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## **Cost-Effectiveness Analysis of Water Sector in the Philippines**

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January 2014

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## LIST OF ACRONYMS

BCWD	Batangas City Water District
BWSA	Barangay Water and Sanitation Association
CCC	Conditional Certificate of Conformance
CEA	Cost-effectiveness Analysis
COA	Commission on Audit
CPC	Conditional Permit Certificate
DBP	Development Bank of the Philippines
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government
DOF	Department of Finance
DOH	Department of Health
DPWH	Department of Public Works and Highways
GAA	General Appropriations Act
GFI	Government Financial Institution
GOCC	Government Owned and Controlled Corporation
IRA	Internal Revenue Allotment
LBP	Land Bank of the Philippines
LGU	Local Government Unit
LWUA	Local Water Utilities Administration
MLWD	Metro Lipa Water District
MOOE	maintenance and other operating expenses
MTPDP	Medium-Term Philippine Development Plan
MWSS	Metropolitan Waterworks and Sewerage System
NCR	National Capital Region
NEDA	National Economic Development Authority
NLIF	Non-LWUA initiated funds
NRW	Non-revenue Water
NWRB	National Water Resources Board
PAWD	Philippine Association of Water Districts
PS	Personal Services
PWSSRRBME	Philippine Water Supply Sector Roadmap Results-Based Monitoring and Evaluation
RWSA	Rural Water and Sanitation Association
SCWR	Sub-Committee on Water Resources
SSIP	Small-scale Independent Providers
WD	Water District
WATSAN	Water and Sanitation
WRC	Water Regulatory Commission
WSP	Water Service Provider
WSS	Water and Sewerage Services

## **ABSTRACT**

This paper presents a brief background of the development and cost-effectiveness of two water districts (WDs) in the Philippines. Water districts are the main providers of safe drinking water outside the National Capital Region. The factors impacting the cost-effectiveness of WDs are both external and internal. The external factors pertain to the political and economic laws and regulations for all WDs. The two WDs are located in the same province and have a common geography. For this reason, our analysis has not taken into account the external factors. The internal factors, which are included in our analysis, include corporate governance, financial management, and operations management. The analysis provides answers to the research questions posed in this paper.

## BACKGROUND

The Philippine government is responsible for ensuring the provision of safe drinking water and sewerage services (WSS) in the country which is composed of over 7,000 islands and a total population of 88,566,732.<sup>1</sup> The country is divided into 17 administrative regions composed of 81 provinces, 136 cities, and 1,495 municipalities. About 87 percent of the population, or 77 million people, reside outside the National Capital Region (NCR). Furthermore, approximately 12 million people are located in the NCR. Water and sewerage services for the NCR used to be provided by the Metropolitan Waterworks and Sewerage System (MWSS). However, these services were privatized in 1997 through concession contracts with two private Philippine corporations. In the provincial cities and municipalities, these services are provided by WDs for urbanized cities and municipalities, and by local government units (LGUs), non-government community organizations, private water service providers with conditional permit certificates (CPC), and non-formal providers, including self-providers, for the rest of the provincial population.

Table 1 presents the available data on the formal water service providers in the regions outside the NCR. The data for LGUs and CPC grantees were taken from the Philippine Water Supply Sector Roadmap (PWSSR, 2<sup>nd</sup> edition, 2010), while the data for WDs were sourced directly from the Directory of Philippine Association of Water Districts [PAWD], 2008-2009).<sup>2</sup> The informal sources of water consist mainly of self-provision through private wells, tanks, vendors, or piped supply provided by small-scale individual providers (SSIPs).

**Table 1: Population Served by Formal Water Service Providers by Region  
(as of end 2009)**

Region	Water Districts			LGUs	CPC Grantees	Total Population Served
	PUJ	PAS	% PAS			
armm	596,573	84,920	14%	214,440		299,360
car	524,896	327,068	62%	17,484		344,552
1	2,614,921	646,474	25%	217,014	14,616	878,104
2	1,494,470	407,563	27%	311,448		719,011
3	7,552,061	3,331,896	44%	8,748	329,478	3,670,122
4A	5,054,339	2,735,041	54%			2,735,041
4B	567,097	114,659	20%			114,659
4A & 4B				1,381,722	824,088	2,205,810
5	2,587,697	977,407	38%	498,996	52,602	1,529,005
6	5,726,436	1,050,009	18%	452,310	74,166	1,576,485
7	2,731,318	1,353,812	50%	5,835,978	262,476	7,452,266

<sup>1</sup> The 2007 population census by the National Census Office; official results of the latest 2011 census are not yet published; population is projected to reach 94 million. ([http://www.nscb.gov.ph/pressreleases/2006/27April06\\_PR-2006-04-SS2-03\\_popnprojection.asp](http://www.nscb.gov.ph/pressreleases/2006/27April06_PR-2006-04-SS2-03_popnprojection.asp))

<sup>2</sup> The WD data were based on the information sheets submitted by individual WDs to PAWD. For those WDs that did not return their information sheets, PAWD used data from the previous year's directory or from calls directly to the WD. The Philippine Association of Water Districts is the umbrella organization of all duly organized WDs in the Philippines.

8	5,726,436	1,050,009	18%	769,962	7,044	1,827,015
9	2,731,318	1,353,812	50%	657,540		2,011,352
10	1,554,250	458,182	29%	947,580	17,622	1,423,384
11	2,391,519	999,709	42%	287,592	79,362	1,366,663
12	2,969,484	726,779	24%	29,052	1,326	757,157
13	1,064,107	514,565	48%	242,308		756,873
Total excl.NCR	45,886,922	16,131,905	35%	11,872,174	1,662,780	29,666,859
% of total		54%		40%	6%	100%

Note: PUJ = Population Under Jurisdiction; PAS= Population Actually Served.

Source: PAWD 2008-2009, Directory of Water Districts for WDs, and National Water Resources Board, MWSS - Regulatory Office, NEDA; for other data as cited in PWSSR, 2nd edition, 2010.

Water districts are collectively the biggest single formal water service providers outside of the NCR, followed by LGUs and by private CPC grantees. Presidential Decree (PD) No. 198 was promulgated in May 1973, and is the legal basis for the creation of the WDs and the LWUA;<sup>3</sup> however, the expansion of their services has been very slow. As shown in Table 1, WDs actually served only 35 percent of the population under their jurisdiction at the end of 2009. The National Economic Development Authority (NEDA) attributes “the slow expansion of services, low quality of services and inefficient operations of water utilities (WDs and others) to the weak regulatory and financing framework in the sector, lack of technical and managerial capacity, lack of access to financing for WSS development, and dependence on subsidies for majority of the service providers.”

Provincial water service is available at three levels, as described by NEDA:<sup>4</sup>

- **Level 1** (point source): A protected well or a developed spring with an outlet but without a distribution system as it is generally adaptable for rural areas where the houses are thinly scattered, serving an average of 15 households which have to fetch water from up to a 250- meter distance.
- **Level 2** (communal faucet system or stand-post): A piped system with communal or public faucets usually serving 4 to 6 households within a 25-meter distance.
- **Level 3** (waterworks system): A fully reticulated system with individual house connections based on a daily water demand of more than 100 liters per person.

The World Bank Report, “Philippines: Meeting Infrastructure Challenges, 2005”,<sup>5</sup> presented a summary of formal and informal access to water service (see Table 2). Access to formal levels of service totals 80 percent, which is broken down as 45 percent through Level 3, 10 percent through Level 2, and 25 percent through Level 1. Level 3 services are provided by

<sup>3</sup> Water Districts are local organizations formed in locations determined by the LGUs, and whose main function is to provide safe drinking water to the community. The Local Water Utilities Administration (LWUA) is the national counterpart of the WDs and is mandated to promote the development and establishment of WDs, provide them with management and technical advisory services, and more importantly, assist them in procuring funds for their operational and capital needs.

<sup>4</sup> NEDA Board Resolution No. 12, Series of 1995.

<sup>5</sup> Cited in the Philippine Water Supply Sector Roadmap, 2<sup>nd</sup> edition, NEDA; these data do not reconcile with those in Table 1, but are the only available data of this type.

WDs (20 percent), private operators (5 percent), and LGUs and Community Based Organizations—CBOs (20 percent). Levels 2 and 1, which account for 35 percent of services, are provided by LGUs and CBOs. The balance 20 percent represents the informal levels of service, such as self-provision through private wells, tanks, vendors or piped supply by Small-scale Independent providers (SSIPs).

**Table 2: Access to Levels of Water Service**

A. Access to formal levels of service			80%
1. Level 3		45%	
WDs	20%		
Private Operators	5%		
LGUs & CBOs	20%		
2. Level 2		10%	
3 Level 1		25%	
LGUs CBOs	35%		
B. Access to informal levels of service			20%
Self-provision through private wells, tanked or vended water supply, or piped supply provided by SSIPs			

## RESEARCH QUESTION

After a reading of the overall scenario with regard to water services in the provincial regions of the country, a cost-effective analysis (CEA) of two WDs was conducted to seek answers to the basic research question: why is one WD more cost-effective than the other. As a corollary to this are the questions: why has the development of WDs been extremely slow, given that the enabling law for the establishment of WDs was promulgated nearly four decades ago? What policy recommendations can be made to improve the pace of WD development?

