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The Philippine local government water sector

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The Philippine Local Government Water Sector

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Angel Faye G. Castillo, and Ricxie B. Maddawin*



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The Philippine Local Government Water Sector

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Abstract

In 2010, the United Nations, through Resolution No. 64/292, recognized the human right to water and sanitation and its' being essential to the realization of all human rights (United Nations General Assembly 2010). In 2016, water and sanitation were promoted to a full-fledged goal as the Sustainable Development Goal No. 6, to "Ensure availability and sustainable management of water and sanitation for all." The Philippine Development Plan 2017-2022 identifies water supply and sanitation (WSS) as essential to "accelerate strategic infrastructure development" (NEDA 2017). Further highlighting this in NEDA's Philippine Water Supply and Sanitation Master Plan 2019-2030. Finally, though these priorities are global and national, the attainment of 100% access to potable water lies heavily on local government delivery of the devolved water service.

Attaining these goals require identifying what kind of good water supply is and looking for the best economic framework for its provision. Water is a complex good. It could be a common resource (the water source) that, if unregulated, would have negative externalities leading to overconsumption. In addition, it could also be a natural monopoly (the process of treating and distributing water) faced with large sunk costs needing some form of regulation to avoid usurious pricing. Also, as a natural monopoly, the optimal provision of potable water might require coordination across local governments because of possible economies of scale across boundaries. This would need coordination and political will.

This study tries to answer the question, "How can LGUs provide efficient and sufficient water supply for its current and future population?" To do so, it is vital to understand the current regulatory and implementation context of the Philippine water sector particularly for local governments. Identifying institutional and practical issues in the various modes of providing local water services as well as highlighting successful local water efforts will give policymakers a better handle on what levers would be needed. Examining recent national government programs directed to improving access to water supply will also help decide, if there will be and how, future interventions will play out with strengthened decentralization and in responding and recovering from the pandemic.

The results show the need to streamline and align economic and technical regulation and operating standards. In addition, there must be improved in investment coordination within the sector to ensure efficient and strategic investments. There should be a consolidated and complete database of water service providers, key performance indicators and other data needed to monitor. Finally, political economy issues must also be hurdled to avoid duplicative efforts or delayed investments.

Keywords: Water district, water infrastructure, water tariff, strategic investment coordination

Table of Contents

1. Introduction.....	1
1.1. Background and Rationale	1
1.2. Research questions and objectives	2
1.3. Scope, data and methodology	3
2. Review of Literature.....	4
2.1. Water as an economic good	4
2.2. The decentralized delivery of Philippine water services	5
2.3. Recent evidence on water service providers.....	7
3. Current Regulatory and Implementation Context of the Philippine Water Sector.....	10
3.1. Water Sector Implementing Agencies.....	10
3.2. Water Sector-specific Oversight Agencies.....	15
3.3. Modes of Water Infrastructure Implementation	23
4. Regulatory and Implementation Issues.....	27
4.1. General Issues on Regulation – Overlap in Regulation.....	27
4.2. Technical Operating Standards and Regulations.....	28
4.3. Water Rates Regulation	30
4.4. Investment Planning and Coordination	32
5. Case Study -Sta. Maria, Bulacan	34
6. National government support programs for local water service delivery and evidence	37
6.1. Bottom-up Budgeting Program	38
6.2. Sagana at Ligatas na Tubig sa Lahat (SALINTUBIG)	42
6.3. Performance Challenge Fund.....	47
6.4. Local Water Utilities Administration	47
6.5. National government support programs in water service delivery and poverty incidence	48
7. General Findings and Discussion	49
8. Recommendations.....	51
9. References	53
10. Appendixes	56

List of Tables

Table 1. Water Supply Service Providers by Management Type.....	7
Table 2. Definition of Water Systems	8
Table 3. Results from the Listahang Tubig, 2017	9
Table 4. Water supply-related services by specific LGUs.....	11

Table 5. Water supply related services by specific legislative councils.....	11
Table 6. Powers of LWUA.....	15
Table 7. Schedule of interest rates of LWUA loans to water districts.....	18
Table 8. Loan Terms and Condition	18
Table 9. Categories by Active Service Connections	19
Table 10. Categories by Active Service Connections.....	19
Table 11. Other functions of NWRB.....	21
Table 12. Summary of Revised Economic Regulation Framework of the NWRB	22
Table 13. List of water service providers by level of service.....	23
Table 14. Summary of the regulatory involvement of various Water-related Agencies	27
Table 15. Key Performance Indicators for Water Districts regulated by LWUA.....	29
Table 16. Key Performance Indicators for Category A Water Utilities Regulated by the NWRB.....	29
Table 17. Fundamental Principles of Water Rates Setting for Water Districts regulated by LWUA	30
Table 18. Fundamental Principles of Water Rates Setting for Water Utilities regulated by NWRB.....	31
Table 19. Agencies with Planning Related Mandate concerning Water Supply Services	32
Table 20. Sample Municipalities with More than One Water Service Providers.....	34
Table 21. Pipelines laid as of December 2019	35
Table 22. Comparative Operational Performance, 2002 and 2019.....	35
Table 23. Financial Highlights of Santa Maria Water District from 2015 to 2019	36
Table 24. Operating Highlights of Santa Maria Water District from 2015 to 2019.....	36
Table 25. Summary of BUB/ADM/AM Expenditures (Disbursements) for water supply systems, 2013 to 2018	38
Table 26. Summary table of BUB/ADM/AM regional expenditures, current prices, 2013 – 2018.....	39
Table 27. BUB/ADM/AM expenditures to obligations	40
Table 28. Summary distribution of BUB/ADM/AM water expenditures by recipient municipalities and expenditures, 2013-2018.....	41
Table 29. Household awareness of available public services, by category.....	42
Table 30. Summary of SALINTUBIG Expenditures, 2012 to 2018.....	43
Table 31. Summary table of SALINTUBIG regional expenditures, current prices 2012 – 2018	44
Table 32. SALINTUBIG expenditures to obligations ratios, 2012 to 2018.....	45
Table 33. Summary distribution of SALINTUBIG water expenditures by recipient municipalities and expenditures, 2012-2018.....	46
Table 34. LWUA budgetary support to government corporation, 2010-2018	48

