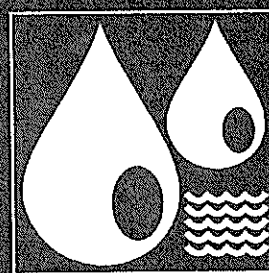


JAPAN INTERNATIONAL COOPERATION AGENCY

Comprehensive Basic Study of the Autonomous Region in Muslim Mindanao in the Republic of the Philippines

Final Report



WATER SUPPLY AND SANITATION SECTOR

PROVINCE OF LANA O DEL SUR

December 2003

PKII ENGINEERS
ENGINEERING CONSULTANT

IN ASSOCIATION WITH



ORIENT INTEGRATED DEVELOPMENT CONSULTANTS INC.

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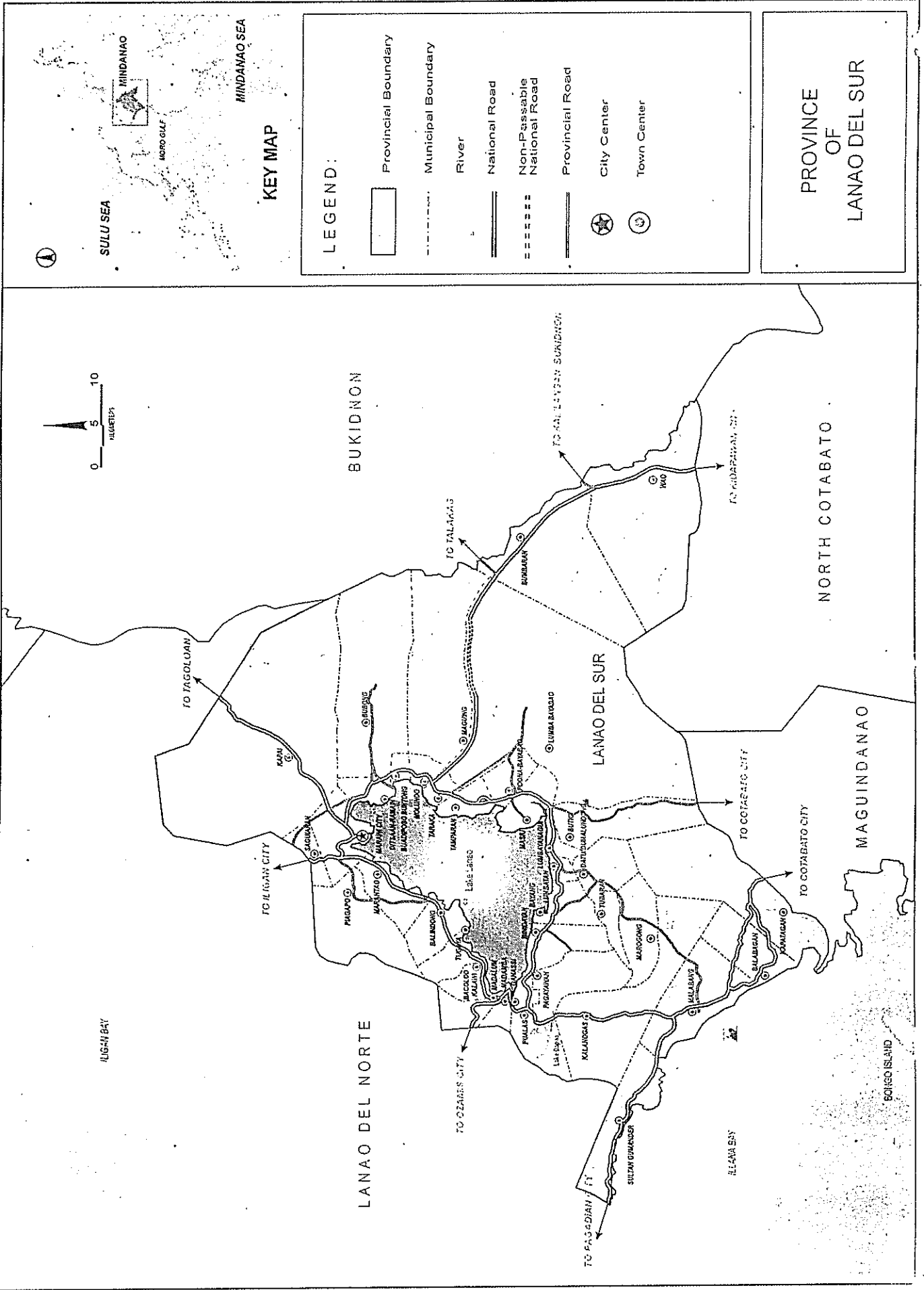
**COMPREHENSIVE BASIC SURVEY
OF THE AUTONOMOUS REGION
IN MUSLIM MINDANAO**

WATER SUPPLY AND SANITATION SECTOR

PROVINCE OF LANA O DEL SUR

FINAL REPORT

DECEMBER 2003



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LIST OF ABBREVIATIONS

ADB	-	Asian Development Bank
AFMA	-	Agriculture and Fisheries Modernization Act
AIP	-	Annual Investment Plan
ARG	-	Autonomous Regional Committee
ARMM	-	Autonomous Region in Muslim Mindanao
CBOS	-	Community-based Organization
COA	-	Commission on Audit
CPSO	-	Central Project Support Office
CSC	-	Civil Service Commission
DBM	-	Department of Budget and Management
DILG	-	Department of Interior and Local Government
DOF	-	Department of Finance
DOH	-	Department of Health
DPWH	-	Department of Public Works and Highways
IEC	-	Information Education Campaign
IMR	-	Infant Mortality Rate
IRA	-	Internal Revenue Allotment
JICA	-	Japan International Cooperation Agency
KFI	-	Kasanyangan Foundation, Inc.
LCE	-	Local Chief Executive
LGU	-	Local Government Unit
LWUA	-	Local Water Utilities Administration
MBUSSP	-	Mindanao Basic Urban Services Sector Project
MGB	-	Mines and Geoscience Bureau
MNLF	-	Moro National Liberation Front
MPDO	-	Municipal Planning and Development Office
NAMRIA	-	National Mapping and Resources Information Administration
NAPOLCOM	-	National Police Commission
NEDA	-	National Economic Development Authority
NSCB	-	National Statistics and Coordination Board
NSDW	-	National Standards for Drinking Water
NSO	-	National Statistics Office
NWRB	-	National Water Resources Board
ORG	-	Office of the Regional Director
PDC	-	Provincial Development Council
PDDO	-	Provincial Planning and Development Office
PHO	-	Provincial Health Officer
POs	-	Peoples Organizations
PST	-	Provincial Sector Team
PWSO	-	Provincial Water and Sanitation Office
QV	-	Quaternary Volcanics
QVP	-	Pliocene to Recent Pyroclastic
REDBP	-	Regional Development and Planning Board
RLA	-	Regional Legislative Assembly
RLEDAC	-	Regional Legislative and Executive Development Advisory Committee

FOREWORD

The “Comprehensive Basic Survey of the Autonomous Region In Muslim Mindanao (ARMM)” in the Republic of the Philippines, hereinafter referred to as the “Survey”, was funded by the Japan International Cooperation Agency (JICA) of the Government of Japan. The Survey had commenced on August 4, 2003 and was for three (3) month duration. The sectors included in the Survey were:

- (1) Agriculture and Fisheries
- (2) Health and Medical Care
- (3) Education
- (4) Basic Infrastructure
- (5) Governance
- (6) Water Supply and Sanitation

All the information/data used in the survey was generated during the aforementioned survey period with the objective of gathering as much as possible the latest statistics available to provide an up-to-date picture of the current situation in the ARMM. What is therefore provided in these reports are the latest available data, though in some cases these already seemed outdated.

The difference between time period (year) reflected by the statistics and the period (year) of the conduct of this Survey shows the inadequacy in the availability of updated information. In instances wherein the desired information/data were not available, the Survey had to generate the necessary information itself through field surveys.

ROAC	-	Regional Development Administration Committee
RPDO	-	Regional Planning and Development Office
RPMEC	-	Regional Project Monitoring and Evaluation Committee
RRUC	-	Regional Reconciliation and Unification Council
SPOA	-	Southern Philippines Development Authority
TMS	-	Technical Management Services
TOR	-	Terms of Reference
WATSAN	-	Water Supply and Sanitation
WD	-	Water District

EXECUTIVE SUMMARY

1. Overview of the Water Supply and Sanitation Sector

The provision of safe and potable water is a pressing need in the Autonomous Region in Muslim Mindanao (ARMM), where most of the communities are forced to utilize any form and means of water sources to sustain for domestic needs. Many of these communities have utilized brackish and saline groundwater, collected and stored rainwater, and bulk-hauled untreated water transported by barge or other sea transport from mainland Mindanao.

Based on data furnished by ARMM, in 1992 the Region had a total population of 2.02 million corresponding to about 295,242 households and had grown to 2.808 million in the year 2000. During this said year, the ARMM Socio-Economic Report indicates that accessibility to potable water is estimated at 38% of the regional population, which corresponds to 456,263 households. The figure below shows the access to water supply by province.

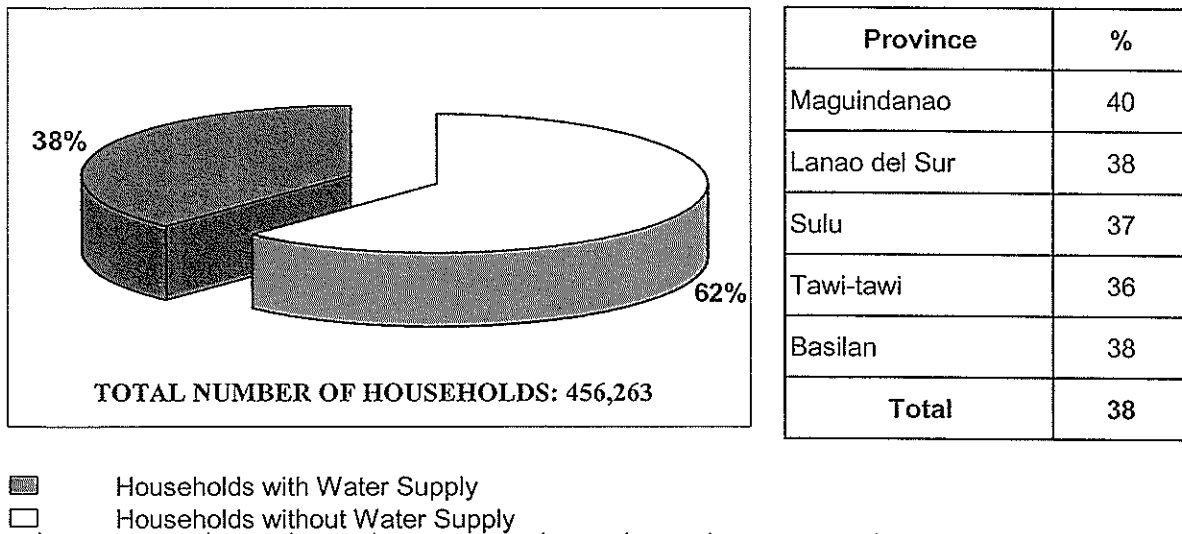


Figure ES-1 Households in ARMM with Access to Water Supply, as of 2000

At present, the percentage to access to potable water has a marginal increase that could be traced to assistance from various institutions. Based on the data of present existing water supply facilities, analysis showed that about 40% of ARMM projected 2003 population have access to water supply. These data, however, is still far from acceptable level of providing safe and potable water within the community, thus the need to further impart technical and financial assistance to the Region in terms of water supply development.

2. Introduction

Background and Objectives

The preparation of the master plan for the Water Supply and Sanitation Sector Plan was undertaken by the Consultant thru the assistance of Japan International Cooperation Agency (JICA). Past reports such as the PW4SP was made as reference and basis to come-up with the sector development plan for possible financing thru sector loan(s) by foreign donors, LGU's counterpart including internal revenue allotment from the National Government and private sector investments.

This Study covers a Medium-Term Investment Plan (2005-2010) as well as a Long-Term Development Plan (2010-2015) to attain the provincial targets of water supply and sanitation sector. The plan includes development cost to cover the construction of water supply and sanitation improvement in the ARMM covered provinces. The Study likewise includes institutional strengthening, to assure that community based operational framework and capability could be sustained in the future.

As part of the initial move to familiarize the different LGUs and evaluate their respective sector management capability, the Study undertook workshops and consultation with local officials and planning managers.

Coverage of Study Area

Based on the Terms and Reference (TOR) provided to the Consultant, the sector evaluation and analyses shall cover the ARMM which is composed of the following provinces and city:

- ◆ Maguindanao
- ◆ Lanao del Sur
- ◆ Basilan
- ◆ Sulu
- ◆ Tawi Tawi
- ◆ Marawi City

The Provinces of Maguindanao, Lanao del Sur and Marawi City are found in mainland Mindanao while the Provinces of Basilan, Sulu and Tawi Tawi are island provinces.

Approach and Methodology

The primary bases of this Study are the sector policies and strategies, as well as existing legislations and regulations pertaining to water supply and sanitation development, and guidelines for setting the provincial sector targets. In conjunction to these policies, reference was likewise made in the current sector policies and strategies to ensure:

- ◆ self-reliance and local community management services
- ◆ integrated approach to water, sanitation and hygiene education
- ◆ financial arrangement and, operation and maintenance
- ◆ participation of private sector and NGOs
- ◆ integrated water resources strategy

The methodology and work approach in undertaking the Study is also patterned in accordance to the previous water supply and sanitation studies prepared for JICA, like the PW4SP Feasibility Study reports.

All other technical criteria and standards are based on other sector agencies such as Local Water Utilities Administration (LWUA), National Water Resources Board (NWRB), Department of Public Works and Highways (DPWH), Sanitary Code of the Philippines and the Philippine National Standards for Drinking Water (NSDW).

Report Composition

Five (5) study reports were prepared covering the respective provinces as previously mentioned (Marawi City is included in the Lanao del Sur report). The analyses, evaluation and relevant information form part of the individual report consisting of 10 chapters.

3. Provincial Profile

The Province of Lanao del Sur with its capital city of Marawi is located in mainland Mindanao. It is bounded on the north by Lanao del Norte, on the east by Bukidnon, on the west by Illana Bay and on the south by Maguindao and Cotabato. Access to the province is possible either by land, air and water transportation.

Lanao del Sur is about 36 km from Iligan City and 137 km from Cagayan de Oro City. The province is connected to other provinces through a network of roads that also links it to the international seaport of Maguindao. Lanao del Sur is composed of 38 municipalities and the city of Marawi, with 1,152 barangays broken down into 324 urban and 828 rural. The provincial population in year 2000 was 800,162 with an average annual growth rate of 3.34 percent between the period 1995 to 2000.

Physical Features

The province of Lanao del Sur form part of the western portion of the extensive plateau of Northern Mindanao. Adjoining Illana Bay on the southwest are narrow coastal plain and rolling hills that give way to mountain ranges along the boundary of Cotabato and lowlands going eastward to Bukidnon. Lake Lanao dominates the land feature of the province where most of the municipalities are found around the said water body.

The National Statistics and Coordination Board (NSCB) reports that Lanao del Sur has a land area of about 3,895.49 sq. km. As of 2003, there are two congressional districts in the province.

Rolling plateau dominate the landscape of Lanao del Sur. Deep canyons cut near the edges of these plateaus where at several points flaunting waterfalls descent to narrow coastal plains. Several rivers and streams dissect the area in dendritic pattern and generally flow towards Lake Lanao, while said lake discharges northward to Illana Bay via Agus River.

The province has a Type IV climate (classified from Modified Corona's Classification System). This type of climate is characterized by more or less evenly distributed rainfall throughout the year. The northeastern portions near Lanao del Norte and Bukidnon receives about 1,600 mm of rain annually. The southern portion of the province near its boundary with Maguindanao is generally moister, receiving about 2,900 mm of rain annually.

Socio-economic Aspects

The province's fertile soil supports a basically agricultural economy, with rice as the main crop. Other crops include the usual staples: corn, coconut, abaca, bananas and some rarities like durian fruit.

Lanao Lake contains several species of fish for small-scale fishing. Extensive logging has caused many original forest to disappear and caused soil erosion. The primary opportunity in the province is aqua culture. Given the large area of water suitable for inland fishpens, production and capacity could easily support processing activities.

Electric power is not a problem as there are seven hydroelectric power plants operating in the province. Similarly water supply comes from deep and shallow wells where most of the groundwater recharge emanates from Lake Lanao. The province has 9 private radio telegraph stations and 31 government maintained telecommunication facilities as well as postal offices in all municipalities.

4. Existing Facilities and Service Coverage

The service coverage of each sector was estimated as percentages of served population/households/utilities against the total. In water supply, level of service was further classified into Level I, Level II and Level III systems. In sanitation, facilities for construction are classified as household toilets, public school toilets and public toilets.

Water Supply

The province has 3 existing Level III systems, namely; Marawi City, Wao and Ganassi. Marawi and Wao, utilize deep well sources and are operated by their respective water districts. Ganassi utilizes spring sources whose operation is under the Municipal waterworks.

There are 12 municipalities with level II water system. These are: Balabagan, Bayang, Bubong, Butig, Kapai, Ganassi, Lumbatan, Madamba, Malabang, Marogong, Masiu and Wao. Majority of these Level II systems utilize spring sources while some use deep well as water sources.

The rest of the municipalities of the province have existing Level I. The common sources are shallow wells which are equipped with hand pumps or motorized pump to get water. There are also areas where springs are used as point source by connecting polyethylene pipes directly to households. Other households get water from the river nearest to their area for domestic use and rainwater for drinking. Only about 42% of the present population is adequately served.

Sanitation

Based on the data taken from the PPDO, only about 31% of the households of the province have sanitary toilets. This figure clearly demonstrates that the province needs to improve its sanitation facilities. The low figure can be attributed to lack of water supply facilities and the low capability of the rural households to construct the approved type of toilet. Data on school and public toilet were not made readily available during the field visit. However, based on regional data, public schools in the province have adequate toilet facilities.

5. Existing Sector Arrangements and Institutional Capacity

The ARMM Local Government Units (LGUs) have the distinct advantage over non-ARMM LGUs on that certain basic services have been retained by the Regional Government and continue to be provided by them, i.e. health, social services, agriculture. This results in more financial resources being available for other basic services that could be provided by the LGU, such as water supply for instance.

In general, the ARMM Regional Government also undertakes water supply related projects but this does not seem to be a priority. Only a minimal amount of the ARMM infrastructure budget has been allocated to water supply.

The ARMM offices involved in water supply include the Department of Public Works and Highways, Department of Health, Department of the Interior and Local Government and all LGU's.

6. Past Financial Performance in Water Supply and Sanitation

Given the limited financial resources of the ARMM Regional Government, the LGUs have taken greater responsibility in the provision of basic infrastructures. With their Internal

Revenue Allotment (IRA) increasing over time, the available 20% Development Fund has also increased. This means that LGUs have more financial resources that could be parlayed into funding water supply projects. However, based on the amount allocated to various infrastructures, local roads/bridges enjoy a higher priority.

Most LGUs have repeated surpluses in their financial operations.

7. Water Source Development

The hydrogeologic make-up of Lanao del Sur mainly consist of uplifted igneous and sedimentary rocks formed during pre-Cretaceous to Recent. They are the result of magmatic and tectonic action generated by westward and northeast crustal dipping plates that were subducted during the course of the province's evolution. The subduction zones south of Cotabato, along the Agusan-Davao Trough and east of Surigao are considered most significant in the geologic development of Lanao del Sur and its adjoining provinces.

The sedimentary rocks which were intercalated with the igneous rocks were formed during the Cretaceous to Pleistocene. The oldest known rocks are the partly metamorphosed Cretaceous to Paleogene dense, relatively impervious tuffaceous mudstone and greywacke which are intercalated with lava flows. These are mostly transformed sedimentary deposits derived from basic oceanic crust. Final uplift of younger deposits above sea level occurred during the Pleistocene to Recent time.

In general, none of the igneous are well cemented, compacted sedimentary rocks can be considered as dependable sources of sustainable groundwater. Only the Pleistocene to Recent deposits can be considered as potential sources of significant quantity of groundwater reserve.

Groundwater Availability in the Province

- **Shallow well areas.** By definition these are areas having water-bearing formations where water can be withdrawn up to the depth of not more than 20m from the ground surface. These are the areas underlain mostly by Recent Alluvium and Pliocene to Recent Pyroclastics (QVP). Though generally classified as deep well areas, in some cases shallow groundwater also occur within the Pliocene to Pleistocene Clastic Rocks (N₁S) and Late Miocene to Pliocene Clastic Rocks (N₂S).

- **Deep well areas.** In deep well areas, the aquifers exist to depth of more than 20m from the ground surface. These can be found in areas underlain by R, QVP, N₃S, and N₂S wherein the first two are more productive. Where sandstone and conglomerate are low-yielding well can also be drilled in the N₁S. High yielding deep wells are common in the QVP.
- **Difficult areas.** These are areas not suitable for well development. In the province the areas under this category are Cretaceous to Paleogene (Kpg), Early to Middle Miocene Rocks (N₁S), and Quaternary Volcanics (QV). Limestone deposits generally fall under this category. Limited groundwater, if any, occurs in the fractured and/or weathered zones. Springs are the common sources of water in these areas.

Surface Water Sources

Lake Lanao and Agus River with their large storage of water and flow rates may be considered as an alternative source of water supply of Marawi City, however extensive study must be made with regards to contamination of pollutants prior to its usage. In the municipality of Malabang, the Matling River is the biggest and the major surface water source. Another is the Malabang River which stretches for only about two kilometers with flows coming from several important springs found in the lava and pyroclastic rocks outcropping in the area.

The other rivers which flow towards Lake Lanao are the Siguan, Maguin, Gata, Rugun and Malaig Rivers.

8. Future Requirements in Water Supply and Sanitation Improvement

Physical Targets and Service Coverage

The master plan aims to provide a ten-year design period for water and sanitation project in the Province of Lanao del Sur. It was envisioned that the project shall be done in two phases. Phase I will cover the need of the province from year 2005 to 2010, and the second Phase from 2010 to 2015.

