Type Water	Proportion		Standard S	
Name of Municipality	Type	Source	(%)	Depth (m)	SWL (m)	Specific Capacity (liter/sec/m)
	គ្គ	Shallow Well				
•	Urban	Deep Well				
	د	Spring				
	- a	Shallow Well				
:	Rural	Deep Well				
		Spring	·			
+	ន	Shallow Well				
• •	Urban	Deep Well				
	ر ـ	Spring				
*		Shallow Well	1			
:	Rural	Deep Well				
	α.	Spring				
	<u>_</u>	Shallow Well				
	Urban	Deep Well				
	>	Spring				
	11	Shallow Well				
	Rural	Deep Well				
	~	Spring				
	s	Shallow Well	the state of the		l	
	Urban	Deep Well				
	ភ:	Spring				
		Shallow Well				
	Rural	Deep Well				
	~	Spring				
	⊑	Shallow Well				
	Urban	Deep Well				
: · · · · · · · · · · · · · · · · · · ·	- ⊃.	Spring '				
	-	Shallow Well	11			
	Rurai	Deep Well				
	<u>~</u>	Spring				
	g	Shallow Welt	1 1 1 1	1.1		
:	Urban	Deep Well				
		Spring				
	=	Stallow Well				
	Rura	Deep Well				
	"	Spring				
	ح	Shallow Well			1	
	Urban	Deep Well				
) >	Spring				
		Shallow Well	<u> </u>		1	
	Ruraì	Deep Well				
	∝	Spring				
		Shallow Well			1	
	Urban	Deep Well				
	Į 5	Spring				
	_	Shallow Well			1	
	Rural	Deep Well	1		†	
	<u>~</u>	Spring			Transfer of the second	

	Table 2.6.3 Annual	Investr	nent			· :	
Sub-Sector	Component	1999	2000	2001	2002	2003	Tota
Urban Water Supply	Level III System Feasibility Study and Detail Design Construction & Supervision Community Development & Training						
Rural Water Supply	Level I Facility Detail Design Construction & Supervision Community Development & Training						
Rural Wa	Level II System Detail Design Construction & Supervision Community Development & Training						
Sanitation	Urban Household Toilet Rural Household Toilet Public School Toilet Public Toilet Disinfection of Level I Wells					·	
S.	Detail Design Construction & Supervision Community Development & Training						

Table 2.6.4 Level I Safe & Unsafe Percentage

Name of Municipality	Safe (%)	Unsafe (%)
	100	
		.1.
	18.11.11(1), (8.18) E. (1	
		·
Provincial Total		

Table 2.6.5 Unit Construction Cost of Different Facilities

	Unit	Service	Service Coverage	Unit Cost	Cost
Description	Construction Cost	Š	Served	Pesos/	Pesos/
	(Pesos)	Population	Household	Person	Household
Water Supply					
Level III - New System					
For 5000 Population		Haraman Company	4 W		
For 10000 Population					
For 15000 Population					,
Level III - Expansion					A CONTRACTOR OF THE CONTRACTOR
For 5000 Population				·	
For 10000 Population					
For 15000 Population					
Level II	*				
Level I		22			
Deep Well - 40 meter depth					
Deep Well - 80 meter depth					
Deep Well - 120 meter depth ::	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
Shallow Well - 18 meter depth					
Spring Development					
Rehabilitation Cost for Level I Deep Well		٠			
Disinfection of Level I Wells					
Sanitation					
Flush					
Pour Flush					
VIP / Dry	1.4				
School Toilet					
Public Toilet					
Urban Sewerage					

Table 2.6.6 Scoring Factor for Municipal Investment Ranking for Urban Water Supply

Table 2.6.7 Scoring Factor for Municipal Comprehensive Investment Ranking

Score	Urban Water Supply	Urban Water Supply Rural Water Supply Urban Sanitation Rural Sanitation	Urban Sanitation	Rural Sanitation
1.0	N.A.	%>	%>	%>
0.8	N.A.	>%>	>%>	>%>
9.0	Z.A.	>%>	>%>	>%>
0.4	N.A.	>% >	>%>	>%>
0.2	N.A.	>%	>%	>%
Weight Allocation Score				
(%)				

3. PROVINCIAL PROFILE

3.3 Socio-economic Conditions

3.3.1 Economic Activities and Family Income

Table 3.3.1 Distribution of Families by Income Class

		Northern Samar Ro					
	Total Numbe	r of Families	Annual	Income	Total	Annual	
Income Class	Number	Share	Total (P '000.00)	Average (Pesos)	Number of Families	Income Average (Pesos)	
Under 15,000	15,276	15	202,015	13,224	87,207	13,748	
15,000 - 19,999	15,995	15	340,845	21,309	85,948	22,862	
20,000 - 29,999	27,089	26	780,431	28,810	180,372	30,065	
30,000 - 39,999	20,897	20	815,911	39,044	137,133	42,930	
40,000 - 59,999	16,235	16	943,631	58,123	120,101	62,345	
60,000 - 99,999	3,455	3	341,489	98,830	58,068	112,836	
100,000 - 249,999	3,695	4	1,002,074	271,197	23,431	232,048	
250,000 and over	562	1	267,913	476,629	1,418	473,960	

Source: 1994 Family Income and Expenditures Survey by NSO

Notes

(1) Derived from Region VIII FIES

(2) Based on NEDA and other agencies, poverty threshold in Region VIII was estimated at P-37,053 (P 6,444 annual per capita poverty threshold).

(3) For purposes of the survey, a family is defined as a group of persons usually living together and composed of the head and other persons related by blood, marriage and adoption. A single person living alone is considered as a separate family. A household is composed of 1 or more families in the same housing unit and has a common arrangement of food preparation and consumption.

Table 3.3.2 Employment by Major Industry Group and Class of Worker, 1994

			11 1	: :: '	Class of	Worker			
Major Industry Group	Housebold Population 15 years and Over Who Worked	Worked for Private Household (Domestic Services)	Worked for Private Business/ Enterprise/ Farm	Worked for Government/ Government Corporation	Self- employed Without Any Paid Employee	Employer In Own Farm or Business	Work With Pay In Own Family Operated Farm or Business	Work Without Pay in Own Family Operated Farm or Business	Not Reported
Agriculture, Hunting and Forestry	81,271	252	14,003	228	39,343	5,185	561	21,382	317
Fishing	9,979	127	516	7	8,315	245	. 6	649	114
Mining and Quarrying	206	. 0	116	. 0	58	. 4	ō	26	2
Manufacturing	2,662	: 53	691	6	3,699	63	16	127	. 7
Electricity, Gas and Water	160	1	112	6	37	1.0	Ö	2	E
Construction	3,964	704	2,701	48	466	15	0	21	9
Trade	9,486	37	1,273	13	6,363	559	43	1,173	25
Services	29,431	6,469	4,986	13,928	3,488	230	21	265	44
Not Stated	259	29	. 96	10	45	3	0	20	56
Provincial Total	137,418	7,672	24,494	14,246	59,814	6,305	647	23,665	575

Source: 1995 NSO Socioeconomic and Demographic Characteristics

3.3.3 Education

Table 3.3.3 Household Population by Highest Educational Attainment

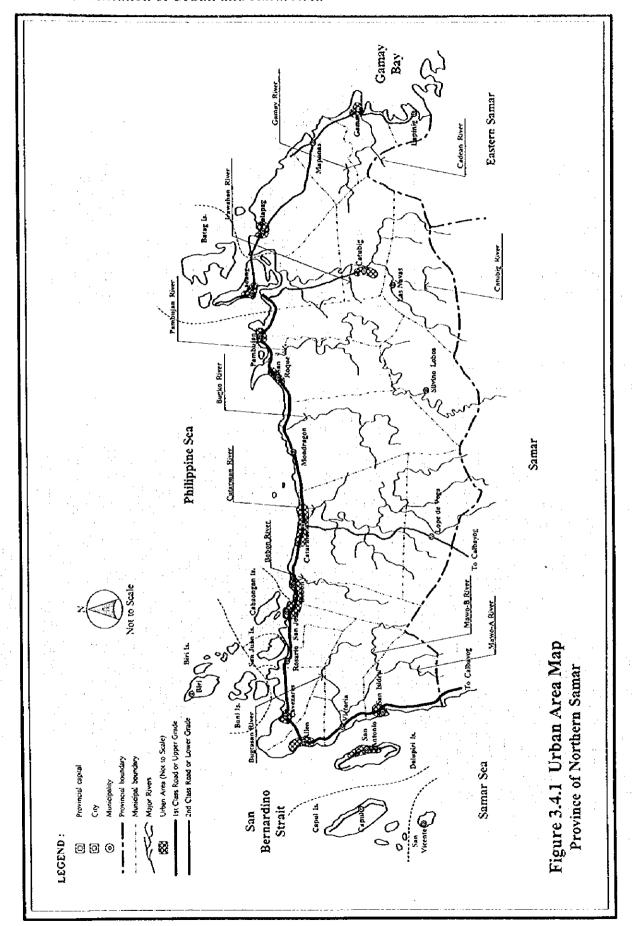
	Household		Age Group						
Highest Educational Attainment	Population 5 years Old and Over	Below 20	20 - 24	25 - 29	30 - 34	35 and Over			
No Grade Completed	34,248	24,771	1,024	877	668	6,908			
Pre-school	12,757	12,048	65	64	54	526			
Elementary			10.02 1.0						
1st - 4th Grade	123,435	69,123	6,999	6,493	5,715	35,105			
5th - 7th Grade	97,456	28,252	9,590	9,395	8,449	41,770			
High School									
Undergraduate	48,356	23,710	6,373	4,589	3,520	10,164			
Graduate	24,726	4,345	5,007	4,322	3,350	7,702			
Post Secondary			1 1.						
Undergraduate	321	62	96	69	44	50			
Graduate	1,698	124	461	392	268	453			
College Undergraduate	16,385	3,796	4,953	2,291	1,581	3,764			
Academic Degree Holder	14,742	91	2,116	2,763	2,537	7,235			
Post-Baccalaureate	663		37	63	63				
Not Stated	4,764	3,354	234	191	165	820			
Total	379,551	169,678	36,955	31,509	26,414	114,995			

Source: 1995 NSO Socioeconomic and Demographic Characteristics

3.4 Population

多多

3.4.1 Classification of Urban and Rural Area



3.5 Health Status

Table 3.5.1 Number and Ratio of Population to Health Facilities and/or Medical Practitioners

Health Facilities and	Norther	n Samar	Philippines		
Practitioners	Number	Ratio	Number	Ratio	
Health Facilities					
Hospital	8	1/59,660	1,700	1/40,206	
Rural Health Units	24	1/19,887	2,335	1/29,272	
Barangay Health Station	112	1/4,261	11,646	1/5,869	
Practitioners	1.4	SELÉCTION SE			
Doctors	15	1/31,819	6,913	1/9,887	
Nurses	23	1/20,751	8,849	1/7,724	
Midwives	91	1/5,245	10,831	1/6,311	
Dentists	11	1/43,389	1,895	1/36,068	

Source: PSPT and 1997 Philippine Statistical Yearbook.