List of Figures

Figure 1. Fragmented and overlapping range of functions of Philippine water-related agencies.....	6
Figure 2. Regional access to water supply	8
Figure 3. Proportion of population served by type of WSPs, 2017.....	9
Figure 4. Percentage of households with water service, 2011-2016.....	10
Figure 5. Summary of BUB/ADM/AM Expenditures (Disbursements), in current and constant prices, 2013 to 2018.....	39
Figure 6. Summary of SALINTUBIG Expenditures, in current and constant prices, 2012 to 2018	44
Figure 7. PCF subsidy on water related projects	47
Figure 8. LWUA budgetary support to government corporation (in Thousand PhP), 2010-2018	48

List of Appendixes

Appendix A. Focus Area from the Water Supply and Sanitation Master Plan, 2019-2030 ...	56
Appendix B. Results.....	58
Appendix C. Pairwise Correlations	62

The Philippine local government water sector

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1. Introduction

1.1. Background and Rationale

In 2010, the United Nations, through Resolution No. 64/292, recognized the human right to water and sanitation and its' being essential to the realization of all human rights (United Nations General Assembly 2010). In 2016, water and sanitation were promoted to a full-fledged goal as the Sustainable Development Goal No. 6, to “Ensure availability and sustainable management of water and sanitation for all.”

The country exceeded the Millennium Development Goal 2015 target of the proportion of families with access to safe water (NEDA 2017, 139). However, there were still 1.2 million households with no access to safe water. This motivated the country's continued commitment to this goal by identifying water resources as a priority area in the *Philippine Development Plan* (PDP) of 2017-2022's goal of “Accelerating Infrastructure Development. Attaining this goal requires the combined efforts of the public sector's national and local governments and the private sector as well.

For the decentralized Philippine government, local government units (LGUs) are primarily responsible for the delivery of water services such as through artesian wells and water supply systems (Republic of the Philippines 1991, Sec. 17.b.vii). However, cognizant of the challenges faced by LGUs in providing water services and evidenced by the presence of households with no access to safe water, the national government (NG) has been supporting LGUs to close the infrastructure gap in water services. Said efforts are apart from their mandated Internal Revenue Allotment (IRA) and shares of National Wealth. Such programs are performance-based (Performance Challenge Fund) and combination performance- and equity-based programs (e.g. Bottom-up Budgeting, Assistance to Municipalities) as well as through national government agencies such as the National Anti-Poverty Commission (NAPC), Department of Health (DOH), and Department of Interior and Local Government (DILG) program the *Sagana at Ligtas na Tubig Para sa Lahat* (Salintubig).

Despite the decrease in the number of waterless municipalities, from 455 in 2010 to 234 in 2015, uncoordinated planning and implementation of programs and projects in the water sector remain a major challenge because of the fragmented institutional set-up (NEDA 2017, DILG OPDS Water Supply and Sanitation Project Management Office (WSSPMO) 2016). Relatedly, the “Philippine Water Supply and Sanitation Master Plan, 2019-2030” (PWSSMP) identified eight reform areas, namely: (1) establishing effective WSS sector institutions; (2) strengthening regulatory environment; (3) balancing water supply and demand; (4) building climate

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resiliency; (5) creating and ensuring effective WSS services; (6) enabling access to funding and financing; (7) managing data and information; and, (8) driving research and development.

This study looks at how the Philippine public sector delivers the devolved basic service, water. The results of this study could be useful inputs to the PWSSMP Reform Agenda No. 5 priority areas namely: (1) reduce institutional fragmentation in water supply and sanitation (WSS) provision; (2) increase the coverage of water districts; (3) evaluating the effectiveness of past and existing programs directed at the poor and waterless communities; (4) assess the performance of LGU-run utilities; and, (5) develop alternative models of public-private partnerships for water and sanitation provisions (NEDA 2019, 25) (Appendix A). In addition, this study is aligned with the PDP 2017-2022 cross-cutting theme as foundation for sustainable development through accelerated infrastructure development and can serve as basis in formulating strategies and policy directions in the delivery of local government water systems in the country.

1.2. Research questions and objectives

The overall policy question is: How can LGUs provide efficient and sufficient water supply for its current and future population? To answer this, the current structure of water service delivery at the local level must first be understood and assessed. How do LGUs currently deliver water supply and how do LGUs and other sectors such as the national government and private sector enable/facilitate the delivery of this devolved basic service?

Specific research questions include:

1. What is the current structure of Philippine water service delivery at the local level?
2. What is the mandate and role of local governments in delivering local water supply?
3. What are the national government agencies that play roles in the delivery of local water supply?
4. What role does the private sector play in local water service delivery?
5. How are the different levels of water systems determined and established and what are the specific roles of the different players (national and local governments and private sector) in the current structure?
6. Are there overlaps or gaps in the functions and mandates of local and national government agencies? What are the implications of these in water service delivery and how does this affect water service delivery (i.e. too many steps, political economy, lack of planning)? Do these create bottlenecks and unnecessary delays?
7. What are other reasons (i.e. topographical, geographical, distance from water source, political economy) that hamper the delivery of local water services?
8. The Sustainable Development Goal No. 6 is to “Ensure availability and sustainable management of water and sanitation for all.” This was adopted as an indicator in the PDP 2017-22 Results Matrix with the goal of increasing the proportion of households with access to safe water supply. Given the current local water service delivery framework, is this possible?
9. One of the targets of the PDP 2017-2022 is to increase the proportion of cities/municipalities served by water districts with 24/7 water supply. Are there examples of LGUs that have attained this? How were they able to do so under the current local water service delivery framework? Would this approach be applicable to all LGUs? How can the current framework be improved to facilitate the attainment of this goal?