Required Facilities to Meet Target Services

Water Supply

Generally, level III water system is appropriate for urban area, however, levels II and I facilities can also be implemented in urban areas in the future should the condition is warranted.. The existing Level I and II facilities are considered to be utilized during Phase I period and the population served by these facilities are assumed to be absorbed by level III service in Phase II. Most of the existing level III systems are utilizing deep well sources. In this context, deepwell source is used as the primary source in the project development plan, wherever applicable. Springs may also be considered but these require further evaluation of safe yields.

Level III system is considered for each municipality. In some areas a Level III system exists, in such a case the future requirements shall be considered as an expansion of the existing system, otherwise a new system was considered. Rehabilitation of existing and future facilities will be assumed to be undertaken by the current water service provider, organization or individual.

Sanitation

Future requirements on the number of household toilets were estimated based on the additional number of households to be served both for urban and rural population by municipality. Likewise the future requirements for public school and public toilets were estimated based on the projected increase in the number of public school and public utilities.

The type of toilet facilities is dependent on the service level of water supply in the community. A flush type toilet is considered in Level III areas while a typical pour-flush type will be considered in Level I and II service areas.

9. Institutional Strengthening for Medium-Term Plan

The failure of barangay/rural water service associations have resulted in the discontinuation of potable water supply availability. This might be due to the failure to properly train the community in the management, operation and sustenance of their systems. Unfortunately, the diversity of cultures in the area have resulted in the inability to organize working/effective associations to oversee water supply service operations. In addition, the deteriorating security,

peace and order situation and frequent clan wars have further resulted in the dismantling of these associations.

In any institutional-strengthening and capability-building activities for water supply projects, cultural diversity must be of paramount consideration in sustaining these projects.

10. Cost Estimates for Future Sector Development

The total investment cost required for the two phased implementation as identified in Chapters 7 and 8 is defined to include direct costs for construction of required facilities and sector management, as well as physical and price contingencies. Cost requirements for the equipment and vehicle are considered for O& M and long-term development.

Conditions and assumptions used to come up with investment costs covering all sub-sector components were established in coordination with concerned provincial and municipal LGUs and to current standards of relevant sector agencies like the DILG, LWUA, DOH and DPWH.

With regards to construction cost, unit costs per person/household facility were prepared under contract-out basis for respective sub-sector component facilities in current 2003 price levels.

During the 2005 Medium Term Development period, a total of 864.20 million pesos will be required for construction of the proposed development. Of the requirements, urban and rural water supply will share 40 % and 50 %, respectively while the remaining 10 % will be for urban and rural sanitation.

CHAPTER 1
INTRODUCTION

1. INTRODUCTION

1.1 Background of the Project

Being an archipelago, the Philippines has to cope with ethnic cultural differences such as dialects and customs to the more sensitive are like religion. Although touted as the only predominantly Christian country in Southeast Asia, Philippine Muslims were once a dominant group in the country. Presently concentrated between the western portion of Mindanao and the Sulu Archipelago, Philippine Muslims have 500 years of political history behind them; the longest political experience compared to other groups in the Philippines.

Philippine history had witnessed the Muslims steadfastness, unwilling to succumb to foreign hegemony since the time of the Spanish colonization. They have thrived and preserved their unique culture and identity through 11 ethnic tribes: Maranao, Maguindanao, Iranun, Tausug, Yakan, Sama, Sangil, Kaangan, Kolibugan, Palawan or Panimusan, and Molbog.

The inaccessibility and neglect that was born out of a confluence of political, ideological, geological and cultural differences has stirred unrest with Philippine Muslims. For more than two decades, the political unrest in the region has given a devastating blow to the already delicate economy of Mindanao.

To quell this unrest, the Philippine government has conducted a number of negotiations and concluded agreements with the Muslim separatist groups. This culminated with the creation of the Autonomous Region in Muslim Mindanao (ARMM). Still, distrust in the government's efforts for lasting peace has continued, not due only to cultural differences but also because of a high level of dissatisfaction on the government among Philippine Muslims. Such distrust then can only be outweighed by a sincere effort to uplift the socio-economic conditions of Philippine Muslims and only then could lasting peace and development be achieved in the ARMM.

Towards this end, the Japan International Cooperation Agency (JICA) intends to contribute its share to the development and growth of the ARMM. The conduct of the "Comprehensive Basic Survey of Autonomous Region in Muslim Mindanao" would be the initial stage of its involvement in turning Mindanao from a "Land of Promise" to a "Land of Realized Dreams". Through the basic survey, a comprehensive look into the current reality within the ARMM region in terms of socio-economic conditions, delivery of basic services, resources and

infrastructure would be made. This will help identify gaps in the programs and local policies inherent to the approaches currently being applied. The collection and analysis of primary data on sectors directly affecting the ARMM residents is indispensable if one is to come up with a responsive and sustainable developmental approach for the ARMM. Needless to say, the developmental approach will take into account the ARMM Development Framework Plan for 2003-2004 which prescribes the direction towards which the ARMM government has set its sights in the promotion of peace and security, social development, economic development, infrastructure development, and development of administration and finance. Eventually the analyzed data will aid in identifying the various issues and problems for the sectors reviewed leading towards the identification of appropriate intervention (policies, programs or projects) for both the short and long term.

Overall, the surveys should help in creating a complete and accurate picture of the ARMM as determined from the stakeholders themselves. This democratizes the process of development by creating a participatory atmosphere.

1.2 Survey Objectives

To reiterate, the basic study for the ARMM was conducted to achieve the following objectives:

1. Study and analyze the existing conditions in the region, e.g. socio-economic, policy/program, institutions, donors trend etc.;
2. Analyze the existing conditions, problems and needs of the sectors on health and medical care, education, water supply, infrastructure, agriculture and fisheries, and governance; and
3. Formulate the programs/projects that JICA can promote, considering both aid strategy and viable approaches specifically tailor-fit for the ARMM.

The objectives defined the sectors that need to be addressed if the ARMM is to succeed in its quest for self-determination and envisioning a peaceful and progressive society through social justice, human equity, responsive governance while preserving its unique identity in establishing international amity in enjoying the freedom to chart its own destiny.

1.3 Approach and Methodology

1.3.1 Approach to the Survey

The Scope of Work defined in straightforward fashion the required activities to produce a reliable database of basic data, a profile of administrative systems and identification of issues or problems and list of recommendations for JICA's possible assistance.

The stated objectives are immediate and more appropriately understood as purposes as they describe the activities that were conducted and what shall be produced in physical terms, which included:

Activities	Output
Collection of basic data covering six (6) major sectors: health and medical care, education, agriculture and fishery, basic infrastructure (roads and bridges), governance and water supply	Additional new field data and/or data that confirmed or validated existing documented data; prepare the findings of the sector survey and official data in a consolidated database report
Review of the administration systems of concerned ARMM regional line agencies (i.e., DOH, DepEd, DA, DPWH/DILG, ARMM Government);	Consolidated report
Identification and analysis of issues and problems	Consolidated report
Identification of potential programs and projects for JICA's possible cooperation	Consolidated report

Multi-Sectoral Participatory Approach. One of the most critical components of the plan were the inputs of the stakeholders in the plan which provided their insights, visions and aspirations, future directions and purpose. These stakeholders consisted of the Provincial and Municipal government officials, line agencies, non-government organizations, women organizations, people's organization, and the private sector, which had the opportunity to actively participate in the process.

Computerized Information System. A systematic handling and management of voluminous sets of information is a requisite for any data collection exercise. It was expected that the process will generate masses of information from both primary and secondary sources. The

multi-sectoral approach combining the aspects of social, economic, cultural, environment, physical and market generated complex sets of data, which need to be integrated and correlated.

This process expedited data compilation and analysis allowing more effective and efficient use of project time for the Consultant as well as better basis for drawing up analysis and strategies.

Utilization of Mindanao-based Support Staff. The associated firms sourced the required support staff from two Mindanao-based Non-Government Organizations with which we have partnered in past engagements. This set-up facilitated data gathering but data collection at the field level was still problematic. These firms are the following:

- ◆ *Kasanyangan Foundation, Inc. (KFI)* is a non-stock, non-profit organization based in Zamboanga City. A social development agency for a period of twelve years, KFI staff has the necessary expertise in Community and Institution Organizing and Building, Enterprise Development and Management, Agricultural Services, Policy Research and Advocacy, and Local Governance Capacity Building.
- ◆ *MinPhil International Consultants* is a service institution, which provides technical assistance to private firms, government owned and controlled corporations, non-government organizations, national government agencies, local government units and development agencies. Its services include training, policy analysis and research, feasibility and market studies, and project design, implementation and evaluation. MinPhil is based in Davao City.

1.3.2 Methodology

An Overall Study Framework for the Conduct of the Survey was developed and served as the road map that guided the Survey Team in the conduct and completion of the Survey consistent with JICA's objectives for the Survey and the quality of Survey outputs.

The Framework is given as Figure 1-1.

The Project Organization is given as Figure 1-2.

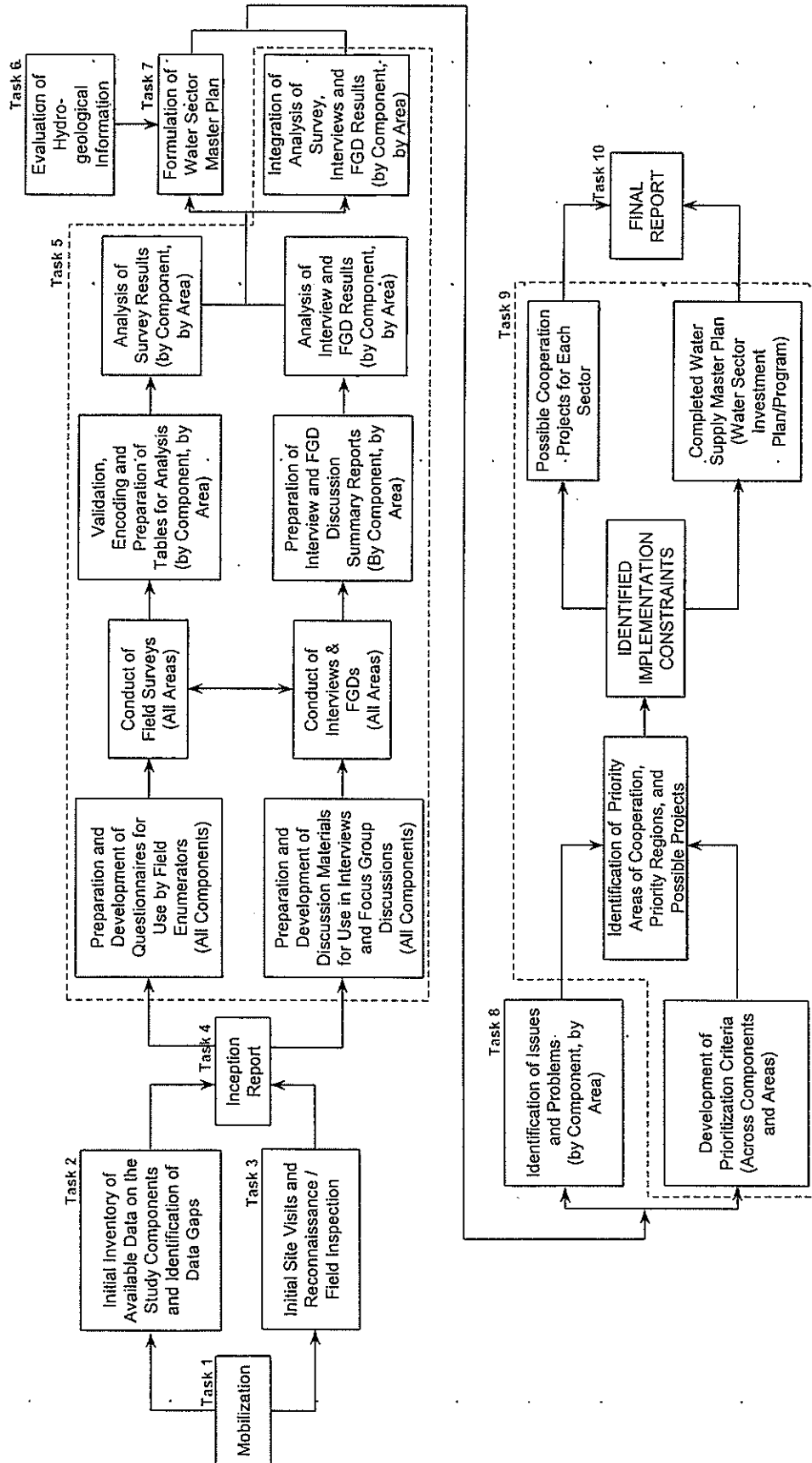


Figure 1-1 Overall Study Framework for the Comprehensive Basic Survey of ARMM

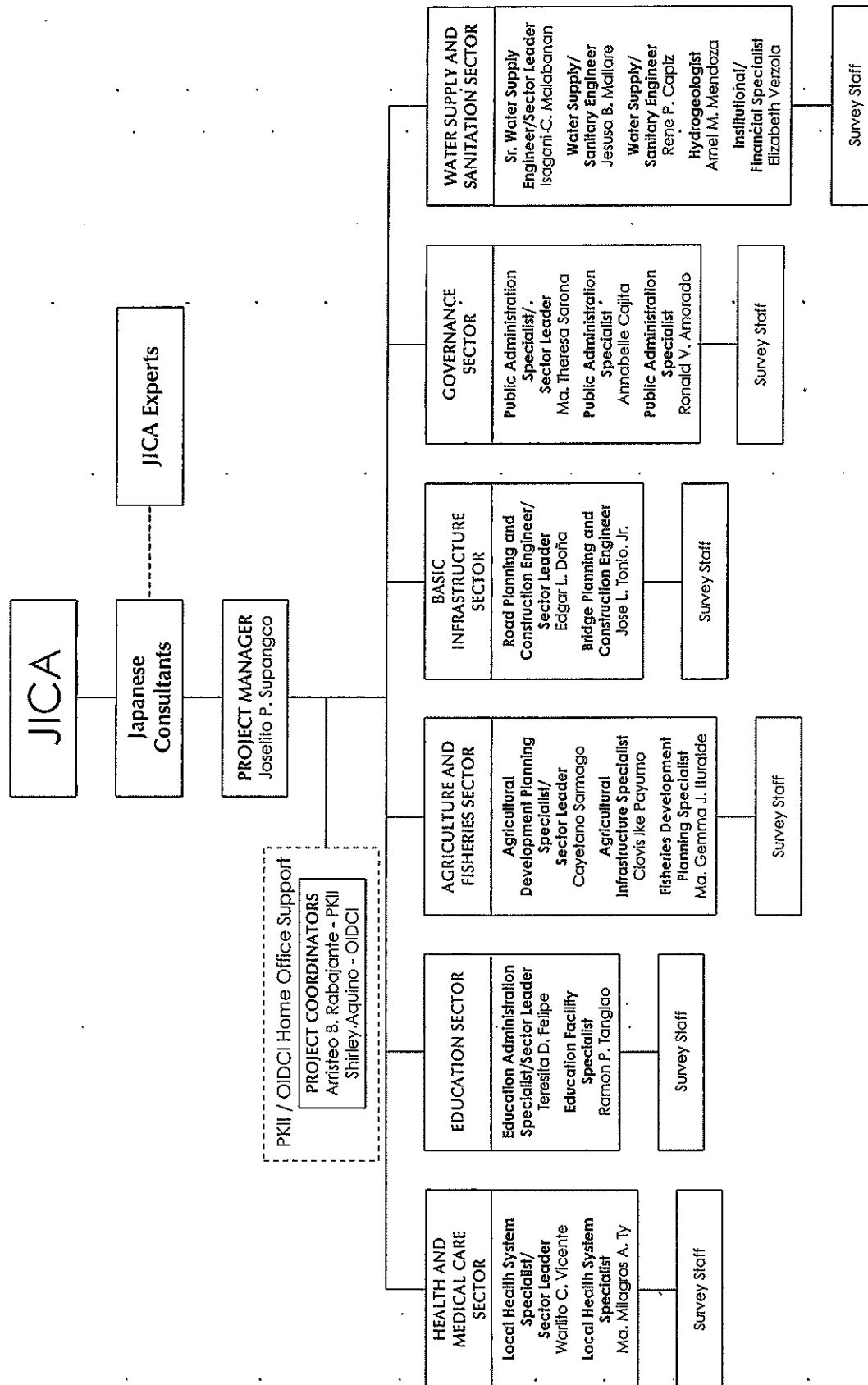


Figure 1-2 Project Organizational Chart

1.3.3 Conduct of Workshops, Meetings, Focus Group Discussions and other Participatory Activities

Provincial Workshops. An important component of the Survey was the conduct of the Provincial Workshops which were intended to facilitate the collection of information from the various stakeholders and to allow the participants to vent issues and problems related to their specific sectors. The preparatory activities for the conduct of the Workshops were facilitated by the Provincial Government through the Offices of the Provincial Administrator and the Provincial Planning and Development Coordinator. The conduct of the Workshops were still delayed as it required a significant amount of time to invite the targeted participants. While attendance was significant, some of the major stakeholders did not attend for various reasons. The structure of the workshops were simplified due to time constraint, as the Study Team members still had to meet the various key informants in their offices to collect whatever data was required by the Survey.

Thus, the Provincial Workshops started with the usual traditional program followed by the introduction of the participants and the introduction of the Survey and its objectives. The participants were then divided into the six sector groupings of the Study for the conduct of the Focus Group Discussions facilitated by the Specialists concerned. The focus questions were:

- a) What operational and statistical data are available in the various offices of the participants? (This included the method of data collection, forms used, data validation, frequency of data collection and problems the agency faced in data collection)
- b) What are the various issues and concerns faced by the sector in the area? (This also included what the suggested solutions are and how these solutions should be implemented.)

The problems usually encountered in the conduct of the workshops were as follows:

- a) *Communication and Scheduling the Workshops.* In spite of advances in communication technology, there was great difficulty in contacting the appropriate persons responsible for inviting the targeted participants, arrangement of the venue and the scheduling of the workshops itself. The provinces usually had a lot of intervening activities such as trainings, meetings, and other activities that usually involved the

targeted participants. This had caused difficulty in scheduling the date of the workshops.

- b) *Attendance of Participants.* While the provincial government, through the office of the governor, expedited the identification of the participants and the distribution of the invitations, a significant number of the identified key informants were still unable to attend due to other activities within and outside the province.
- c) *Level of Participants.* Sometimes, when the invitees are unable to attend, representatives were sent. Oftentimes, the representatives were not well versed in the operations of their offices or the type of information that was being generated by their offices. Thus, they could not effectively participate in the discussions during the workshops.
- d) *Distance of the Venue.* While the venues of the workshops were usually in the provincial capitol, some of the participants, especially those from the LGUs had to travel long distances just to attend the workshop. This also meant that they had to leave early in order to catch the last trips to their LGUs, which were usually early in the afternoon.

The Provincial Workshops did serve the purpose intended in terms of: (a) expediting the gathering of information from the participants' offices; (b) generating key informants and stakeholders' viewpoints on issues and problems in their sector; and (c) assisting the specialists in the site investigations that usually followed the conduct of the workshops.

The date, location and number of participants in these workshops are summarized below.

Table 1-1 Venue, Date and Number of Participants in Provincial Workshops

Province	Venue	Date	Number of Participants
Tawi-Tawi	Rachel Halipa Hotel and Restaurant, Bongao, Tawi-Tawi	8 Sept. 2003	39
Basilan	Provincial Livelihood Center, Isabela, Basilan	10 Sept. 2003	37
Sulu	Honeybee Foods and Apartelle, Jolo, Sulu	11 Sept. 2003	29
Lanao del Sur/ Marawi City	Cafe Hermoso, Iligan City, Lanao del Norte	17 Sept. 2003	46
Maguindanao	Estosan Hotel, Cotabato City, Maguindanao	24 Sept. 2003	24

Special Consultation Workshops for the Office of the Regional Governor. In agreement with the Regional Planning and Development Office (RPDO) and the Technical Management Services (TMS) of the Office of the Regional Governor (ORG), two sets of consultation workshops were conducted. The objectives of these two additional workshops were:

- a) To identify the emerging trends since the implementation of the Organic Act as amended in the following areas;
 - i. Development Directions for ARMM
 - ii. Budget and Funds Flow
 - iii. Resource Mobilization
 - iv. Devolution
 - v. Operating Systems and Procedures
 - vi. Delivery of Basic Services
 - vii. Intergovernmental and Non-Governmental Relations
 - viii. Legislation
- b) To identify the constraints in the implementation of the Organic Act; and
- c) To identify the strategic interventions in governance and development administration.

The consultation workshop used a combination of small group discussions and the technology of participation (TOP) approach. The participants were divided into small groups where greater participation was maximized.

At the end of each session, it was expected that there would be agreements reached in terms of emerging trends, constraints and strategic interventions on governance.

The first set of workshop was for the offices within the Office of the Regional Governor (ORG), which was preliminary activity before the final consultation workshop. There was an expressed interest from these offices to be involved since they felt that the ultimate beneficiaries need to be consulted.

The second and final consultation workshop was attended by the members and additional agencies of the Regional Development Administration Committee (RDAC), the Planning

Committee tasked to coordinate Development Administration, including governance matters for the ARMM.

The Preliminary Consultation Workshop was attended by the Division Chiefs of the different offices and services in the Office of the Regional Governor. The final Consultation Workshop was attended by the members of the Regional Development Administration Committee (RDAC) and additional participants.

One-on-One Meetings. For the actual data collection at site, the different specialists were fielded in the ARMM. They met, whenever available, the different key informants and officials at the municipal, provincial, local officials of national agencies, regional government and officials of different funding institutions involved in the ARMM. The detailed fieldwork was quite extensive, although the data that was actually collected from these were less than targeted. In the end, there were still substantial data gaps that prevailed across sectors and therefore could not be filled. This became a major constraint of the Survey.

1.4 Organization of Report

The sector plan will discuss existing situation of the water supply and sanitation sector in the Province of Basilan in terms of facilities and coverage, sector arrangements and institutional capacity, past financial performance and water source development. Based on the analysis of the existing situation and conditions of the province, future requirements in water supply and sanitation improvement will be projected. Costs for future sector development will be estimated, a sector management plan will also be drawn up including financial arrangements and monitoring and evaluation for the sector and the project. Selection criteria to identify priority projects/ area will also be established.