The Metro Lipa Water District (MLWD) and Batangas City Water District (BCWD), both located in the province of Batangas, were studied in an effort to answer these questions. Given that there are about 500 operational WDs in the country, the findings on the MLWD and BCWD certainly cannot be generalized; however, World Bank survey results of benchmarking indicators (Table 3), particularly WD service coverage of 69 percent, compares with 63 percent for MLWD and 42 percent for BCWD in our findings.



## ASSUMPTIONS

The following assumptions are made in this report:

- Effectiveness is defined as the partial or total achievement of a quantified specific objective or objectives. Taking into account only physical accomplishment, the effectiveness of a water system (i.e. WD), for example, would be derived by dividing the actual number of household connections by the planned/mandated number of household connections. This definition of effectiveness is further characterized by (1) delivery of safe drinking water in compliance with the standards set out in the Clean Water Act of the Philippines<sup>6</sup> and prescribed in more detail in the Philippine National Standards for Drinking Water 2007,<sup>7</sup>; and (2) service delivery of not less than 23/7 in accordance with the industry average of WDs. Thus, by this definition a WD with a population of 20,000 (about 4,000 households) under its jurisdiction and actually serving only 14,000 population (2,800 households) is only 70% effective (14000/20000). For operational WDs actual data for the formula are available in the 2008-2009 Directory of Water Districts published by the PAWD.
- The cost factor for the CEA (of the subject WDs) consists of actual personal services (PS), maintenance and other operating expenses (MOOE), including depreciation of plant, property and equipment used in the operation of the WD, and interest costs of borrowed funds, if any, to finance capital expenditures, and operations and management). These are actual costs incurred in accomplishing the given actual physical objective.
- These costs are ex-post, and for this report, the available Commission on Audit (COA) financial statements of the MLWD and BCWD for 2006 were used. Other social costs such as the economic impact of illness or death due to lack of safe drinking water have not been included among cost factors.<sup>8</sup>
- By these definitions of effectiveness and cost, the cost-effectiveness of MLWD and BCWD have been calculated using the following formula:

$$\text{COST/ANHS} = \text{CE}$$

Where, COST = cost per Profit and Loss statement;

ANHS = actual number of households served; and

CE = cost effectiveness.

- The choice of access to safe drinking water as a factor in the cost-effectiveness of the WD is a recognition of the importance of this service to the community, even as this has been stipulated as one of the UN's Millennium Development Goals (MDG) and used as a measure of effectiveness in assessing the accomplishment of the Medium-Term Philippine Development Plan (MTPDP).
- Sanitation and sewerage services, including waste water treatment and disposal of solid wastes, are not included in this analysis. (Neither of the WDs has waste water treatment facilities.)

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<sup>6</sup> Clean Water Act of the Philippines (Republic Act 9275, May 2004).

<sup>7</sup> Department of Health (DOH) Administrative Order No. 2007-0012 (May 2005).

<sup>8</sup> Mainly due to lack of data.

## APPROACH AND METHODOLOGY

The basic methodology is that suggested by Wu and Malaluan (2008),<sup>9</sup> who used differences in external and internal factors to explain the difference in the performance of two major water suppliers in Metro Manila.<sup>10</sup> External factors, as mentioned, include political support, institutional structure, design of contract, transparency of bidding process, public perception, and impacts of unforeseeable events. Internal factors include three aspects of management, i.e. corporate governance, financial management, and operations management. One critical assumption made was that external factors for the two Metro Manila water service providers studied would be basically the same. This assumption was based on the argument that the water providers were of the same institutional type, namely, privately owned, and that they served a relatively common geographical area. In our CEA, we adopt the same assumption in the case of WDs and concentrate on the role of internal factors to explain differences in cost-effectiveness.

The MLWD and BCWD are both government-owned and controlled corporations. They are both located in the same province of Batangas which is part of Region IVA, also known as CALABARZON,<sup>11</sup> adjacent to the NCR (see Annexures 1 and 2). Their corporate governance, financial management, and operations management are subject to the common basic law for their establishment, and rules and regulations issued by relevant agencies, including the Local Water Utilities Administration (LWUA), the LGU concerned, National Water Resources Board (NWRB), DOH, Department of Environment and Natural Resources (DENR), and the common issues and challenges facing the water sector. They also have a common political and geographical environment. All these are external factors that impact on how these WDs deal with their common objective of providing access to safe and affordable drinking water to their respective communities.

The internal factors of corporate governance, financial management, and operations management are analyzed to answer the main and corollary research questions of cost-effectiveness and access to safe drinking water.

The approach and methodology for this study have been adapted to the limited availability of primary data and information from official sources. However, wherever possible, primary data were obtained from the LWUA and from the COA which performs annual audits of the WDs. Secondary data published in websites or print media have also been used.

In addition to the LWUA and the LGU, there are other national agencies involved in WDs. These are listed in Annexure 6. The need for a single national agency for the water supply sector to be responsible for developing solutions to the issues and challenges facing the sector is stressed in the PWSSR.

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<sup>9</sup> Wu, Xun and Malaluan, Nepomuceno A. (2008). "A Tale of Two Concessionaires: A Natural Experiment of Water Privatisation in Metro Manila", *Urban Studies*, 45; 27.

<sup>10</sup> We are grateful to GDN for suggesting the use of this methodology.

<sup>11</sup> Composed of the provinces of Cavite, Laguna, Batangas, Rizal, and Quezon in the southern part of Luzon island.

## FINDINGS AND RECOMMENDATIONS

The reasons for the difference in the cost-effectiveness of the MLWD and BCWD have been analyzed with respect to three factors: their governance, financial management, and operations management, adapting the suggested methodology of Wu and Malaluan mentioned above.

### CORPORATE GOVERNANCE

As defined by Wu and Malaluan (2008), the three fundamental principles of corporate governance are accountability, transparency, and responsibility. This is very much at the heart of the current GDN project, and it is interesting to see how “governance” in the public sector (as against corporate governance) can be concretely linked to a performance indicator, in this case, cost-effectiveness. In a word, the issues in public governance, in this case of WDs, are virtually the same as in corporate governance.

Thus, the WDs and LGUs are the most important formal water service providers (WSPs) in the regions outside of the NCR. WDs were established as non-stock, Government Owned and Controlled Corporations (GOCCs) based on a tri-partite joint effort by the LWUA, the LGU concerned, and the community intended to be served.<sup>12</sup> They are corporate entities which use the provisions of PD 198 as their corporate charter. A WD is officially formed by a resolution of the LGU (province, or city, or municipality) *sanggunian* (legislature). Depending on the geographical jurisdiction of a proposed WD, the LGU resolution is approved either by the provincial governor, or city or municipal mayor. The resolution, which includes the list of the appointed five members<sup>13</sup> of the Board of Directors, is submitted to the LWUA to ensure compliance with PD 198. The LWUA then issues the Conditional Certificate of Conformance (CCC), which becomes the legal basis for the existence of the WD.

The LGU resolution for the establishment of the WD includes the list of members of the Board of Directors for the WD. The Board is responsible for policy-making while the day-to-day management is undertaken by a general manager assisted by a staff whose number depends on the size of the WD. The general manager is appointed by the Board. While the original Board members are appointed by the LGU, the LWUA fills vacancies and appoints subsequent Board members.

Once a WD is established, existing water supply and waste water disposal facilities owned by the city, municipality, or province are transferred to it on terms and conditions mutually agreed between the local government and the WD. Payment for the transferred facilities

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<sup>12</sup> Until recently, the LGU was supposed to conduct a public hearing of the community to decide on whether or not to organize a WD; however, in order to expedite the formation of WDs, the LWUA, by its Resolution No. 147, series of 2009, dispensed with the public hearing.

<sup>13</sup> The nominees for the WD Board of Directors should be citizens of the Philippines of voting age, residents of the district, and should include a representative each from a civic-oriented service club, professional association, a business, commercial, or financial organization, an educational institution, and a representative of a women’s organization.

could be in-lieu of shares of the WD, payable at an annual rate of 3 percent of the WD's gross receipts from water sales in any year, with the contract for the payment to be executed after the first five years of the creation of the WD and upon the agreement of the Board of Directors that such payment will not adversely affect the fiscal position and operations of the WD as verified by the LWUA. There is no provision in the law for cash equity infusion from the government. All financial requirements of the WD, other than those to be funded from self-generated revenues, are to be channeled and administered by LWUA.<sup>14</sup> All funds provided by the LWUA are interest-bearing loans. This virtual monopoly of the LWUA was lifted in 1997 by a LWUA Board of Trustees Resolution that provides for specific WD projects to be funded by the so-called Non-LWUA Initiated Funds (NLIF), which are initiated by legislation and funded by the General Appropriations Act. The LWUA is still the conduit for implementation of the water projects and their funding, which are also charged interest by the LWUA. Interest rates range from 7.5 percent per annum for 10-year loans to 10.2 percent per annum for 40-year loans effective March 10, 2009. Infrastructure projects for specific WDs are subject to LWUA approval and are financed either by the national budgets of the Department of Public Works and Highways (DPWH), the DENR, and the DOH). Loans from international lending institutions are coursed through the LWUA, which re-lends to the WDs. This arrangement by which practically all funds for rehabilitation and expansion of WDs are interest-bearing obligations has largely contributed to the slow build-up of the equity of WDs and is, in turn, the main cause of their inability to achieve 100 percent coverage of the households under their jurisdiction.