3.6 Environmental Conditions

3.6.2 Water Pollution

Table 3.6.1 Types of Drainage Facilities

Type	Lengt	h (km)
Drainage Main	2	7
Open Channel (with Concrete & rubble ma	onry) 2	25
Open Ditches & Unlined Laterals	8	36
Reinforced Concrete Circular Pipes		6
Street Gutters	2	20
Outfalls to rivers from drainage mains	1	2

Table 3.6.2 DENR Water Quality Criteria/Water Usage and Classification for Fresh Water

Parameter	Unit	Class AA	Class A	Class B	Class C	Class D
Color	PCU	15	50	(C)	(C)	(C)
Temperature (max. rise in deg. Celsius)	°C rise		3	3	3	3
pH (range)	:	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.0-9.0
Dissolve Oxygen (Minimum)	%satn mg/L	70 5.0	70 5.0	70 5,0	60 5.0	40 3.0
5-Day 20°C BOD	mg/L	1	5	5	7(10)	10(15)
Total Suspended Solids	mg/L	25	50			
Total Dissolved Solids	mg/L	500	1,000			1,000
Surfactants (MBAS)	mg/L	ni l	0.2(0.5)	0.3(0.5)	0.5	
Oil/Grease (Petroleum Ether Extract)	mg/L	nil	1	1	2	5
Nitrate as Nitrogen	mg/L	1	10	NR	10	
Phosphate as Phosporous	mg/L	nil	0.1	0.2	0.4	
Phenolic Substances as Phenols	mg/L	nil	0.002	0.005	0.02	
Total Coliforms	MPN/100mL	50	1,000	1,000	5,000	
or Fecal Coliforms	MPN/100mL	20	100	200		
Chloride as Cl	mg/l	250	250		350	
Copper	mg/L	1	1		0.05	

Notes

Class AA - Public Water Supply Class I. Intended for waters having watersheds that are uninhabited and otherwise protected and which require only approved disinfection in order to meet the national standards for drinking water.

Class A - Public Water Supply Class II. Sources of water supply that will require complete treatment (coagulation, sedimentation, filtration and disinfection) in order to meet drinking water standards.

Class B - Recreational Water Class I. For primary contact recreation such as bathing, swimming skin diving, etc. (particularly for tourism purposes).

Class C - Fishery Water for the propagation and growth of fish and other aquatic resources; recreational (for boating, etc.); industrial water supply class I for manufacturing processes after treatment.

Class D - For agriculture, irrigation, livestock watering, etc.; for industrial water supply class II (cooling, etc.); other inland waters by their quality, belong to this specification.

(

4. EXISTING FACILITIES AND SERVICE COVERAGE

4.1 Water Supply

4.1.3 Level III Systems

Table 4.1.1 Details on Existing Level III Systems

S	heet	ı	of 4

					Le	evel III Ser	vice			
Name of Municipality	Name of Operating Body		Sumber of ingays Sei			Number of scholds Sci			Number of ulation Ser	
		Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Catarman (Capital)	Catarman WD	15	3	18	388	97	: 485	2,128	532	2,660
	Costa Real Const.	n l		1	80		80	439		439
	Municipal Total	. 16	1.3	19	468	97	565	2,567	532	3,099
San Isidro	San Isidro WD .	2	1.	3	166	30	196	908	164	1,072
Provincial Total		18	4	22	634	127	761	3,475	696	4,171

Table 4.1.1 Details on Existing Level III Systems

Sheet 2 of 4

				1	L	evel II Se	rvice	4.5		
Name of Municipatity	Name of Operating Body	Number o	of Public	Faucets	Number o	f Househo	ds Served	Number of	Populatio	n Served
		Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Catarman (Capital)	Catarman WD	7		7	35		35	192		192
	Costa Real Const.								1.	
. :	Municipal Total	. 7	:	7	35		35	192		192
San Isidro	San Isidro WD	3		3	15		15	82		82
Provincial Total		10		10	50		50	274		274

Table 4.1.1 Details on Existing Level III Systems

Sheet 3 of 4

			Water Soul	rces	,.:	Cons	umption	
Name of Municipality	Name of Operating Body	i	,	Production	Domestic	Enstitutional	Commercial	Industrial
		Туре	Number	(cu.m/day)		(cu.	nı/day)	
Catarman	Catarman WD	DW	2	690	1	7 29	29	
	Costa Real Const.	SW	1	173				
	Municipal Total	,	3	863	1	7 29	29	
San Isidro	San Isidro WD	SP	1 1	173	:			
Provi	ncial Total	- 11.2 - Th 12.2	7	1,898	3	4 58	58	,

Note: 1. Type of Water Source; DW - Deep Well, DgW - Dug Well, Surf - Surface Water (River), SP - Spring, and IG - Infiltration Gallery

Table 4.1.1 Details on Existing Level III Systems

Sheet 4 of 4

								C	Dasumer	5					+ 1	
Name of	Name of	Domestic	House (ounctions	Dome	stic Publi	ic Faucela	lastitut	ional Co	n su mer s	Сопп	ercial Co	M5URIETS	ladus	trial Con	sumers
Municipality	Operating Body	Counc	ction	Con-	Conne	ction	Con-	Conne	ction	Cons	Counc		Con-	Conne	ction	Con-
		Metered	Unme- tered	sumption (m³/day)	Metered	Unme- tered	sumption (m²/day)	Metered	Uame- Tered	emption (m ¹ /day)		Uamt- tered	sumption (m²/day)	Metered	Unme- tered	sumption (m²/da))
Catarman	Catarman WD	485		16 00	7		126	24		29.00	89		29.00			
	Costa Real Const.	80									1					
	Munkipal Total	565		16 00	7		1 20	24		29.00	89		29 00			
San Isidro	San Isidro WD	5			3			3			29					
Provi	ncial Total	570		16	10		1.20	27		29.00	118		29.00]		

4.1.4 Level II Systems

Table 4.1.2 Details on Existing Level II Systems
Sheet 1 of 6

Name of	Name of Operating	V	Vater Sour	ce	Longth of		ting Faciliti rvoir		
Name of Municipality	Name of Operating Body		· · · · · ·	Discharge	Length of Transmission	Kest		Length of	Number of Publi
Stanicibants	ovay	Type	Number	(m³/day)	Line (meter)	Number	Volume (m³)	Distribution Line (meter)	Faucet
วกูนไ	Brgy. 1-5	SP	1	237.6			11.7		
•	Oson	SP	T -	172.8	800		60	1	
	Sawang	SP	├ <i>─</i> ं	259.2	1,000		50 26	800	ļi
1, 1	Municipal Total	SP	3	669.6	1,840	5	121.96		
Stubig	Brgy, Nagoocan	Surf			1,500	1	127.70	600	
, stating	Brgy. San Jose BWSA	SP		- ;	2,000	2	<u> </u>	800	-
•	Brgy. San Vicente	SP	 		600	1		500	<u> </u>
	Municipal Total	SP/Surf	2/1		4,100	4		1,900	2
apinig :	Can Omanio	SP	1 - 2/1		375	1	12.0		
aping	Pio del Pilar	SP		ļ	400		15.0		
11	Municipal Total	SP	2	1.27 1.1	775	2	27.0		
as Navas	Dapdap WS	SP	1 1	172.8	3,500		27.0		
33 (43145	Las Navas WS	SP	 -	72.0	3,200	· · · · · · · · · · · · · · · · · · ·	400.0		ļ <u>-</u>
	San Miguel WS	SP		28.8	3,200 842	↓ <u></u>	60.0		2
	Municipal Total	SP	3	273.6	7,542	3	487.0		4
avezares	Bali Cuatro	SP	 	273.0	500		- 40/.0	200	
61120113	Libas	SP	 	38.2	3.000		8.0		ļ ₁
100	Villa	SP		259.2	3,000		36.0		1
	Municipal Total	SP	1-3	297.4	6,500		44.0		3
Lope De Vega	Bonifacio BWSA	SP		277.4	1,000		8.0		
cope in rega	Getigo	SP SP	- 	86.4	2,500		160		-
	Osnieña	SP	 	86.4	2,000		9.0	4	
	Poblacion	SP	1 - i		1,000		3.5		}
	Municipal Total		4	172.8	6,500		36.5		4
Pambujan	Ginulyan WS	SP	 	1720	1,300		15.6		
	Igot WS	SP	t i	: :	400		16.0		
:	Tula WS	. SP	 		1,600		15.6		
	Ynaguingayan WS	SP	i -	 	1,000		15.6		
• •	Municipal Total	SP	4	 	4,300		62.8		
San Antonio	Rizal WS	SP	i	250.0			100		
San Isidro	BAS Water Sys.	SP	1 - i -	512.0			64.0		
	Caglanipao	SP	1. 1	87.5	1.000		21.0		
	Mabuhay	SP	1	1.2			88.0		<u> </u>
	Palanit	SP	i	305.0			6.5		
	San Juan	SP		66.4			22.5		
	Veriato	SP		332.0			13.9		
	Municipal Total	SP	6	1,304.1	5,220		215.9	<u> </u>	
San Jose	Aguadahan	SP	1	1	1	1	1	1	1
	Bonglas	SP	1		3,000	1	8.6	200	<u>, </u>
	Municipal Total	SP	2	4 4 4 4	3,000		8.6	_	
San Roque	Coroconog	SP	ī	129.6			8.6		
	Malobago	SP	1	129.6			4.0		
,	Zone 3	SW	i	60.5	311	3	8.0) 90	3
	Municipal Total	SP/SW	2/1	319.7			20.0		3
Silvino Lobes	Deit de Turag	SP	1	98.0			8.0	0	
:11	Poblacion 1-3	SP		121.0					!
,	Municipal Total	SP	2	219.0			8	o	5
Victoria	Acedillo	SP.	1.	43.2			5.1		5
	Buenos Aires	SP		172.8			1.		3
	Erenas	SP	1 1	51.8			16.		5 0 0
:	Lungib	SP	1	103.7			3.		
	Pasabuena	SP	1	43.7			3.		
	Pob. 1, 2 and 3	SP	1	50.4			14.		
	Municipal Total	<u> </u>	6	465.			44.		
	Provincial Total		39	3,301.			963.	*	

Note: 1. Type of Water Source: DJF - Deep Well, DgH - Dug Well, Surf - Surface Water (River), SP - Spring, and IG - Infiltration Gallery