CHAPTER 2
PROVINCIAL PROFILE

2. PROVINCIAL PROFILE

2.1 Brief History

Lanao comes from the word *ranao*, meaning "lake". Lanao centers around the basin of Lake Lanao; thus, it is the land of the Maranaos, the "people of the lake". Maranao folklore holds that Islam came to the area via the northern coast and brought by a certain Sharif Alawi. In the 17th century, the Maranaos were allied with the powerful Maguindanao Sultan Kudarat. The Spaniards tried to gain control of the region and in 1639 sent an expedition that succeeded in capturing Dansalan. The Spaniards held the town for two years, but were forced to withdraw because of the continued hostility of the people. Malabang on the southern coast of Lanao del Sur was an important staging ground of raids on the Visayan and Luzon settlements.

As Maguindanao power waned in the 18th and 19th century, the Maranaos established a string of sultanates around the lake free of both Spanish and Maguindanao control. Towards the end of Spanish domination in the Philippines, the Spaniards attempted to subdue the Maranaos. In 1891, Spanish troops seized the town of Malabang on the southern coast along Illana Bay. In 1894, a Spanish force from Iligan captured and fortified Marahui and gunboats were brought into the lake in an attempt to assert Spanish power. The Spanish presence was withdrawn after the outbreak of the Philippine Revolution and American troops arrived in 1900. The Maranaos refused to yield to American rule and in March 1902, the first of a series of clashes occurred between American and Maranao forces.

Lanao was created as a district of Mindanao in 1895. In 1903, Lanao was incorporated into the Moro Province by the American government. The province of Lanao was born in 1914 with the organization of the Department of Mindanao and Sulu. In 1959, Lanao was divided along ethnic lines by virtue of Republic Act No. 2228.

Lanao del Sur figured prominently in the Muslim-Christian struggle in the 1970s. In October 1972 the city of Marawi was attacked and briefly occupied by the Moro National Liberation Front (MNLF) guerrillas in one of the most dramatic episodes of the secessionist war. Sporadic incidents drove many residents to seek safety in secure settlements. Lanao del Sur continued to be a stronghold of the MNLF until peace was signed in 1996.

In 1979 following peace agreements between the Philippine government and the MNLF, Lanao del Sur became part of the autonomous regional government of Central Mindanao. In 1989, the province voted to become one of the four provinces comprising the Autonomous Region in Muslim Mindanao.

2.2 Location and Accessibility

Lanao del Sur is in Northern Mindanao. It is bounded on the north by Lanao del Norte, on the east by Bukidnon, on the west by Illana Bay, and on the south by Maguindanao and Cotabato.

Access to the province is possible either by land, air, or water transportation. Lanao del Sur is only 36 km from Iligan City and 137 km away from Cagayan de Oro City. The province is connected to other provinces through a network of roads that also links it to the international seaport in Maguindanao and the airport in Lanao del Norte. The total road network stretches to about 3,850 km. Lanao del Sur has an airport in Malabang and 31 municipal ports.

2.3 The Land

Lanao del Sur forms the western portion of the extensive plateau of Northern Mindanao. Adjoining Illana Bay on the southwest are a narrow coastal plain and rolling hills that give way to mountain ranges along the boundary with Cotabato and lowlands going east to the boundary with Bukidnon. Lake Lanao, around which most of the province's towns are located, is the second largest lake in the country. It covers an area of 340 km² and is 700 meters above sea level. Agus River is the lake's outlet that flows for 30 km into Iligan Bay.

Lanao Lake lies to the west of a plateau and dominates the province of Lanao del Sur. The plateau is sealed from the Pulangi lowlands by the high Piapayungan ridge but loses elevation towards the southwest at Illana Bay. The coast is regular, with few good anchorages.

The National Statistics and Coordination Board (NSCB) reports that Lanao del Sur has a land area 3,895.49 km². The Department of Budget and Management (DBM), in its 2003 Internal Revenue Allotment, reports a total land area of 12,051.85 km². As of 2003, there are two congressional districts, 38 municipalities, one city, and 1,155 barangays in the province.

Lanao del Norte and Bukidnon tend to receive about 1,600mm rain annually. The southern portion of the province near its boundary with Maguindanao is generally moister, receiving about 2900mm of rain annually.

Based on the climatic data from MSU-Marawi, the average monthly rainfall is 330mm. December to April are the months with the least amount of rainfall, an average of 150mm. The annual average rainfall is 1,500mm. The average temperature in Marawi City is about 22.78°C with monthly ranges from 21.67°C in January to 23.89°C in May and June.

2.3.3 Land Use and Classification

The province of Lanao del Sur has a land area filled with lakes and rivers, and terrain of plateaus, hills, volcanoes and mountain ranges. Timberland forms 65.6 % of the province while the remaining 34.2% is classified as alienable and disposable. The province has a water area of 340.39 km² wide composed mostly of lakes and swamps.

From the 2002 Statistical Yearbook, lands in Lanao del Sur were classified as follows:

Table 2-1 Land Classification as of December 2000

CLASSIFICATION	Area, km ²	Percent of Province	Percent of ARMM
Total Land Area	3,872.89	100.00	29.94
Alienable and Disposable	1,331.35	34.38	21.19
Total Forest Area	2,541.54	65.62	38.21
Unclassified Forest Land	0.00	0.00	0.00
Total Classified Public Forest	2,541.54	65.62	45.02
<i>Forest Reserves</i>	118.44	3.06	48.29
<i>Established Timber Land</i>	2,406.28	62.13	48.18
<i>National Park (GRBS/WA)</i>	16.82	0.43	5.13
<i>Area for Fishpond Development</i>	0.00	0.00	0.00

Source: Bureau of Census and Statistics, Statistical Yearbook 2002

2.4 Geology

The uplifted metamorphic, igneous and sedimentary rocks in Lanao del Sur were formed during the pre-Cretaceous to Recent. They are the result of magmatic and tectonic action generated by westward and northeast crustal dipping plates that were subducted during the course of the province's evolution. The subduction zones south of Cotabato, along the Agusan-Davao trough and east of Surigao are considered most significant in the geologic development of Central

2.3.1 Topography and Drainage

Rolling plateaus dominate the landscape of Lanao del Sur. Deep canyons cut near the edges of these plateaus where at several points flaunting waterfalls descent to the narrow coastal plains. Lanao Lake is set on one such plateau.

Several smaller streams and creeks dissect the area in dendritic pattern and generally flow towards Lake Lanao and Mindanao Sea. Some of these streams and creeks are of the perennial type, while the rest are intermittent. The location, source and discharge of these streams can give a good indication of the general groundwater condition.

2.3.2 Climate

While the climate of the entire Philippines may be classified into four types following the Modified Corona's Classification System, only three types are observed in Mindanao and only two of these are observed in the ARMM area. Figure 2-1 presents the classification of climate within the entire island of Mindanao and within the coverage of ARMM.

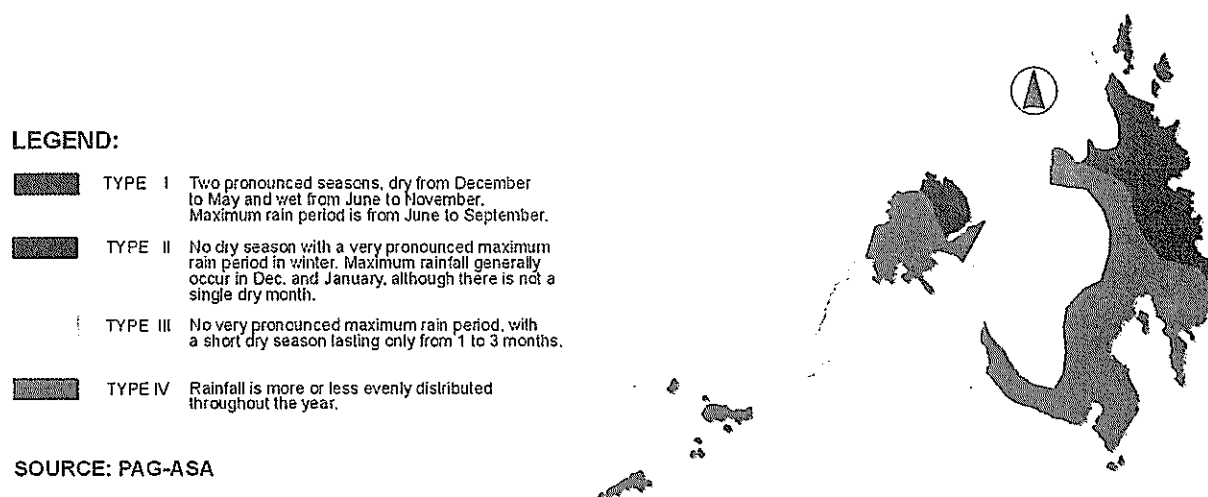
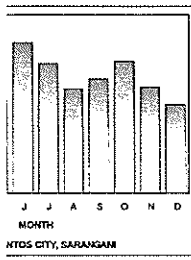
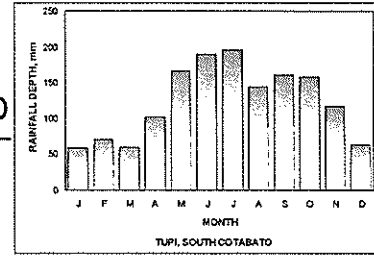
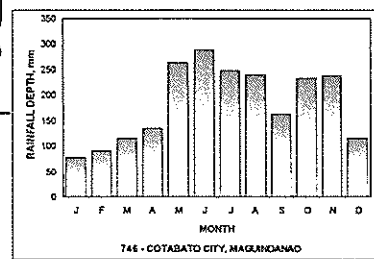
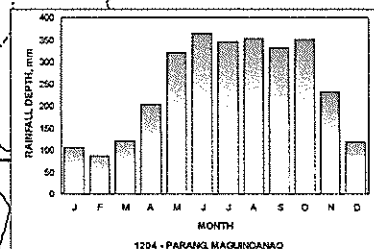
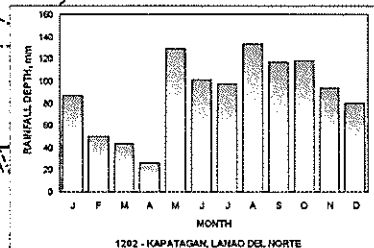
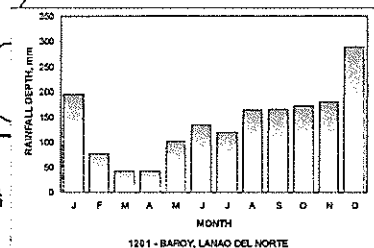
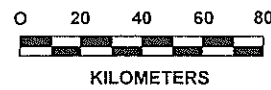
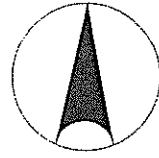
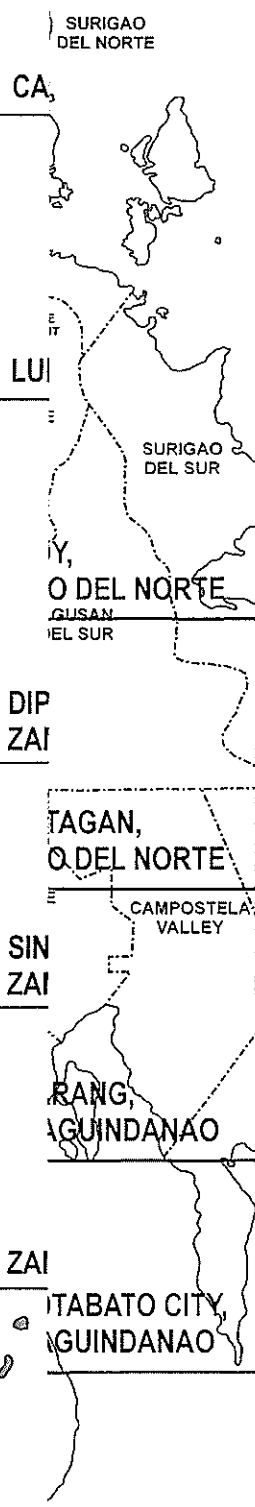
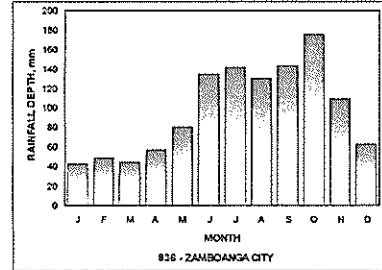
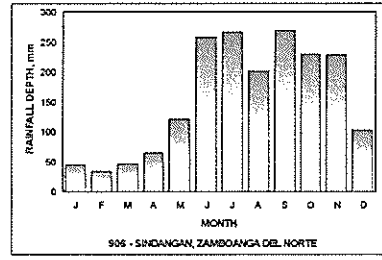
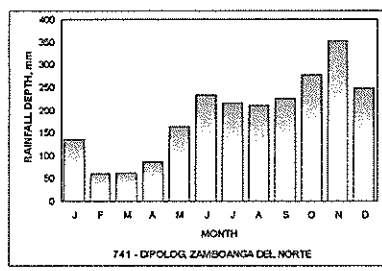
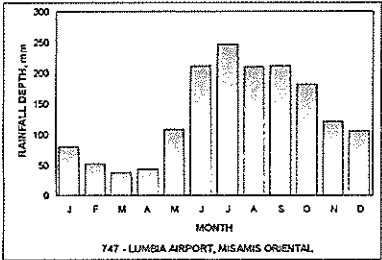
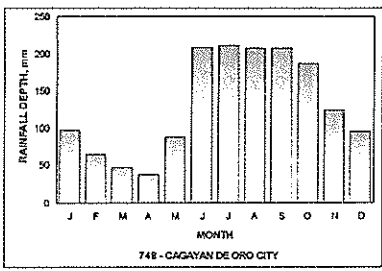


Figure 2-1 Climate Map of Mindanao

The province has a cool and pleasant climate because of its elevation. Summertime, as it is known elsewhere in the country, is not quite distinct here. Rainfall is evenly distributed throughout the year. The province is also outside the typhoon belt.

The monthly and rainfall data recorded at weather stations located in the ARMM and its vicinity are summarized in Figure 2-2. From the rainfall data map, it can be inferred that western Lanao del Sur receives less rain annually than the rest of the province. The northeastern portions near



SOURCE: Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)



Mindanao. Westward subduction from the Agusan-Davao trough is said to have lifted up rock formations that formed the Mindanao Central Cordillera during Late Oligocene to Middle Miocene. The southwest Cotabato Oceanic crust was lifted up by the northeast moving Cotabato under-thrusted plate during this time. It was also active during the Pliocene to Pleistocene. It probably lifted up the Lanao area. This and the Philippine eastern plate are considered to be intermittently active to the present.

2.5 Socio-Demographic Profile

Total Population. Lanao del Sur reported a total population of 800,162 persons in the 2000 Census of Population and Housing (Table 2-2). This implied an increase of 97,268 persons over the 1995 census figure.

This resulted to an average growth rate of 3.42 percent, up by 1.18 percentage points from the 1990 to 1995 period. If the current growth rate continues, the population of Lanao del Sur is expected to double in 20 years.

The number of households increased to 97,104 as compared to 91,683 households in 1995. The average household size recorded was 6.89 persons, higher than the 1995 figure of 6.23 percent and the national average of five persons.

Lanao del Sur ranked second in terms of population size among the five ARMM provinces. The province shared more than one-fourth (28.55 percent) to the 2.8 million population of the region. At the national level, Lanao del Sur shared 1.05 percent to the total population of 76.5 million.

The city of Marawi contributed 16.38 percent to the province's population. Of the 38 municipalities, Wao was the biggest in terms of population size contributing 35,517 persons or 4.44 percent. Malabang, Marantao and Balabagan followed with 4.15 percent, 3.08 percent and 3.07 percent, respectively. Bumbaran had the least population with 0.82 percent.

Population Distribution. As shown in Table 2-3, the province had a young population with a median age of 17 years, same as the median age five years ago. This meant that half of the population was below 17 years old.

Table 2-2 Total Population Distribution: Lanao del Sur including Marawi City, 2000

Municipality / City	Total Population	Percent
1. Bacolod-Kalawi (Bacolod Grande)	17,761	2.22
2. Balabagan	24,558	3.07
3. Balindong (Watu)	24,470	3.06
4. Bayang	21,020	2.63
5. Binidayan	18,081	2.26
6. Buadiposo-Buntong	13,535	1.69
7. Bubong	19,003	2.37
8. Bumbaran	6,589	0.82
9. Butig	16,283	2.03
10. Calanogas	9,989	1.25
11. Ditsaan-Ramain	19,157	2.39
12. Ganassi	18,947	2.37
13. Kapai	16,564	2.07
14. Kapatagan	7,804	0.98
15. Lumba-Bayabao (Maguing)	23,521	2.94
16. Lumbatan	17,445	2.18
17. Lumbayanague	12,835	1.60
18. Madalum	18,405	2.30
19. Madamba	15,442	1.93
20. Maguing	18,095	2.26
21. Malabang	33,177	4.15
22. Marantao	24,647	3.08
23. Marawi City	131,090	16.38
24. Marogong	16,165	2.02
25. Masiu	24,105	3.01
26. Mulondo	12,368	1.55
27. Pagayawan (Tatarikan)	9,757	1.22
28. Piagapo	23,903	2.99
29. Poona Bayabao (Gata)	17,390	2.17
30. Pualas	7,887	0.99
31. Saguiaran	22,636	2.83
32. Sultan Dumalondong	11,105	1.39
33. Sultan Gumander	12,230	1.53
34. Tagoloan II	8,714	1.09
35. Tamparan	19,975	2.50
36. Taraka	18,832	2.35
37. Tubaran	11,021	1.38
38. Tugaya	20,139	2.52
39. Wao	35,517	4.44
TOTAL	800,162	100.00

Source: NFO, 2000 Census of Population and Housing

Table 2-3 Total Population by Age Group, Sex and Sex Ratio: Lanao del Sur, 2000

Age Group	Total Population	Male	Female	Sex Ratio
Lanao del Sur	669,072	324,673	344,399	94.27
Under 1	9,160	4,371	4,789	92.82
1 to 4	84,992	40,504	44,488	91.04
5 to 9	110,960	54,194	56,766	95.47
10 to 14	90,839	44,688	46,151	96.83
15 to 19	78,096	37,555	40,541	92.63
20 to 24	58,502	27,259	31,243	87.25
25 to 29	49,039	22,148	26,891	82.36
30 to 34	40,372	18,885	21,487	87.89
35 to 39	41,945	20,440	21,505	95.05
40 to 44	30,911	15,614	15,297	102.07
45 to 49	24,227	12,523	11,704	107.00
50 to 54	16,202	8,328	7,874	105.77
55 to 59	12,121	6,380	5,741	111.13
60 to 64	9,898	5,338	4,560	117.06
65 to 69	5,560	2,971	2,589	114.75
70 to 74	3,319	1,908	1,411	135.22
75 to 79	1,529	855	674	126.85
80 & Over	1,400	712	688	103.49

Source: NSO, 2000 Census of Population and Housing

Females made up the bulk of the younger age group 0 to 35 years, while males dominated the older age group 40 years and over. Females outnumbered their male counterparts with a sex ratio of 94.27 males for every 100 females. This was due to the large population in the younger age group dominated by females.

The percentage of the total population belonging to age group 0-14 years was 44.23 percent. The oldest group (65 years and over) accounted for 1.76 percent, while 54 percent were in 15 to 64 years age group (economically active population).

In 2000, the overall dependency ratio was 85.18. This was almost the same as the 1995 ratio of 85.55. This meant that for every 100 persons aged 15-64 years, there were about 85 dependents (82 persons aged 0-14 years – young dependents and three persons aged 65 years and over – old dependents).

The total population belonging to the voting population was 327,409 persons or 48.93 percent of the total population in the province. The females posted 51.49 percent, higher than that of the males.

Of the 344,399 total females, 48.97 percent were in childbearing or reproductive age group (15-49 years), the highest percentage was that at age group 15 to 19 years (11.77 percent).

Housing. Table 2-4 shows that close to 20 percent of the housing units had floor area of 20-29 m², 18.41 percent with 10-19 m², and 15.57 percent with 30-49 m². Occupied housing units had median floor area of 36.6 m².

Nine out of ten housing units were single houses (91.31 percent). Two-thirds of the housing units in Lanao del Sur needed no repair or if needed one, with minor repair only while close to 32 percent were built from 1996-2000.

As to the construction materials used, 81.14 percent of the occupied housing units had roof made of galvanized iron/aluminum, while 54.87 percent had wood for the outer walls.

Table 2-4 Total Occupied Housing Units by Construction Materials of the Outer Walls and Roof: Lanao del Sur, 2000

CONSTRUCTION MATERIALS OF THE OUTER WALLS	Total Occupied Housing Units	CONSTRUCTION MATERIALS OF THE ROOF							
		GI/ Aluminum	Tile/ Concrete/ Clay Tile	Half GI/Half Concrete	Wood	Cogon/ Nipa/ Anahaw	Make-shift/ Salvaged/ Improvised Materials	Asbestos /Others	Not Reported
Lanao del Sur	76,859	62,367	1,575	1,922	4,045	4,466	56	226	2,202
Concrete/ Brick/ Stone	12,372	10,632	1,245	412	41	24	2	16	-
Wood	42,173	36,356	158	367	3,363	1,863	13	53	-
Half Concrete/ Brick/Stone and Half Wood	9,666	8,279	92	1,055	188	31	1	20	-
Galvanized iron/ Aluminum	439	360	12	25	27	15	-	-	-
Bamboo/Sawali/ Cogon/Nipa	9,163	6,146	-	34	361	2,487	17	117	1
Asbestos	28	24	3	-	-	-	-	1	-
Glass	19	12	2	2	3	-	-	-	-
Makeshift/ Salvaged/ Improvised Materials	75	39	-	-	3	10	23	-	-
Others/ Not reported	2,878	485	59	24	55	35	-	19	2,201
No Walls	46	34	4	3	4	1	-	-	-

Source: NSO, 2000 Census of Population and Housing

2.6 Commerce and Industry

The province's fertile soil supports a basically agricultural economy, with rice as the main crop. Other crops include the usual staples: corn, coconut, abaca, bananas, and some rarities like the *durian* fruit.

The lake contains several species of fish for small-scale fishing. Extensive logging has caused many original forests to disappear.

The most prominent cottage industries are brassmaking and *malong*-weaving.

Electricity is not a problem as there are seven hydroelectric power plants operating in the province. Similarly, water supply comes from deep and shallow wells. The province has nine private radio telegraph stations and 31 government maintained telecommunication facilities as well as postal offices in all the municipalities.