Effective March 11, 2010 by virtue of R.A. 10026, WDs have been granted exemption from national income tax, subject to certain conditions, among them being (a) the requirement that the amount saved by the WD due to this exemption is used as capital expenditure to expand service coverage; and (b) that the WD shall not increase its expenditures on personal services, travel, transportation or representation, and purchase of motor vehicles by more than 20 percent a year. This law also provides for the condonation, subject to certain conditions, of a WD's unpaid income tax with effect from August 13, 1996.<sup>15</sup> This incentive can be a source of much-needed funds for the WDs.

Water Districts are under the National Water Resources Board (NWRB) with respect to their operation and under the LWUA in setting their water tariff rates. The NWRB, under the DENR, is primarily responsible for the control and regulation of the utilization, exploitation, conservation, and protection of water resources in accordance with the specific provisions of the Water Code and the Presidential Decree 198 as amended by Executive Order 124-A, series of 1987.<sup>16</sup>

The Philippine Water Supply Sector Roadmap (PWSSR) (2<sup>nd</sup> edition, 2010) identified the main issues and challenges facing the water sector:

- **Institutional Fragmentation**

- Weak, fragmented institutional framework and policies on universal access to WATSAN (Water and Sanitation) services and cost recovery

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<sup>14</sup> Sections 2 and 30, PD 198.

<sup>15</sup> [http://202.91.163.129/\\$sitepreview/pawd.org.ph/Downloads/RA\\_10026.pdf](http://202.91.163.129/$sitepreview/pawd.org.ph/Downloads/RA_10026.pdf)

<sup>16</sup> [http://www.neda.gov.ph/n-online/images\\_/EO%20No.%20860-2010.pdf](http://www.neda.gov.ph/n-online/images_/EO%20No.%20860-2010.pdf)

- Uncoordinated sector planning and lack of monitoring
- **Inadequate Support to Rural Water Supplies**
  - Inadequate support to water utilities in terms of technical design criteria, project financing, management, operations and maintenance
  - Limited sector capacity and mandate (e.g. LWUA, DILG-WSSPMO) to provide support services to WSPs
- **Low Tariff and Cost-recovery Level**
  - Water utilities are not able to sustain operations and expand coverage.
  - Tariff levels, tariff structures, and tariff-setting methodologies differ across individual service providers
- **Low Performance of Water Utilities**
  - Water service providers do not perform satisfactorily
- **Weak and Fragmented Regulatory Framework**
  - Lack of transparency regarding the sector's performance and in benchmarking information for individual providers make it difficult to hold service providers accountable for service improvement
  - The lack of information at the service provider level impedes effective regulation
- **Sector Investment and Financing**
  - Low public and private sector investment in the water supply sector
  - Limited access to financing for service expansion of small utilities
- **Lack of WSS Sector Information**
  - General lack of information about the sector and erratic updating of existing information base
  - Lack of reliable data and the absence of systematic and regular monitoring of activities in the municipalities by the local government units.

The implementation of the Roadmap is managed and supervised by the Sub-Committee on Water Resources (SCWR) of the NEDA Infrastructure Committee (INFRACOM) which meets quarterly to discuss progress reports of its various national agencies/members. These reports are prepared in accordance with an NEDA-designed, Results-Based Monitoring and Evaluation (RBME) system.

Among the priority bills that the President of the Philippines has proposed to Congress is the creation of the Water Resource Commission<sup>17</sup> as envisioned in the PWSSR. Related congressional initiatives<sup>18</sup> include a bill filed in the Senate and two bills filed in the House

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<sup>17</sup> [23 Priority Bills of President Benigno Aquino III](http://thinklikeabeginner.com/what-are-the-23-priority-bills-of-pnoy/#ixzz1NSfxLxDw) <http://thinklikeabeginner.com/what-are-the-23-priority-bills-of-pnoy/#ixzz1NSfxLxDw>

<sup>18</sup> Senate Bill No. 611, "An Act Rationalizing the Financial Regulation of Water Utilities, Creating the Water Regulatory Commission and for Other Purposes; House Bill 4282 for the creation of a water super body to be called the Water Regulatory Commission (WRC); and House Bill 4137, otherwise known as the Water

of Representatives. The Senate bill will rationalize the financial regulation of water utilities and create the Water Regulatory Commission (WRC), while the two House bills also propose the creation of a WRC. One bill additionally seeks to rationalize the economic as well as administrative regulations of water utilities through the WRC and to protect consumers from abusive WSPs by limiting profit to 12 percent of their government-audited investments. The other bill also proposes accelerating the improvement and efficient development of water sources and distribution of water supply. All bills are pending in committee deliberations. The CRC can join in supporting early passage of these bills which, along with others, will make the WDs more effective in achieving their goal of providing access to safe drinking water to all their constituents while at the same time making WDs more cost-effective with the rationalization of the present fragmented financial regulations.

In the CEA, the above issues and challenges are considered the common external factors that impact all stakeholders in the water sector, including the two WDs discussed in this paper. What would differentiate the two WDs from each other is their capacity to respond effectively to these factors. The quality of this response is referred to in the CEA as internal factors of corporate governance, financial management, and operations management.

#### **A. MLWD—Corporate Governance**

The MLWD was founded on January 30, 1975 in accordance with PD 198, and is classified as a large WD. Lipa City, where MLWD is located, is a first class, highly urbanized city,<sup>19</sup> 78 kilometers southeast of Manila, with a total urban population of 260,568. The summary data for MLWD are shown in Table 3 and the details in Annexure 3. (These figures are compiled by PAWD, based on data submitted by the WD.)

**Table 3: Summary Data—MLWD**

Number of households served	44,979
Number of active service connections	44,979
Equivalent number of households under jurisdiction	70,728
Percent of households served	63%
Population served (44,979 households)	247,385
Population under jurisdiction (includes other neighboring municipalities)	389,005
Percent of population served	63%
Number of employees	209
Area under jurisdiction: Lipa City, municipalities of Malvar, Mataas na Kahoy, Balete, and part of San Jose and Quezon	
Category: Large (27,001 to 58,500 service connections)	

Source: PAWD 2008-2009, Directory of Water Districts.

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Regulatory Act of 2011, which seeks to protect consumers against abusive water firms by limiting profit to 12 percent of their government-audited investments

(<http://www.congress.gov.ph/press/details.php?pressid=4933>)

<sup>19</sup> There are three classes of cities in the Philippines: highly urbanized; independent component cities which are independent of the province where the city is located; and component cities which are part of the provinces where they are located and subject to their administrative supervision.

The MLWD has the mandated five-member Board of Directors, each respectively representing the civic, business, women’s groups, education, and profession sectors of the WD community. Its management comprises a general manager, two departments (technical services department, and department of administrative, commercial, and general services), and six divisions (administration and finance, production, planning and design, water system, construction and maintenance, and general services. In addition to Lipa City, the MLWD’s area of coverage includes five other contiguous municipalities with a total population of 389,005 under its jurisdiction, of which 247,385, or 63 percent, are actually served.<sup>20</sup> According to PAWD, the MLWD had 209 employees (2006), which translate to 215 active service connections per employee. Payroll expense is estimated at 24 percent of the operating expenses.

**B. BCWD—Corporate Governance**

The BCWD was established on January 14, 1974 in accordance with PD 198, as amended, and is classified as a large WD. The basic data for the BCWD are presented in Table 4, and the details in Annexure 4. Its present area of jurisdiction covers only Batangas City. The BCWD has under its jurisdiction a total urban population of 295,231 (59,046 households), of which 122,680, equivalent to 24,536 households, or 42 percent, have a WD water service connection,<sup>21</sup> leaving 34,510 households, or 58 percent of the households without the services of the BCWD.

**Table 4: Summary Data—BCWD**

Number of households served (2007)	24,536
Number of active service connections ((2007)	24,536
Equivalent number of households under jurisdiction	59,046
Percent of households served	42%
Population served	122,680
Population under jurisdiction	295,231
Percent of population served	42%
Number of employees	145
Area under jurisdiction: Batangas City	
Category: Large (27,001 to 58,500 service connections)	

Source: PAWD 2008-2009, Directory of Water Districts.