Table 4.4.2 Details on Existing Level II Systems Sheet 2 of 6

Name of	Name of	Number	of Baranga	y Served	Number o	f Househol	ds Served	Number	f Populatio	n Served
Municipality	Operating Body	Urban	Rural	Total	Urban	Rural	Total	Urban	Rurat	Total
apul .	Brgy, 1-5	5		5	110		110	563	Ī	56
•	Oson			1		30	30		156	15
	Sawang			l 	·	50	50		260	26
	Municipal Total	5	2		110	80	190	563	416	97
				-		35	35		180	18
atubig	Brgy Nagoocan		} <u>-</u>			55	55		283	28
	Brgy. San Jose BWS		<u> </u>			$\frac{33}{25}$	$\frac{35}{25}$			12
	Brgy. San Vicente			1		115	115		129	
	Municipal Total		3 .	3					592	59
.apinig	Can Omanio		<u> </u>			15	15		86	
	Pio del Pilar	<u>:</u>	1			15	15		86	1
	Municipal Total		2	2		30	30		172	13
as Navas	Dapdap W\$		1		·	25	25		124	12
40.01	Las Navas WS	2	5	4	75	- 50	125	373	: 249	62
	San Miguel WS	_:	11	1		55	: 55		274	27
	Municipal Total	2	4	6	75	130	205	373	647	1,0
Lavezares	Bali Cuatro	1	i	I		20	20		100	10
	Libas	ļ	1	ı .		50	50		250	2:
	Villa		ī			80	80		400	4(
	Municipal Total		3	3		: 150	150		750	7:
Lope De Vega	Bonifacio BWSA				1	30	30		182	18
2070 000 1072	Getigo	 	 	1	1	50	50	4 .	304	30
	Osmena		1			60	60		365	36
	Poblacion	1	 -	 	60		60	346		3
	Municipal Total	 	3	4	60	140	200	346	851	1,19
Pambujan		 '-	1	 		25	25		142	
ramoujan	Ginulgan WS Igot WS	 	1	 	-	15	15		85	
	Tula WS	 	1	1	ļ.—	25	25		142	
		 	-	<u> </u>		20	20	ļ	114	1
	Ynaguingayan WS	<u> </u>	<u> </u>	1	1	85	85		433	4:
	Municipal Total	i	44	4	<u> </u>				49	8.
San Antonio	Rizal WS	111	1 1	: 7 -	 	10	145			
San Isidro	BAS Water Sys.		3	3	ļ <u>.</u>	255	255		1,400	1,4
	Caglanipao		<u> </u>	1	<u> </u>	50	50		275	2
	Mabuhay	<u> </u>	!	1		55	55		302	30
	Palanit		<u> </u>	1		60	60	<u> </u>	329	. 3
	San Juan		<u> </u>	1		75	75		412	4
	Veriato	<u> </u>	}	<u> </u>	<u> </u>	70	70		384	3
	Municipal Total	L	8	8		565	565	L	3,102	3,1
San Jose	Aguadahan		1	T		20	20		103	1
	Bonglas		i			15			78	
	Municipal Total		2	2	1	35	35		181	1
San Roque	Coroconog	T	ı	1		15	15		91	1. 1. 1
•	Malobago		1 1	1		15	. 15		91	
	Zone 3	1		1	15		15	91]	
	Municipal Total	 	2	1 3	15		45	91	182	2
Cilcina Labor	Deit de Turag	 -	† î	1	<u> </u>	20			120	
Silvino Lobos	Poblacion 1-3	 3	 '	3	111		111			6
	Municipal Total	3	1	4	111		131			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
		 			 	30			146	
Victoria	Acedillo	 	1 !	1-!		20	20	1	97	
	Buenos Aires	ļ	<u> </u>	1 1		90				
	Erenas		1-!-	1 1	<u> </u>		30		437	
	Lungib	1	1 !	1	 	25			121	
	Pasabuena		1 1			15	15		73	!
	Pob. 1, 2 and 3	3	4	3	150		150			
L	Municipal Total	3	5	8	150					
Prov	incial Total	10	38	54	411	1,490	2,036	2,207	8,003	10,

Table 4.1.2 Details on Existing Level II Systems Sheet 3 of 6

				9	ervice Com	Service Conditions During Dry Season	NE UT Sen	101		
					Sunnt	Supply Interruption (number/month)	/umber/	month)	ddas	Supply Water
Man of Manipulity	Nome of Operation Rody	Sunnty	Dirty	Taste or	od/dac				Pressure (Pressure (% of total)
Name of Manicipanty	Name of Manicipancy Name of Operating Cook	(Hrs/day)	Water	Smell	Power Failure	Pump Breakdown	Pipe Burst	Ochers	Adequate	Adequate Inadequate
Capit	Brov. 8-5	٥								
	Oson									
	Nawang	73								
Calibia	Brov. Nagogean									
Sign	Perry Con Jose RWSA						1.00			
	Brov. San Vicente					* * * * * * * * * * * * * * * * * * * *	*			
	Simulation of the Control of the Con	24								1
Simide	Pio dei Pilar	24			1		177 144			1
r an Marine	Omedan W.C									
Las Navas	Tar Navas W.S.		11							
	San Mignel WS									
	Patr Custro					3 12 14				
TANKERILES	Table				1			-		
	Villa					10.000		2	111.	- 1:-
	Designation BLUCA	74			100		11/2000		* **. *	
רסב הב אבצים	Contract of the Contract of th	7.	4 7 7 7 7	•		Andrew Control of			:	
	OSMOO								1000	
	Osmena	47								
	Poblacion	· 82	2 1							
Pambujan	Ginulgan WS		:		, , , , , , ,		1767 22.			Ī
	Jgot WS									
	Tula WS		47,43,43	1.1	7.1					
	Ynaguingayan WS	7	*******		T.					
San Antonio	Rizal WS	7.77				1.00				
San Isidro	BAS Water Sys.	24		* * * * * * * * * * * * * * * * * * * *				1		
	Cagianipao	z	Assessment					77		
-	Mabuhay	. 24				******	111.	20.00	10000	:
	Palanit	72	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	5 1 4 4 7 1 9 000		herman systems	1475-111	111.000.00		
-	San Juan	24		1.25	21.72		*******			
	Veriato	24		1. 2	***************************************		104 (0)		1.20	
San Jose	Agradahan				1	-18,000	1200	. 1 12 - 1		
	Bonglas				17,244.15	11,000				
San Roose	Согосонод				1 11 1		127.5			
	Malobago		43.60				10.00			273 12/22
	Zone 3				1000	7.5	4.0		-	
Silvino Lobos	Deit de Turag		1. 1. 1. 1. 1. 1. 1. 1.	12/11/20	1. S. J. J. J.	********	188 B. T. C.			
	Poblacion 1-3		1. 10			مشعفة المعادد	2 127771	A . 1 . 9 .	1.	
Victoria	Acedillo	2	A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	100 400 100		-41) -1140-	10.11.17.01		100	
	Buenos Aires	24	27.00	11			12.00	1000		
	Erenas	\$	A . 104			and the second	**** ****	,	Later Co.	
	Lunxib	24	1, ,					11.00		
	Pasabuena	24	127.70		1.11.14.00	*****	12.			*******
	Pob 2 and 3	2,4					1277			
	The Control of the Street ON Once a week ON Conce a month O Concentral.	O.W.O) Week	O. M.C	month. O	Ocassional.				

Note: 1. Dirty Water: E. Everyday, OW - Once a week, OM - Once a month, O - Ocassional, or 2. Taste or Smell; G. Good taste, S - Salty, W. - Wood taste, M - Metallic taste, O - Others.



Table 4.1.2 Details on Existing Level II Systems
Sheet 4 of 6

					Number of Staff	taff			
Name of					Total		Repair Work	Vork	
Municipality	Name of Operating Body	Technical Staff	Administrati ve Staff	Collector	Number of Staff	Local Trademan	жео/сео	020	Others
Comil	Brov. 1-5	_			_	,			
;	Oson						100		
F	Sawang					,	1		
Catubig	Brgv. Nagoocan		1.1						:
0	Brgv. San Jose BWSA								
	Brgy, San Vicente				:				
Lanimio	Can Organio		01		01	,			
4	Pio del Pilar		01	-	10	1	A		
Lac Navas	Dandan WS								
	Las Navas WS	,			10.000				
	San Miguel WS				1.				
AVEZATES	Bali Cuamo		1						
	Libas						19.0		
	Villa			:			100	100	441,
Pone De Vees	Bonifacio BWSA			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
***************************************	Censo								
	Ormens				11 14 14 11 14 19 1	A			
	Pohlacion				11 12 11 11 11				17.444
Pambusa	Ginulgan WS	141 411 14 14 14	10.00			***********			
	loot WS		1.00				+-		
	Tilla WS						* 12. **		
	Ynagumeavan WS			1.					
San Antonio	Rizal WS								
San Isidro	BAS Water Svs.								
	Caglanipao				*****	**************************************			
	Mabuhay		12.2						
	Palanit	1.2 544					77		:
	San Juan		112 4 1120			`			
	Veriato	:	1	2	2	^			
San Jose	Aguadahan		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
	Bonglas			•			:		
San Roque	Coroconog						:		
-	Malobago								
	Zone 3				*******				
Ni who Lobos	Deit de Turag			****	-,-4-4				
•	Poblacion 1-3	7	100 miles (100 miles)		*** **** *** ***				
Vietoria	Acedillo	11.2	20 242 1 2 222	****					
	Buenos Aires		A5000 0000			· /			
	Erenas		*** ********						
	Lungib							11.	
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Table 4.1.2 Details on Existing Level II Systems Sheet 5 of 6

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Table 4.1.2 Details on Existing Level II Systems Sheet 6 of 6

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4.1.5 Level I Facilities

Safe and Unsafe Classification of Level I Facilities

According to the definition of DOH, the protected deep well, protected shallow well, covered/improved dug well and developed spring are classified as safe sources, while unprotected shallow well, open dug well, undeveloped spring and rainwater collector are classified as unsafe sources.

In the 1990 population census data, "Households by Main Source of Drinking Water and City /Municipality", it was shown that 54% of the households depended on shallow well, dug well, undeveloped spring, lake, river and rain water collector. This figure was arrived as the percentage of underserved/unserved sources, if all shallow wells were regarded as doubtful.

The PHO has conducted water quality analysis on samples collected at public and private Level I wells, however, the results by municipality/city are available for only five (5) out of 24 municipalities at present as shown in Table 4.1.3. The unsafe percentage ranges from 7% to 50%.

Under this situation, the following conditions may be considered to assume safe/unsafe percentage for this planning purpose.

- The number of samples examined was very limited compared with the number of existing shallow wells (4,696) and water sampling by PHO is usually conducted where problems on water quality and/or incidence of water related diseases have experienced.
- There might be some cases that examination at the same Level I sources/facilities was conducted until the safety of the water was confirmed.
- Sources such as dug wells, which are defined as unsafe sources may have been included in the above examination results.

Considering the above conditions on the manner of sampling, an average unsafe percentage (20%) of shallow wells derived from Table 4.1.3 will not be used.

While, as reference information, the experiences in 1st and 2st batch provinces in Mindanao in the preparation of PW4SP show the unsafe percentage of 20-50% as summarized below.