10. In LGUs there is a mix of water suppliers - water districts (private), other small private providers, cooperatives and LGUs. Can these systems be integrated to improve water supply (including water quality)? Are there examples of LGUs that have done this? How?
11. What other national government agencies offer how do these assist local governments in water provision? How much, in terms of resources, has been allocated to these programs in the past decade?

From these research questions, the main objective of this study is to identify areas of improvement in water supply provision for local government units by understanding the general framework of the local water system and survey practices that have led to successful or failed local water delivery. This would be done by mapping out and systematically presenting national government agencies that have oversight and are involved in local water and local water systems their mandates, scopes and functions.

Specific Objectives:

1. To systematically map out and present the different public sector institutions responsible or that help in delivering the devolved basic water service delivery. What are the mandates of the different government agencies in water? What are and how do their mandates, scopes and functions lead to the provision of water in local governments?
2. Examine and do an in-depth analysis/case study/document to the extent possible sample outlier LGUs to define both best practices and common challenges in water.
3. Provide criteria/guidelines to streamline processes in establishing water systems including those of oversight bodies, national government agencies and across local governments.
4. Survey the national government programs and other public sector facilities (e.g. SALINTUBIG program, grants from LWUA, LGSF-AM, PCF) for assistance to local water. What are the national government agencies and how do these assist local governments in water provision? How much, in terms of resources, has been allocated to these programs in the past decade? Have these programs been successful in attaining their objectives?

1.3. Scope, data and methodology

Multiple factors determine the availability of water supply. Aside from the institutional landscape, which is the focus of this study, there are many extraneous variables. The absence of a water source is a key hindrance to potable water supply provision. Ground water aquifers may be depleted or contaminated (for instance, with saline intrusion in areas close to the sea) impairing the ability of the water supply provider to provide potable water.

Another critical factor would be the topographical features of the city or municipality. Water is a heavy commodity – it is difficult to transport due to its volume and weight. Thus, topographical features affect the cost structure of water service delivery. Water delivery in a hilly city or service area will require additional costs to pump water from a low area to a higher area. Pumping-related costs increase expenditures, in large due to additional equipment, maintenance and electricity costs to pump water to higher areas. As a result, some water systems may prove to be more expensive than others. Furthermore, these costs affect the feasibility of a water system.

Population density also affects water supply needs and its provision. Cities or municipalities that are more densely populated, can service more people requiring less pipelines and other similar water supply investments. Therefore, concentration of people affects the feasibility and affordability of water supply systems.

A mixed methods approach was employed using sequential parallel analysis and process evaluation. The research questions were answered in three general parts described, along with methodologies employed below:

Part 1: Local Government Water System: Maps out how and the different ways by which local water services are provided by the public sector using a descriptive research design and, to the extent possible, process evaluation and explanatory sequential methods. This review will surface institutional issues in providing local water services.

A sequential explanatory approach is employed where information from different reports from the NWRB and LWUA website were first obtained and processed. It is then followed by a qualitative phase. Key informant interviews with the Local Water Utilities Administration and the Philippine Association of Water Districts, and desktop research were then undertaken during the qualitative phase to provide needed on-the-ground, regulatory, and industry context on the issues. As part of the qualitative review, an understanding of the constitutive legal framework for water districts and local water districts' operations was conducted. Moreover, industry reports and other recent issues related to water districts and the local water sector were gathered.

Part 2: Empirical Evidence: Case Study of successful LGU-run or PPP Water District and Survey of National Government Local Government Support Programs for water

- a) A case study was conducted to provide specific context on the realities on the ground for a successfully run water district.
- b) There was a review of recent national government programs aimed at assisting LGUs in water service delivery.

Desk review, secondary data collection (particularly for expenditure trends) and key informant interviews (KIIs) with members of national government agencies that have oversight on local governments and involved in local water programs (e.g. DILG, Department of Budget and Management, Department of Finance-Bureau of Local Government Finance) were conducted to answer the research questions.

Part 3: Integration of the Parts 1 and 2 and Recommendations

2. Review of Literature

2.1. Water as an economic good

Water is a complex good and providing it requires understanding the different phases of supplying water and the various manners of delivery. From an economic perspective, the different steps in water provision change the type of good water is and therefore the possible ways by which it would be provided and managed or regulated. First, the water source is a common resource that should be regulated across different users. Allowing unregulated use of

the water source would lead to negative externalities in that an additional user would reduce the available supply for other users. This would therefore lead to overconsumption of the water source. The typical economic solution for this problem would be to have a regulatory body estimating and controlling the optimal number of users of this common resource (Stiglitz and Rosengard 2015).

Second, the next step would generally be ensuring the water is potable and that it gets to users. Here, water service provision is considered as a natural monopoly because of the large sunk costs involved in delivering potable water to end-users. The economic model for this would also be of a regulatory nature, this time to ensure that the water service providers do not charge usurious prices if they decide to charge prices (Stiglitz and Rosengard 2015, Zetland 2014).