The management of the BCWD is in the hands of a six-member Board of Directors assisted by a general manager and a total complement of 145 employees, equivalent to 169 connections per employee. Ordinarily the Board consists of five members, but has been augmented by the appointment of a sixth member, as authorized by PD 198. This is usually done for WDs having difficulty servicing loans from the LWUA and experiencing management and operational problems. The five directors were selected from the fields of education, business, women’s issues, civic concerns, and the professions. The sixth member is a civil engineer. It is heartening that the government is engaging in good governance with the institution of PD 198. The addition of one Board member, however, is

<sup>20</sup> The MLWD’s service coverage increased to 74 percent in 2011 based on updated data published by the MLWD.

<sup>21</sup> These data are from the PAWD 2008-2009, Directory of Water Districts; the data indicate that one household has one service connection.

a clear signal that BCWD is experiencing a more severe corporate governance problem than MLWD.

There are no available published data to show the trajectory of growth in the number of households and population served by the BCWD. But the fact is that after 37 years of operation, 58 percent of the households/population under its jurisdiction are without a service connection as per the PAWD. This is certainly an indication of very poor corporate governance. It also shows that BCWD is less effective than MLWD in terms of service coverage.

## FINANCIAL MANAGEMENT

### A. MLWD—Financial Management

The balance sheet and statement of income and expense of the MLWD for 2006 are summarized in Tables 5 and 6. Unfortunately, statements for several years were not available which prevented us from conducting a time-series analysis.

**Table 5: MLWD Balance Sheet, December 31, 2006 (in Philippine pesos)**

Assets	
Current assets	
Cash & cash equivalents	13,906,629
Receivables, net	20,077,392
Inventories	11,152,422
Other current assets	2,546,357
Total current assets	47,682,800
Non-current Assets	
Investments	29,565,412
Property, plant and equipment	227,460,560
Construction in progress	19,191,268
Other assets	464,309
Total non-current assets	276,681,549
Total assets	324,364,349
Liabilities & equity	
Liabilities	
Current liabilities	
Accounts payable and others	3,849,069
Long-term liabilities and deferred credits	9,171,156
Total liabilities	13,020,225
Equity	
Retained earnings	311,344,124
Total equity	311,344,124
Total liabilities & equity	324,364,349

Source: COA audited financial statements.



**Table 6: MLWD Statement of Income & Expenses, December 31, 2006**  
(in Philippine pesos)

Income	
Income from waterworks system	242,054,914
Other income, including interest income	2,195,186
Total income	244,250,100
Expenses	
Personal services	50,646,406
Maintenance & other operating expenses, including depreciation	158,768,078
Interest and financial expenses	682,165
Total expenses	210,096,649
Net income from operation	34,153,451

Source: COA audited financial statements.

The financial ratios derived from these statements are compared with the industry average for 2006<sup>22</sup> as follows:

**Table 7: MLWD Financial Ratios, 2006**

INDICATOR	%/P	MLWD	Industry Average*
<b>PROFITABILITY</b>			
1. Net Income/Operating Revenues	%	14	10
2. Interest Exp/Operating Revenues	%	0.27	14
3. Return on Fixed Assets	%	12	35
4. Net Income/Month	P	2,846,121	1,302,091
<b>COST CONTROL</b>			
1. Operating Ratio	%	86	77
2. Operating Expense/Month	P	4,277,381	12,303,357
3. Operating Expense/Conn./Month	P	406	396
4. Maintenance Exp/Operating Exp	%	76	9
5. Other Operations & Maintenance Exp	P	158,768,078	55,778,347
<b>FINANCIAL POSITION</b>			
1. Total Debt/Total Asset	%	4	56
2. Loan Payable/Fixed Assets	%	2	54
3. Total Debt/(Total Debt+Total Equity)	%	4	57
4. Current Ratio	%	1239	432
5. Net Income/Total Assets	%	11	5
6. Long-Term Debt/Total Equity	%	1	186

\* For category "LARGE" WDs.

Sources: COA audited financial statements; <http://www.metrolipawd.com>  
PAWD 2008-2009, Directory of Water Districts.

The MLWD's profitability, cost control, and financial ratios generally exceed the corresponding industry ratios, indicating more room to utilize the financial space available. Unless there are undisclosed constraints on its borrowing capacity, the MLWD should be able to obtain short- and long-term loans to finance the expansion of its service coverage and working capital. The debt to assets and equity ratios provides very strong leverage for

<sup>22</sup> The LWUA as published in PAWD.

borrowing funds. Further, the current ratio is nearly three times the prevailing industry average. The MLWD's financial management is deficient in not being able to utilize these leverages which can improve its cost-effectiveness.

As with all other WDs, MLWD and BCWD do not receive direct financial support from the national government and are subject to the financing arrangements of the LWUA. The slow pace of service expansion of the WDs is mainly attributable to these onerous arrangements which should be seriously reviewed to improve the quality of the service.

On a total number of households of 43,026<sup>23</sup> in 2006, with a corresponding annual cost of P 210,096,649 in the same year, the cost-effectiveness per household is P4,883, which compares favorably with the industry average of P6,696 on the total cost of P203,418,631 on 30,381 households.<sup>24</sup>

## B. BCWD —Financial Management

The financial statements of the BCWD, as audited by the COA, are summarized in Table 8.

**Table 8: BCWD Balance Sheet, December 31, 2006 (in Philippine pesos)<sup>25</sup>**

Assets and Other Debits	
Utility Plant in Service – Net	
Utility Plant in Service	61,719,369
Construction Works in Progress	179,055,749
Others	12,406
Total Utility Plant	240,787,524
Investment and Fund Account	1,670,019
Current Assets and Other Debits	
Cash on Hand and in Bank	10,799,360
Accounts Receivable – Net	8,038,986
Other Current Assets	16,294,369
Total Current Assets and Other Debits	35,132,715
Total Assets & Other Debits	277,590,259
Liabilities and Other Credits	
Current & Accrued Liabilities	
Interest Payable (Phase II Project)	16,482,216
Customers Deposits, Others	10,178,904
Total Current & Accrued Liabilities	26,661,120
Long Term Debts	
Loans Payable from LWUA	159,962,676
Capital	
Capital Contribution	737,113
Retained Earnings	90,229,351

<sup>23</sup> This figure for households for the year 2006 is used to match the available financial statements of same year.

<sup>24</sup> Calculated from PAWD Directory of WDs 2008-2009, Directory of Water Districts; 2006 Water District LWUA Industry Average for category "Large WDs": average active service connection 30,381, operating expense per month P12,303,357 or P147,640,284 annually plus P55,778,347 other operations and maintenance expenses.

<sup>25</sup> The BCWD adopted the Electronic New Government Accounting System (e-NGAS) in 2008.

Total Capital	90,966,464
Total Liabilities & Capital	277,590,259

**Table 9: BCWD Income Statement, December 31, 2006 (in Philippine pesos)**

Operating Revenues	
Water Sales	137,724,709
Other Revenues	5,605,280
Total Revenues	143,329,989
Operating Expenses	
Operating Expenses	99,846,605
Maintenance Expenses	27,644,248
Depreciation	7,625,294
Total Operating Expenses	135,116,148
Net Operating Revenue	8,213,841
Other Income (Expenses)	
Other Income	2,318,408
Interest Expense on Loans	-8,954,057
Net Other Income (Expenses)	-6,635,649
Net Income	1,578,193

Table 10 shows the financial ratios derived from these statements and the corresponding industry average.

**Table 10: BCWD Financial Ratios, 2006**

INDICATOR	%/P	BCWD	Industry Average*
<b>PROFITABILITY</b>			
1. Net Income/Operating Revenues	%	1	10
2. Interest Exp/Operating Revenues	%	6	14
3. Return on Fixed Assets	%	0.66	35
4. Net Income/Month	P	131,516	1,302,091
<b>COST CONTROL</b>			
1. Operating Ratio	%	94	77
2. Operating Expense/Month	P	11,259,676	12,303,357
3. Operating Expense/Conn./Month	P	459	396
4. Maintenance Exp/Operating Exp	%	20	9
5. Other Operations & Maintenance Exp.	P	27,644,248	55,778,347
<b>FINANCIAL POSITION</b>			
1. Total Debt/Total Asset	%	67	56
2. Loan Payable/Fixed Assets	%	66	54
3. Total Debt/(Total Debt+Total Equity)	%	67	57
4. Current Ratio	%	132	432
5. Net Income/Total Assets	%	0.57	5
6. Long-Term Debt/Total Equity	%	176	186

\* For category "LARGE" WDs.

Sources: COA audited financial statements; <http://www.metrolipawd.com> PAWD 2008-2009, Directory of Water Districts.