The primary investment opportunity in Lanao del Sur is tilapia culture and crab fattening ventures. Given the large area of water suitable for inland fishponds production, capacities could also easily support processing activities. Plantations and nurseries for a variety of fruit species is another investment option. Lanao del Sur also has its own share of beautiful sites like Lake Lanao, Pomalion Spring, Lake Butig, Tula-tula beach, Matling Falls and Lake Dapao. These areas are open to investment on tourist accommodation facilities.

2.7 General Health Profile

The health status of a population reflects progress in efforts to promote equitable human development where everyone lives in a society where there is equal opportunity and chance to succeed in life.

The scenario in ARMM provides a real challenge since access to health services is not only affected by geographic constraints but even more so because of the armed conflict in various parts of ARMM.

2.7.1 Vital Health Indices

It is widely acknowledged that the ARMM is among the poorest regions in the country. Consequently, its health indices bear witness to this: the Infant Mortality Rate (IMR) for the

region is 63% higher than the national rate, maternal mortality rate is almost double that of the national rate, crude birth is slightly higher and the crude death rate is 61% higher than the national figure (see Table 2-5).

Table 2-1 The Vital Health Indicators – National vs. ARMM

Indicator	National	ARMM
Population Growth Rate (2000)	2.36	3.86
Life Expectancy at Birth (2000)	67.2	57.2
Maternal Mortality Rate (2000)	0.6/1,000 LB	1.1/1,000 LB
Infant Mortality Rate (2000)	30/1000 LB	55.1/1000 LB
Crude Birth Rate (2000)	26.78 (/ 1000)	27.36
Crude Death Rate (2000)	5.89	9.51

Source: DOH-ARMM (Consolidated data- various years in bracket)
(LB – live birth)

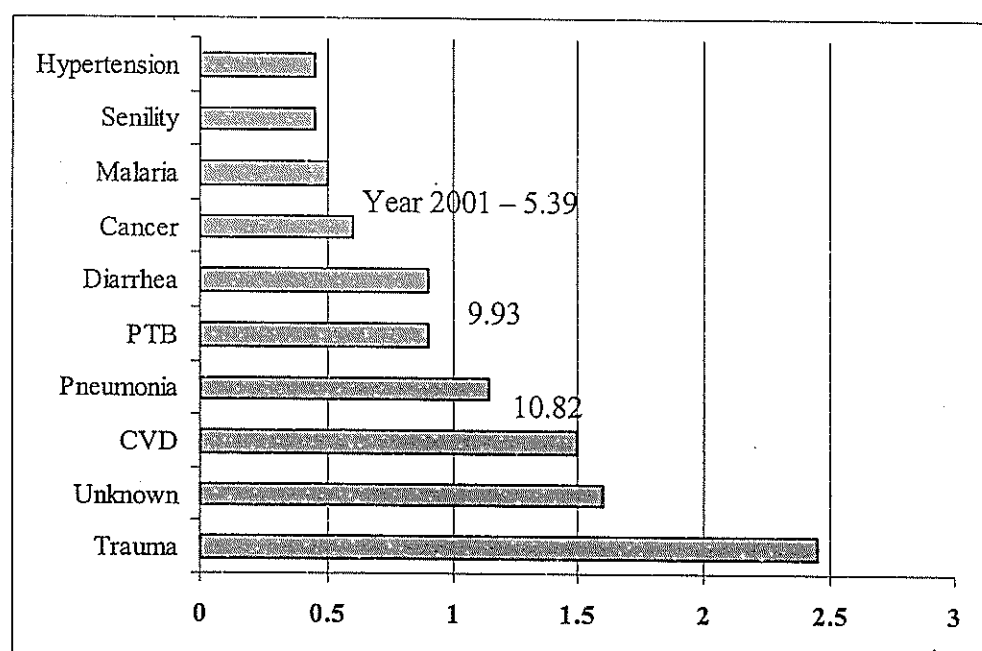
2.7.2 Ten Leading Causes of Mortality

The data on the ten leading causes of mortality in 2001 (Table 2-6) lists “Unknown/Senility” as the number one (1) cause of death in ARMM, which is quite unusual and may reflect an error in reporting. It is also not clear whether “Accident, all forms” which ranks second is significantly different from “Trauma/GSW”. The 2002 data on leading causes of death presents a different picture. “Trauma” is now ranked first followed by “Unknown Causes” and “Cardiovascular Diseases” as shown in Figure 2-3.

Table 2-2 Ten Leading Cause of Mortality per 100,000 Population in ARMM, 2001

CAUSES	NUMBER	RATE
1. Unknown, senility	445	19.81
2. Accident, all forms	404	17.99
3. Hypertension	278	12.38
4. Pneumonia	243	10.82
5. PTB	223	9.93
6. Trauma/GSW	214	9.53
7. Diarrhea	190	8.46
8. Cardiovascular Disease	168	7.48
9. Cancer, all forms	121	5.39
10. Diseases of the heart	79	3.52

Source: MFHSIS



Note: X axis times 10

Source: DOH-ARMM

Figure 2-3 Ten Leading Causes of Deaths Per 100,000 Population – ARMM (2002)

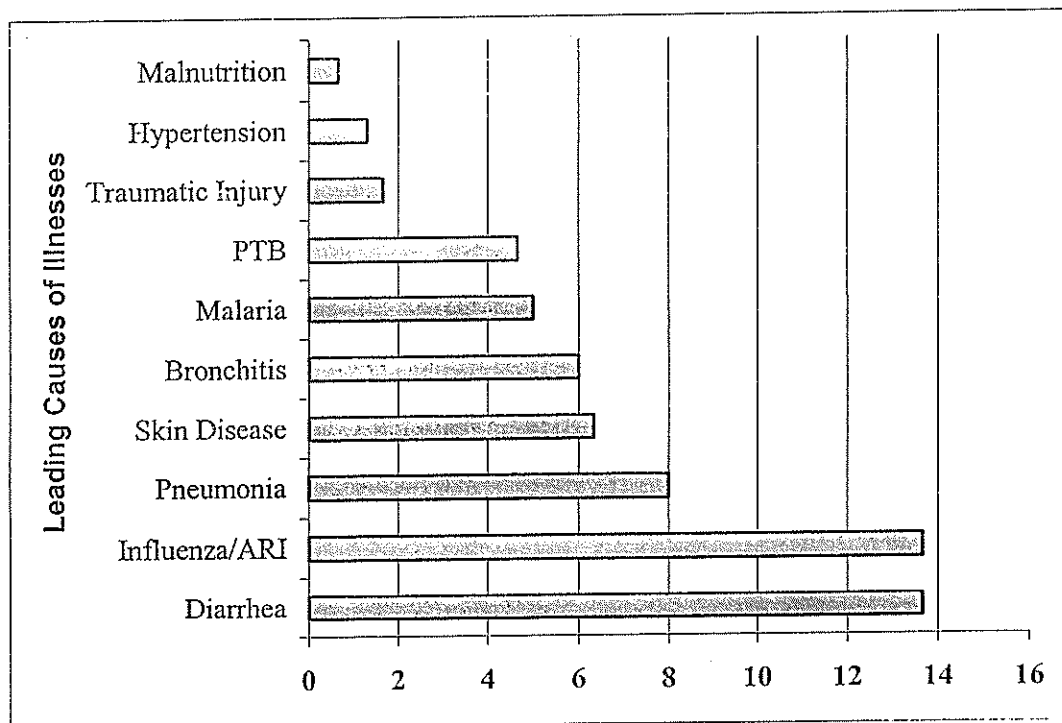
2.7.3 Leading Causes of Morbidity

The top three causes of morbidity or illness (Table 2-7 and Figure 2-4) are all infectious in nature: Diarrhea, which is ranked first, correlates well with the focused group discussion results, which indicate that potable water is a big problem in ARMM. The same result also correlates well with the report on notifiable diseases. There is no significant difference between the 2001 and the 2002 data.

Table 2-3 Ten Leading Causes of Illnesses per 1000 Population – ARMM-2001

CAUSES	NUMBER	RATE
1. Diarrhea	35,040	15.60
2. Influenza/ARI	34,864	15.52
3. Pneumonia	17,576	7.82
4. Bronchitis	14,120	6.29
5. Skin Diseases	9,612	4.28
6. Diseases of the Heart	6,984	3.11
7. PTB	3,674	1.64
8. Hypertension	3,361	1.50
9. Parasitism	2,533	1.13
10. Malaria	2,328	1.04

Source: MFHSIS- 2001



Source: DOH-ARMM Report

Figure 2-4 Ten Leading Causes of Illnesses per 1,000 Population – ARMM (2002)

CHAPTER 3

EXISTING FACILITIES AND SERVICE COVERAGE

3. EXISTING FACILITIES AND SERVICE COVERAGE

3.1 Water Supply

3.1.1 General

The present water supply system for each municipality was surveyed to assess the existing conditions and the future needs of the people in the locality. Other water supply system parameters such as service areas, service area population, served population, water service level, water quality of present sources, present distribution system (for Level II and III) were also assessed to define the necessary measures to be planned for the improvement of the water supply system of each municipality.

Out of the 39 city and municipalities of Lanao del Sur, 8% are being served by Level III system, 33% by Level II system and the remaining 59% by Level I system.

For Level II and III, existing water sources are deep wells and springs while for Level I, water sources come from shallow and deep wells, springs, rivers, lakes and rainwater.

3.1.2 Types of Facilities and Definition of Service Level Standard

Composition of Water Supply System and Facility. The service level and system components of the water supply system and facilities are shown below.

Table 3-1 Composition of Water Supply System and Facility

Facility	Level I	Level II	Level III
1. Water Source	Drilled shallow well Drilled deep well Spring Dug well Rain Collector	Drilled shallow well Drilled deep well Spring Infiltration gallery	Drilled shallow well Spring Infiltration gallery Surface water intake
2. Water Treatment	Generally none. Disinfection of well is conducted periodically by local health authorities.	Disinfection facility is sometimes not provided.	Disinfection facility is provided. Systems with surface water source have series of treatment facilities.
3. Distribution	None	Pipe system provided with reservoir	Pipe system provided with reservoir and pumping facilities
4. Delivery and Service Level	Generally none.	Communal faucet shared by houses within 25 m Radius	Individual house connection/household tap
5. Consumption Rate	At least 20 lpcd	At least 60 lpcd	At least 100 lpcd

Safe and Unsafe Classification of Water Sources. Generally, all water sources cannot be assumed to be safe for drinking unless chemical and bacteriological tests are conducted. However, the sources can be classified initially as either safe or unsafe considering the physical condition and accessibility of source to contamination.

Safe Sources

Protected deep well
Protected shallow well
Improved/covered dug well
Developed spring

Unsafe Sources

Unprotected deep well
Unprotected shallow well
Open dug well
Unprotected Rain Collector

Service Level Standard. The water supply system has three service levels. Normally, the number of households served for each level is sometimes beyond the standard set. The ideal service level standards are shown below.

Level I	15 households per point source 1 household per private well
Level II	4 to 6 households per communal faucet
Level III	1 household per connection

3.1.3 Level III Water Supply Systems

The Level III water system is usually operated by the water district or by the municipal waterworks. In the province of Lanao del Sur, Marawi City and the municipalities of Wao and Ganassi have existing Level III water systems. The table below shows the available details of the water supply system for each city/municipality.

Table 3-2 Existing Level III Water Systems in Lanao del Sur

City/ Municipality	Water Service Provider	Service Area			No. of Connections	Water Source	Est. Unit Water Cons. (lpcd)
		Barangay	Class	2003 Served Pop			
Marawi City	Marawi City Water District	Bacolod Chico Proper	Urban	154	26	5 deep wells	120
		Banggolo Poblacion	Urban	776	129		
		Bangon	Urban	421	70		
		Buadi Sacayo (Green)	Urban	631	105		
		Bubonga Lilod					
		Madaya	Urban	609	101		
		Bubonga Marawi	Urban	435	73		
		Dansalan	Urban	525	87		
		Datu Naga	Urban	713	119		
		Datu Sa Dansalan	Urban	780	130		

CHAPTER THREE

Existing Facilities and Service Coverage

City/ Municipality	Water Service Provider	Service Area			No. of Connections	Water Source	Est. Unit Water Cons. (lpcd)
		Barangay	Class	2003 Served Pop			
		Dayawan	Urban	288	48		
		Fort	Urban	291	48		
		Lilod Saduc	Urban	469	78		
		Lumbaca Madaya (Pob.)	Urban	406	68		
		Lumbaca Toros	Urban	94	16		
		Marinaut	Urban	326	54		
		Marinaut East	Urban	384	64		
		Matampay	Urban	508	85		
		Moncado Colony	Urban	692	115		
		Moncado Kadingilan	Urban	738	123		
		Moriatao Loksadato	Urban	396	66		
		Navarro (Datu Saber)	Urban	633	105		
		Norhaya Village	Urban	478	80		
		Panggao Saduc	Urban	749	125		
		Pindolonan	Urban	197	33		
		Raya Madaya I	Urban	371	62		
		Raya Madaya II	Urban	246	41		
		Raya Saduc	Urban	499	83		
		Sabala Manao	Urban	291	49		
		Sabala Manao Proper	Urban	422	70		
		Saduc Proper	Urban	473	79		
		Somiorang	Urban	51	9		
		South Madaya Proper	Urban	459	77		
		Toros	Urban	145	24		
		Tuca	Urban	260	43		
		Total		14,911	2,485		
Wao	Wao Water District	Eastern Wao	Urban	2,892	482	Spring	120
		Western Wao	Rural	1,532	255		
		Manila Group	Rural	1,806	301		
		Extension Poblacion	Urban	1,290	215		
		Total	Urban	4,182	697		
		Total	Rural	3,338	556		
		Total		7,520	1,253		
Ganassi	Municipal Waterworks	Masolun	Rural	234	39	Spring	No data provided
		Pangadapun	Rural	224	37		
		Poblacion	Urban	1,117	186		
		Taganonok	Rural	334	56		
		Taliogon	Rural	498	83		
		Total	Urban	1,117	186		
		Total	Rural	1,291	215		
		Total		2,408	401		
Provincial Total			Urban	20,210	3,368		
			Rural	4,629	771		
			Total	24,839	4,140		

3.1.4 Level II Water Supply System

The Level II water systems, defined as communal faucets, are designed to serve barangays at specified service area. The systems are usually operated by the Barangay Waterworks System Association (BWSA). In the province of Lanao del Sur, there are twelve municipalities with Level II water systems. These are: Balabagan, Bayang, Bubong, Butig, Kapai, Ganassi, Lumbatan, Madamba, Malabang, Marogong, Masiu and Wao. The details are shown below.

Table 3-3 Existing Level II Water Systems in Lanao del Sur

Municipality	Water Service Provider	Barangay Served	Class	Est. pop. served	Water Source	Est. unit water cons.(lpcd)	
Balabagan	Municipal Waterworks	Banago	Rural	736	Spring	No data provided	
		Poblacion	Urban	1,103			
Total				1,839			
Bayang	Municipal Waterworks	Gandamato	Rural	141	Deep Wells	No data provided	
		Linuk (Pob.)	Urban	369			
		Pamacotan	Rural	184			
		Parao	Rural	491			
		Rinabor (Pob.)	Urban	319			
		Sumbag (Pob.)	Urban	285			
		Total		Urban			973
Bubong	Municipal Waterworks	Bansayan	Rural	170	Spring	No data provided	
		Basingan	Rural	509			
		Batangan	Rural	292			
		Cagayan Bacolod	Rural	384			
		Carigongan	Rural	288			
		Dilabayan	Rural	616			
		Masorot	Rural	201			
		Montiaan	Rural	278			
		Panalawan	Rural	378			
		Salipongan	Rural	216			
		Total					3,333
Butig	Sandab Water System	Sandab	Rural	1,745	Spring	No data provided	
		Total		1,745			
Kapai	Municipal Waterworks	Dilabayan	Rural	441	Spring	No data provided	
		Dilimbayan	Rural	299			
		Pantaon	Rural	819			
		Parao	Rural	537			
		Pindolonan	Rural	672			
		Total					2,768

CHAPTER THREE

Existing Facilities and Service Coverage

Municipality	Water Service Provider	Barangay Served	Class	Est. pop. served	Water Source	Est. unit water cons.(lpcd)
Ganassi	Municipal Waterworks	Campong a Raya	Rural	329	Spring	No data provided
		Macabao	Rural	222		
		Pamalian	Urban	175		
		Total	Urban	175		
			Rural	552		
			Total	726		
Lumbatan	Municipal Waterworks	Dago-ok	Urban	992	Spring	No data provided
		Poblacion (Lumbatan)	Urban	688		
		Total		1,681		
Madamba	CIDSS-DSWD, SZOPAD	Cabasaran	Urban	328	Spring	No data provided
		Pantar	Urban	351		
		Tambo	Urban	480		
		Tubaran	Urban	175		
		Total		1,333		
Malabang	Malabang Water system	Banday	Rural	744	Deep Wells	No data provided
		BPS Village	Urban	485		
		Cabasaran (South)	Rural	252		
		Campo Muslim	Urban	699		
		China Town (Pob.)	Urban	1,037		
		Corahab	Urban	1,166		
		Jose Abad Santos	Rural	984		
		Total	Urban	3,387		
	Rural	1,979				
		Total	5,366			
Marogong	CIDSS-DSWD, SZOPAD	Cabasaran	Rural	223	Spring	No data provided
		Paigoay Coda	Rural	242		
		Total		465		
Masiu	Municipal Waterworks	Buadi Amloy	Rural	811	Spring and Deep Well	No data provided
		Gondarangin Asa Adigao	Rural	422		
		Lakadun	Urban	690		
		Lumbaca Ingud	Rural	341		
		Macabangan Imbala	Urban	362		
		Magayo Bagoaingud	Rural	269		
		Pantao	Urban	798		
		Sambowang Atawa	Rural	268		
		Talub Langi	Urban	564		
		Towanao Arangga	Urban	374		
		Unda Dayawan	Urban	375		
		Total	Urban	3,162		
			Rural	2,112		
		Total	5,274			
Wao	Municipal Waterworks	Amoyong	Rural	63	Spring	No data provided
		Banga	Rural	420		
		Buntongun	Rural	829		
		Christian Village	Rural	273		
		Gata	Rural	648		
		Kabatangan	Rural	243		
		Kadingilan	Rural	624		
		Kilikili West	Rural	2,258		

Municipality	Water Service Provider	Barangay Served	Class	Est. pop. served	Water Source	Est. unit water cons.(lpcd)
		Malaigang	Rural	300		
		Milaya	Rural	1,494		
		Mimbuaya	Rural	42		
		Muslim Village	Rural	258		
		Pagalongan	Rural	702		
		Park Area (Pob.)	Urban	180		
		Pilintangan	Rural	342		
		Serran Village	Rural	8		
		Total	Urban	180		
			Rural	8,504		
			Total	8,684		
Provincial Total			Urban	11,993		
			Rural	23,009		
			Total	35,003		

3.1.5 Level I Water Supply Systems

Level I water systems are usually used in the rural areas of the municipality. The common sources are shallow wells, which are equipped with hand pumps and for those who can afford they use motorized pump to get water. There are also areas where springs are used as point source by connecting polyethylene pipes directly to the households. Other households get water from the river nearest to their area for domestic use and rainwater for drinking.

Table 3-4 Existing Level I Water Systems in Lanao del Sur

City/Municipality	Class	Year 2003	
		Mun. Population	Served Population
Marawi City	Urban	138,228	30,439
	Rural		
	Total	138,228	30,439
Bacolod Grande	Urban	16,423	6,569
	Rural	2,332	933
	Total	18,755	7,502
Balabagan	Urban	2,206	0
	Rural	23,735	8,905
	Total	25,940	8,905
Balindong	Urban	5,859	2,344
	Rural	19,988	7,995
	Total	25,847	10,339
Bayang	Urban	4,197	901
	Rural	18,005	6,550
	Total	22,202	7,450

City/Municipality	Class	Year 2003	
		Mun. Population	Served Population
Binidayan	Urban	3,518	1,407
	Rural	15,580	6,232
	Total	19,097	7,639
Buadiposo Buntong	Urban	663	265
	Rural	13,633	5,453
	Total	14,296	5,718
Bubong	Urban	613	245
	Rural	19,459	5,117
	Total	20,073	5,363
Bumbaran	Urban		
	Rural	6,957	2,783
	Total	6,957	2,783
Butig	Urban	1,979	791
	Rural	15,220	4,692
	Total	17,199	5,484
Calanogas	Urban		
	Rural	10,546	4,218
	Total	10,546	4,218
Ditsaan-Ramain	Urban	13,883	5,553
	Rural	6,344	2,538
	Total	20,227	8,091
Ganassi	Urban	3,605	409
	Rural	16,391	5,083
	Total	19,997	5,492
Kapai	Urban	726	726
	Rural	16,770	4,493
	Total	17,495	5,219
Kapatagan	Urban		
	Rural	8,241	1,978
	Total	8,241	1,978
Lumba Bayabao	Urban	916	366
	Rural	23,915	8,508
	Total	24,830	8,874
Lumbatan	Urban	3,361	0
	Rural	15,058	6,023
	Total	18,419	6,023
Lumbayanague	Urban		
	Rural	13,553	5,421
	Total	13,553	5,421
Madalum	Urban	1,083	433
	Rural	18,357	7,343
	Total	19,441	7,776
Madamba	Urban	16,311	4,684
	Rural	0	0
	Total	16,311	4,684
Maguing	Urban		
	Rural	19,096	7,638
	Total	19,096	7,638

City/Municipality	Class	Year 2003	
		Mun. Population	Served Population
Malabang	Urban	6,774	0
	Rural	28,251	9,717
	Total	35,026	9,717
Marantao	Urban	4,307	1,723
	Rural	21,718	8,687
	Total	26,025	10,410
Marogong	Urban	1,976	790
	Rural	15,074	5,658
	Total	17,049	6,448
Masiu	Urban	10,813	1,795
	Rural	14,641	4,167
	Total	25,454	5,962
Mulondo	Urban	6,678	2,671
	Rural	6,386	2,554
	Total	13,064	5,225
Pagayawan	Urban	1,435	574
	Rural	8,871	3,548
	Total	10,306	4,122
Piagapo	Urban	1,855	742
	Rural	23,392	9,357
	Total	25,247	10,099
Poona Bayabao	Urban	1,221	488
	Rural	17,138	6,855
	Total	18,359	7,344
Pualas	Urban	490	196
	Rural	7,838	3,135
	Total	8,327	3,331
Saguiaran	Urban	2,511	1,004
	Rural	21,395	8,558
	Total	23,906	9,563
Sultan Domalondong	Urban		
	Rural	11,725	4,690
	Total	11,725	4,690
Sultan Gumander	Urban	1,852	741
	Rural	11,053	4,421
	Total	12,905	5,162
Tagoloan II	Urban		
	Rural	9,204	3,681
	Total	9,204	3,681
Tamparan	Urban		
	Rural	21,093	8,437
	Total	21,093	8,437
Taraka	Urban	14,210	3,438
	Rural	5,679	4,518
	Total	19,889	7,956
Tubaran	Urban	683	273
	Rural	10,955	4,382
	Total	11,638	4,655

City/Municipality	Class	Year 2003	
		Mun. Population	Served Population
Tugaya	Urban		
	Rural	21,268	8,507
	Total	21,268	8,507
Wao	Urban	11,839	7,296
	Rural	25,678	14,449
	Total	37,516	21,745
Provincial total	Urban	280,212	76,864
	Rural	549,467	211,570
	Total	829,679	288,434

3.1.6 Water Supply Service Coverage

There are two municipalities and one city with Level III system, but not all barangays are being served. Likewise, there are twelve municipalities with Level II water systems that cater only to a few barangays. All other municipalities have Level I system. Table 3-5 shows the distribution level. Figure 3-1 shows the existing water supply facilities coverage.