The nature of regulation/economic provision in this phase would also change depending on who decides to provide water and how. If the public sector, including local governments, decides to provide the water service, the pricing mechanism and required regulation would change depending on whether the water service will be free or have a tariff (that may or may not recover costs). Pricing will also depend on the level of water system provided and is determined more in the realm of the political economy (Zetland 2014). If it is the private sector or a hybrid of public and private sector that decides to provide the water service, the regulatory framework would be that of treating it as a natural monopoly (Stiglitz and Rosengard 2015). The multifaceted nature of water explains the complicated and sometimes fragmented water sector.

This study focuses on the current set-up in potable water service delivery in the decentralized framework, the economic provision and regulation rather than the more frequently studied resource management and resource regulation.

2.2. The decentralized delivery of Philippine water services

There are at least eight legal frameworks governing the water sector in the Philippines with the encompassing Water Code of the Philippines as the basic law governing the ownership, appropriation, utilization, exploitation, development, conservation and protection of water resources (NWRB 1976, PD 1607, s. 1976).

The following are the legal frameworks governing water sector in the Philippines (Rola, et al. 2015):

1. Presidential Decree 1067 Water Code (1976)
2. Presidential Decree 198 Provincial Water Utilities Act (1973)
3. Presidential Degree 522 (1974) Prescribing Sanitation Requirements for the Travelling Public
4. Republic Act 7586 National Integrated Protected Area System Act (1992)
5. Republic Act 8041 National Water Crisis Act (1995)
6. Republic Act 8371 Indigenous Peoples Rights Act (1997)
7. Republic Act 9275 Clean Water Act (2004)
8. Republic Act 8435 Agriculture and Fisheries Modernization Act (AFMA)

The National Water Regulatory Board (NWRB) is in charge of setting, administering, and enforcing all rules related to water such as the control, conservation and protection of waters, watershed and related land resources. For local water governance, the decisions and actions of

LGUs are still bound by mandates at the national level and have been a source of conflict between the two bodies (Rola, et al. 2015).

Apart from the NWRB, other water-related agencies in the Philippines that exercise oversight are the National Irrigation Authority (NIA) the Local Water Utilities Administration (LWUA), the Department of Environment and Natural Resources (DENR) to name a few. There are also national government agencies that implement water-related programs such as the Departments of Agriculture (DA), Public Works and Highways (DPWH) and of the Interior and Local Government (DILG). Finally, local governments are the ones primarily responsible for the provision of water in the Philippines. With the many water-related government agencies, it can be expected that there are overlapping mandates and functions in policy planning, data monitoring, infrastructure and program development as can be seen in Figure 1.

Figure 1. Fragmented and overlapping range of functions of Philippine water-related agencies

Functional Area	N W R B	L W U A	D E N R	L G U S	D P W H	D O H	N I A	N A P O C O R	P A G A S	D O F	M M S S	D I L G	D O E	M M D A	D O T	L L D A
Policy Planning	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
Data Monitoring	●	●	●	●	●	●	●	●	●		●	●	●	●		●
Scientific Modeling									●							●
Infrastructure and Program Dev't	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
Operations of Water Facilities				●	●		●	●			●			●		
Regulatory Functions	●	●	●	●		●					●		●	●		●
Financing		●	●	●						●						
Public Relations, Capdev't and IEC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Local RBO Dev't			●													

Source: Rola, et al. (2015)

In terms of water sources, the country has 12 water resource regions, divided by hydrological boundaries for comprehensive planning of water resources development (Rola, et al. 2015). These water resource regions are different from Philippine administrative regions and overlap several local governments, crossing boundaries as the common resource it is. This, therefore, complicates local water service delivery because the common water resource should be shared across different local governments and would require the cooperation of these local governments.

Recent studies have supported the need to examine and find ways to improve local water provision with considerable spillover effects. World Bank (2015) emphasized that national targets could only be met if: (1) sector leadership is streamlined; (2) there is an integrated institutional framework; (3) there is political will to mobilize necessary investments; and, (4) regulation is enhanced to encourage expanding and improving service provision, particularly for the poor. All of these suggested reforms require capacity development. An important recommendation of said study is to improve coordination mechanism between actors at provincial and municipal levels, establish a national capacity building program, harmonize data collection systems, and establish a collective platform for a multi-stakeholder review process. An Asian Development Bank (2013) assessment of the Philippines' water supply and sanitation

sector found similar results, highlighting the sector’s past performance, the current constraints facing its development, and the Government’s plans and strategies for future development of the sector.

2.3. Recent evidence on water service providers

In 2019, the Philippine Water Supply and Sanitation Master Plan (PWSSMP) was published as the action plan to achieve universal access to safe water and sanitation. It defines the activities, responsible agencies, and the necessary budget needed by the water service and sanitation (WSS) sector that would align with the country’s need. The PWSSMP aims to achieve the WSS related targets in the Philippine Development Plan (PDP) 2017-2022, Clean Water Act, and the United Nations (UN) Sustainable Development Goals (SDG) (NEDA 2019).

There are several management types of WSPs has such as water districts, barangay water and sanitation association, cooperatives, etc. (Table 1). These WSPs provide, independently, the three different levels of water systems defined in Table 2. Overall, 43.6 percent of the country gets water from Level 3 (waterworks system), 11.2 percent from Level 2 (communal faucet systems or stand posts) systems, a surprising large proportion of 45.2 percent access water from Level 1 (point sources) (NEDA 2019). Many regions such as CAR (70%), Region I (Ilocos) (78%), Region II (Cagayan Valley) (81%), and ARMM (85%) access water from Level 1 sources compared to Metro Manila accessing water primarily from Level 3 (78%) sources (Figure 2).