The BCWD has a very low return on assets of less than 1 percent (0.57 percent), compared with the industry average of 5 percent, and with 11 percent for MLWD on net property, plant, and equipment assets of P240,787,524 for BCWD and P227,460,560 for MLWD. At

the same time, the BCWD has debt ratios to assets and to equity which are higher than the related industry ratios. These high ratios and low profitability make it difficult, if not impossible, for the BCWD to borrow funds to support its current operation, much less acquire capital assets to expand its service coverage. Its inability to expand its service coverage is mainly attributable to this low profitability in spite of the fact that it had been able to borrow funds (through the LWUA), as shown by its high debt ratios. These high debt ratios leave relatively little space for further borrowing. The very low profitability and reduced capacity to borrow create a vicious circle and ultimately hampers the BCWD in expanding its service coverage.

The BCWD's poor financial performance should be given more attention by the management and by LWUA itself. Time-bound plans for expanding service coverage and improving financial performance should be part of BCWD's annual planning, the implementation of which should be monitored at monthly meetings of the Board of Directors. The additional sixth board member should help the BCWD correct these evident financial management deficiencies.

On a total cost of P144, 070,205, and a corresponding number of 24,536 households, the cost-effectiveness per BCWD household was P5, 871 in 2006. This compares unfavorably with MLWD's P4, 883, albeit better than the industry average of P6, 696. However, in terms of households served in 2006, as compared with the number of households under its jurisdiction, the BCWD has substantially lagged behind at only 42 percent.

## **OPERATIONS MANAGEMENT**

### **A. MLWD—Operations Management**

Surface and ground water are at present the two major sources of water for the MLWD. Its operational and production facilities include 205 deepwells, 78 reservoirs, 6 bolted steel tanks, and 3 spring sources, water treatment plants (no mention of waste water treatment), submersible pumps, power plant for emergency, and 414 kilometers of transmission lines. It has a production capacity of 1.5 million cubic meters per month, but no actual production and consumption data are available. Its stock of water is inspected by the local DOH office and the LWUA for compliance with the Philippines drinking water standard. Its water testing laboratory is equipped to undertake bacteriological tests for the detection of total coliform and fecal coliform, and chemical tests for the detection of iron, manganese, lead, and cadmium. The MWLD's laboratory is DOH-accredited and is regularly monitored by the DOH Bureau of Health Facilities and Services. There is no specific data for MLWD, but according to the industry average published by PAWD, service is provided 23/7. It has manpower of 209 employees and 44,979 service connections<sup>26</sup> resulting to a personnel efficiency of 215 service connections per employee. This compares with BCWD's employee efficiency of 169 service connections per staff (computed from the same PAWD directory), indicating that MLWD's staff are more efficient than those of BCWD.

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<sup>26</sup> PAWD Directory 2008-2009

From the latest available two editions of the PAWD directories (2008-2009 and 2011-2012) MLWD's installed service connections increased from 44,979 to 51,760, at an annual average increase of 4.79 percent, while that of BCWD increased from 24,536 to 30,773 at an annual rate of 7.84 percent. MLWD's slower growth rate could be explained by its greater number of starting service connections and the earlier start-up of BCWD's operation (June 11, 1974) than MLWD (January 30, 1975).

Although MLWD's service coverage had gone up to 69 percent (PAWD 2011-2012) from 63 percent (PAWD 2008-2009), the service gap of 31 percent equivalent to an estimated 23,254 service connections/households with a population of 116,272 people is still substantial and should be addressed systematically. The objective of full coverage can be achieved or hastened, given that MLWD was formally established 36 years ago. As part of its corporate governance function, the MLWD should adopt a time-bound plan with a budget for expanding coverage, specifying an annual number of service connections to be installed. The implementation of the plan should be actively monitored by the Board of Directors. As WDs are under the DPWH through the NWRB, the MLWD should seek appropriation for its service coverage expansion under the DPWH / NWRB budget as capital infusion from the government. The implementation of this plan will contribute to further improving the cost-effectiveness of MLWD.

Another common corporate governance issue for both MLWD and BCWD, as well as generally for all WDs is the large nonrevenue water (NRW). PAWD 2008-2009 and 2011-2012 reports an industry average ranging from 20 percent to 34 percent. There is no available basis for the LWUA and WDs calculation of NRW. But even at the reported (optimistic) rates a substantial amount of revenue is being lost from NRW. Incidentally, this issue is also mentioned in the PWSSR 2009, 2010 for attention by WSPs. A more accurate method of NRW calculation is suggested by Kingdom, et al (2006). The MLWD would do well to study how, for example, the Manila Water Company, Inc., one of two private concessionaires providing water and sewerage services to Metro Manila, drastically reduced its NRW from 50 percent to 16 percent from 2001 to 2009.<sup>27</sup>

Another area that could improve the operating results of the MLWD is a possible increase in its water tariff rates. Water rates for all WDs (including MLWD and BCWD) are approved by the LWUA.<sup>28</sup> The current rates for residential, government, and commercial establishments are shown in Table 13. Rates may be adjusted in accordance with procedures set by the LWUA.

Water rates for WDs cover three basic categories of customers: residential/government, commercial/industrial, and commercial. Rates are charged on the basis of consumption—smaller consumers are charged lower rates than big consumers, and depending on the diameter of pipes used. Rates are calculated on a full-cost basis, in accordance with a formula of the LWUA.

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<sup>27</sup> MWSS Monitoring Report.

<sup>28</sup> See Footnote 9 for Executive Order 860 issued February 8, 2010 which gives the LWUA responsibility for regulating the water tariff rates of WDs.

**Table 13: Water Rates, MLWD and BCWD (in pesos)**

Category/Range	MLWD		BCWD	
	Minimum 10 m3	Commodity Rate per m3	Minimum 10 m3	Commodity Rate per m3
Residential and Government	P135-P9,720	P14.80 – P22.55	P187-P13,484	P20.50- P26.80
Commercial/Industrial	P270-P19,440	P29.60-P45.10	No rate quote	No rate quote
Commercial A	P236.25- P17,010	P25.90-P33.75	P374-P26,928	P41 – P53.60
Commercial B	P202.50-14,580	P22.20-P33.80	P280.50- P20,196	P30.76- P40.20

Notes: Minimum rates are for ½” inch pipe connections, while the maximum rates are for 4” pipe connections.

Source: LWUA.

The residential commodity rates of the MLWD are lower than the equivalent average rates of WDs in the country of P18.96 per m3 for 11–20 m3 consumption per month, to PP25.87 per m3 for 40-up m3 consumption per month,<sup>29</sup> while those of the BCWD are higher. There is, thus, room for the MLWD to seek an increase in tariff rates, which can be done through a process prescribed by the LWUA. The additional revenue from increased rates could be used to finance the expansion program of the MLWD.

## **B. BCWD—Operations Management**

There are no available data to trace the growth in the number of households and population served by the BCWD over the years, but it is clear that after 37 years of operation, over half the households under its jurisdiction are without service connections (58 percent equivalent to 34,510 households). This needs the urgent attention of both the LWUA and BCWD itself. Under the guidance of the former, the BCWD should do a feasibility study to determine the financial requirements and draw up a plan to support a case for requesting equity infusion (not loan) from the national budget. The option of raising water tariff rates is not feasible, given that the present rates are not competitive (not to mention affordable) vis-à-vis the average national billing rates.

The BCWD supplies water to its beneficiaries by pumping from ground-water deep-wells and distributing it through the use of booster pumps from pumping stations in its area. Latest available production data showed that in the year 2005, the average production capacity of the BCWD was 802,000 cubic meters per month, while the average demand/consumption capacity was 505,000 cubic meters per month, indicating an excess production capacity of nearly 300,000 cubic meters per month. This could be used to service those households still without service connections. We have not been able to get the BCWD to comment, but it is quite possible that the explanation could lie in fund constraints to finance the additional mains needed.

<sup>29</sup> LWUA Research Division Website <http://124.107.56.246/>

The water supply and distribution facilities of the BCWD include deep-wells, a reinforced concrete reservoir, transmission and distribution mains, booster pumps and pumping stations, emergency gensets, production and workshop buildings, and a chlorinating plant. There is no mention of waste water treatment facilities

The BCWD's water rates, which have been approved by the LWUA, are summarized in Table 13. The residential commodity rates of the BCWD of P20.50-26.80 per m<sup>3</sup> are higher than the equivalent average rates of WDs in the country of P18.96 per m<sup>3</sup> for 11-20 m<sup>3</sup> consumption per month to P25.87 per m<sup>3</sup> for 40-up m<sup>3</sup> consumption per month,<sup>30</sup> and it would be difficult for the BCWD to seek an increase in their tariff rates.

### **C. The MLWD and BCWD Operations Management: Implications from a Preliminary Production Function Analysis**

The production function provides us with the relationship between production inputs and production output. A preliminary application of this production function analysis to WDs gives us some insights into their operations management. We make the assumption here that operations management is very intimately linked to the process of combining inputs and output.