	Agusan del Norte	Agusan del Sur	Bukidnon	Misamis Oriental	Davao Oriental	Davao del Norte	Davao del Sur	Sarangani	South Cotabato
20%	50%	23%	50%	50%	40%	20%	46%	30%	50%





Table 4.1.3 Results of Water Quality Examination of Shallow Wells

			Results of	Vater Quality	Examination	
Municipality	No. of Existing Shallow Well	Safe	Source	Unsafe		Total No.
# 1	Suamon Men	Number	Percentage	Number	Percentage	of Sample
Allen	334	3	50%	3	50%	6
Biri	163	13	93%	1	7%	14
Bobon	607	ND	-	ИD	-	0
Capul	29	ND ND	-	ND	-	0
Catarman	2,322	ND	•	ND	~	0
Catubig	5	ND	-	ND		0
Gamay	146	ND	•	ND	-	0
Laoang	81	ND	-	ND		0
Lapinig	35	ND	-	ND	-	0
Las Navas	3	ND	:- ::	ND ·		0
Lavezares	111	ND	-	ND	-	0
Lope De Vega	0	ND	- 55 %	ND	-	0
Mapanas	33	ND	<u>.</u>	ND		0
Mondragon	44	ND	-	ND		0
Palapag	100	ND	٠	ND.		0
Pambujan	65	: ND	F	ND	-	0
Rosario	11	ND	- 1	ND	<u> </u>	0
San Antonio	35	2	67%	1	33%	3
San Isidro	22	ND		ND	<u> </u>	0
San Jose	170	3	100%	0	0%	3
San Roque	326	7	78%	2	22%	9
San Vicente	14	ND	-	ND		0
Silvino Lobos	4	ND	-	ND	-	0
Victoria	36	ND	<u> </u>	ND	• 174	0
Province	4,696	28	80%	7	20%	35

(Source) PHO, 1998 (Note) ND: No data available

Compared with these experiences, the percentage of 40% as an average experienced in the 1st and 2nd batch study (10 provinces) may be adopted as the unsafe percentage to all municipalities both in urban and rural area in the classification of shallow wells. While, those sources other than shallow wells are processed as classified in the questionnaire. Table 4.1.4 (a) presents the numbers of Level I facilities by safe and unsafe classification.

Public and Private Level I Facilities for Rural Water Supply

Table 4.1.4 (b) presents the number and proportion of Level I facilities by public and private sources for rural water supply in the province. Public and private facilities share 44% and 56% of the total number of Level I facility, respectively. Developed springs occupy 20% of the total number of public facilities.

Table 4.1.4(a) Number of Level 1 Pacifities by Sofe and Unsafe Classification

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Table 4.1.4(a) Number of Level I Facilities by Safe and Unsafe Classification (Com'd.)

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Table 4.1.4 (b) Public and Private Level I Facilities for Rural Water Supply

Facility	Public S	ource	Private	Source	
racinty	Number	%	Number	%	Total
Deep Well	110	94%	7	6%	117
Shallow Well	383	33%	788	67%	1,171
Spring Development	126	100%			126
Others			2	100%	. 2
Total	619	44%	797	56%	1,416

4.1.6 Water Supply Service Coverage

Estimation of Service Coverage in Terms of Safe, Unsafe and Unserved Classification

Through review of the number of water supply systems/facilities and the number of households that were derived from the questionnaire, it was found that a great number of unserved population would be accounted as a balance between the total population and the population with any levels of services (including unsafe facilities) in application of the service level standard for Level I facility. To come up with more realistic service coverage, the unserved population in 1998 was referred to using the profile in the 1990 population census data, "Households by Main Source of Drinking Water and City/Municipality" prepared by NSO. The rest of the population, those who are not served by Level III and/or II systems, were considered to be covered by shared or own use of Level I facilities. The calculation procedure is as follows:

- Service percentage/population of Level III and Level II systems was estimated based on the questionnaire survey results.
- Percentage of unserved population (using undeveloped spring, lake water, river water, peddler, etc.) of respective municipality by urban and rural area, which were studied in the 1990 population census.
- Population covered by Level I facilities was calculated as the balance between the total population and the population served by Level III & II systems and the unserved population.
- Level I population coverage was estimated with the assumption that 50% of the private facilities were shared by neighbors.

Unserved population and the population covered by Level I facilities are presented in Table 4.1.5. Table 4.1.6 (a) and (b) present the overall population covered by Level I facilities and the number of households.



Table 4.1.5 Estimation of Unserved Population by Municipality

Household (1998)									Unserved Population	opulatio	Ø	Population
Number Household (1988) Level Level Total Total Votal	Name of		Populati	on and	Ser	ed Populai	tion	Unserved	Percentage (J	(566)	ľ	Covered by
Number HH Sise III II Of HHis Chaserved 1998 Facility Chrom 1,518 State 1,513 State 1,514 State 1,515 State	Municipality	Area	Honsehol	d (1998)	Level	Level	Total	Total No.	No. of	%	Population	Level I
Urban 8,476 5.03 1.518 80 5 447 1.922	•		H	HH Sise	Ш	п	* O + m +	of HHs	Unserved		. 41	Facilities
Name		Urban	8.476	5.03	,			1,518		5	447	8,029
Total 18,812 4.93 1.00	Allen	Rural	10,336	4.85				2,129		19	1,932	8,404
Utrèan 2,596 5,77 1,000 1,00		Total	18,812	4.93				3,647	478	13	2.379	16,433
Rural 6,728 5.83 1,076 116 11 725 126 139 9 858 1461 1462 1511 1,526 139 9 858 1461 1,122 1462		Urban	2.596	5.77				450	23	5	133	2.463
Total 9,324 5,81 1,526 139 9 8,58 Weban 5,041 5,23 5,11 2,202 73 3 380 11 Total 16,492 5,14 2,202 7,13 3 467 11 Total 16,492 5,14 416 416 1,112 24 2 126 136 Weban 1,0113 5,16 5,22 3,699 192 3,211 2,355 5 1,396 29 Total 10,113 5,16 5,22 3,699 192 3,291 1,117 1,401 13 8,085 5 Weban 3,4,205 5,26 3,29 192 3,291 1,117 1,401 13 8,085 5 Weban 4,449 5,26 5,13 5,92 4,022 2,176 5,4 11,668 1,018 Weban 1,013 5,15 5,15 5,92 4,022 2,176 5,4 11,668 Weban 2,753 5,16 5,22 5,22 1,16 22 6,12 1,018 Weban 1,014 5,47 5,27 1,199 1,395 5,213 3,143 1 Weban 1,104 5,47 1,213 3,143 1 Weban 1,104 5,47 1,104 1,104 1,104 1,104 1,104 Weban 1,104 5,47 1,104 1,104 1,104 1,104 Weban 3,701 6,629 5,25 1,109 1,109 1,101 Weban 1,033 5,84 1,12 1,12 1,101 1,012 Weban 1,033 5,84 1,12 1,12 1,12 1,101 1,012 Weban 1,014 5,47 1,12 1,12 1,12 1,101 1,011 Weban 1,014 5,47 1,12 1,12 1,101 1,011 Weban 1,014 5,47 1,12 1,12 1,101 1,011 Weban 1,014 5,47 1,12 1,12 1,12 1,10 1,011 Weban 1,014 5,47 1,12 1,12 1,10 1,011 Weban 1,014 5,47 1,12 1,12 1,12 1,10 1,011 Weban 1,014 5,47 1,12 1,12 1,12 1,12 1,11 Weban 1,014 5,47 1,12 1,12 1,12 1,12 1,11 1,12 Weban 1,014 5,47 1,12	Biri	Rural	6,728	5.83		-		1.076		. 11	725	6,003
Urboan S.O41 5.23 870 15 2 87 Rural 11.451 5.11 2.202 73 3 380 1 Chan 11.451 5.11 563 563 563 563 3.072 88 3 467 1 Chan 4.286 5.12 4.16 4.16 4.16 1.112 24 2.6 Rural 5.827 2.567 192 2.759 5.212 2.35 1.398 2 Drban 4.649 5.26 3.099 192 3.291 1.177 1.401 13 8.085 5 Rural 2.756 5.2 3.099 192 3.291 1.177 1.401 13 8.085 5 Rural 2.156 5.2 5.29 4.891 2.14 3.1 5 4.1011 1 Urban 2.156 5.12 5.22 1.166 2.0 6.89 2.243 1		Total	9,324	5.81				1,526		9	858	8,466
Rural 11,451 5.11 5.83 73 3.89 1 Total 16,492 5.14 563 563 863 818 3 467 1 Total 16,492 5.14 563 563 863 818 3 467 1 Rural 5.827 5.19 416 416 1,112 24 2 126 Total 10,113 5.16 979 979 1,930 29 2 2 152 Urban 4.649 5.26 5.26 1,167 1,401 13 8.085 2 1,156 2 1,256 Rural 2.1.566 5.13 592 592 4,022 2,176 3 11,668 2.343 Rural 2.1.566 5.13 592 592 4,022 2,176 3 14,011 1 Potal 2.056 5.13 5.22 4,022 2,176 3 14,011 1 </td <td></td> <td>Urban</td> <td>5,041</td> <td>5.23</td> <td></td> <td></td> <td></td> <td>870</td> <td></td> <td>2</td> <td>87</td> <td>4,954</td>		Urban	5,041	5.23				870		2	87	4,954
Total 16.492 5.14 563 563 818 3 447 1 1 Chèan 4.286 5.12 563 563 818 5 1 26 Rural 5.827 5.19 416 416 1,112 24 2 126 Total 10,113 5.16 979 979 1,930 29 2 1,398 2 Urban 31,015 5.82 2,567 192 2,759 5,212 2.35 5 1,398 2 Urban 4.449 5.26 3,999 192 3,291 11,177 1,401 13 8,085 5 Urban 2.1,566 5.13 5,92 5,92 4,891 2,614 53 1,4,011 1 Urban 2.753 5,16 5,92 5,92 4,891 2,614 53 1,4,011 1 Urban 2.753 5,16 5,92 5,92 4,891 2,614 53 1,4,011 1 Urban 2.0,566 5,13 5,12 5,12 5,13 5,12 1,104 1,104 5,47 1,014 1,014 1,104 5,47 1,014 1,01	Bobon	Rural	11,451	5.11				2,202	1	æ	380	11.071
Capital (Capital) 4.286 (S.12) 5.12 (S.27) 5.63 (S.26) 5.63 (S.27) 5.63 (S.27) 5.19 (S.27) 4.16 (S.27) 4.16 (S.27) 4.16 (S.27) 4.16 (S.27) 4.17 (S.27) <td>:</td> <td>Total</td> <td>16,492</td> <td>5.14</td> <td></td> <td></td> <td></td> <td>3,072</td> <td></td> <td>3</td> <td>467</td> <td>16.025</td>	:	Total	16,492	5.14				3,072		3	467	16.025
Rural 5,827 5.19 416 416 1,112 24 2 126 Total 10,113 5.16 979 979 1,930 29 2 152 Urban 31,015 5.82 2,567 192 2,759 5.212 235 5 1,398 2 Urban 34,205 5.26 3,099 192 3,791 1,166 20 6,686 2 Waral 34,205 5.26 3,099 192 3,291 1,166 20 6,686 2 Rural 21,566 5.13 592 592 4,022 2,116 54 11,668 Rural 21,566 5.13 592 592 4,891 2,614 53 14,011 1 Rural 21,513 5.12 5.21 5,614 53 14,011 1 Rural 20,566 5.13 5,22 4,891 2,614 5 4,101 1 <tr< td=""><td></td><td>Urban</td><td>4.286</td><td>5.12</td><td></td><td>563</td><td>563</td><td>818</td><td></td><td>7</td><td>26</td><td>3,697</td></tr<>		Urban	4.286	5.12		563	563	818		7	26	3,697
Total 10,113 5.16 979 979 1,930 29 2 152	Capul	Rural	5.827	5.19		416	416	1,112		2	126	5,285
Mraal 31,015 5.82 2,5567 192 2,759 5.212 235 5 1,166 20 6,686 2 An (Capital) Rural 34,205 5.26 3,099 192 3,291 11,177 1,166 20 6,686 2 Urban 4,649 5.26 5.13 592 592 4,022 2,176 54 11,668 2 Rural 21,566 5.15 592 592 4,891 2,614 53 14,011 1 Urban 2,753 5.16 592 592 4,891 2,614 53 14,011 1 Vrban 2,753 5.16 592 592 4,891 2,614 53 14,011 1 Vrban 17,913 5.12 5.22 116 57 4 410 1 Rural 35,086 5.26 5.26 5.22 75 4 410 1 1 172 1,109 <td>•</td> <td>Total</td> <td>10,113</td> <td>5.16</td> <td></td> <td>626</td> <td>626</td> <td>1,930</td> <td></td> <td>2</td> <td>152</td> <td>8.982</td>	•	Total	10,113	5.16		626	626	1,930		2	152	8.982
Rural 34,205 5.26 532 5,965 1,166 20 6,686 2 Total 65,220 5.52 3,099 192 3,291 11,177 1,401 13 8,085 5 Urban 4,649 5.26 5.13 592 592 4,022 2,176 54 11,668 Rural 21,566 5.13 592 592 4,891 2,614 53 14,011 1 Urban 2,753 5.16 592 592 592 4,891 2,614 53 14,011 1 Urban 2,753 5.16 5.22 116 22 612		Urban	31,015	5.82	2,567	192	2,759	5,212		- 5	1,398	26.858
Total 65.220 5.52 3.099 192 3.291 11.177 1,401 13 8.085 5 Urban 4.649 5.26 5.26 5.22 4,022 2.176 54 11.668 Rural 21.56 5.13 592 592 4,022 2.176 54 11.668 Urban 2,753 5.16 592 592 4,891 2.614 53 14.011 1 Rural 2,753 5.16 522 16 2.614 53 14.011 1 Total 2,056 5.13 5.22 16 18 3.143 1 Urban 11.104 5.47 2.029 75 4 410 1 Total 49.202 5.26 5.26 5.245 5 2.445 4 Urban 3,701 6.01 6.01 572 2.85 5 181 Rural 6,629 5.75 1,72 1,72	Catarman (Capital)	Rural	34,205	5:26	532	i	532	5,965	1	20.	989'9	26.987
Urban 4,649 5.26 859 438 50 2,343 Rural 21,566 5.13 592 592 4,022 2,176 54 11,668 Total 26,215 5.15 592 592 4,891 2,614 53 14,011 1 Urban 2,753 5.16 2,622 116 22 612 612 Total 2,056 5.13 3,793 690 18 3,755 1 Urban 11,104 5.47 2,029 75 4 410 1 Rural 38,098 5.20 6.991 373 5 2,033 3 Total 49,202 5.26 6,91 373 5 2,445 4 Wural 6,629 5.75 172 1,109 139 13 181 Rural 6,629 5.84 172 1,109 139 13 181	•	Total	65,220	5.52	3,099	192	3,291	11.177	1,401	13	8,085	53.844
Rural 21.566 5.13 592 4,022 2,176 54 11.668 Total 26,215 5.15 592 592 4,022 2,176 54 11.668 Urban 2,753 5.16 2 612 612 612 Rural 17,913 5.12 5.20 75 4 410 1 Urban 11,104 5.47 2,029 75 4 410 1 Rural 38,098 5.20 6.991 37.3 5 2.023 3 Urban 3,701 6.01 6.01 3,72 448 5 2.445 4 Wural 6,629 5,75 172 172 1,109 139 13 181 Total 10,330 5,84 172 172 1,681 167 10 1,012		Urban	4,649	5.26				698	438		2,343	2,306
Total 26,215 5.15 592 4.891 2,614 53 14,011 1 Urban 2,753 5.16 252 116 22 612 612 Rural 17,913 5.12 3.793 690 18 3.143 1 Total 20,666 5.13 20 4 410 1 Whral 38,098 5.20 6.991 373 5 2.033 3 Total 49,202 5.26 9,020 448 5 2.443 4 Rural 6,629 5.75 172 1,109 139 13 831 Rural 6,629 5.75 172 1,109 139 13 1012 Total 10,330 5.84 172 1,109 139 13 10 1,012	Catubig	Rural	21.566	5.13		592	592	4,022	2,176		11.668	9.306
Urban 2,753 5.16 612 612 Rural 17,913 5.12 62 612 Total 20,666 5.13 690 18 3,743 1 Urban 11,104 5.47 6,991 37.3 5 4 410 1 Rural 38,098 5.26 6,991 37.3 5 2,033 3 Total 49,202 5.26 9,020 448 5 2,445 4 Wrban 3,701 6,01 172 172 1,109 139 13 831 Rural 6,629 5.75 172 1,109 139 13 831 Total 10,330 5.84 172 1,681 167 10 1,012)	Total	26,215	5.15		592	592	4,891	2,614	53	14,011	11,612
Rural 17,913 5.12 3.143 1 Total 20,666 5.13 3.793 690 18 3.143 1 Urban 11,104 5.47 6.991 75 4 410 1 Rural 38,098 5.26 6.991 373 5 2.033 3 Total 49,202 5.26 6.01 172 172 1.109 139 13 831 Rural 6,629 5.75 172 1.109 139 13 831 Total 10,330 5.84 172 172 1.681 167 10 1.012		Urban	2,753	5.16				522	116	22	612	2.141
Total 20,666 5.13 3,755 1 Urban 11,104 5.47 4 410 1 Rural 38,098 5.20 6.991 373 5 2.033 3 Total 49,202 5.26 9,020 448 5 2.445 4 Wrban 3,701 6.01 172 172 1,109 139 13 851 Furral 6,629 5.75 172 1,109 139 13 851 Total 10,330 5.84 172 1,681 167 10 1,012	Gamay	Rural	17,913	5.12				3,271	: -	18	3,143	14,770
Urban 11,104 5.47 4 410 1 Rural 38,098 5.20 5.26 2,033 3 Total 49,202 5.26 448 5 2,443 4 Urban 3,701 6.01 172 172 1,109 139 13 831 Rural 6,629 5.84 172 172 1,109 139 13 831 Total 10,330 5.84 172 1,681 167 10 1,012		Total	20,666	5.13				3,793		. 18	3,755	16.911
Rural 38.098 5.20 6.991 373 5 2.033 3 Total 49,202 5.26 2.443 4 4 5 2.443 4 Urban 3,701 6.01 172 172 1,109 139 13 831 Rural 6,629 5.84 172 1,681 167 10 1,012		Urban	11,104	5.47				2,029		4	410	10.694
Total 49,202 5.26 9,020 448 5 2,445 4 Urban 3,701 6.01 172 172 1,109 139 13 831 Rural 6,629 5,75 172 172 1,109 139 13 831 Total 10,330 5,84 172 172 1,681 167 10 1,012	Laoang	Rural	38,098	5.20				6,991	373	. 5	2,033	36.065
Urban 3,701 6.01 72 28 5 181 Rural 6,629 5,75 172 1,109 139 13 831 Total 10,330 5,84 172 1,681 167 10 1,012	,	Total	49.202	5.26				9,020		5	2,443	46.759
Rural 6,629 5.75 172 172 1,109 139 13 831 Total 10,330 5.84 172 1,681 167 10 1,012		Urban	3.701	6.01	,			572		5	181	3.520
Total 10,330 5.84 1,012 172 1,681 167 10 1,012	Lapinig	Rural	6,629	5.75		172	172	1,109	,	: 13	831	5,626
		Total	10,330	5.84		172	172	1,681	167	10	1,012	9,146