Table 1. Water Supply Service Providers by Management Type

Major Groups	Management Type	Description
WDs	Water District	A quasi-public corporation formed by the local government unit under the Provincial Water Utilities Act for the operation and maintenance of water supply and wastewater management system, which has been issued a Certificate of Conditional Conformance by LWUA
LGU-run Utilities	LGU-run Utilities	A water supply system owned and operated by the provincial, city, or municipal government
Community-Based Organizations	Barangay Water and Sanitation Association (BWSA)	A non-stock and nonprofit organization that owns, operates and maintains a water system and sanitation facilities in the barangay
	Rural Water Supply Association (RWSA)	A non-stock and nonprofit organization formed by a group of persons in a defined area, such as a street, a group of houses, a sitio, or a purok to establish and maintain water supply and sanitation
	Cooperative	A membership organization formed under the Cooperative Code of the Philippines to operate and maintain water supply systems and registered with the Cooperative Development Authority (CDA)
Private Utilities	Homeowners’ Association	An organization that operates and maintains a water supply system and is registered with the Securities and Exchange Commission or Housing and Land Use Regulatory Board
	Real Estate Developer	A real estate developer operating the water supply system that provides potable water to lot owners within its real estate development

Major Groups	Management Type	Description
	Unnamed WSP	An unnamed WSP is one that serves at least 15 households, and which is not registered formally with any government agency
	Industrial Locator	An industrial estate operating the water supply system in an economic special zone to provide water to its locators
	Peddler	A non-pipe WSP operator that extracts water and supplies and delivers water by the container
	Ship Chandler	A water supply operator providing water to ships
	Other Private Operator	Sole proprietorships, corporations and other private entities formed under the general business and corporation laws of the country for the operation and maintenance of water supply systems.

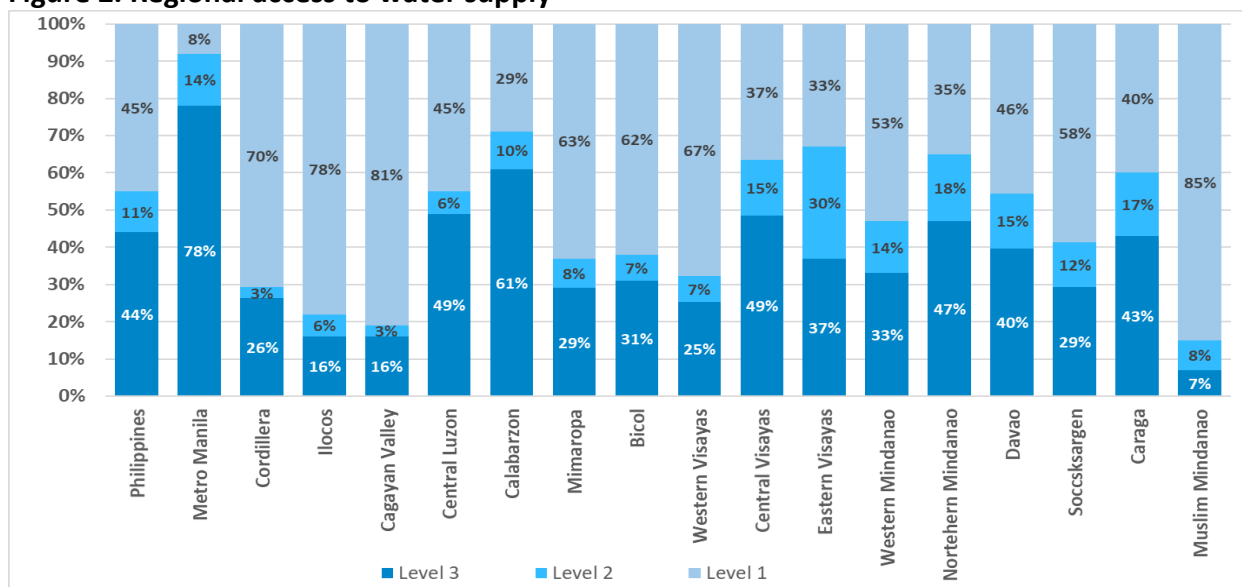
Source: Table 2 of the Philippine Water Supply and Sanitation Master Plan 2019-2030

Table 2. Definition of Water Systems

Level	Description
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 with people having to fetch water from up to 250 meters distance
Level 2 (Communal Faucet System or Standpost)	A piped system with communal or public faucets usually serving 4-6 households within 25 meters 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.

Source: NEDA Board Resolution No. 12, Series of 1995 (as cited in NEDA 2010).

Figure 2. Regional access to water supply



Source: Philippine Water Supply & Sanitation Master Plan Databook, results from FIES 2015 with sample size of around 50,000

According to the PWSSMP, more than 12 million people still access water from unsafe sources and there are still some areas without water service providers (WSPs). Also, there has been evidence that 31 percent of water districts in the country have failed to operate (NEDA 2019).

Based on the NWRB’s Listahang Tubig in 2017, Region IX (Zamboanga Peninsula) (11%) and SOCCSKSARGEN (15.8%) have the lowest proportion of population served by the service providers and Western Visayas has the highest number of waterless municipalities (Table 3).