The application of the production function framework is made feasible mainly due to the relative availability of production data on the water districts in the Philippines, courtesy the COA. In contrast, there is a relative scarcity of production data on the private providers. This has forced us to use our sole private provider as a benchmark of performance. This decision is also supported by the conventional thinking that the private sector should necessarily be an efficient producer. The production function used in our preliminary analysis is of the Cobb-Douglas form, as given below:

$$Y = a K^b L^c$$

where

Y = output,

K = capital input,

L = labor input, and

a, b, c are constants

In our analysis of the water districts, we choose to measure output with the number of service connections, and labor input with number of employees. There being no direct measure for capital input, we decided to use the available data per category as a proxy for capital. This data effectively classifies each water district into one of the following six categories: very large, large, big, medium, average, and small. Each category could be taken as the scale of investment by the water district.

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<sup>30</sup> LWUA Research Division Website <http://124.107.56.246/>

## Results of Analysis

- The Cobb-Douglas production function was estimated with Ordinary Least Squares (OLS) using a logarithmic transformation as follows:

$$\text{LN}(Y) = \text{LN}(A) + a \text{LN}(K) + b \text{LN}(L)$$

where

$\text{LN}()$  = natural logarithm of ( ), and other parameters as defined earlier.

- To enable the OLS estimation, we assigned the following numbers to each of the six categories, which we are using as a proxy for capital input:

Category	Assigned Number
Very Large	6
Large	5
Big	4
Medium	3
Average	2
Small	1

- The OLS estimation was applied to a cross-sectional data set consisting of 423 water districts. The best OLS estimation result is summarized as:

LN(Y)	=	4.348	+	0.492	LN(K)	+	0.986	LN(L)
Std. Dev.		0.055		0.033			0.087	
ADJ R <sup>2</sup>		0.913224						
Observations		419						

- As can be gleaned from the table above, the estimation results pass the economic tests. As capital and labor inputs increase, we can see that output increases. The estimation results also pass statistical tests. The t statistics (t-STAT) show that each estimated coefficient is significantly different from zero. The high adjusted R-squared (ADJ R<sup>2</sup>) is indicative of a good fit.
- Two observations can be made from this analysis which would indicate that operations management was better at the MLWD than BCWD.

The first observation is related to the comparison of actual output to average output. The estimated production function represents the average level of technology embodied in the 423 WDs included in the estimation process of the production function. The figures below show the computed average output predicted by the level of inputs for the two WDs in question, compared with the actual output levels. It can be seen that MLWD's actual output greatly surpasses the predicted output level. In contrast, the BCWD is below its predicted output level.



	Actual No. of Connections	Predicted No. of Connections
MLWD	44,979	36,090
BCWD	24,536	25,825

The second observation is with regard to the productivity of labor, as measured by the marginal product of labor (MPL). Using the estimated production function parameter for labor, we computed the MPL of MLWD to be 213 additional service connections per additional unit of labor, as against 167 for the BCWD. This suggests that labor tends to be more productive in MLWD.

	Labor Input	Labor Productivity
MLWD	208	213
BCWD	145	167

## CONCLUSION

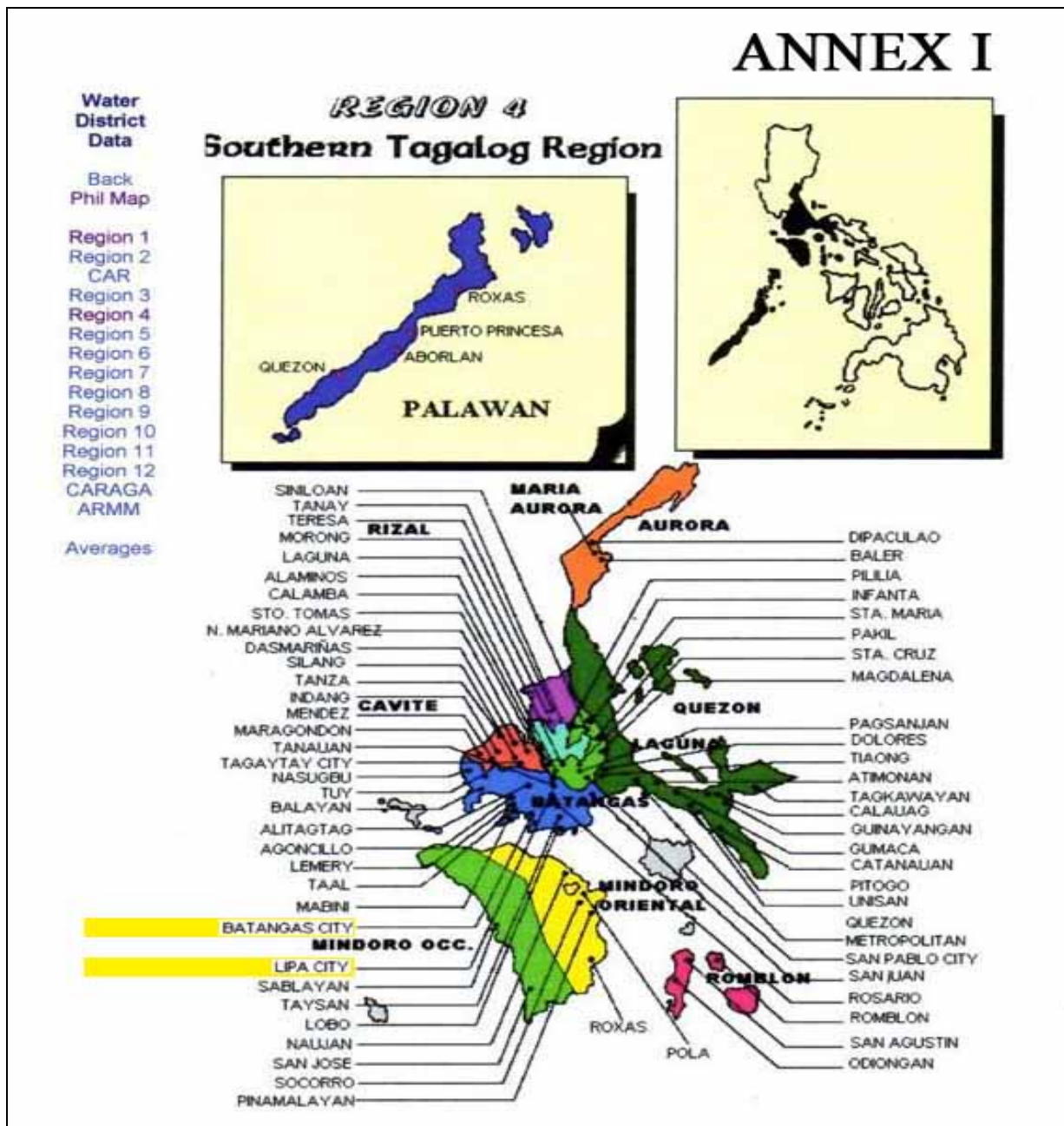
With respect to the three management features of cost-effectiveness, namely corporate governance, financial management, and operations management, MLWD is found to be more cost-effective than BCWD, with a cost-effectiveness of P4,883 for MLWD and P5,871 for BCWD. Significantly, MLWD achieved higher service coverage than BCWD relative to the respective designated population under their jurisdiction. In addition to the financial audit by the COA, there is need for closer monitoring of the general and operations management with a view to accelerating the progress of service expansion, particularly in the case of the BCWD. Time-bound plans with specific quantitative and qualitative objectives should be periodically monitored with progress reports submitted to the NWRB and LWUA, and necessary corrective measures instituted immediately. Further, the onerous financing arrangement common to all WDs of routing all of their financial needs as loans through the LWUA is a burden for them, given that at the very start of their operation they do not receive equity funds from the government. This should be reviewed in favor of the WDs. Equity funds rather than interest-bearing loans should be made available to WDs. Another important issue common to all stakeholders, including WDs, is the existence of numerous departments and agencies of the government which has resulted in fragmented and often overlapping and conflicting supervisory and regulatory overseeing of the water sector. In sum, the successful resolution of the issues and challenges identified in the PWSSR will ultimately benefit the WDs.

## POLICY ADVOCACY

This project should support the executive and legislative initiatives to expedite the passage of the pending bills in Congress to address the issues and challenges in the water sector as identified in the PWSSR. This offer of support should be communicated to NEDA and to the Philippine Senate and House of Representatives where the bills are pending. We believe that the reforms proposed in the PWSSR will address most, if not all, the ills plaguing the water sector. In cooperation with the executive and legislative agencies championing these reforms, the CRC can organize seminars and workshops as discussion platforms.