Table 4.1.5 Estimation of Unserved Population by Municipality (Cont'd.)

		,		Ç	Dear			Unserved Population	opulation	E.	Population
Name of		Population	ion and	Ver	Served Fopulation	non	Unserved	Unserved Percentage (1995)	(566)	Unserved	Covered by
Municipality	Area	Household (1	ld (1998)	Level	Level	Total	Total No.	No. of	%	Population	Level I.
•		Number	HH Sise	ш	п	Avtai	of HHs	Unserved		1998	Facilities
	Urban	6,254	5.33		373	373	1,001	498	50	3,111	2,770
Las Navas	Rural	19,763	4.89		647	647	4,030	2,474	61	12,132	6.984
	Total	26,017	4.98		1,020	1,020	5,031	2.972	59	15.244	9,753
	Urban	3,433					654	29	10	352	3,081
Lavezares	Rural	17.528	4		750	750	3,446	332	10	1,689	15,089
	Total	20,961	5.00		750	052	4,100	399	10	2,040	18.171
	Urban	2,514	5.77		346	346	395	243	62	1,547	621
I one De Vesa	Rural	10,314	80'9		851	851	1,590	1	9/	7,836	1.627
	Total	12,828	6.02		1,197	1,197	1.985	1,451	73	9.383	2,248
	Urban	2,161	5.40				352	52	15	319	1,842
Mananas	Rural	7,813	5.64				1,326	257	19	1,514	6.299
t.	Total	9,974	5.59				1,678	309	18	1.834	8.140
	Urban	5.491	5.37				927	16	2	95	5.396
Mondragon	Rural	21,357	5.20			11	3,943	25	2	428	20,929
•	Total	26,848					4,870	95	2	523	26,325
	Urban	6,243					1,222	176	14	668	5,344
Palapag	Rural	20,286	5.12				3,717	874	24	4,770	15,516
)	Total	26.529	5.05				4,939	1,050	21	5,669	20.860
	Urban	9,970	5.82				1.577	145	6	917	9.053
Pambuian	Rural	13,414	5.62		483	483	2,311	722	31	4,191	8,740
:	Total	23,384	5.70		483	483	3,888	867	22	5,107	17.794
	Urban	2,412	6.64				363	2	~	13	2.399
Rosario	Rural	6,845	5.66				1,098	12		75	6.770
	Total	9,257	5.90				1,461	14	1	88 88	9.169
)				

Table 4.1.5 Estimation of Unserved Population by Municipality (Cont'd.)