Table 3-5 Water Supply Service Coverage by City/Municipality

City/Municipality	Class	Population Served by 2003 Facilities				Total	% Served
		Mun. Population	Level III	Level II	Level I		
Marawi City	Urban	138,228	14,911		30,439	45,350	33%
	Rural						0%
	Total	138,228			30,439	30,439	22%
Bacolod Grande	Urban	16,423			6,569	6,569	40%
	Rural	2,332			933	933	40%
	Total	18,755			7,502	7,502	40%
Balabagan	Urban	2,206		1,103		1,103	50%
	Rural	23,735		736	8,905	9,641	41%
	Total	25,940			8,905	8,905	34%
Balindong	Urban	5,859			2,344	2,344	40%
	Rural	19,988			7,995	7,995	40%
	Total	25,847			10,339	10,339	40%
Bayang	Urban	4,197		973	901	1,873	45%
	Rural	18,005		816	6,550	7,365	41%
	Total	22,202			7,450	7,450	34%
Binidayan	Urban	3,518			1,407	1,407	40%
	Rural	15,580			6,232	6,232	40%
	Total	19,097			7,639	7,639	40%
Buadiposo Buntong	Urban	663			265	265	40%
	Rural	13,633			5,453	5,453	40%
	Total	14,296			5,718	5,718	40%
Bubong	Urban	613			245	245	40%
	Rural	19,459		3,333	5,117	8,450	43%

CHAPTER THREE

Existing Facilities and Service Coverage

City/Municipality	Class	Population Served by 2003 Facilities				Total	% Served
		Mun. Population	Level III	Level II	Level I		
	Total	20,073			5,363	5,363	27%
Bumbaran	Urban						0%
	Rural	6,957			2,783	2,783	40%
	Total	6,957			2,783	2,783	40%
Butig	Urban	1,979			791	791	40%
	Rural	15,220		1,745	4,692	6,437	42%
	Total	17,199			5,484	5,484	32%
Calanogas	Urban						0%
	Rural	10,546			4,218	4,218	40%
	Total	10,546			4,218	4,218	40%
Ditsaan-Ramain	Urban	13,883			5,553	5,553	40%
	Rural	6,344			2,538	2,538	40%
	Total	20,227			8,091	8,091	40%
Ganassi	Urban	3,605	1,117	175	409	1,700	47%
	Rural	16,391	1,291	552	5,083	6,925	42%
	Total	19,997			5,492	5,492	27%
Kapai	Urban	726			290	290	40%
	Rural	16,770		2,768	4,493	7,261	43%
	Total	17,495			4,783	4,783	27%
Kapatagan	Urban						0%
	Rural	8,241		1,647	1,978	3,626	44%
	Total	8,241			1,978	1,978	24%
Lumba Bayabao	Urban	916			366	366	40%
	Rural	23,915		1,322	8,508	9,830	41%
	Total	24,830			8,874	8,874	36%
Lumbatan	Urban	3,361		1,681	0	1,681	50%
	Rural	15,058			6,023	6,023	40%
	Total	18,419			6,023	6,023	33%
Lumbayanague	Urban						0%
	Rural	13,553			5,421	5,421	40%
	Total	13,553			5,421	5,421	40%
Madalum	Urban	1,083			433	433	40%
	Rural	18,357			7,343	7,343	40%
	Total	19,441			7,776	7,776	40%
Madamba	Urban	16,311	2,446		4,684	7,130	44%
	Rural						0%
	Total	16,311			4,684	4,684	29%
Maguing	Urban						0%
	Rural	19,096			7,638	7,638	40%
	Total	19,096			7,638	7,638	40%
Malabang	Urban	6,774		3,387	0	3,387	50%
	Rural	28,251		1,979	9,717	11,696	41%
	Total	35,026			9,717	9,717	28%
Marantao	Urban	4,307			1,723	1,723	40%
	Rural	21,718			8,687	8,687	40%
	Total	26,025			10,410	10,410	40%
Marogong	Urban	1,976			790	790	40%
	Rural	15,074		465	5,658	6,122	41%
	Total	17,049			6,448	6,448	38%

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Existing Facilities and Service Coverage

City/Municipality	Class	Population Served by 2003 Facilities				Total	% Served
		Mun. Population	Level III	Level II	Level I		
Masiu	Urban	10,813		3,162	1,795	4,958	46%
	Rural	14,641		2,112	4,167	6,279	43%
	Total	25,454			5,962	5,962	23%
Mulondo	Urban	6,678			2,671	2,671	40%
	Rural	6,386			2,554	2,554	40%
	Total	13,064			5,225	5,225	40%
Pagayawan	Urban	1,435			574	574	40%
	Rural	8,871			3,548	3,548	40%
	Total	10,306			4,122	4,122	40%
Piagapo	Urban	1,855			742	742	40%
	Rural	23,392			9,357	9,357	40%
	Total	25,247			10,099	10,099	40%
Poona Bayabao	Urban	1,221			488	488	40%
	Rural	17,138			6,855	6,855	40%
	Total	18,359			7,344	7,344	40%
Pualas	Urban	490			196	196	40%
	Rural	7,838			3,135	3,135	40%
	Total	8,327			3,331	3,331	40%
Saguiaran	Urban	2,511			1,004	1,004	40%
	Rural	21,395			8,558	8,558	40%
	Total	23,906			9,563	9,563	40%
Sultan Domalondong	Urban					0	0%
	Rural	11,725			4,690	4,690	40%
	Total	11,725			4,690	4,690	40%
Sultan Gumander	Urban	1,852			741	741	40%
	Rural	11,053			4,421	4,421	40%
	Total	12,905			5,162	5,162	40%
Tagoloan II	Urban						0%
	Rural	9,204			3,681	3,681	40%
	Total	9,204			3,681	3,681	40%
Tamparan	Urban						0%
	Rural	21,093			8,437	8,437	40%
	Total	21,093			8,437	8,437	40%
Taraka	Urban	14,210			3,438	3,438	24%
	Rural	5,679			4,518	4,518	80%
	Total	19,889			7,956	7,956	40%
Tubaran	Urban	683			273	273	40%
	Rural	10,955			4,382	4,382	40%
	Total	11,638			4,655	4,655	40%
Tugaya	Urban						0%
	Rural	21,268			8,507	8,507	40%
	Total	21,268			8,507	8,507	40%
Wao	Urban	11,839	4,182	180	7,296	11,658	98%
	Rural	25,678	3,338	8,504	14,449	26,291	102%
	Total	37,516			21,745	21,745	58%
Provincial Total	Urban	280,212	22,656	10,661	76,429	109,746	39%
	Rural	549,467	4,629	25,514	211,570	241,713	44%
	Total	829,679	27,285	36,175	287,998	351,459	42%

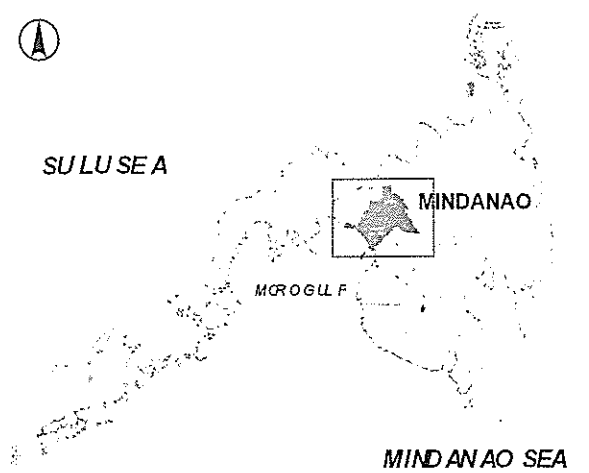
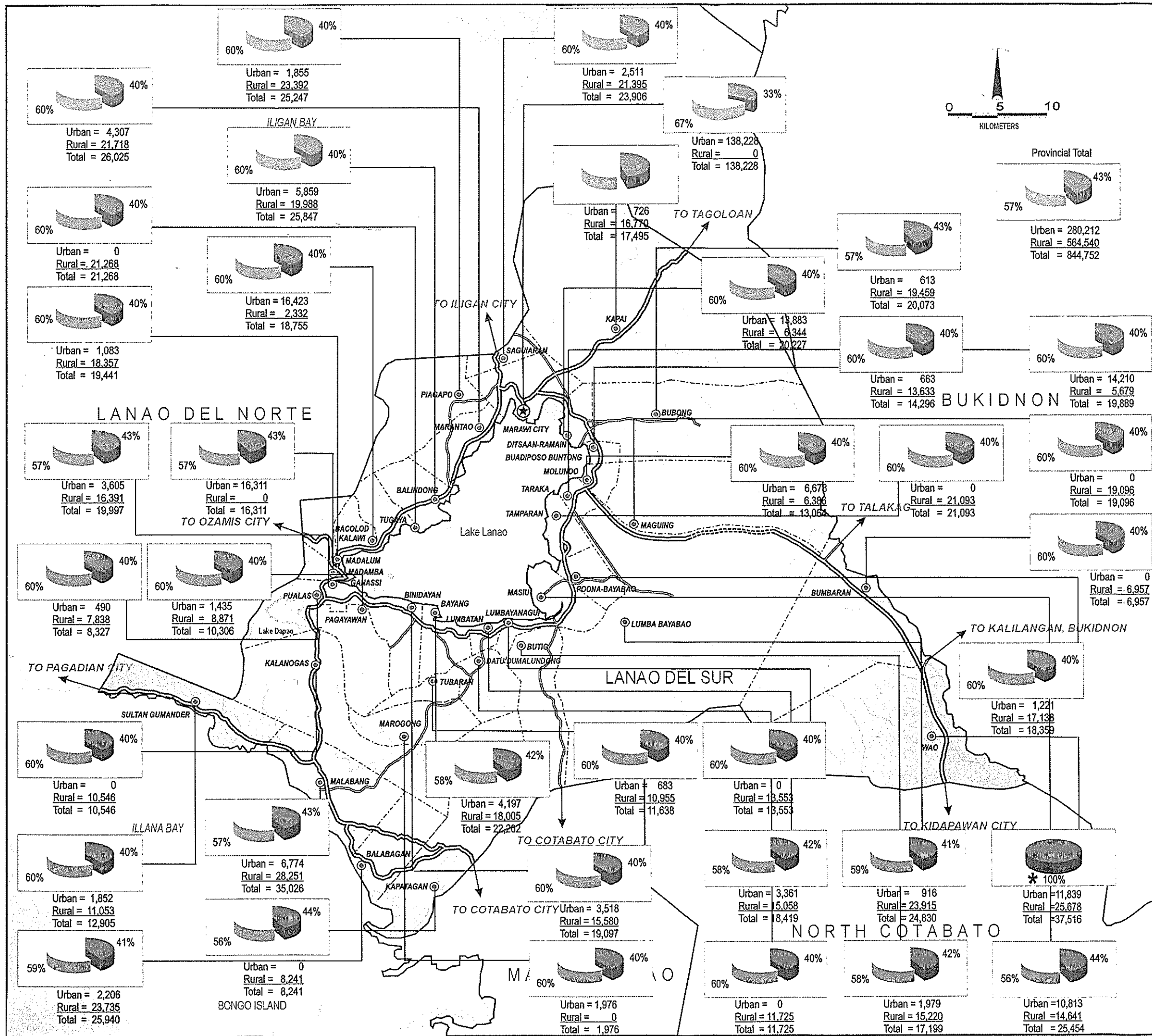
The present provincial coverage for ARMM was compared to the national and other regional data in the country. Table below shows the comparison between ARMM with other regions, which demonstrates very low coverage within the sector.

From the table it could be observed that access to Level III & II water system is lowest in ARMM. Likewise remedial means to obtain potable water from rain collector, private vendor and other sources, which shows highest values for ARMM indicates the lack of adequate standard water source.

Number of Families Main Source of Water Supply (2002)

Region	Total Families	Main Source of Water Supply											
		Level III		Level II		Level I		Rain Collector		Private Vendor		Others	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
PHILIPPINES	15,925,454	5,194,864	33	2,626,307	16	7,393,385	46	61,513	0.4	573,598	4.0	75,787	0.5
ARMM	388,437	22,549	6	26,657	7	299,895	77	12,456	3.0	24,172	6.0	2,708	1.00
Ilocos Region	849,081	164,955	19	82,758	10	597,765	70	0	0.0	3,440	0.4	163	0.02
Eastern Visayas	774,958	172,869	22	282,421	36	308,072	40	1,011	0.1	9,177	1.0	1,408	0.18
Western Mindanao	637,944	165,860	26	161,173	25	299,617	47	0	0.0	7,091	1.0	4,203	0.66
Central Mindanao	694,91	136,540	20	65,586	9	475,113	68	566	0.08	10,550	2.0	6,557	0.94

Source: National Statistics Office, 2002 Annual Poverty Indicators Survey (APIS)



KEY MAP

LEGEND:

- Provincial Boundary
- Municipal Boundary
- River
- National Road
- Non-Passable National Road
- Provincial Road
- City Center
- Town Center
- Population served by water supply facilities (%)
- Population un-served by water supply facilities (%)
- Actual served population exceeded the projected population

Source: PPDO & ACTUAL FIELD VERIFICATION

Figure 3-1
**WATER SUPPLY FACILITIES
 BASE YEAR (2003) COVERAGE
 Lanao del Sur**

3.2 Sanitation

3.2.1 General

The present sanitation condition of the Province of Lanao del Sur was also assessed to evaluate the present needs and to integrate measures in conjunction with the water supply sector. The key to sanitation is water. Hence, water and sanitation are complimentary. One common problem on sanitation is lack of potable water. The gateway to progress of a community basically relies on the cleanliness of its surroundings.

3.2.2 Types of Facilities and Definition of Service Level Standard

Household toilets are categorized into two types: sanitary and unsanitary toilets. Sanitary toilets are defined as the one approved, water sealed toilet that can either be flush type or pour-flush type with receiving pit or septic tanks, or septic vault, with ventilation. The unsanitary toilets include the types of facilities used for disposing human waste, which do not fall under the category of the approved type.

3.2.3 Sanitation Facilities and Service Coverage

Based on the data taken from the PPDO, only about 31% of the households of the province have sanitary toilets. This figure clearly demonstrates that the province needs to improve its sanitation facilities. The low figure can be attributed to lack of water supply facilities and the low capability of the rural households to construct the approved type of toilet. Data on school and public were not made readily available during the field visit. However, based on regional data, public schools in the province have adequate toilet facilities. Tables 3-6 and 3-7 show the number of existing sanitation facilities for households, public schools and public toilets Figure 3-2 shows the 2003 base year coverage of sanitation facilities.

Table 3-6 Household Toilet Service Coverage by City/Municipality

City/Municipality	Type	2003		Households with Sanitary Toilet		
		Population	No. of HH	No. of HH	Served Population	% Served
1. Marawi City	Urban	138,228	21,484	8,594	55,291	40%
	Rural	0	0	0	0	0%
	Total	138,228	21,484	8,594	55,291	40%
2. Bacolod Grande	Urban	16,423	2,279	707	5,091	31%
	Rural	2,332	324	100	723	31%

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Existing Facilities and Service Coverage

City/Municipality	Type	2003		Households with Sanitary Toilet		
		Population	No. of IHH	No. of IHH	Served Population	% Served
	Total	18,755	2,603	807	5,814	31%
3. Balabagan	Urban	2,206	343	106	684	31%
	Rural	23,735	3,693	1,145	7,358	31%
	Total	25,940	4,036	1,251	8,042	31%
4. Balindong	Urban	5,859	771	239	1,816	31%
	Rural	19,988	2,630	815	6,196	31%
	Total	25,847	3,401	1,054	8,013	31%
5. Bayang	Urban	4,197	557	173	1,301	31%
	Rural	18,005	2,389	741	5,582	31%
	Total	22,202	2,946	913	6,883	31%
6. Binidayan	Urban	3,518	515	160	1,090	31%
	Rural	15,580	2,279	707	4,830	31%
	Total	19,097	2,794	866	5,920	31%
7. Buadiposo Buntong	Urban	663	95	29	205	31%
	Rural	13,633	1,952	605	4,226	31%
	Total	14,296	2,047	635	4,432	31%
8. Bubong	Urban	613	78	24	190	31%
	Rural	19,459	2,462	763	6,032	31%
	Total	20,073	2,539	787	6,223	31%
9. Bumbaran	Urban	0	0	0	0	0%
	Rural	6,957	1,196	371	2,157	31%
	Total	6,957	1,196	371	2,157	31%
10. Butig	Urban	1,979	369	114	613	31%
	Rural	15,220	2,840	880	4,718	31%
	Total	17,199	3,209	995	5,332	31%
11. Calanogas	Urban	0	0	0	0	0%
	Rural	10,546	1,564	485	3,269	31%
	Total	10,546	1,564	485	3,269	31%
12. Ditsaan-Ramain	Urban	13,883	1,944	603	4,304	31%
	Rural	6,344	888	275	1,967	31%
	Total	20,227	2,832	878	6,270	31%
13. Ganassi	Urban	3,605	577	179	1,118	31%
	Rural	16,391	2,624	813	5,081	31%
	Total	19,997	3,201	992	6,199	31%
14. Kapai	Urban	726	99	31	225	31%
	Rural	16,770	2,298	712	5,199	31%
	Total	17,495	2,398	743	5,423	31%
15. Kapatagan	Urban	0	0	0	0	0%
	Rural	8,241	1,486	461	2,555	31%
	Total	8,241	1,486	461	2,555	31%
16. Lumba Bayabao	Urban	916	141	44	284	31%
	Rural	23,915	3,693	1,145	7,414	31%
	Total	24,830	3,834	1,189	7,697	31%
17. Lumbatan	Urban	3,361	424	131	1,042	31%
	Rural	15,058	1,899	589	4,668	31%
	Total	18,419	2,323	720	5,710	31%

CHAPTER THREE
Existing Facilities and Service Coverage

City/Municipality	Type	2003		Households with Sanitary Toilet		
		Population	No. of HH	No. of HH	Served Population	% Served
18. Lumbayanague	Urban	0	0	0	0	0%
	Rural	13,553	2,120	657	4,202	31%
	Total	13,553	2,120	657	4,202	31%
19. Madalum	Urban	1,083	165	51	336	31%
	Rural	18,357	2,797	867	5,691	31%
	Total	19,441	2,962	918	6,027	31%
20. Madamba	Urban	16,311	2,446	758	5,056	31%
	Rural	0	0	0	0	0%
	Total	16,311	2,446	758	5,056	31%
21. Maguing	Urban	0	0	0	0	0%
	Rural	19,096	3,002	931	5,920	31%
	Total	19,096	3,002	931	5,920	31%
22. Malabang	Urban	6,774	997	309	2,100	31%
	Rural	28,251	4,158	1,289	8,758	31%
	Total	35,026	5,155	1,598	10,858	31%
23. Marantao	Urban	4,307	629	195	1,335	31%
	Rural	21,718	3,170	983	6,733	31%
	Total	26,025	3,799	1,178	8,068	31%
24. Marogong	Urban	1,976	296	92	613	31%
	Rural	15,074	2,261	701	4,673	0%
	Total	17,049	2,557	793	5,285	31%
25. Masiu	Urban	10,813	1,368	424	3,352	31%
	Rural	14,641	1,852	574	4,539	31%
	Total	25,454	3,220	998	7,891	31%
26. Mulondo	Urban	6,678	889	276	2,070	31%
	Rural	6,386	851	264	1,980	31%
	Total	13,064	1,740	539	4,050	31%
27. Pagayawan	Urban	1,435	193	60	445	31%
	Rural	8,871	1,192	369	2,750	31%
	Total	10,306	1,385	429	3,195	31%
28. Piagapo	Urban	1,855	526	84	575	31%
	Rural	23,392	3,157	1,058	7,252	31%
	Total	25,247	3,683	1,142	7,827	31%
29. Poona Bayabao	Urban	1,221	172	53	379	31%
	Rural	17,138	2,416	749	5,313	31%
	Total	18,359	2,589	802	5,691	31%
30. Pualas	Urban	490	89	28	152	31%
	Rural	7,838	1,429	443	2,430	31%
	Total	8,327	1,518	471	2,581	31%
31. Saguwaran	Urban	2,511	341	106	778	31%
	Rural	21,395	2,906	901	6,633	31%
	Total	23,906	3,247	1,006	7,411	31%
32. S. Domalondong	Urban	0	0	0	0	0%
	Rural	11,725	1,400	434	3,635	31%
	Total	11,725	1,400	434	3,635	31%
33. S. Gumander	Urban	1,852	260	81	574	31%