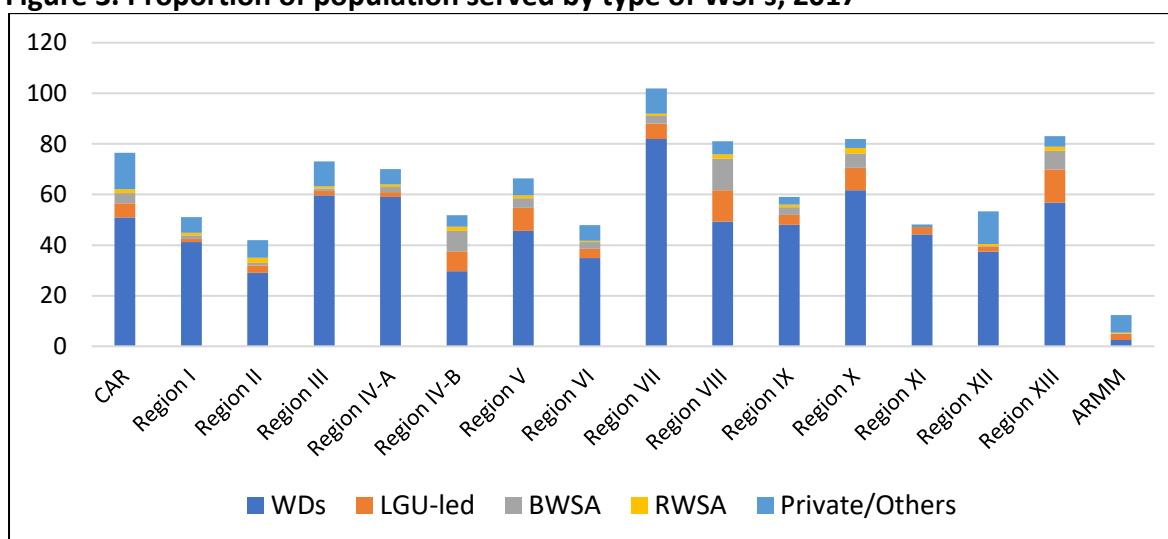
Table 3. Results from the Listahang Tubig, 2017

Region	Proportion of population served by the service providers	Number of waterless municipalities
CAR	26%	12
Region I – Ilocos Region	30.7%	12
Region II – Cagayan Valley	26%	11
Region III – Central Luzon	59%	2
Region IV-A – Calabarzon	39%	18
Region IV-B – Mimaropa	22.1%	-
Region V – Bicol Region	42%	25
Region VI – Western Visayas	34.55%	40
Region VII – Central Visayas	45%	21
Region VIII – Eastern Visayas	49%	15
Region IX – Zamboanga Peninsula	11%	8
Region X – Northern Mindanao	47%	11
Region XI – Davao Region	33.87%	9
Region XII – SOCCSKSARGEN	15.8%	13
Region XIII - Caraga	55.19%	11

Source: Philippine Water Supply & Sanitation Master Plan Databook

In terms of population served by the water service providers, water districts serve the largest proportion of population in all regions (Figure 3). The top three regions with the largest proportion of population served by WDs are Region VII (Central Visayas), Region 10 (Northern Mindanao) and Region III (Central Luzon).

Figure 3. Proportion of population served by type of WSPs, 2017

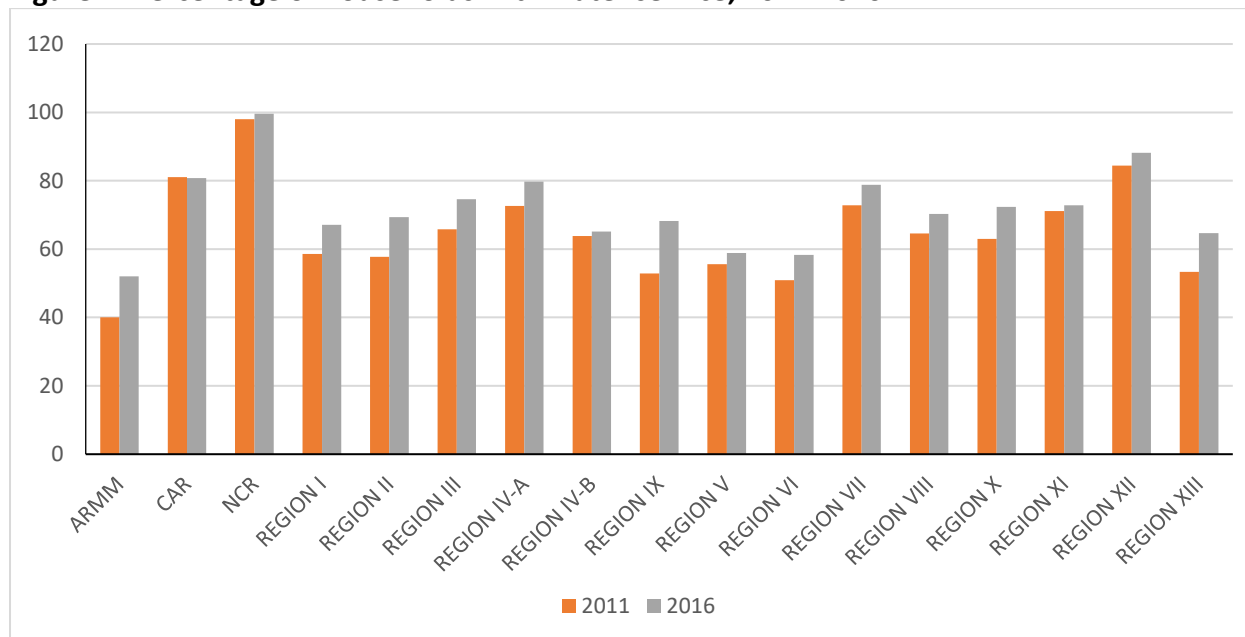


Source: Philippine Water Supply & Sanitation Master Plan Databook

It is important to note that Figure 3 also shows that there are still portions of the population not being served by water service providers for all regions, with the exception of Region VII. Despite this, there has been evidence of improvements in the percentage of households with

water service using data from the Cities and Municipalities Competitiveness Index (CMCI). There was an average annual increase of 2.4 percent from 2011 to 2016 (Figure 4, Appendix B Table 5). The National Capital Region (NCR) has the highest percentage of household with water service while ARMM has the lowest (Figure 4).