								Theorem Denniotion	op+io+io		Ponulation
		Population and	on and	Serv	Served Population	ion	Trecomitod	Percentage (1	(205)	Tinsprop	Covered by
Name of	Area	Household (1	(1998)	,	, -		Total No.	Unserved rescendage (1772)	(-22	Population	Level 1
Municipality				Level	Level	Total	Total No.	5	%	1000	To atlition
		Number	HH Sise	III	щ		of HHS	Unserved		- 1	racinues
	[[]rban	839	4.99				168	15	6	c/	する/
San Antonio	Rura	7,413	4.87		49	46	1,467	73	S	369	6,995
	Total	8,252	4		49	46	1,635	88	S	444	7,759
	Urban	2,834	5.33	806	82	066	507	34	7	190	1.652
San Isidro	Rural	21,675	5.49	164	3,102	3,266	3,695	167	5	086	17,429
	Total	24,509	5.47	1,072	3,184	4,256	4,202	201	5	1,170	19,083
	Urban	3,088	5.33				570	15	3	81	3,007
San Jose	Rural	10.052	 °		181	181	1,841	77	4	420	9,451
	Total	13,140	5.21		181	181	2,411	92	4	502	12,457
	Urban	8.378	`		91	16	1,274			53	8.234
San Roome	Rura	11.103	5.90		182	182	1,714	37	2	240	10,681
	Total	19,481			273	273	2,988	45	7	292	18,916
	Urban	1.610					341	1	0	5.	1,605
San Vicente	Rural	4,423	4.63				941	4	0	19	4,404
	Total	6.033				14	1,282	5	0	24	6,009
	Urban	2,615			899	899	351	194	55	1,445	502
Silvino Lobos	Rural	9,053	"		120	120	1,481	964	65	5.893	3,040
	Total	11,668			288	788	1.832	1,158	\rceil	7.338	3,542
	Urban	2,700			729	729	55\$	4	∞	214	1.757
Victoria	Rural	9,327	4.85		874	874	1.770	221	12	1,165	7.288
	Total	12,027	4.86		1,603	1.603	2.325	265	11	1.379	9.045
	Urban	134,163	5.52	3,475	3,044	6.519	23,117	2,525	11	14,953	112,691
Provincial Total	Rural	343,119	5.25	969	8.419	9,115	62,247	12,540	20	69,243	264,761
	Total	477,282	5.32	4,171	11,463	15,634	85,364	15,065	18	84,197	377,451)

Table 4.1.6 (a) Estimation of Population Covered by Safe and Unsafe Source by Municipality

		Pop.			Number of	Facilities					Coverage of Own	of Own Use		
Name of	Area	Covered by	a.	Public Facilities	2	Prí	Private Facilities	S	Number	Number of Private Facilities	Facilities	(1) Po	(1) Population Covered	wered
'Aranicibanita'		Facilities	Safe	Unsafe	Total	Safe	Unsafe	Total	Safe	Unsafe	Total	Safe	Unsafe	Total
	Urban	8,029	4	m	7	11	52		39	26		561	130	324
41140	Rura	8.404	13	4	12	1.13	75		95				189	473
	To I	16,433	12	1	24	81	127		36				319	797
	Irhan	2.463	25	7	36	22	12	ŀ	6				35	87
a	2	6.003	3]	7	45	35	28	.67	20	14	34	113	18	193
	Total	8.466	95	28	38	57	3		28				116	0.73 7.73
	Lichan	4,954	Ξ	7	81	233	155		116			609	406	1.015
Robon	Rum	11.071	77	41	35	8	93		OS:				174	434
	Total	16.025	32	12	S	332	222		1991	1		86	579	6110,
	Urban	3,697	01	2	12	2	1	11	1	1	2	S	3	*
Capi	Rurai	5285	4	9	20	2	2	4	1	1	2	\$	4	9
	Total	8,982	23	6	32	7	3	7	2	T 1	; - ;	=	7	18
	[]rhan	26.858	101	8	167	1,260	840	2,100	630	420	1,0	3,667	2,444	6,111
Caraman (Canital)	Rum	26.987	29	01	39	24	12	36	12	9.		69	36	105
	Total	53,844	130	76	206	1,284	852	2,136	642	426	1,068	3,735	2,480	6.216
	Urban	2,306	۲.		3						1	:		
Catubia	Rurai	9,306	74	2	92							1.7.4		
	Total	11,612	7.2	2	50	0.075						1 1 1 1 1		
	Urban	2,141	œ	7	12	20		33	10	7	17	5:	*	. 85
Gamay	Rurai	14,770	28	21	40	44	30	74	22	15	37	115	28	191
	Total	116,911	36	16	. 25	42	43	107	32	21	3	166	110	276
	Urban	10,694	17	٧.		4		9	2	77	C	2	7	16
Lacane	Rura	36,065	82	=	65	22	14	36	1.1	7	18	85	39	88
	Total Tetal	46,759	65	191	81	25	11	42	13	8	21	93	3	115
	Crban	3,520	8	4	12	72	1	. 3	1		2	5	4	٥
Lapinic	Rural	5,626	1.1	∞	25	2	1	3	1	11	2	S	7	٥
	Total	9,146	25	12	37	4	2	9	2	T		=	7	8
	Urban	2,770	1		1			7. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.				-	1	
Las Navas	Rural	786'9	71	- 1	15	¥2.								
	Total	9,753	15	1	16									
	Urban	3,081	22	9	28	29	20	46	\$	10	25	7	25	129
Lavezares	Rural	15,089	8	8	77	16	01	26	8	5	13	4	77	3
	Total	18,171	88	141	72	45	30	7.5	23	3.15	38	118	79	197
	Urban	621	2		2						10 10 10 10			
Lope De Vega	Rural	1.627	٥	-	6		100000000000000000000000000000000000000	1111 1111	j			A		
	Total	2,248	=		11	1.7								
	Urban	1.842	4	2	3	2	1	3	1.1	1	2	5	3.	S
Managas	Rural	6.200	8	5	13	8	\$	13	4	•	L	21	14	35
	Total	8:140	2	7	61	2	9	9	5	3	8	76	1.	43
,	,													

Table 4.1.6 (a) Estimation of Population Covered by Safe and Unsafe Source by Municipality (Cont'd.)

Check							Conflician					Coverage	of Own Use		
Pacifices Area Curverd by Pacifices Pacifices Number of Private Pacifices Number of Private Pacifices Number of Private Total Tota			Pop.			o samper o	Cacultures								
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Kural 7,469 27 7 34 11 7 18 5 4 9 26 17 17 18 17 1.593 5,460 3,639 1.274 3,186 956 637 1,593 5,460 3,639 1,274 3,186 1,590 1,591 1,276 1,591 1,276 1,591 1,276 1,591 1,591 1,591 1,591 1,591 1,591 1,591 1,592 6,736 1,592							:					3			41
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		Total	177.451	735		-	7		٠ ر						

Table 4.1.6 (b) Estimation of Population Covered by Sase and Unsase Source by Municipality