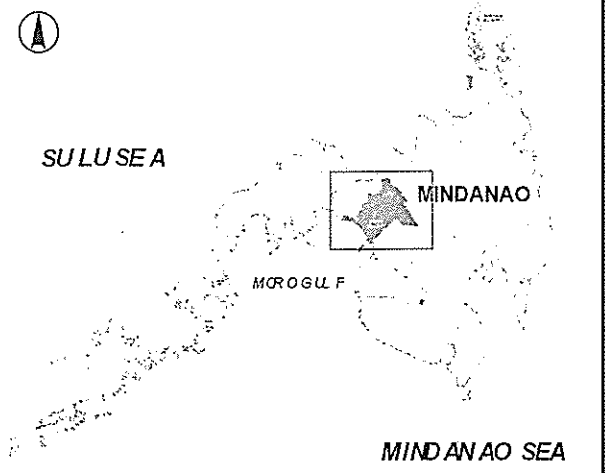
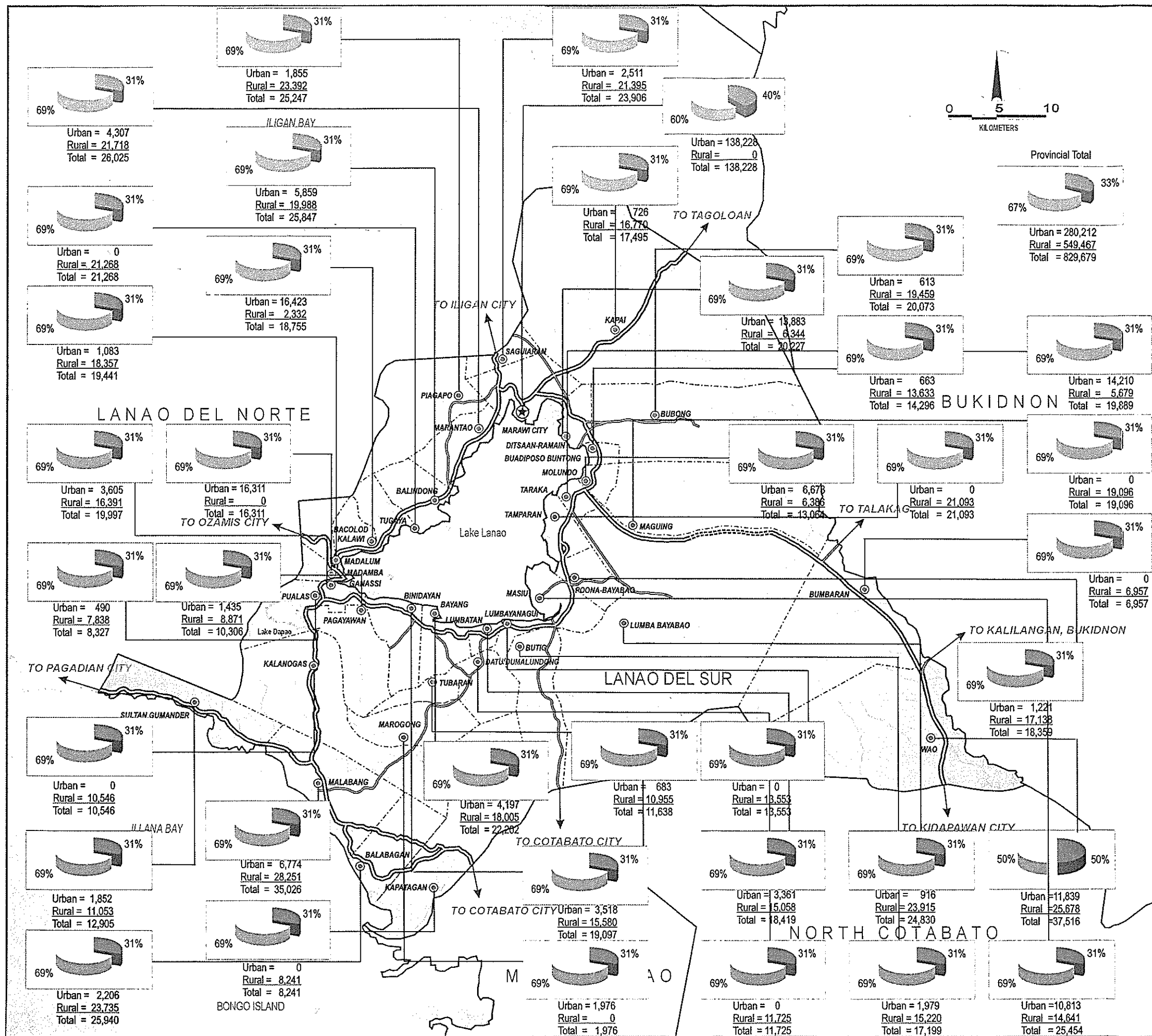
City/Municipality	Type	2003		Households with Sanitary Toilet		
		Population	No. of HH	No. of HH	Served Population	% Served
	Rural	11,053	1,554	482	3,426	31%
	Total	12,905	1,815	563	4,001	31%
34. Tagoloan II	Urban	0	0	0	0	0%
	Rural	9,204	1,124	348	2,853	31%
	Total	9,204	1,124	348	2,853	31%
35. Tamparan	Urban	0	0	0	0	0%
	Rural	21,093	3,040	942	6,539	31%
	Total	21,093	3,040	942	6,539	31%
36. Taraka	Urban	14,210	1,923	596	4,405	31%
	Rural	5,679	768	238	1,761	31%
	Total	19,889	2,691	834	6,166	31%
37. Tubaran	Urban	683	104	32	212	31%
	Rural	10,955	1,670	518	3,396	31%
	Total	11,638	1,774	550	3,608	31%
38. Tugaya	Urban	0	0	0	0	0%
	Rural	21,268	2,525	783	6,593	31%
	Total	21,268	2,525	783	6,593	31%
39. Wao	Urban	11,839	2,168	1,086	5,927	50%
	Rural	25,678	4,703	2,354	12,855	50%
	Total	37,516	6,871	3,440	18,782	50%
Provincial Total	Urban	280,212	42,244	15,363	101,563	36%
	Rural	564,540	82,312	26,493	179,903	32%
	Total	844,752	124,556	41,856	281,466	33%

Table 3-7 Public School and Public Toilet Service Coverage by City/Municipality

Municipality	Public School Toilets (2003)			Public Utilities (2003)		
	Total Public Schools	No. of Schools with toilets	Coverage	Total Public Utilities	No. Public Utilities with toilets	Coverage
1 Marawi City	82	80	98%	8	7	88%
2 Bacolod Grande	21	15	71%	1	1	100%
3 Balabagan	17	17	100%	1	1	100%
4 Balindong	32	29	91%	1	1	100%
5 Bayang	14	11	79%	1	1	100%
6 Binidayan	16	10	63%	1	1	100%
7 Buadiposo Buntong	12	12	100%	1	1	100%
8 Bubong	16	12	75%	1	1	100%
9 Bumbaran	7	6	86%	1	1	100%
10 Butig	21	15	71%	1	1	100%
11 Calanogas	8	7	88%	1	1	100%
12 Ditsaan-Ramain	14	11	79%	1	1	100%
13 Ganassi	17	17	100%	2	1	50%
14 Kapai	17	15	88%	1	1	100%
15 Kapatagan	7	6	86%	1	1	100%
16 Lumba Bayabao	26	21	81%	1	1	100%

CHAPTER THREE
Existing Facilities and Service Coverage

Municipality	Public School Toilets (2003)			Public Utilities (2003)		
	Total Public Schools	No. of Schools with toilets	Coverage	Total Public Utilities	No. Public Utilities with toilets	Coverage
17 Lumbatan	20	19	95%	1	1	100%
18 Lumbayanague	22	15	68%	1	1	100%
19 Madalum	18	14	78%	1	1	100%
20 Madamba	13	12	92%	1	1	100%
21 Maguing	12	10	83%	1	1	100%
22 Malabang	23	22	96%	3	2	67%
23 Marantao	28	25	89%	1	1	100%
24 Marogong	19	16	84%	1	1	100%
25 Masiu	37	30	81%	1	1	100%
26 Mulondo	11	8	73%	1	1	100%
27 Pagayawan	10	8	80%	1	1	100%
28 Piagapo	20	16	80%	1	1	100%
29 Poona Bayabao	14	11	79%	1	1	100%
30 Pualas	18	10	56%	1	1	100%
31 Saguiaran	27	25	93%	1	1	100%
32 S. Domalondong	3	3	100%	1	1	100%
33 S. Gumander	14	14	100%	1	1	100%
34 Tagoloan II	17	10	59%	1	1	100%
35 Tamparan	12	11	92%	1	1	100%
36 Taraka	14	11	79%	1	1	100%
37 Tubaran	14	11	79%	1	1	100%
38 Tugaya	19	16	84%	1	1	100%
39 Wao	28	28	100%	4	4	100%
Provincial Total	740	629	85%	52	49	94%



KEY MAP

- LEGEND:**
- Provincial Boundary
 - Municipal Boundary
 - River
 - National Road
 - Non-Passable National Road
 - Provincial Road
 - City Center
 - Town Center
 - Population served by sanitation facilities (%)
 - Population un-served by sanitation facilities (%)
- Source: PPDO & ACTUAL FIELD VERIFICATION

Figure 3-2
SANITATION FACILITIES
BASE YEAR (2003)
COVERAGE
LANAO DEL SUR

CHAPTER 4
EXISTING SECTOR INSTITUTIONS AND
ARRANGEMENTS

4. EXISTING SECTOR INSTITUTIONS AND ARRANGEMENTS

4.1 General

The existing sector institutional arrangements in the ARMM is determined largely by two laws: the Act Providing for the ARMM (RA No. 6734), which has been subsequently amended by the Act to Strengthen and Expand the Organic Act for the Autonomous Region in Muslim Mindanao (RA 9054) and the Local Government Code of ARMM, Mindanao Muslim Autonomy # 25 Book III. These laws have resulted in substantially different inter-agency relationships than those currently existing between the national government and the regions other than the ARMM.

4.2 Policies and Development Plan on ARMM

4.2.1 National Government Policies and Plan on ARMM

1) National Government Policies on ARMM

RA 9054 defines the national government policies on the ARMM as follows:

- ARMM remains an integral and inseparable part of the national territory as defined by the Constitution and existing laws;
- Policy of settlement of conflicts by peaceful means;
- Guaranteed recognition and protection of the beliefs, customs and traditions of the people in the ARMM and the free exercise of their religions;
- Perpetuation of Filipino and Islamic values and ideals;
- Improved status of the marginalized; and
- Enhancement of the quality of life, protection of women and children and preferential rights of the inhabitants.

2) National Government Plan on ARMM

The Medium Term Philippine Development Plan 2001-2004, while defining the development aspirations for the country as a whole, puts special attention and focus on securing peace and

development in Mindanao. With reference to Mindanao, the Plan states the policy framework towards national government's approach to its development, to wit – aim at securing peace while accelerating development in conflict and non-conflict areas to attain political and socio-economic stability as well as cultural harmony, in conformity with the rule of law and in accordance with constitutional processes.

The development strategies for Mindanao include the following:

- Peace building efforts through confidence building measures to create a favorable environment for resuming peace talks with the MILF and rehabilitation of communities damaged by the armed conflict with the MILF and return of affected population to their communities; and
- Socio-economic upliftment through the provision of basic services such as food and nutrition, health, *water and sanitation*, basic education/literacy and employment/livelihood opportunities.

Thus, water and sanitation is considered as a priority development sector in Mindanao in general. Among the identified projects directed towards the sector is the ADB-funded Mindanao Basic Urban Services Sector Project (MBUSSP) intended to provide basic infrastructure such as water supply for urban centers and urbanized municipalities in Mindanao.

3) Water Supply and Sanitation Sector Reforms - National

The national government has endorsed the major recommendations of the Water Supply Sector Reform Study and the National Urban Sewerage and Sanitation Strategy Study as evidenced by NEDA Board Resolution Nos. 4, 5 and 6. These resolutions have been enforced in the sector for more than five years with the transition process still ongoing particularly at the provincial level where the community-based demand-driven approach is being handed over to the LGUs.

The following are the aforementioned NEDA Board resolutions that provide the operating and regulatory policies for the sector as a whole and have been followed by the recently completed ADB-funded RW3SP (Rural Water Supply and Sanitation Sector Project) implemented by DILG jointly with the DOH and LGUs of the 20 poorest provinces covered by the Social Reform Agenda of the 1990s.

(a) NEDA Resolution Nos. 4 (series of 1994)

In the context of the national and ARMM Local Government Codes, LGUs in general, now play the lead role in basic services delivery. The resolution allows the LGUs to implement all levels of water supply projects and redefines the roles of other sector agencies.

With the purpose of ensuring common interpretation of clause (g) of this resolution, its Implementing Rules and Regulations (IRR) was prepared by the DILG and approved by the NEDA Board in 1998. It delineates the responsibilities of government agencies involved in the sector and defines the role of LGUs in the provision of water supply and sanitation services, including operation and maintenance (O&M) of the facilities.

(b) NEDA Resolution No. 5 (series of 1994)

This resolution designates the LGUs as primary implementers of the sanitation/sewerage programs and mandates the establishment of a Central Project Support Office (CPSO) at LWUA to assist LGUs in the formulation, preparation and implementation of sewerage/sanitation projects.

(c) NEDA Resolution No.6 (series of 1996)

This resolution defines the extent of national government assistance to LGUs in the implementation of devolved infrastructure activities/facilities under the LGC in support of national priority programs in order to ensure efficiency, effectivity and more focused implementation. It affirms DILG's responsibilities for overseeing and administering national government assistance to LGUs including institutional capability building of the LGUs.

4.2.2 ARMM Plans

The Development Framework Plan 2002-2004 (or the Regional Executive Agenda for Peace and Development) sets the policy guidelines and development directions in the ARMM for the indicated period. In general, these include the following:

- Support to the peace process through (i) completion of the 1996 GRP-MNLF Peace Agreement; (ii) sustained efforts to further peace building and stability; and (iii) national reconciliation including peaceful reconciliation/reconstruction and

- rehabilitation of the communities affected by the armed conflict;
- Social reforms through (i) delivery of basic services including *potable water supply and sanitation*, health care and nutrition; (ii) focus on education and manpower skills training; and (iii) development of comprehensive social protection package which includes safety nets and conflict prevention components;
 - Economic reforms through (i) fast tracking the implementation of livelihood projects complemented with resources of microfinance to enable the marginalized communities to undertake economic activities; (ii) refocus strategic intervention from Agriculture and Fisheries Modernization Act (AFMA) to modernize agriculture and fisheries; (iii) formulation of comprehensive economic plan focusing on providing strategic infrastructures; and (iv) improving the business policy environment and building the capacity of the private sector for small-medium enterprises (SMEs);
 - Political reforms by (i) establishing strong partnerships between the legislative and administrative departments; and (ii) establishing mechanisms for greater collaboration between the regional and local governments; and
 - Institutional reforms through (i) the formulation of a code of ethical conduct for all public servants in ARMM; (ii) restructuring and reorganization of the ARMM bureaucracy; and (iii) acceleration and improvement in the use of ODA-funded projects.

Access to potable water is one of the key strategic issues viewed as a major stumbling block in attaining sustainable peace and development in ARMM. As a result, one of the more significant objectives for infrastructure development was the development of water resources both for agricultural development and water supply and for social development was the improved delivery of basic services. To achieve these objectives, the sectoral strategies include (i) intensification of massive Information/Education Campaign (IEC) and capability building among stakeholders to ensure the effective and efficient delivery of basic services [social development]; and (ii) building the capacity of LGUs to implement projects and involving the private sector in infrastructure planning, implementation, monitoring and

evaluation [infrastructure development].

However, as a priority economic agenda, water and sanitation facilities and services seems to lag compared to other strategic infrastructure facilities.

4.2.3 Provincial Plans and Sector Programs

As enunciated in the Provincial Physical Framework Plan/Comprehensive Provincial Land Use Plan, the development activities of the province will concentrate on the development of small and medium scale agri-industries along the major routes of the province. To support and complement this development strategy, exotic fruits and high valued crops will be planted.

In addition, one of the major components of this growth strategy is the promotion and development of ecotourism for the benefit of families residing along these tourism areas.

The provincial plan does not explicitly state that water supply is a priority sector, hence no water supply projects are included in its priority investment program. However, the plan does identify specific water supply projects for the 2000-2010 period such as:

- (a) Expansion of existing water supply system to accommodate the growing urban population and industrial growth in Balindong, Bacolod Grande, Madalum, Ganassi and Tugaya;
- (b) Establishment of level III spring development project for potable water supply to urban centers and industries in Malabang, Marantao and Saguiran;
- (c) Establishment of spring development project with pressure pump component and reservoir in Malabang and Saguian;
- (d) Establishment of pressure pumped water system to supply potable water for urban population and industrial growth in Balabagan, Bayang, Binidayan, Butig, Lumbatan, Madamba, Marogong, Piagapo, Sultan Gumander, Wao, Pualas and Ramin Ditsaan;
- (e) Other level III water supply source – spring water source development in Lumba Bayabao; and

- (f) Other level III water supply trunk line – water supply trunk line from Lumbia Bayabao to service areas.

4.2.4 ARMM Institutions Involved in Water Supply and Sanitation

1) The ARMM Government

The creation of the Autonomous Region evolved through a series of steps taken by the national leadership to resolve what was commonly shown as the “*Mindanao Problem*”, a simmering unrest caused by decades of neglect and discrimination, which resulted in the period of fratricidal conflict.

President Corazon C. Aquino signed the first Organic Act for the Autonomous Region in Muslim Mindanao into law as Republic Act 6754 on August 1, 1989. This was then amended by RA 9054 “ An Act to Strengthen and Expand the Organic Act for ARMM, passed in February 7, 2001 and became a law on March 31, 2001 in accordance with Article VI, Section 27 (i) of the Philippine Constitution.

Republic Act 6734 as amended by RA 9054 provides for the establishment of the Executive Department (Article VII) and the Legislative Department (Article VI) in the ARMM Regional Government. These enactments also provide for the administration of Justice (Article VIII). The over-all organizational structure and the relationship with each other are shown in Figure 4-1.

The Regional Government exercises its powers and functions necessary for or incidental to the proper governance and development of all the constituent units within the autonomous region. Specifically mentioned in the Organic Act are:

- ◆ Creation of its own sources of revenues and to levy taxes, fees and charges, subject to the provisions of the Constitution and the Republic Act (Article IX);
- ◆ Protection of the ancestral domain, ancestral lands and agrarian reform (Article X);
- ◆ Promotion of urban and rural planning and development (Article XI);
- ◆ Promotion of regional economy and patrimony consistent with the Constitution and existing laws (Article XII);

- ◆ Maintenance and preservation of law and order (Article XIII);
- ◆ Establish, maintain and support education, science and technology, arts and sports (Article XIV); and
- ◆ Promotion of social justice, services, institutions and other concerns (Article XV).

The Executive and Legislative Departments carry out these powers and functions with the administration of justice provided by the Regular Trial and Shari'a courts, directly supervised by the Supreme Court of the Philippines. The President of the Republic of the Philippines provides general supervision over the Autonomous Regional Government (ARG) through the Regional Governor.

The Regional Legislative and Executive Development Advisory Committee (RLEDAC) was recently created to provide the venue for both Departments to inter-act on development matters affecting the ARG.

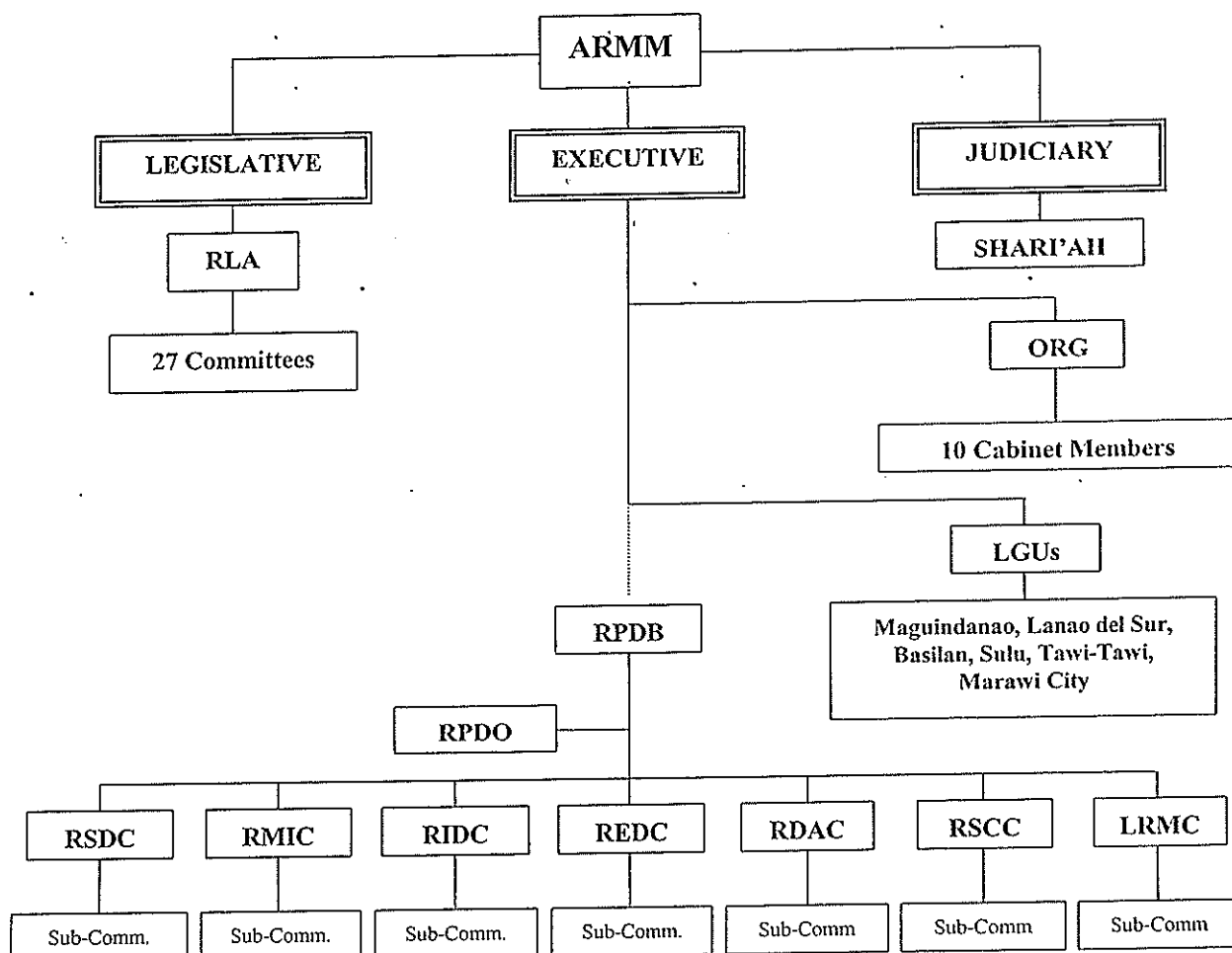
2) The Executive Department

The Executive power in ARMM is vested in the Regional Governor, who is elected by the qualified voters of the Autonomous Region (Article VII, Section 1).