Figure 4. Percentage of households with water service, 2011-2016



Source: Cities and Municipalities Competitiveness Index data

This section has provided a preview of the landscape of water service delivery for local governments. The rest of the paper proceeds as follows: Section 3 discusses in more detail the universe of and issues in local water service delivery; Section 4 presents a case study of a successful local water district; Section 5 surveys the different national government local government support programs that have focused on local water service delivery; Section 6 discusses and integrates the results and presents general findings; recommendations are proposed in the last section.

3. Current Regulatory and Implementation Context of the Philippine Water Sector

The following government agencies are involved in water supply provision, either as oversight bodies or implementing agencies:

3.1. Water Sector Implementing Agencies

3.1.1. Local Government Units (LGUs)

Section 17 of the LGC directs LGUs to endeavor to be self-reliant and grants powers for essential services and facilities as enumerated therein. Thus, LGUs assume responsibility in providing critical services such as water supply, sanitation, and flood control, including enforcement of sanitation laws. In particular, the law enumerates the following water supply related infrastructure to be undertaken by specific units:

Table 4. Water supply-related services by specific LGUs

Unit	Section (RA 7160)	Water Supply-related essential services and facilities:
Barangay	Section 17 (b) (1) (v)	Maintenance of Barangay roads and bridges and water supply systems
Municipality	Section 17 (b) (2) (i)	Extension and on-site research services and facilities related to... water and soil resource utilization and conservation Projects
	Section 17 (b) (2) (viii)	Infrastructure facilities intended primarily to service the needs of the residents of the municipality and which are funded out of municipal funds including, but not limited to... communal irrigation, small water impounding projects and other similar projects; fish ports; artesian wells, spring development, rainwater collectors and water supply systems; seawalls, dikes, drainage and sewerage, and flood control; traffic signals and road signs; and similar facilities;
Province	Section 17 (b) (3) (vii)	Infrastructure facilities intended to serve the needs of the residents of the province and which are funded out of provincial funds including, but not limited to, provincial roads and bridges; inter-municipal waterworks, drainage and sewerage, flood control, and irrigation systems; reclamation projects; and similar facilities;
City	Section 17 (b) (4)	All the services and facilities of the municipality and province, and in addition thereto, the following: (i) Adequate communication and transportation facilities. (ii) Support for education, police and fire services and facilities.

While LGUs have mandates to implement water projects, their respective local legislative councils also have oversight functions in implementing its' mandate to implement water projects. In essence, these local legislative councils may enact ordinances to provide for the establishment, operations, maintenance, and repair of water systems in its respective influence areas.

Table 5. Water supply related services by specific legislative councils

Legislative Council	Section (RA 7160)	Water Supply-related essential services and facilities:
Sangguniang Barangay	Section 391 (g)	Regulate the use of multi-purpose halls, multi-purpose pavements, grain or copra dryers, patios and other post-harvest facilities, Barangay waterworks, Barangay markets, parking areas, or other similar facilities constructed with government funds within the jurisdiction of the Barangay and charge reasonable fees for the use thereof;
Sangguniang Bayan	Section 447 (a) (5) (vii)	Approve ordinances which shall ensure the efficient and effective delivery of the essential services and facilities as provided for under Section 17 of this Code, and in addition to said services and facilities, shall: (vii) Subject to existing laws, provide for the establishment, operation, maintenance, and repair of an efficient waterworks system to supply water for the inhabitants; regulate the construction, maintenance, repair and use of hydrants,

Legislative Council	Section (RA 7160)	Water Supply-related essential services and facilities:
		pumps, cisterns and reservoirs; protect the purity and quantity of the water supply of the municipality and, for this purpose, extend the coverage of appropriate ordinances over all territory within the drainage area of said water supply and within one hundred (100) meters of the reservoir, conduit, canal, aqueduct, pumping station, or watershed used in connection with the water service; and regulate the consumption, use or wastage of water;
	Section 447 (a) (5) (viii)	Regulate the drilling and excavation of the ground for the laying of water, gas, sewer, and other pipes and the construction, repair, and maintenance of public drains, sewers, cesspools, tunnels, and similar structures; regulate the placing of poles and the use of crosswalks, curbs, and gutters; adopt measures to ensure public safety against open canals, manholes, live wires and other similar hazards to life and property; and, regulate the construction and use of private water closets, privies and other similar structures in buildings and homes;
	Section 447 (a) (5) (viii)	Infrastructure facilities intended primarily to service the needs of the residents of the municipality and which are funded out of municipal funds including, but not limited to... communal irrigation, small water impounding projects and other similar projects; fish ports; artesian wells, spring development, rainwater collectors and water supply systems; seawalls, dikes, drainage and sewerage, and flood control; traffic signals and road signs; and similar facilities;
Sangguniang Panglungsod	Section 458 (a) (5) (i)	Approve ordinances which shall ensure the efficient and effective delivery of the basic services and facilities as provided for under Section 17 of this Code, and in addition to said services and facilities, shall: (i) Provide for the establishment, maintenance, protection, and conservation of communal forests and watersheds, tree parks, greenbelts, mangroves, and other similar forest development projects;
	Section 458 (a) (5) (vii)	Subject to existing laws, establish and provide for the maintenance, repair and operation of an efficient waterworks system to supply water for the inhabitants and to purify the source of the water supply; regulate the construction, maintenance, repair, and use of hydrants, pumps, cisterns, and reservoirs; protect the purity and quantity of the water supply of the city and, for this purpose, extend the coverage of appropriate ordinances over all territory within the drainage area of said water supply and within one hundred (100) meters of the reservoir, conduit, canal, aqueduct, pumping station, or watershed used in connection with the water service; and regulate the consumption, use or wastage
	Section 458 (a) (5) (viii)	Regulate the drilling and excavation of the ground for the laying of water, gas, sewer, and other pipes and the