Capitality Safe Unvarie Total Safe Saga				1	revei I Coverage (1) + (2	$(\tau) \pm (\tau)$		
Safe Unral Safe Unral Safe Unral Safe Unral 4.818 2.887 7,705 958 574 Rural 5,254 2,677 7,931 1,083 552 Total 10,072 5,564 15,636 2,041 1,126 Total 3,862 1,948 5,809 662 3,34 Total 5,408 2,778 8,186 967 Total 5,564 1,719 5,275 685 135 Total 3,556 1,719 5,275 685 137 Total 3,526 1,719 5,275 685 137 Total 3,526 1,732 6,408 2,767 Total 3,526 1,249 1,881 967 Total 3,526 1,249 1,881 967 Total 1,004 5,631 1,662 1,675 Urban 2,306 14,579 1,881 967 Total 3,526 1,190 3,511 3,86 1,98 Urban 2,320 1,190 3,511 3,86 1,98 Urban 2,320 1,190 3,511 3,86 1,98 Urban 2,320 1,190 3,511 6,63 1,007 Urban 2,320 1,190 3,511 3,86 1,98 Urban 2,320 1,190 3,511 6,63 1,007 Urban 2,70 2,70 2,70 2,70 2,70 Urban 2,	Private	if Households	No. of HHs per Shared	Safe		Unsafe	Total	-
Urban 4,818 2,887 7,705 958 574 Rural 5,254 2,677 7,931 1,083 552 Total 10,072 5,564 15,636 2,041 1,126 Total 1,546 830 2,377 2,68 144 Total 2,478 8,186 930 478 Total 2,972 3,939 568 185 Urban 2,972 3,939 568 185 Urban 2,875 814 3,689 562 159 Urban 2,875 814 3,689 562 159 Urban 2,875 814 3,689 562 159 Urban 1,719 5,275 685 331 Urban 1,728 7,755 26,882 3,636 1,474 Total 10,896 716 11,612 2,113 140 Total 10,896 716 11,612 2,113 140 Urban 8,127 2,550 10,677 1,486 466 Urban 3,762 10,882 46,644 6,800 2,069 Total 3,885 1,732 5,517 570 301 Total 2,200 1,190 3,511 3,86 1,98 Urban 2,320 1,190 3,511 3,86 1,98 Total 2,270 2,270 2,270 2,170 2,170 2,170 Urban 2,370 2,270 2,270 2,170 2,170 Urban 2,370 2,270 2,270 2,170 2,170 Urban 2,370 2,270 2,170 2,170 Urban 2,370 2,270 2,170 2,170 2,170 Urban 2,370 2,270 2,170 2,170 2,170 Urban 2,370 3,211 3,211 3,211 3,211 Urban 2,370 3,211 3,211 3,211	Safe	L	Facility	Pop.		Pop. %	Pop.	%
Rural 5,254 2,677 7,931 1,083 552 Total 10,072 5,564 15,636 2,041 1,126 Total 3,862 1,948 5,809 662 334 Total 2,972 967 3,939 568 1,85 Total 2,972 967 3,939 568 1,85 Total 2,972 967 3,939 568 1,85 Total 5,408 2,778 8,186 930 478 Total 2,972 967 3,939 568 1,85 Total 3,556 1,719 5,275 685 331 Total 16,132 4,561 14,577 1,868 967 Total 16,132 4,561 2,074 2,772 793 Total 10,896 716 11,612 2,113 140 Total 10,896 716 11,612 2,113 140 Total 10,896 716 11,612 2,113 140 Total 2,534 3,332 3,567 5,314 1,602 Total 3,762 1,982 4,654 6,800 2,069 Total 3,885 1,732 5,617 676 301 Total 3,885 1,732 5,617 676 301 Total 3,885 1,732 5,617 676 301 Total 3,885 1,732 5,617 676 499 Total 3,885 1,732 5,617 676 301 Total 2,700 2,270 2,270 2,270 Total 2,770 2,270 2,170 2,170 Total 2,770 2,270 Total 2,770 2,770 Total 2,770 Total 2,770 2,770 Total 2,770 2,770 Total 2	05 958	4	21	5,012			8,029	95
Total 10,072 5,564 15,636 2,041 1,126 Urban 1,546 830 2,377 268 144 Rural 3,862 1,948 5,809 662 334 Total 5,408 2,778 8,186 930 478 Urban 2,972 967 3,939 568 185 Urban 2,873 814 3,689 567 159 Urban 2,875 814 3,689 567 193 Urban 1,375 6,1719 5,277 193 Urban 1,375 681 2,036 1,675 140 Urban 1,375 681 2,056 2,661 132 Urban 8,127 2,550 10,677 1,486 466 Urban 2,320 11,99 14,579 1,881 967 Total 35,762 10,882 46,644 6,800 2,069 Urban 2,320 1,190 3,511 386 198 Rural 35,762 10,882 46,644 6,800 2,069 Urban 2,320 1,190 3,511 386 198 Urban 2,320 1,190 3,511 3,617 676 301 Urban 2,770 2,770 2,770 2,770		552 1,635	-15:	5,538	54	2,866 28	8,404	S
Urban 1,546 830 2,377 266 144 Fural 3,862 1,948 5,809 662 334 Total 5,408 2,778 8,186 930 478 Urban 2,972 967 3,939 568 185 Urban 2,875 814 3,689 562 159 Urban 2,875 814 3,689 562 159 Urban 1,756 1,719 5,275 685 331 Urban 16,132 4,614 20,747 2,772 793 Urban 1,755 26,882 3,636 1,474 Total 10,896 716 11,612 2,113 140 Total 10,896 716 11,612 2,113 140 Urban 1,375 681 2,056 2,66 Urban 1,375 681 2,056 2,66 Urban 1,375 681 2,056 2,147 1,099 Urban 2,320 1,550 1,677 1,486 466 Urban 2,320 1,900 3,511 3,86 198 Urban 2,320 1,190 3,511 3,86 198 Urban 2,320 1,190 3,511 3,86 198 Urban 2,320 1,190 3,511 3,66 10,677 Urban 2,320 1,190 3,511 3,86 198 Urban 2,320 1,190 3,511 3,66 10,677 Urban 2,320 1,190 3,511 3,66 10,677 Urban 2,320 1,190 3,511 3,66 10,677 Urban 2,320 1,190 3,511 3,60 2,069 Urban 2,320 1,190 3,511 3,60 2,069 Urban 2,320 1,190 3,511 3,60 2,069 Urban 2,320 2,322 3,50 2,30 2,00 Urban 2,320 2,322 3,50 2,30 2,30 Urban 2,320 2,322 3,50 2,30 Urban 2,320 2,322 3,50 2,30 Urban 2,320 2,322 3,50 Urban 2,320 3,320 3,30 Urban 2			17	10,550			16,433	87
Rural 3,862 1,948 5,809 662 334 Total 5,408 2,778 8,186 930 478 Urban 2,972 967 3,939 568 185 Total 6,643 3,994 10,637 1,300 782 Total 9,615 4,961 14,577 1,868 967 Total 2,875 814 3,689 562 159 Total 6,431 2,533 8,964 1,247 490 Total 6,431 2,533 8,964 1,247 490 Total 19,128 7,755 26,882 3,636 1,474 Total 19,128 7,755 26,882 3,636 1,474 Total 35,260 12,369 47,629 6,408 2,267 Total 10,896 716 1,612 2,113 140 Total 1,004 5,631 16,635 2,147 1,099 Virban 1,763 8,332 35,967 5,314 1,602 Total 35,762 10,882 46,644 6,800 2,069 Total 3,762 10,882 46,644 6,800 2,069 Total 3,885 1,732 5,617 676 301 Total 3,885 1,722 5,170 5,217 1,416 Total 2,703 2,720 3,128 1,062 499 Total 3,885 1,722 5,170 2,170 2,170 Total 2,770 2,770 2,770 2,770 Total 2,770 2,770 2,770 2,770 Total 3,885 1,722 5,170 2,770 2,770 Total 2,770 2,770 2,770 2,770 Total 2,770 Total 2,770 Total 2,770 Total 2,770 Total 2,770			8				2,463	જ
Total 5,408 2,778 8,186 930 478 Urban 2,972 967 3,939 568 185 Rural 6,643 3,994 10,637 1,300 782 Total 9,615 4,961 14,577 1,868 967 Total 5,431 2,533 8,964 1,247 499 Urban 16,132 4,614 20,747 2,772 793 Urban 19,128 7,755 26,882 3,636 1,474 Total 35,260 12,369 47,629 6,408 2,267 Urban 2,306 716 9,306 1,675 140 Total 10,896 716 11,612 2,113 140 Urban 8,127 2,550 10,677 1,486 466 Urban 35,762 10,882 46,644 6,800 2,069 Total 35,762 10,882 46,644 6,800 2,069 Urban 8,127 2,550 10,677 1,486 466 Urban 8,127 2,550 10,677 1,486 466 Urban 8,127 2,550 10,677 1,486 466 Urban 2,702 10,882 46,644 6,800 2,069 Urban 2,702 10,882 46,644 6,800 2,069 Urban 2,702 2,702 2,770 520 Urban 2,702 2,972 2,770 520 Urban 2,703 2,700 2,700 2,000			13			2,029 30	6,003	89
Urban 2,972 967 3,939 568 185		478 1,408	11		09	2,894 31	8,466	91
Rural 6,643 3,994 10,637 1,300 782 Total		185 753	4				4.954	88
Total			18:	6,903		4,168 36	11,071	22
Capital 2,875 814 3,689 562 159 1,714 2,525 1,719 5,275 685 331 1,714 2,523 8,964 1,247 490 1,247 490 1,247 490 1,247 490 1,247 2,772 793 1,714 1,714 1,714 1,715 2,533 8,964 1,247 490 1,247 490 1,247 2,772 793 1,714 1,714 1,612 2,113 140 1,714 1,612 2,113 140 1,714 1,612 2,113 140 1,714 1,612 2,113 140 1,714 1,612 2,113 140 1,714 1,612 2,113 1,40 1,714 1,612 2,147 1,881 967 1,714 1,602 1,190 3,511 1,602 1,190 3,511 3,567 2,567 1,814 1,602 1,190 3,511 3,567 1,814 1,602 1,190 3,511 3,567 1,1486 466 1,190 3,511 3,567 3,147 1,602 1,190 3,511 3,567 1,1486 466 1,190 3,511 3,567 1,1486 466 1,190 3,511 3,567 1,190 3,511 3,567 1,190 3,511 1,602 4,990 1,190 3,511 3,511 3,511 3,511 3,511 3,511 1,602 4,990 1,190 3,511 3,51	-		6	10,485		5,541 34	16,025	97
Rural 3.556 1,719 5,275 685 331 Total 6,431 2,533 8,964 1,247 490 Urban 16,132 4,614 20,747 2,772 793 Total 35,260 12,369 47,629 6,408 2,267 Total 35,260 12,369 47,629 6,408 2,267 Total 35,260 716 9,306 1,675 140 Total 10,896 716 11,612 2,113 140 Urban 1,375 681 2,056 2,66 132 Urban 8,127 2,550 10,677 1,486 466 Total 35,762 4,950 14,579 1,881 967 Urban 3,127 2,550 10,677 1,486 466 Total 35,762 10,882 4,644 6,800 2,069 Total 3,512 1,190 3,511 3,86 1,98 Urban 2,320 1,190 3,517 676 301 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 2,504 2,770 2,270 2,770 Urban 2,770 2,504 2,770 2,770 2,770 Urban 2,770 2,770 2,700 Urban 2,700 2,700 Urban 2,700 2,700 Urba			53	2,880			3,697	Se
Total 6,431 2,533 8,964 1,247 490 Urban 16,132 4,614 20,747 2,772 793 Urban 2,306 12,369 47,629 6,408 2,267 Urban 2,306 12,369 47,629 6,408 2,267 Urban 2,306 716 9,306 1,675 140 Urban 1,375 681 2,056 2,66 132 Urban 1,375 681 2,056 2,66 132 Urban 1,375 681 2,056 2,113 140 Urban 8,127 2,550 10,677 1,486 466 Urban 3,762 4,950 14,579 1,881 967 Urban 3,762 10,882 46,644 6,800 2,069 Urban 2,320 1,190 3,511 3,86 198 Urban 2,320 1,190 3,511 3,86 1,062 Urban 2,320 1,190 3,517 6,76 3,01 Urban 2,320 2,922 9,128 1,062 499 Urban 2,770 5,004 2,004 1,104 Urban 2,770 5,004 2,004 1,104 Urban 2,770 2,257 2,004 1,062 1,062 Urban 2,770 2,004 2,004 1,104 Urban 2,770 2,004 2,004 1,104 Urban 2,770 2,004 1,104 Urba			4		_	1,724 30	5.285	91
Urban 16,132 4,614 20,747 2,772 793 Total 35,260 12,369 47,629 6,408 2,267 Total 35,260 12,369 47,629 6,408 2,267 Total 35,260 12,369 47,629 6,408 2,267 Total 10,896 716 11,612 2,113 140 Total 13,75 681 2,056 2,56 132 Urban 1,375 681 2,056 2,66 132 Urban 8,127 2,550 10,677 1,486 466 Urban 3,762 4,950 14,579 1,881 967 Total 35,762 10,882 46,644 6,800 2,069 Rural 3,885 1,722 5,617 676 301 Total 2,320 1,190 3,511 676 499 Total 2,206 2,922 9,128 1,062 499 Urban 2,770 2,550 0,770 2,2770 2,2770 2,2770 Urban 2,770 2,527 2,527 2,527 Urban 2,770 2,527 2,527 Urban 2,770 2,577 2,520 Urban 2,770 2,577 Urban 2,770 2,577 Urban 2,770 2,577 Urban 2,770 2,520 Urban 2,770 2,500 Urban 2,770 2,770 Urban 2,770 2,770 Urban 2,770 2,770 Urban 2,770	-		49		64	2,540 25	8.982	SS
Rural 19,128 7,755 26,882 3,636 1,474 Total 35,260 12,369 47,629 6,408 2,267 Urban 2,306 716 9,306 1,675 140 Total 10,896 716 11,612 2,113 140 Total 1,375 681 2,056 266 132 Rural 9,629 4,950 14,579 1,881 967 Total 2,629 4,950 14,579 1,881 967 Rural 35,762 10,677 1,486 466 Total 35,762 10,882 46,644 6,800 2,069 Rural 3,885 1,722 5,617 676 301 Total 2,320 1,190 3,511 386 1,98 Total 3,885 1,722 5,617 676 499 Total 2,770 2,250 0,170 2,2770 2,200 Rural 3,885 1,722 5,617 676 499 Total 2,770 2,527 2,517 676 499 Total 2,770 2,270 2,270 2,270 Rural 2,770 2,770 Rural 2,			8	19,799			26,858	87
Total 35,260 12,369 47,629 6,408 2,267 3 2,306 438 1,400 1,679 1,675 140 1,69an 1,375 681 2,056 266 132 1,69an 1,375 681 2,056 266 132 1,69an 1,375 681 2,056 266 132 1,69an 1,375 621 16,635 2,147 1,099 1,1004 5,631 16,635 2,147 1,099 1,1004 2,770 2,550 10,677 1,486 466 1,009 1,009 1,009 1,190 3,511 3,600 2,069 1,009 1,190 3,511 3,617 676 3,011 1,004 2,770 2,020 1,100 2,770 2,000 1,100 1,100 3,511 1,002 1,100 1,100 1,517 1,002 1,100 1,100 1,517 1,002 1,100 1,100 1,517 1,002 1,100 1,100 1,517 1,002 1,100 1,100 1,517 1,002 1,100 1,100 1,517 1,002 1,100 1,100 1,517 1,002 1,100 1,			80		11		26.987	79
Urban 2,306 1,675 140 Rural 8,590 716 9,306 1,675 140 Total 1,375 681 2,056 266 132 Rural 9,629 4,950 14,579 1,881 967 Total 11,004 5,631 16,635 2,147 1,099 Urban 8,127 2,550 10,677 1,486 466 Rural 27,634 8,332 35,967 5,314 1,602 Total 35,762 10,882 46,444 6,800 2,069 Rural 3,3762 1,190 3,511 386 198 Rural 3,885 1,722 5,617 676 301 Rural 3,885 1,722 5,617 676 499 Total 2,770 2,770 2,770 2,70 Urban 2,770 2,770 2,770 2,71			· · · · ·	38,995		4,849 23	53.844	83
Rural 8.590 716 9,306 1,675 140 Total 10,896 716 11,612 2,113 140 Urban 1,375 681 2,056 266 132 Rural 9,629 4,950 14,579 1,881 967 Urban 8,127 2,550 10,677 1,486 466 Rural 27,634 8,332 35,967 5,314 1,602 Total 35,762 10,882 46,644 6,800 2,069 Rural 3,320 1,190 3,511 386 198 Rural 3,885 1,722 5,617 676 301 Rural 3,885 1,722 5,617 676 499 Total 2,770 2,770 2,770 2,70 Urban 2,770 2,770 2,770 2,71			146	2,306	00		2,306	20
Total 10,896 716 11,612 2,113 140 Urban 1,375 681 2,056 266 132 Rural 9,629 4,950 14,579 1,881 967 Total 11,004 5,631 16,635 2,147 1,099 Urban 8,127 2,550 10,677 1,486 466 Rural 27,634 8,332 35,967 5,314 1,602 Total 35,762 10,882 46,644 6,800 2,069 Rural 3,385 1,792 3,517 676 301 Rural 3,885 1,722 5,617 676 499 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 2,770 2,270 1,14		140 1,814	-0,2		0:		9.306	.43
Urban 1,375 681 2,056 266 132 Rural 9,629 4,950 14,579 1,881 967 Total 11,004 5,631 16,635 2,147 1,099 Urban 8,127 2,550 10,677 1,486 466 Rural 27,634 8,332 35,967 5,314 1,602 Total 35,762 10,882 46,644 6,800 2,069 Rural 3,385 1,190 3,511 676 301 Rural 3,885 1,722 5,617 676 499 Total 2,206 2,922 9,128 1,062 499 Urban 2,770 2,770 2,270 1,14	[]		78		7.	716 3	11,612	4
Rural 9,629 4,950 14,579 1,881 967 Total 11,004 5,631 16,635 2,147 1,099 Urban 8,127 2,550 10,677 1,486 466 Rural 27,634 8,332 35,967 5,314 1,602 Total 35,762 10,882 46,644 6,800 2,069 Rural 3,320 1,190 3,511 386 198 Rural 3,885 1,732 5,617 676 301 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 2,770 2,27 1,14			14			715 26	2,141	78
Total 11,004 5,631 16,635 2,147 1,099 Urban 8,127 2,559 10,677 1,486 466 Rural 27,634 8,332 35,967 5,314 1,602 Total 35,762 10,882 46,644 6,800 2,069 Rural 3,885 1,732 5,617 6,76 301 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 5,214			37				14,770	82
Urban 8,127 2,559 10,677 1,486 466 Rural 27,634 8,332 35,967 5,314 1,602 0 Total 35,762 10,882 46,644 6,800 2,069 3 Urban 2,320 1,190 3,511 386 198 Rural 3,885 1,732 5,617 676 301 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 2,770 2,277 320	ĺ.		31			5,741 28	16.911	82
Rural 27,634 8,332 35,967 5,314 1,602 Total 35,762 10,882 46,644 6,800 2,069 3 Urban 2,320 1,190 3,511 386 198 Rural 3,885 1,732 5,617 676 301 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 2,770 2,277 320			.278	:			10.694	96
Total 35,762 10,882 46,644 6,800 2,069 3 Urban 2,320 1,190 3,511 386 198 Rural 3,885 1,732 5,617 676 301 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 2,770 2,202 1,34 1,14		1,602 6,917	- 06		73	8,372 22	36.065	35
Urban 2,320 1,190 3,511 386 198 Rural 3,885 1,732 5,617 676 301 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 2,770 520 1,14			87			0.928 22	46,759	35
Rural 3,885 1,732 5,617 676 301 Total 6,206 2,922 9,128 1,062 499 Urban 2,770 520 1,062 459			43	2,326			3.520	95
Total 6,206 2,922 9,128 1,062 499 Urban 2,770 520			.37			1,736 26	5.626	85
Urban 2,770 520			39	·	09	2.929 28	9,146	89
A11 1121 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		520	520		-		2.770	4
<u> </u>	-	114 1,428	95	6,425	33	559 3	6.984	35
Total 9,195 559 9,753 1,834 1.14			122	9.195	.5	559 2	9.753	37