Composition of the Executive Department

The Regional Governor, the Vice Governor, the three Deputy Regional Governors, the Cabinet Secretaries and the Local Chief Executives of the Provinces, City and Municipalities covered by the ARMM Region represent the Executive Department.

Figure 4-1 ARMM Organizational Structure¹



Source: Regional Planning and Development Office (RPDO)-ARMM

Table 4-1 Composition of the ARMM Executive Department (As of October 2003)

Provisions of RA 9054 with respect to composition of the Executive Department	Status of Implementation
1. The Regional Governor is the Chief Executive of the ARMM Regional Government (Article VII, Section 2) The term of office of the Regional Governor is for a period of three (3) years, which will begin at noon on the 30 th day of September next following the day of the election and will end at noon of the same date three (3) years	1.1 The incumbent Regional Governor assumed office after the first elections for the expanded autonomous region under RA 9054 in 2002. He is also the concurrent Regional Secretary of Department of Public Works and Highways (DPWH)-ARMM. 1.2 He heads the Office of the Regional Governor (ORG) with an Executive

¹ RLA-Regional Legislative Assembly; ORG-Office of the Regional Governor; RPDB-Regional Planning and Development Board; RPDO-Regional Planning and Development Office; RSDC-Regional Social Development Committee; RMIC-Regional Macro-Intersectoral Committee; RIDC-Regional Infrastructure Development Committee; REDC-Regional Economic Development Committee; RDAC-Regional Development Administration Committee; RSCC-Regional Statistical Coordination Committee; LRMC-LGUs Regional Management Committee

Provisions of RA 9054 with respect to composition of the Executive Department thereafter. (Article VII, Section 7)	Status of Implementation
<p>2. The Regional Vice Governor takes over the position of the Regional Governor in case of permanent vacancy (Article VII, Section 11) and temporary vacancy (Article VII, Section 12).</p> <p>The Regional Vice-Governor may be appointed by the Regional Governor as a member of the Regional Cabinet without need of confirmation by the Regional Legislative Assembly (RLA).</p> <p>The term of office of the Vice Regional Governor is for a period of three (3) years, which will begin at noon on the 30th day of September next following the day of the election and will end at noon of the same date three (3) years thereafter. (Article VII, Section 7)</p>	<p>Secretary and with 4 support services.</p> <p>2.1 The incumbent Regional Vice-Governor also assumed office together with the Regional Governor in 2002. He is also the Department of Education (DepED)-ARMM Regional Secretary in a concurrent capacity.</p> <p>2.2 He heads the Office of the Regional Vice-Governor (ORVG).</p>
<p>3. Deputy Regional Governors: Executive Council</p> <p>This Council shall advise the Regional Governor on matters of governance of the Autonomous Region; The 3 Deputy Governors shall be Ex-Officio members of the Regional Cabinet with or without portfolio (Article VII, Section 6).</p>	<p>3.1 Three (3) Deputy Regional Governors representing the Christians, the Indigenous Cultural Communities and the Muslims in the Region were appointed. These officials are:</p> <ul style="list-style-type: none"> ▪ Honorable Gumbalia Gunsu representing the Lumads or the Indigenous Cultural Communities ▪ Honorable Abdul Sahrin, an MNLF member representing the Muslims ▪ Honorable Luis Olano representing the Christians <p>3.2 The ARMM Regional Government is requesting for the budgetary requirements of the 3 positions, their staff and operating budget from the Department of Budget and Management (DBM).</p>
<p>4. Cabinet Members</p> <p>The Regional Governor shall be assisted by a Cabinet not exceeding ten (10) members (Article VII, Section 2)</p>	<p>4.1 There are twenty (20) Cabinet Secretaries /Directors representing the Devolved Agencies under the direct supervision of the Regional Governor. The List of Cabinet Officials of these agencies is shown in Annex 2-2.</p>

Provisions of RA 9054 with respect to composition of the Executive Department	Status of Implementation
	<p>4.2 In addition to the Cabinet Secretaries of the Devolved Agencies, its own locally created offices also assist the Regional Governor. These offices are represented by the following officials:</p> <ul style="list-style-type: none"> ▪ The Executive Secretary under the Office of the Regional Governor ▪ The Acting Executive Director of the Bureau of Cultural Heritage (BCH-ARMM) ▪ The Executive Director of the Regional Planning and Development Office (RPDO-ARMM) ▪ The Regional Manager of the Regional Ports and Management Authority (RPMA) <p>4.3 National Government with field offices in ARMM are also tapped by the Regional Governor to participate in Cabinet meetings. These agencies are represented by the following officials:</p> <ul style="list-style-type: none"> ▪ The Director of the National Police Commission (NAPOLCOM) ▪ The Executive Director of the National Statistics Office (NSO) ▪ The Director of the Civil Service Commission (CSC) ▪ The Regional Manager of the Philippine Coconut Authority (PCA) ▪ The Administrator of the Southern Philippines Development Authority (SPDA)
<p>4. Local Chief Executives of the Provinces, City, Municipalities and Barangays</p> <p>The term limits in Republic Act No. 7160, the Local Government Code of 1991, will apply to the Governors of Provinces and Mayors of Cities, Municipalities and Punong Barangay in the Autonomous Region.</p>	<p>4.1 There are five (5) provinces, one (1) city, 98 municipalities and 4,445 barangays in the Autonomous Region. The five provinces are: Basilan, Lanao del Sur, Maguindanao, Sulu and Tawi-Tawi. The lone city is Marawi.</p>

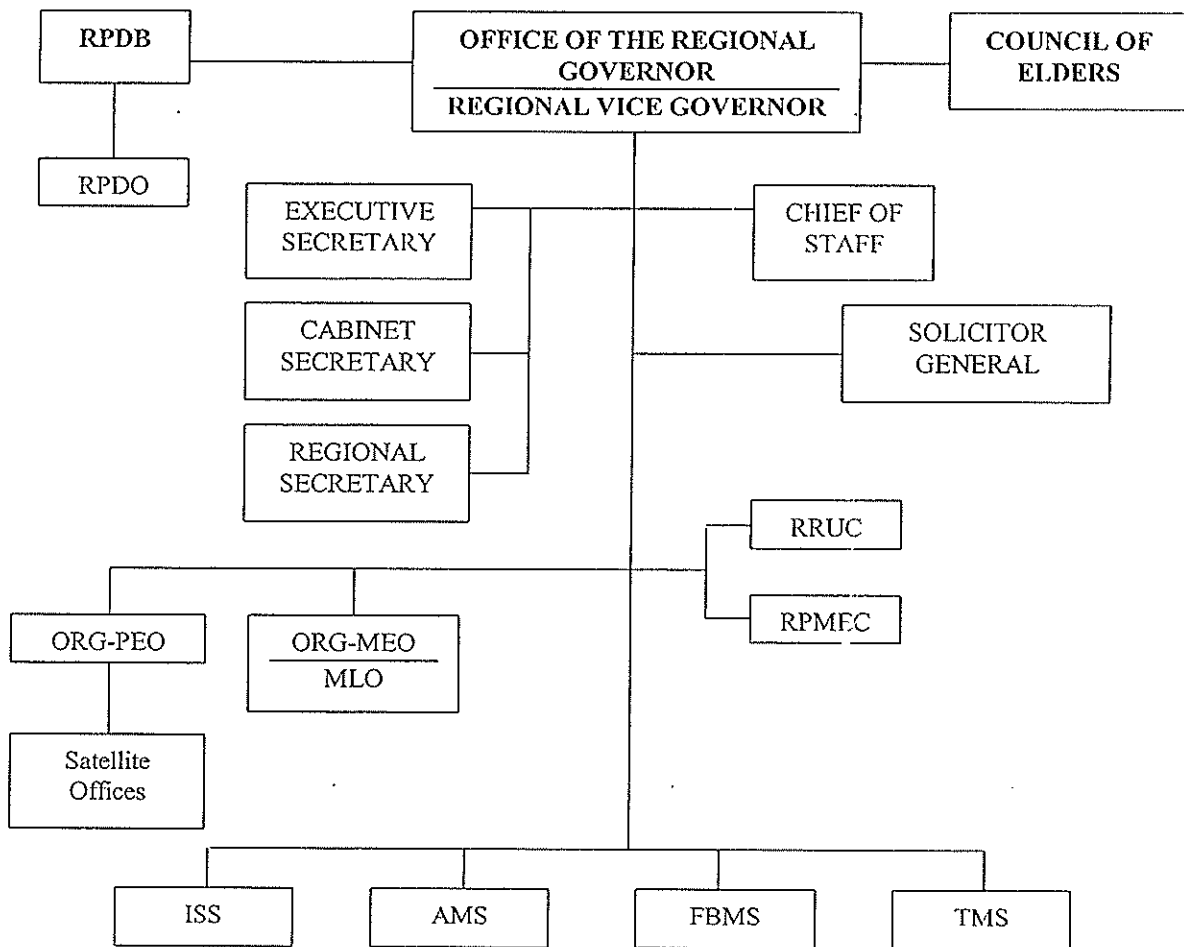
Sources: RA 9054 and various documents obtained from the Regional Planning and Development Office (RPDO)-ARMM

The Office of the Regional Governor (ORG) and Locally Created Offices

As mentioned, Offices of the Regional and Vice Governor were established, together with other locally created officers.

The Organizational Structure of the Office of the Regional Governor is shown in Figure 4-2 below:

Figure 4-2 Office of the Regional Governor Organizational Structure



LEGEND:

- RPDB - Regional Planning and Development Board
- RPDO - Regional Planning and Development Office
- ORG-PEO - ORG Provincial Extension Office
- ORG-MEO - ORG Manila Extension Office
- RRUC - Regional Reconciliation and Unification Council
- RPMEC - Regional Project Monitoring and Evaluation Committee
- ISS - Intelligence and Security Service
- AMS - Administrative Management Service
- FBMS - Finance and Budget Management Service
- TMS - Technical and Management Service

The Office of the Regional Governor is tasked to pursue programs and projects geared towards the proper governance and total development of all constituents within the 5 provinces and 1 city. This office provides for the supervision, implementation and execution of the Regional Development Plans, Policies and Programs.

In addition to its support services, there are three (3) Councils, Boards and Committees within the ORG, namely:

- Regional Economic Development and Planning Board (REDPB)

Providing secretariat support to the REDPB, the highest planning body of the Region is the Regional Planning and Development Office (RPDO). Five (5) Divisions support the RPDO, as shown in Figure 2-3.

Functions of the RPDO are similar to the National Economic and Development Authority Regional Offices (NROs) in the other Administrative Regions. These functions are:

- Evaluate and review proposed programs and projects for consideration by the regional planning and development board;
- Monitor and assess the programs and projects' implementation in the ARMM;
- Serve as the technical staff of the regional planning and development board in the ARMM;
- Provide technical assistance to implementing agencies in the autonomous region in identifying and developing regional programs and projects;
- Coordinate with the regional offices, other departments and agencies, and assist the local government units in the ARMM in the performance of their assigned tasks;
- Coordinate the implementation of foreign-assisted projects in the new autonomous region;

- Coordinate both foreign and local scholarship grants in the region; and
- With the creation of the Official Development Assistance (ODA) unit, the RPDO will need to work closely with said unit in the coordination of foreign-assisted projects.

Figure 4-3 Regional Planning and Development Office (RPDO) Organizational Structure



Source: Regional Planning and Development Office (RPDO)-ARMM

- Regional Reconciliation and Unification Council (RRUC)
- Regional Project Monitoring and Evaluation Committee (RPMEC)

The Manila Extension Office plays an active role as a liaison office in dealing with the National Government, Congress and ODA donors.

Other Locally Created Offices

Of the locally created offices in ARMM, the Office of the Regional Treasurer would be relevant to the sector since its main function is to evolve a system of sound and efficient management of ARMM financial resources and to ensure that said resources are generated and managed in accordance with the Regional Law and applicable existing national policies.

The Devolved Agencies

Article XVIII, Section 4 of the transitory provision of RA 9054 specifies that line agencies and offices of the National Government dealing with local government, social services, science and technology, labor, natural resources, and tourism, including their personnel, equipment, properties and budgets, are placed under the control and supervision of the Regional Governor.

While devolution continues from the National Government to the ARMM, the provision of RA 9054 Section 3 provides that the Regional Government shall adopt a policy on local autonomy whereby regional powers shall also be devolved to local government units particularly in areas of education, health, human resources, science and technology and people empowerment. This has not taken into effect as of this time.

One of the guiding principles and policies embodied in RA 9054 is the provision, maintenance and assurance of the delivery of, among other things, basic and responsive health programs, quality education, appropriate services, livelihood opportunities, affordable and progressive housing projects and water resource development (Article III, Section 11). In view of this provision, the different devolved agencies were created to implement the basic services required of the law.

There are 20 devolved agencies in ARMM, of which for water supply/sanitation, the Department of Public Works and Highways (DPWH-ARMM), the Department of Health (DOH-ARMM) and the Department of Interior and Local Government (DILG-ARMM) are the relevant agencies. The general functions and roles of these agencies involved in the water supply and sanitation (WATSAN) sector are shown in Table 4-2.

Table 4-2 Functions and Roles of Devolved Agencies Involved in WATSAN

Devolved Agencies	Functions and Roles
Department of Interior and Local Government (DILG-ARMM)	Assist the Regional Governor in the exercise of general supervision over the LGUs; develop and strengthen local government capability to promote local autonomy, decentralization, community empowerment through technical assistance and capability-building programs.
Department of Public Works and Highways (DPWH-ARMM)	Lead role in the provision and maintenance of highways, flood control and water resource development systems, and other public works within the ARMM.

Devolved Agencies	Functions and Roles
Department of Health (DOH-ARMM)	Lead role in the provision and maintenance of health, nutrition and sanitation services to the people.
Department of Environment and Natural Resources (DENR-ARMM)	Lead role in the conservation, protection and rehabilitation of the natural resources of the Region (forests, lands, environment, and other related services)

4.3 National Government Agencies with Field Offices in ARMM

Article XVIII, Section 4 of RA 9054 provides for the transfer of agencies and offices to the ARMM except for the following: Foreign Affairs, National Defense and Security, Postal Services, Coinage/Fiscal/Monitoring Policies, Administration of Justice except Shari'a, Customs and Tariff, Citizenship, Naturalization, Immigration and Deportation, General Auditing, National Elections, Maritime, Land and Air Transportation and Communication, Patents, Trademarks, Trade Names and Copyrights and Foreign Trade (Article IV, Section 3), national government offices and agencies in the ARMM are placed under the control and supervision of the Regional Governor pursuant to a prescribed schedule or within six (6) years from the re-organization of the Regional Government.

Agencies without physical presence in ARMM are represented by other Administrative Regions such as Regions IX and XII. These include: Department of Budget and Management (DBM) and Department of Finance (DOF).

4.3.1 Functions and Roles of National Government with Field Offices in ARMM

The functions and roles of non-devolved national government offices in the ARMM are the same as those of the other regions. These agencies coordinate with the Regional Governor when asked to participate in development planning activities of the REDPB and its Sub-committees, in Cabinet Meetings and in reporting major and significant accomplishments affecting ARMM. There are loose arrangements anchored on maintaining harmonious relationships between NGAs and ARMM.

4.4 Key Players in the Sector in ARMM

The key players in the water/sanitation sector and their nature of involvement are shown in Tables 4-3 and 4-4.

Table 4-3 Key Players Involved in the Water Supply and Sanitation Sector at the National Level and ARMM Government

Level	Offices/Agencies	Nature of Involvement
National Government	Department of Finance (DOF)/ Investment Coordination Committee (ICC)/ Municipal Development Fund Office (MDFO)	<ul style="list-style-type: none"> Development planning, implementation, monitoring and evaluation of WATSAN projects, approval of cost sharing arrangements and policies at the national level
	Local Water Utilities Administration (LWUA)	<ul style="list-style-type: none"> Technical and financial assistance to WDs
ARMM Government	Regional Economic Planning & Development Board (REPDB)/ Regional Planning & Development Office (RPDO)	<ul style="list-style-type: none"> Policy formulation, monitoring and evaluation, regional development planning
	Department of Interior and Local Government (DILG) - ARMM	<ul style="list-style-type: none"> Institutional Strengthening of LGUs (same as DILG National Office)
	Department of Health (DOH) - ARMM	<ul style="list-style-type: none"> Water quality monitoring and sanitation (Same as DOH National Office)

Table 4-4 Offices/Agencies Involved in the Water Supply and Sanitation Sector at the Local Level

Offices/Agencies	Nature of Involvement
Provincial Planning & Development Office	<ul style="list-style-type: none"> Development planning, implementation, monitoring and evaluation of WATSAN projects.
Provincial Engineering Office	<ul style="list-style-type: none"> Oversees and may undertake construction, operation and maintenance of the WATSAN facilities in the province including municipalities and barangays.
Provincial Health Office	<ul style="list-style-type: none"> Conducts water quality examination (thru Municipal Health Office) Provide toilet facilities

Offices/Agencies	Nature of Involvement
Barangay/Municipal governments (thru MPDO)	<ul style="list-style-type: none"> Identifies projects Provides counterpart support
Water Service Providers, BWSAs	<ul style="list-style-type: none"> Provides water supply coverage in urban areas Provides water supply coverage in rural areas
Provincial General Services Office	<ul style="list-style-type: none"> Responsible for the procurement of materials
Provincial Accounting, Budget, Treasury Offices	<ul style="list-style-type: none"> Undertakes administrative works in budgeting and funds releasing
Sangguniang Panlalawigan	<ul style="list-style-type: none"> Approves project implementation and appropriates funds (Provincial level)
Provincial Development Council	<ul style="list-style-type: none"> Initiates a comprehensive multi-sectoral plan of the province
NGOs, CBOs, POs	<ul style="list-style-type: none"> Provides consultancy services especially in CO/CD works
DILG-ARMM Provincial Director's and Municipal Local Government Office	<ul style="list-style-type: none"> Conducts/assists training especially on topics related to human resource development

4.4.1 Department of Public Works and Highways – ARMM (DPWH-ARMM)

The capability of the DPWH-ARMM and its implementing arm, the various District Engineers' Offices in the provinces' congressional districts, in planning and implementing water supply projects is quite limited. Its primary focus has been on roads and bridges and has essentially left the different local government units (LGUs) to plan and undertake their own water supply projects. In addition, the District Engineers' Offices have minimal construction equipment in their inventory, all of which are for the repair/maintenance of roads and bridges. However, given its previous experiences in water supply projects in terms of planning and implementation supervision, the District Engineers' Offices do assist the different LGUs in the aforementioned areas upon request.

For the Lanao del Sur Engineering District and Area Equipment Services, DPWH-ARMM has a total of 79 technical field personnel, while for DPWH-ARMM Regional Office, there are 44 technical personnel. However, as previously stated, their activities seem to be primarily concentrated in roads and bridges.

The budget of DPWH-ARMM for the implementation of projects is quite limited, as most of its budgetary appropriations are consumed by personnel services and maintenance, operating and other expenses. Actually, even the Department's MOOE are actually mostly spent for personal services. Table 4-5 gives the DPWH-ARMM actual budget from 1996-2003, while Table 4-6 gives the budget breakdown by major expenditure items from 2001-2003.

Table 4-5 Actual Budget of DPWH-ARMM (1996-2003)

Year	Actual Budget	% change
1996	190.85	
1997	192.26	0.74
1998	189.34	-1.52
1999	716.64	278.49
2000	171.8	-76.03
2001	177.38	3.25
2002	277.9	56.67
2003	281.9	1.44

Source: Regional Planning and Development Office, ARMM

Table 4-6 Breakdown of DPWH-ARMM Budget by Major Expenditure Items (2001-2003)

Expenditure Item	2001	% of Total	2002	% of Total	2003	% of Total
Personal Services	91.36	0.52	89.34	0.32	92.72	0.22
Automatic Appropriation	8.29	0.05	8.09	0.03	8.58	0.02
MOOE	77.73	0.44	180.48	0.65	180.61	0.43
Capital Outlay					136.54	0.33
Total	177.38	1.00	277.91	1.00	418.45	1.00

Source: Office of the Regional Governor, ARMM

The ARMM Public Investment Program for water supply in Lanao del Sur, which is implemented by DPWH-ARMM and is funded out of ARMM lump sum appropriations for the period 2004-2006 is given in Table 4-7. It shows the minimal amount that is allocated by the ARMM government to water supply for Lanao del Sur.

Table 4-7 ARMM Public Investment Program for Water Supply – Lanao del Sur (2004-2006), in million pesos

Project	2004	2005	2006	Total
Construction of Talayawan Lumbaca ingud Water Supply (Tamparan)	-	1.5	-	1.5
Construction of Mauna Pangadapun Spring Development (Ditsaan Ramain)		1.5		1.5
Construction of Level III Masiu Water System (Masiu)		2.0		2.0
Sabang Palao Water System (Bayang)		2.0		2.0
Construction of Level II Water System			6.0	6.0
Establishment of Water System (Piagapo)	1.5			1.5
Construction and Installation of Potable Water Supply and Distribution System				22.5
a. Romayas (Lumba Bayabao)		1.5		
b. Dilausan (Tamparan)		1.5		
c. Borokot (Maguing)	1.5			
d. Bubong		1.5		
e. Butig		1.5		
f. Lumbatan			1.5	
g. Sultan Gumander		1.5		
h. Malabang		1.5		
i. Tagoloan	1.5			
j. Kapai	1.5			
k. Marogong		1.5		
l. Pagayawan		1.5		
m. Rantian (Ditsaan Ramain)			1.5	
n. Igabay (Balabagan)			1.5	
o. Tatarikin (Calanogas)			1.5	
Total Water Supply	6.0	19.0	12.0	57.0
Total Infrastructure	777.14	1,041.65	917.70	2,666.99
% water supply	0.8	1.8	1.3	2.1

Source: Regional Planning and Development Office, ARMM

The organizational charts of DPWH-ARMM and its District Engineers' Office in Lanao del Sur are given in Figures 4-4 and 4-5.