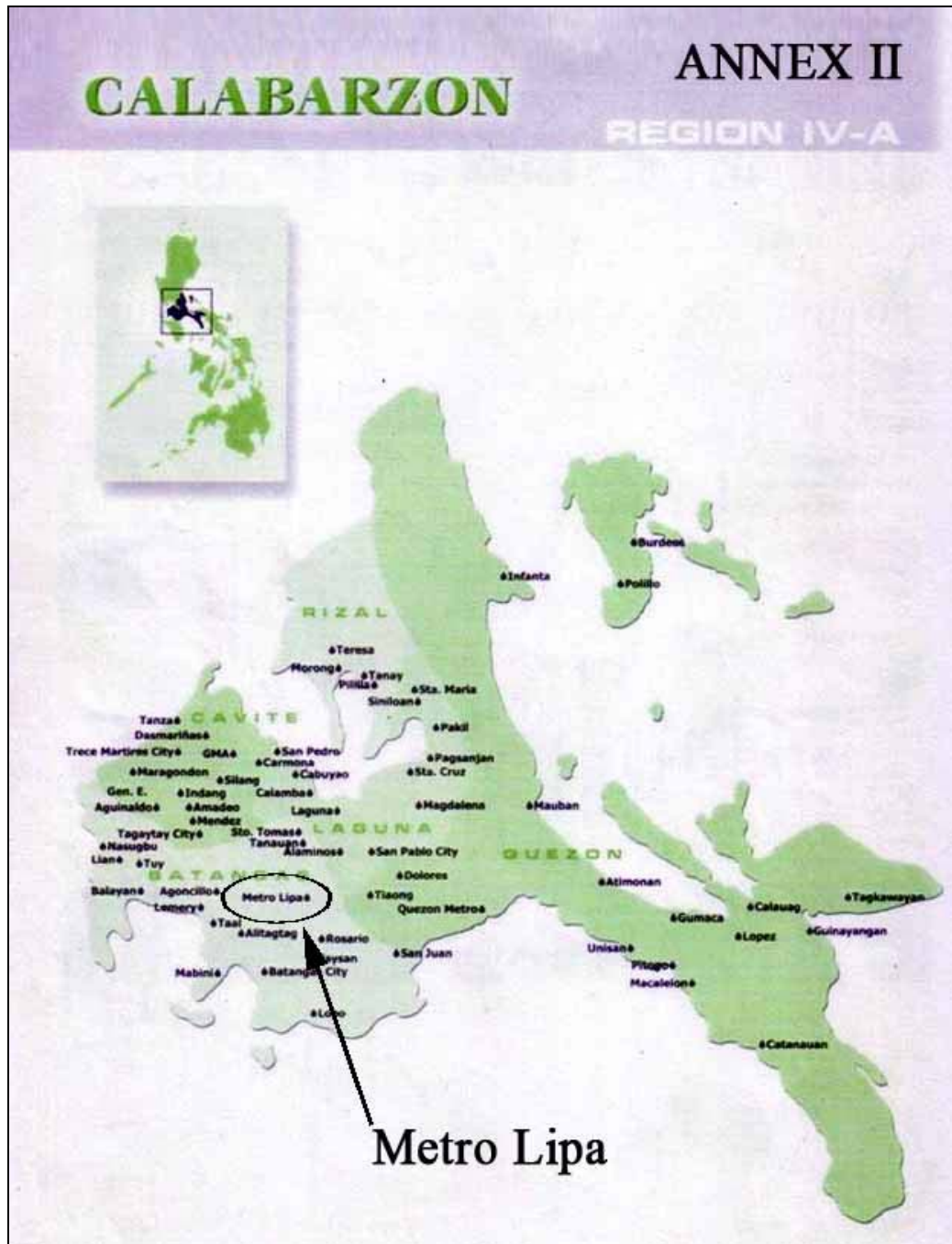
ANNEX 1

Map of Philippine



ANNEX 2

Region IV-A Calabarzon



## ANNEX 3

### Metro Lipa Water District - Basic Information

Address:	Int. B.Morada Avenue, Lipa City, Batangas 4217		
Phone:	(043) 756-1611/1618/1670/6972; 312-4708		
Fax:	(043) 7756-3450	Region: IV-A	
Email:	<a href="mailto:admin@metrolipawd.com">admin@metrolipawd.com</a>		
Web:	<a href="http://www.mwtrolipawd.com">www.mwtrolipawd.com</a>		

### BOARD OF DIRECTORS & MANAGEMENT

Chairman:	Mr. Eduardo D. Segismundo	Civic
Vice Chairman:	Mr. Raymundo P. Dimaano	Business
Secretary/Treasurer:	Ms. Ma. Socorro K. Atienza	Women
Member:	Mr. Jose R. De Castro	Education
Member:	Engr. Domingo R. Semana	Professional
General Manager:	Eng. Hermogenes M. Ilagan	

Date Formed:	Jan. 30 1975	No. of Households Served:	44,979
Category:	Large	Population Served:	247,385 (64%)
No. of S.C.:	44,979	Population w/in Juris:	389,005 (100%)
No. of Employees:	209	Number of Barangays Served:	188
No. of System:	185	Number of Barangays w/in Juris:	149

Name of City & Mun/s Served: City of Lipa and Municipalities of Malvar, Mataas na Kahoy, Balete and part of San Jose and Quezon

Source: PAWD 2008-2009 Directory of Water Districts

PAWD is government owned as a non-stock; non-profit organization attached to LWUA, and prepares the directory of water districts for the benefit of WDs and as a service to LWUA. It is the only source in LUWA of this type of organized data. Data are gathered and collated from survey questionnaires sent to the WDs. Statistical data are sourced from DILG and the Philippines national census.

## ANNEX 4

### Batangas City Water District - Basic Information

Address:	Km. 4 National Highway, Alangilan, Batangas City 4200		
Phone:	(043) 783-6537		
Fax:	(043) 783-6537/1811	Region: IV-A	
Email:	<a href="mailto:bcwd_bac@yahoo.com">bcwd bac@yahoo.com</a>		

### BOARD OF DIRECTORS & MANAGEMENT

Chairman:	Mr. Wilfrido G. Jacinto	Education
Vice Chairman:	Mr. Renato S. Pargas	Business
Secretary:	Ms. Virginia E. Leyesa	Women
Member:	Mr. Esteban G. Buan II	Civic
Member:	Dr. Enrico G. Acosta	Professional
Sixth Member:	Engr. Gregorio G. Mendoza	
General Manager:	Ms. Yolanda B. Oyao	

Date Formed:	Jan. 14, 1974	No. of Households Served:	24,536
Category:	Large	Population Served:	122,680 (42%)
No. of S.C.:	24,536	Population w/in Juris:	295,321 (100%)
No. of Employees:	145	Number of Barangays Served:	56
No. of System:	22	Number of Barangays w/in Juris:	105

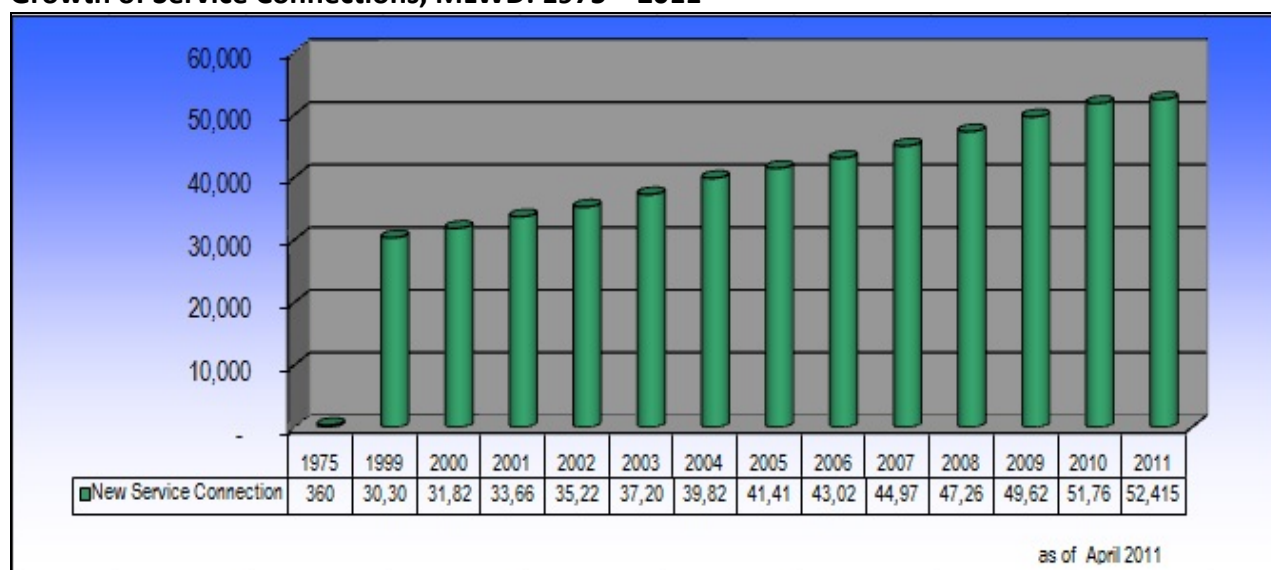
Name of City & Mun/s Served: City of Batangas

Source: PAWD 2008-2009 Directory of Water Districts

Note: See Annex 3

## ANNEX 5

### Growth of Service Connections, MLWD: 1975 – 2011



Source: Metro Lipa Water District Facts and Figures.