Table 4.1.6 (b) Estimation of Population Covered by Safe and Unsafe Source by Municipality (Cont'd.)

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										,	***	ξ,		
			Š	erage of Shared Well	ared Well					Level 1 C	Level 1 Coverage (1) + (2)	(7)		T
Name of	Area	(2) Population Covered by Private	on Covered b	y Private	Numbe	Number of Households	splo	No. of HHs per Shared	Safe	.	Unsafe	afe	Total	-
in the state of th		Safe	Vincafe	Total	Safe	Unsafe	Total	Facility	Pop.	%	Pop.	%	Pop.	%
	i lehan	2 154	709	2.953	410	152	562	11	2,231	65	850	25	3.081	8
1	2 E	11 480	3 532	15.021	2.321	714	3,035	53	11,530	99	3,559	20	15,089	88
רשאבישובי	Total	13.643	4331	17,974	2,731	998	3,597	33	13,761	99	4,409	77	18.171	87
	Urhan	621		621	103		108	54	621	23			621	X)
1 And On Vecs	2	1 627		1.627	268		268	30	1.627	16			1,627	9
100	Total	2.248		2,248	375		375	34	2,248	81		:	2.248	82
	E E	1,203	029	1.834	223	117	340	45	1.208	56	634	29	1,842	88
Manage	Ring	3,908	2.355	6.264	693	418	111.1	22	3,929	50	2,369	30	6.299	83
	Tota	5.112	2.986	8,097	916	534	1,450	54	5.138	52	3,003	30	8,140	82
	Lirhan	3.454	9161	5,369	£	357	000,1	100	3,470	63	1.927	35	5.3%	88
Mondragon	Rum	16.092	4,815	20,908	3,095	976	4,021	68	16,105	75	4.824	23	20,929	8
	_ ا	19 546	6.731	26,277	3.738	1,283	5,021	16	19.575	73	6,751	X	26,325	82
	1	3.311	1.977	5.288	683	408	1,090	53	3,344	54	2,000	32	5.344	98
Palamag	1	10.137	5.296	15,434	1.980	1,034	3,014	80	10,187	- 20	5,329	. 56	15,516	9,
0	Total	13.448	7.274	20.722	2,663	1,442	4,105	51	13,531	. 51	7,329	23	20,860	39
	1 rhan	5,918	3.002	8.919	1,017	516	1,533	37	5.999	09	3,054	31	9,053	5
Domokuina	Rura	7.808	915	8.723	1,389	:63	1,552	103	7,818	58	922	2	8,740	3
	Total	13.77.51	3,916	17.642	2.406	629	3,085	55	13,818	65	3,976	- 17	17,794	2,
	1 17 19	2 309		2 399	361		361	361	2,399	8			2,399	&
0,200	2	4 965	1.772	6.737	877	313	1,190	132	4.985	73	1,785	56	6,770	\$
	Total	7,364	1.772		1.238	313	1,552	155	7,383	80	1,785	61	9,169	83
	Urban	523	219		105	4	149	91	536	2	228	- 22	764	2
Can Antonio	S. C.	5 299	1.681	9	1,088	345	1,433	43	808,8	72	1.687	23	6.995	X.
	100	\$ 822	7,900	7.722	1,193	389	1,582	37	5.845	7.1	1,915	23	7.759	z
	L than	1.145	509	1,654	215	95	310	24	1.145	40	509	38	1.654	58
San Isidno	Rural	13.363	4,035	17,397	2,434	735	3,169	264	13,384	62	4,046	19	17,429	80
	Total	14.508		19.051	2.849	830	3,479	139	14.529	59	4.554	16	19,083	7.8
	- Legan	1.804		2.818	338	190	529	12	1,918	62	1,089	35	3.007	93
San foer	Sura	5,670		9.307	1,097	703	1,800		5,757	57	3.694	37	9,451	8
	Total	7474		12.124	1,435	893	2,329		7.674	58	4.783	38	12,457	95
1 harmonia and 1 harm														

Table 4.1.6 (b) Estimation of Population Covered by Safe and Unsafe Source by Municipality (Cont'd.)

Name of Area (2) Population Covered by Area Area and Public and Public Safe Unsafe Urban 4,985 2,389 San Roque Rural 7,098 3,483 Total 12,083 5,872 Urban 963 626	vered by Private										
Safe Un- Urban 4,985 Rural 7,098 Total 12,083 Urban 963	201101		Number of Households	;··	No. of HHs per Shared	Safe		Unsafe		Total	
Urban 4,985 Rural 7,098 Total 12,083 Urban 963	safe Total	Safe	Unsafe Te	Total	Facility	Pop.	%	Pop.	%	Pop.	*
Rural 7,093 Total 12,083 Urban 963	2,389 7,374	7967	382	1,178	8	5,501	98	2,733	33	8,234	86
Total 12,083 5 Urban 963	3,483 10,581	1,203	280	1,793	53	7,158	\$3	3,523	32	10.681	8
5963	5,872 17,955	1,999	972	2,971	17	12.659	65	6.256	32	18.916	97
	626 1,589	204	133	337	52	973	99	632	39	1,605	100
3.679	723 4,402	795	156	951	112	3,680	83	724	16	4.404	82
Total 4.642	1 349 5,991	666	289	1,287	98	4,653	. 77	1.356	22	600.9	300
\$05	502	78		78	- 78	202	16	**		502	19
2.693	335 3.027	456	57	512	73	2,701	30	340	. 4	3,040	34
Total 3.195	335 3,529	533	57	590	74	3,202	27	340	60	3.542	30
1.335	419 1,755	275	98	361	144	1,337	05	420	16	1,757	.65
5,453	1 794 7,247	1,124	370	1,494	37	5,478	59	1,811	19	7.288	78
Total 6,788	2,214 9,002	1,399	456	1,855	43	6.814	57	2.231	19	9.045	. 75
Urban 75,558 28,033	8,033 103,591	13,679	5,130	18,809	9	81,018	09	31,672	24	112,691	28
193,887	8.755 262,641	37.045	13,121 5	50,167	49	195,163	57	69.598	20	264,761	77
Total 269,445	6,788 366,233	50.725	18,251 6	68,976	23	276.181	58	101,270	21	377.451	79

The number of households per shared public/private facility is estimated at 23 households as provincial averages. Compared with the service level standard of Level I public facility (15 households/facility), this figure is considered within an acceptable range. However, those figures in the municipalities of Catarman, Catubig, Laoang, Las Navas, Mondragon, Pambujan, Rosario, San Isidro, San Vicente and Silvino Lobos are considered quite large. This reason seems to arise from a considerable number of non-reported/unidentified private wells.

Percentage of Population Covered by Level I Public Facility for Rural Water Supply

Grasping the current percentage of population covered by public facilities would be a useful information in considering to what extent the additional population to be covered by public facilities in the future plan. This takes into account that the major facilities would be Level I especially for rural water supply in the future.

Population covered by public facilities is calculated as a balance between total population served by Level I facilities and population covered by private facilities. Thus, it is estimated that 191,400 persons or 98% of the total population served covered by Level I facilities are served by public facilities as shown in Tables 4.1.6 (a) and 4.1.6 (b).