Figure 4-4 Organizational Chart – Department of Public Works and Highways ARMM

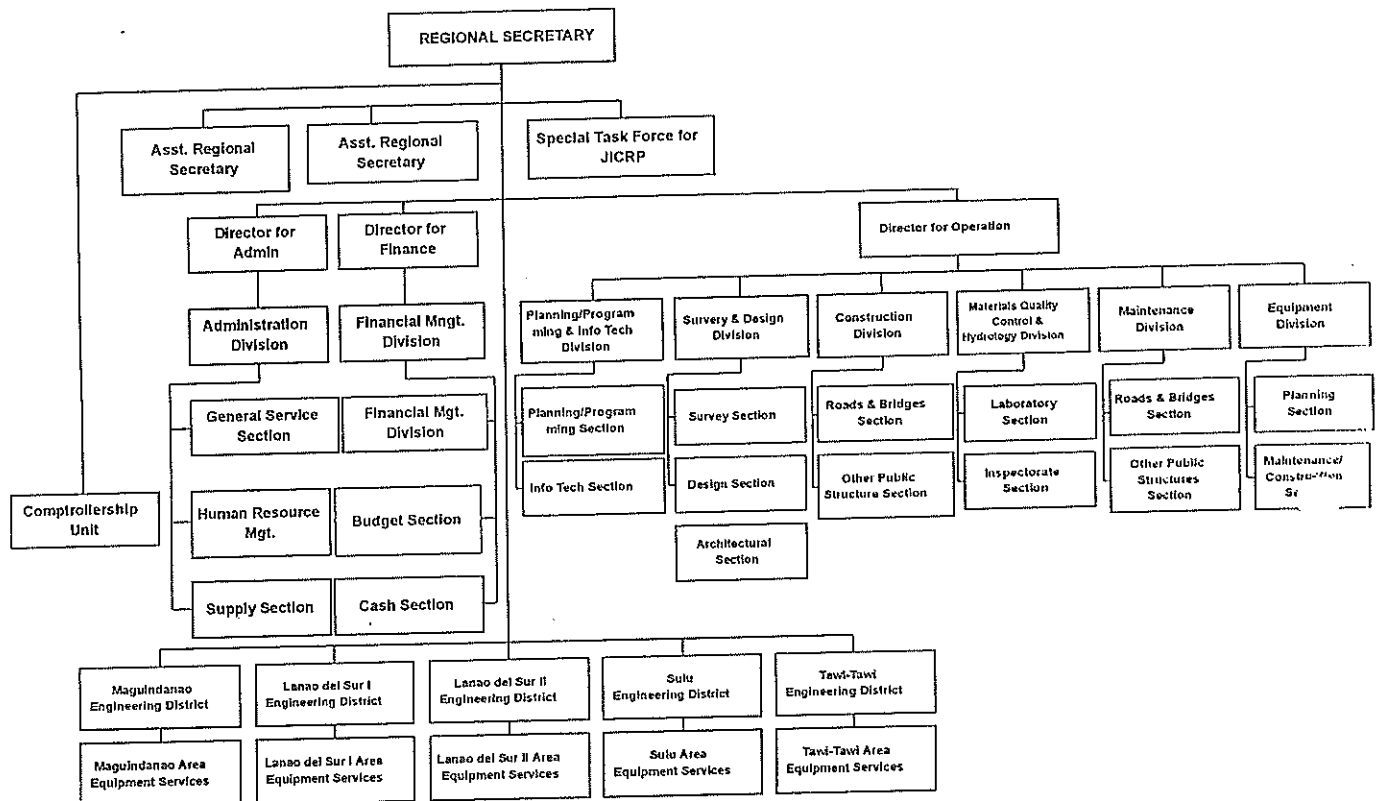
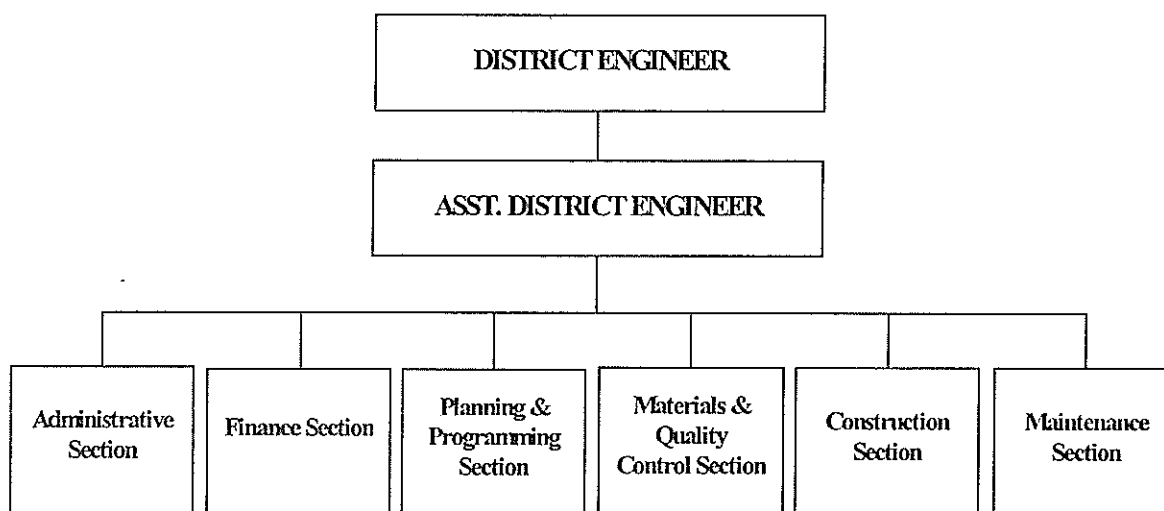


Figure 4-5 Organizational Chart – DPWH District Engineers' Office, Lanao del Sur



4.4.2 Department of the Interior and Local Government – ARMM (DILG-ARMM)

The activities of DILG-ARMM, compared to its national counterpart, has been severely hampered by budgetary constraints. While it is one of the few ARMM-devolved agencies that has substantial geographical coverage in all ARMM LGUs, it has been unable to extend any significant assistance to LGUs in water/sanitation activities/projects, in such areas as project development and institution/capability-building. The organizational chart of DILG-ARMM is given in Figure 4-6.

As with DPWH-ARMM, its budget goes mostly to personal expenditures and MOOE. Table 4-8 gives the agency's budget from 1996-2003 and the budget breakdown by expenditure items is shown in Table 4-9.

Figure 4-6 Organizational Chart – Department of Interior and Local Government-ARMM

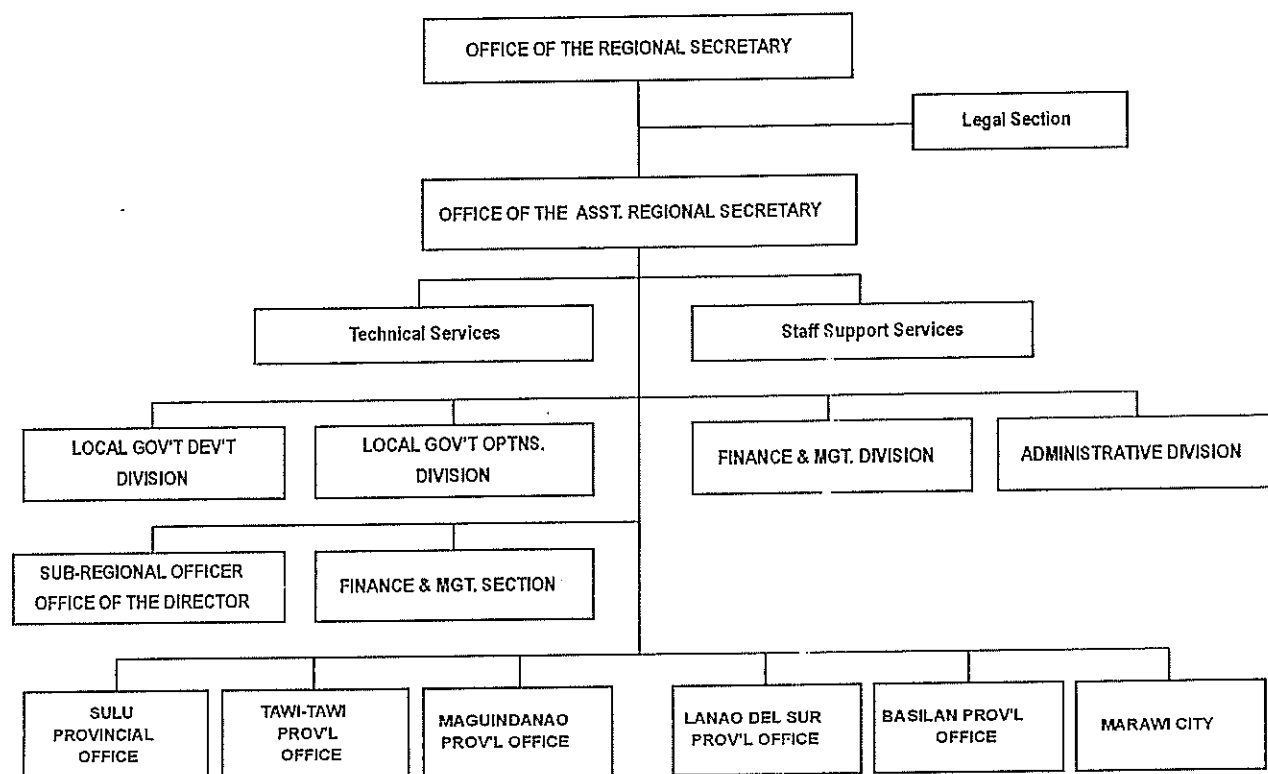


Table 4-8 Actual Budget of DILG-ARMM (1996-2003)

Year	Actual Budget	% change
1996	38.24	-
1997	44.34	15.95
1998	61.09	37.78
1999	67.45	10.41
2000	64.12	-4.94
2001	72.93	13.74
2002	68.02	-6.73
2003	71.27	4.78

Source: Regional Planning and Development Office, ARMM

Table 4-9 Breakdown of DILG-ARMM Budget by Major Expenditure Items (2001-2003)

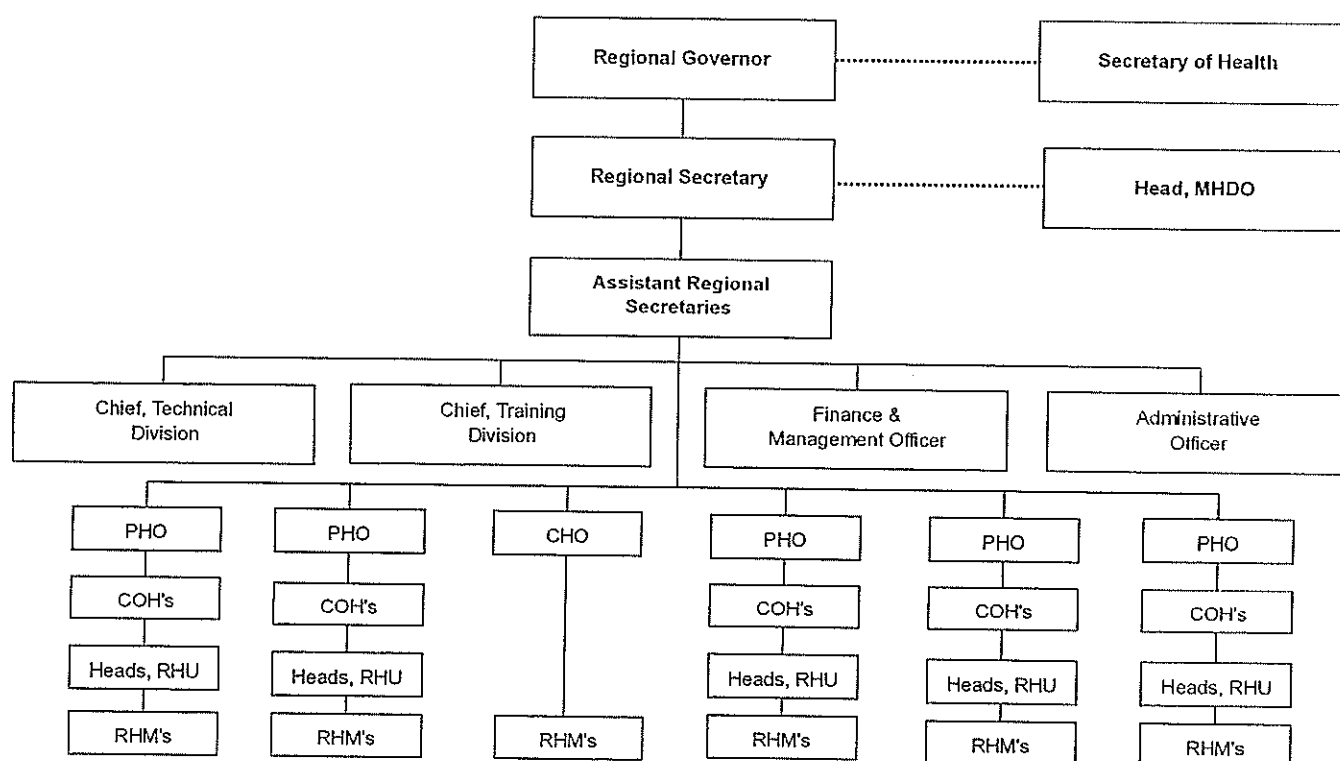
Expenditure Item	2001	% of Total	2002	% of Total	2003	% of Total
Personal Services	59.40	0.81	58.04	0.84	59.87	0.84
Automatic Appropriation	5.59	0.08	5.45	0.08	5.72	0.08
MOOE	7.95	0.11	5.53	0.08	5.68	0.08
Capital Outlay						
Total	72.94	1.00	69.02	1.00	71.27	1.00

Source: Regional Planning and Development Office, ARMM

4.4.3 Department of Health – ARMM (DOH-ARMM)

The DOH-ARMM continues to provide health services up to the LGU level, since it is one of the agencies which functions were not devolved in the ARMM Local Government Code. However, given current financial constraints of ARMM, its LGUs are participating in the financing and delivery of health services to its constituents. The organizational structure of DOH-ARMM is shown in Figure 4-8.

Figure 4-7 Organizational Chart – Department of Health-ARMM



As with the other two previous departments, DOH-ARMM's budget has declined as shown in Table 4-10 and may have already affected its delivery of health services. Furthermore, most of its budget goes to personal services and MOOE, as shown in Table 4-11.

Table 4-10 Actual Budget of DOH-ARMM (1996-2003)

Year	Actual Budget	% change
1996	230.34	-
1997	253.45	10.03
1998	331.18	30.67
1999	420.09	26.85
2000	394.76	-6.03
2001	410.91	4.09
2002	408.93	-0.48
2003	432.4	5.74

Source: Regional Planning and Development Office, ARMM

Table 4-11 Breakdown of DOH-ARMM Budget by Major Expenditure Items (2001-2003)

Expenditure Item	2001	% of Total	2002	% of Total	2003	% of Total
Personal Services	292.07	0.71	292.69	0.72	318.25	0.74
Automatic Appropriation	24.77	0.06	24.21	0.06	25.96	0.06
MOOE	84.07	0.20	84.33	0.21	86.68	0.20
Capital Outlay	10	0.02	7.7	0.02	1.5	0.00
Total	410.91	1.00	408.93	1.00	432.39	1.00

Source: Regional Planning and Development Office, ARMM

4.5 Water Service Providers in Lanao del Sur

Lanao del Sur has five (5) water districts (WD), but only two (2) are currently operational. The operational WDs are located in WAO Municipality and Marawi City. Most of the BWSAs for Level I are no longer operational, while there are no records of any operational RWSAs for Level II water systems.

4.6 Institutional/Technical Capacity of WATSAN Agencies in ARMM

4.6.1 ARMM Government

Previously, the Project Management Office – Rural Water Supply at DPWH national in coordination with DOH national handled all WATSAN projects in Lanao del Sur through the District Engineers' Office (DEO). Trainings provided through the national projects were filtered down through the DEOs. As a result of NEDA Board Resolution No. 4, DILG national was given greater involvement in the sector.

With respect the ARMM Government, capacity building in WATSAN has not yet been undertaken for the ARMM agencies involved in the sector.

4.6.2 The Province

In Lanao del Sur and in view of the devolution brought about by the ARMM Local Government Code, major WATSAN projects have not reached the province, except for the ADB-funded Mindanao Basic Urban Services Sector. WATSAN is just a component of the project and not a major objective, hence, capacity building for the sector has not yet materialized.

Since municipalities and barangays generally do not have any capacity to undertake WATSAN projects, it is the Lanao del Sur Provincial Engineers Office (PEO) that has been assisting these lower LGUs. While the equipment of the PEO seems to be primarily for road/bridge maintenance and construction (see Table 4-11), it has the complement of experienced engineers that assists the municipalities/barangays in implementing their WATSAN projects.

**Table 4-12 Equipment Inventory of the Provincial Engineers Office
(PEO-Lanao del Sur)**

Equipment Description	Brand	Number of Units
Six Wheeler Dumptruck	ISUZU FUR	4
Ten Wheeler Dumptruck	UD NISSAN	2
Ten Wheeler Dumptruck	ISUZU	3
Ten Wheeler Dumptruck	FUSO	1
Road Grader	MITSUBISHI	2
Road Grader	KOMATSU	2
Road Roller	SAKAI	2
Road Roller	BOOMAG	1

Equipment Description	Brand	Number of Units
Road Loader	FUROKAWA	2
Trailer	ISUZU	1
Transit Mixer	ISUZU	1
Backhoe-Loader (Combination)	JOHN DEERE	1
Bulldozer	HITACHI	1
Shuttle Bus	KIA	1
Bus	KIA	1
Mini Dumptruck	MITSUBISHI	1

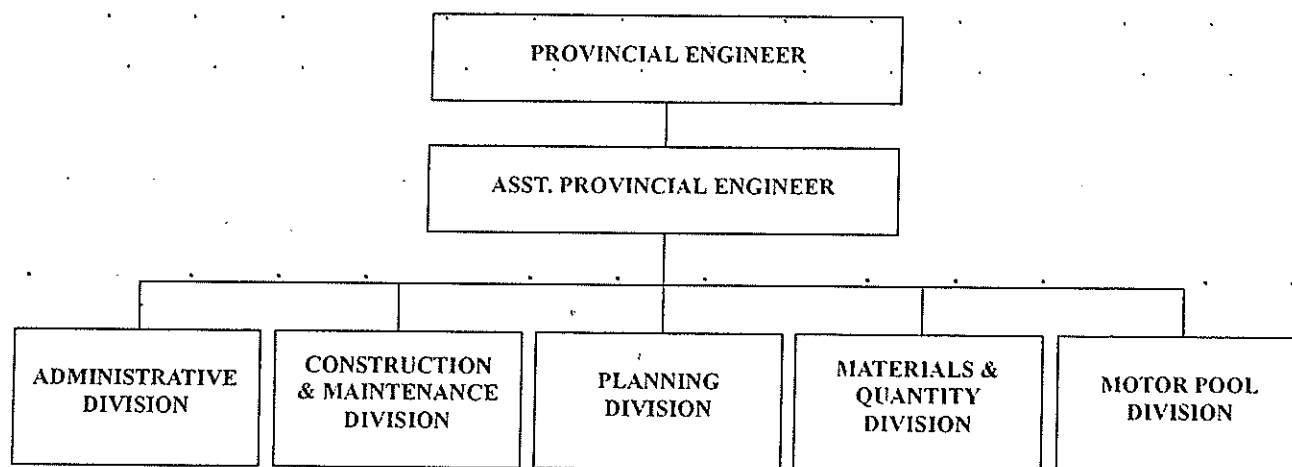
Source: Lanao del Sur Provincial Engineers Office

Pursuant to the ARMM Local Government Code, the functions of the PEO with reference to WATSAN are given below:

- Initiate, review and recommend changes in policies and objectives, plans and programs, techniques, procedures and practices in infrastructure development and public works in general;
- Administer, coordinate, supervise and control the construction, maintenance, improvement, and repair of roads, bridges, and other engineering and public works projects of the LGU;
- Provide engineering services to the LGU including investigation and survey, engineering designs, feasibility studies and project management; and
- Exercise technical supervision over all engineering offices of the component cities and municipalities.

The organizational structure of the Lanao del Sur PEO is given in Figure 4-8.

Figure 4-8 Organizational Structure of the Lanao del Sur Provincial Engineers Office



4.6.3 Community-Based Organizations or Associations

Community organizing in Lanao del Sur has to take into account religious and cultural norms, which are particular to the people and communities of this province. The practice of the family (clan) head as the decision-maker is practiced in most rural water supply organizations, e.g., RWSAs/BWSAs. There are no elections of officers as required of an association. The operations and maintenance of the system falls on the shoulder of the family. A clan is composed of many families in the same tribe and could comprise the population of a small barangay. The leaders in the community are chosen on the basis of their being the head of the clan or family.

4.6.4 External Support Agencies Active in the Sector

Lanao del Sur is currently one of the recipients of the Mindanao Basic Urban Services Sector Project (MBUSSP), but WATSAN is only one of the components. The executing agency of the Project is DILG national through the MBUSS Project Management Office.

MBUSSP covers about 40 urban LGUs throughout Mindanao and is intended for the provision or upgrading of existing/new urban infrastructures and services. The loan of \$35 million is provided to the national government through the DILG national. The Project aims to improve the institutional capacity of the LGUs through training, human resource development, and institutional strengthening under the co-financing from Nordic Development Fund.

Further, the Project aims to improve the quality of life of urban residents by enabling the provision, upgrading and rehabilitation of basic municipal infrastructure and services covering water supply, sanitation and sewerage, drainage and flood control, solid waste management, urban roads and bridges, public market and other public facilities. The LGUs capacity to plan, provide, manage and maintain municipal investments and services will be strengthened through training programs, assistance in the preparation of the comprehensive land use plans and implementation of the financial resource mobilization program. The Project will also improve poor communities access to affordable basic infrastructure and services in the Project area and contribute to balanced regional economic development and improvement to the urban environment.