(<http://www.metrolipawd.com/facts.asp?ishow=service> )

## ANNEX 6

### Key Water Supply Government Agencies

The key water supply agencies in the government with their corresponding roles and responsibilities are listed below. The LGUs are responsible for the delivery of basic services including water supply and sanitation under the Local Government Code of 1991.

#### Key Water Supply Government Agencies

Agency	Roles and Responsibilities
<b>DENR</b>	Based on E.O. 192 (1987), the DENR serves as the lead agency in, among others, promulgating the (1) rules and regulations for the control of water, air, and land pollution and (2) ambient and effluent standards for water and air quality
<b>DILG</b>	Capacity building support to LGUs <ul style="list-style-type: none"> <li>• Provision of capacity building training to LGUs</li> <li>• Coordination of LGU master plan preparation</li> <li>• Provision of information to LGUs on available sector programs and financing</li> </ul>

Agency	Roles and Responsibilities
	<ul style="list-style-type: none"> <li>• Providing and bringing access to financing of LGU WSS projects</li> </ul>
<b>DOF / GFIs</b>	Financing support for the water supply sector <ul style="list-style-type: none"> <li>• DOF oversees performance of GFIs like DBP, LBP and LWUA</li> </ul>
<b>DPWH</b>	Provision of technical support to LGUs upon request, including implementation of Level I and Level II projects
<b>LGUs</b>	Based on the Local Government Code, LGUs bear multiple mandates in the sector such as resource regulation, water supply provision, and economic regulation of their utilities. Planning and implementation of water supply and sanitation programs include: <ul style="list-style-type: none"> <li>• Preparation of water and sanitation master plans</li> <li>• Monitoring of local water and sanitation coverage and update of sector profile</li> <li>• Provision of support to WSPs such as the RWSAs, BWSAs and cooperatives including funding from IRA</li> </ul>
<b>LWUA</b>	Capacity building support to WSPs <ul style="list-style-type: none"> <li>• Provision of technical advisory services and financial assistance to water districts</li> <li>• Provision of technical and institutional support to LGUs and WSPs</li> <li>• Setting design standards for water supplies operated by water districts and other WSPs</li> <li>• Financing support for Water Districts</li> <li>• Regulation of Water Districts</li> </ul>
<b>NEDA</b>	Coordination of the preparation of national development plan and investment programs <ul style="list-style-type: none"> <li>• Formulation of sector policies and strategies</li> <li>• Monitoring implementation of policies, programs and projects</li> </ul>
<b>NWRB</b>	Regulation of WSPs including some (consenting) LGU-managed water utilities <ul style="list-style-type: none"> <li>• Tariff regulation</li> <li>• Coverage and service regulation</li> <li>• Management of WSS sector database including WSP performance data</li> </ul>
<b>MWSS</b>	For water supply and sewerage services in Metro Manila through private water utilities. It also serves as the economic regulatory agency in the national capital region

PWSSR, 2<sup>nd</sup> edition, NEDA.

## ANNEX 7

### Government Agencies with Water Resources-related Responsibilities

Unit of Government	Line Bureau or Concerned Agency	Responsibilities / Concerns Related to Water
<b>National Economic and Development Authority (NEDA)</b>	Infrastructure Staff	Formulates and recommends for approval policies on water resources
	Regional Development Councils	Sets direction of economic and social development in region through which regional development efforts are coordinated
	Investment Coordination Committee / NEDA Board	Evaluates/appraises/approves major development projects and policies
<b>Department of Public Works and Highways</b>	Metropolitan Waterworks and Sewerage System	Constructs, maintains and operates domestic/municipal water supply and sewerage projects in Metro Manila

<b>Unit of Government</b>	<b>Line Bureau or Concerned Agency</b>	<b>Responsibilities / Concerns Related to Water</b>
	(MWSS)	and contiguous areas including watershed management
	Bureau of Research and Standards (BRS)	Undertakes hydrological surveys and data collection
	PMO-Major Flood Control Projects (PMO-MFCP)	Manages the planning, design, construction, organization and maintenance of major flood control projects
	PMO-Small Water Impounding Projects (PMO-SWIM)	Manages the planning, design, construction, organization and maintenance of locally-funded and foreign assisted SWIM projects
<b>Department of Agriculture</b>	National Irrigation Administration (NIA)	Undertakes program-oriented and comprehensive water resources projects for irrigation purposes, as well as concomitant activities such as flood control, drainage, land reclamation, hydropower development, watershed management, etc.
	Bureau of Soils and Water Management (BSWM)	Lead implementing agency of Comprehensive Agrarian Reform Program (CARP). Orchestrates the delivery of support services to farmer-beneficiaries in the KALAHAR Zones, an expanded agrarian reform community composed of a cluster of contiguous land-reformed barangays
	Bureau of Fisheries and Aquatic Resources (BFAR)	Formulates plans for the proper management, accelerated development and proper utilization of the country's fisheries and aquatic resources
<b>Department of Energy</b>	National Power Corporation (NPC)	Develops electric power generation facilities including hydroelectric and geothermal power; constructs dams, reservoirs, diversion facilities, and plants and watershed management
	National Electrification Administration (NEA)	Promotes, encourages and assists public service entities to achieve service objectives, implements mini-hydro projects
<b>Department of Health</b>	National Water Resources Board (NWRB)	Coordinates and regulates water activities in the country; supervises and regulates operations of water utilities outside jurisdiction of LWUA and MWSS; formulates and recommends policies on water resources
<b>Department of Health</b>	Environmental	Formulates environment quality

<b>Unit of Government</b>	<b>Line Bureau or Concerned Agency</b>	<b>Responsibilities / Concerns Related to Water</b>
	Management Bureau (EMB)	standards for water, air, land, noise, and radiation; approves environmental impact statements and issues Environmental Compliance Certificates
	Mines and Geo-Science Bureau (MGSB)	Manages, develops and conserves the country's mineral resources; monitors and maps groundwater resources
	Forest Management Bureau (FMB)	Formulates and recommends policies and programs for the effective protection, development, management, and conservation of forest lands and watersheds
	Protected Areas and Wildlife Bureau (PAWB)	Undertakes the protection and conservation of natural wetlands such as lakes, marshes, swamps, etc.
	River Basin Control Office	Plans for the development and management of the country's river basins
	National Mapping and Resources Inventory Authority (NAMRIA)	Responsible for integrated surveys, mapping, charting, oceanography, land classification, aerial photography, remote sensing, etc.
	Laguna Lake Development Authority (LLDA)	Responsible for regional water resources development and management in the Laguna Lake catchment area
	Philippine Council for Agricultural, Forestry and Natural Resources Research and Development (PCAFNRRD)	Formulates national agricultural, forestry, and natural resources research and development programs on multi-disciplinary, inter-agency approach for the various commodities, including water resources
<b>Department of Interior and Local Government</b>	Water Supply and Sanitation Program Management Office under the Office of Project Development Services	Supports the provision of water supply and sanitation services by LGUs
<b>Local Government Units</b>	Provincial Governments	Promotes the development of infrastructure including irrigation, water supply, electric power, and roads
	Municipal and Barangay Governments	Promotes municipal and barangay Water Supply & Sanitation, Watershed and other programs
<b>Department of National Defense</b>	Office of Civil Defense (OCD)	Monitors safety of dams and other water resources projects; prepares and supports the general public in emergencies



<b>Unit of Government</b>	<b>Line Bureau or Concerned Agency</b>	<b>Responsibilities / Concerns Related to Water</b>
	Philippine Air Force (PAF)	Undertakes rain enhancement through cloud seeding
<b>Department of Transportation and Communication</b>	Philippine Ports Authority (PPA)	Plans, develops, operates and maintains ports and port facilities
<b>Department of Tourism</b>	Philippine Tourism Authority (PTA)	Promotes and develops the recreational use of water resources. Operates Boracay water utility.
<b>Department of Trade and Industry</b>	Board of Investments (BOI)	Proponent of the CALABARZON integrated area study, covering water resources, among other aspects
	Philippine Economic Zone Authority (PEZA)	Responsible for the promotion and management of economic zones including the regulation of water utilities operating within economic zones
<b>Department of Social Welfare and Development (DSWD)</b>		Implements the government's flagship anti-poverty project – Kapit-Bisig Laban sa Kahirapan - Comprehensive and Integrated Delivery of Social Services (KALAHI-CIDSS) which includes water system construction in priority municipalities
<b>Department of Agrarian Reform</b>	Foreign Assisted Projects (FAP) Office Support Services Office (SSO)	Lead implementing agency of Comprehensive Agrarian Reform Program (CARP) and orchestrates the delivery of support services to farmer-beneficiaries in the KALAHI ARZones, an expanded agrarian reform community composed of a cluster of contiguous land-reformed barangays.

PWSSR, 2<sup>nd</sup> edition, NEDA.

## **ANNEX 8**

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