Legislative Council	Section (RA 7160)	Water Supply-related essential services and facilities:
		construction, repair, and maintenance of public drains, sewers, cesspools, tunnels, and similar structures; regulate the placing of poles and the use of crosswalks, curbs, and gutters; adopt measures to ensure public safety against open canals, manholes, live wires and other similar hazards to life and property; and regulate the construction and use of private water closets, privies and other similar structures in buildings and homes;
Sangguniang Panglalawigan	Section 468 (a) (5) (ii)	Approve ordinances which shall ensure the efficient and effective delivery of the basic services and facilities as provided for under Section 17 of this Code, and, in addition to said services and facilities, shall: (ii) Subject to applicable laws, facilitate or provide for the establishment and maintenance of a waterworks system or district waterworks for supplying water to inhabitants of component cities and municipalities.

3.1.2. Local Water Districts

Local Water Districts are government-owned and controlled corporations authorized to operate, manage, and maintain water systems in cities, municipalities, and provinces in the Philippines. LWDs are created via PD 198 or the Provincial Water Utility Act of 1973. The law creates the Local Water District, which is tasked to build, operate, and maintain water systems.

Formation of Local Water Districts. The formation of a water district starts from the enactment of a resolution by the legislative body of any city, municipality, or province containing the following:

- a) The local water district's name shall include the name of the city, the municipality, or province, or region thereof, served by said system, followed by the words "Water District."
- b) A description of the boundary of the district. In a city or municipality, such boundaries may include all lands within the city or municipality. A district may consist of one or more municipalities, cities or provinces, or portions thereof: Provided that such municipalities, cities or provinces, or parts thereof, cover a contiguous area.
- c) A statement completely transferring all waterworks and sewerage facilities managed, operated by or under the control of such city, municipality, or province to such district upon the filing of resolution forming the district
- d) A statement identifying the purpose for which the district is created,
- e) The names of the initial directors of the district with the date of expiration of the term of office for each,
- f) A statement that the district may only be dissolved on the grounds and under the conditions set forth under PD 198, and
- g) A statement acknowledging the powers, rights, and obligations due to default. (Section 6, PD 198)

Two or more cities, municipalities or provinces, or any combination may form a single water district.

Functions and Powers of a Water District. Local Water Districts are considered a government-owned and controlled corporation performing public service by Section 6 of PD 198. As such, a local water district shall exercise the powers, rights, and privileges given to private corporations under existing laws, in addition to the powers granted in, and subject to such restrictions imposed under PD 198. Broadly, Section 5 of PD 198 outlines that local water districts are formed to (a) acquire, install, improve, maintain and operate water supply and distribution systems for domestic, industrial, municipal, and agricultural uses for residents and lands within the boundaries of such districts, (b) provide, maintain and operate wastewater collection, treatment and disposal facilities, and (c) conduct such other functions and operations incidental to water resource development, utilization, and disposal within such districts, as are necessary or incidental to said purpose.

Based on Section 6, it is noted that water districts were explicitly mandated by PD 198 to perform the same duties as LGUs in terms of water supply delivery to an area. It is important to note that the establishment of a water district emanates from an LGU resolution. Thus, while there are overlaps in responsibilities between the LGU (as in RA 7160) and Water Districts (as in PD 198), there is an explicit delegation by LGUs when a resolution to request forming Water Districts is lodged.

Water Rates. Concerning water rates, PD 198 provides the basic principles in setting rates and charges of water districts to consumers. A water district shall fix rates that will result in revenues, which will:

- a) Provide for reimbursement from all new water customers for the cost of installation of new services and meters;
- b) Provide for revenue from all water deliveries and services performed by the district;
- c) Pay the operating expenses of the district;
- d) Provide for the maintenance and repairs of the works;
- e) Provide a reasonable surplus for replacement, extension, and improvements; and
- f) Pay the interest and principal and provide a sinking fund for the district's payment of debts as they become due and establish a fund for reasonable reserves. (Section 37, PD 198).

This establishes that PD 198 allows the full recovery of all costs incurred by local water districts.

Water District Governance. The Board of Directors of the Water District has oversight over the operations of the local water district. Its Board of Directors shall be composed of the following members: (i) One member shall be a representative of civic-oriented service clubs; (ii) One member a representative of professional associations; (iii) One member a representative of business, commercial, or financial organizations; (iv) One member a representative of educational institutions; and (v) One member a representative of women's organizations.

All members should be of voting age and residents within the district. If the water district has availed of the financial assistance of the LWUA, LWUA may appoint any of its personnel to sit in the board of directors with all the rights and privileges appertaining to a regular member,

for such period as the indebtedness remains unpaid, in which case the board shall be composed of six members. (Section 8 PD 198).

The Board of Directors shall be appointed by the relevant Appointing Authority as defined by PD 198. The Appointing Authority is the person empowered to appoint the members of the Board of Directors of a local water district depending upon the geographic coverage and population make-up of a particular water district. Such coverage and population make-up is subject to the following rules:

- a) In the event that more than 75% of the total active water service connections of a local water district are within the boundary of any city or municipality, the appointing authority shall be the mayor of that city or municipality;
- b) Otherwise, the appointing authority shall be the governor of the province within which the district is located;
- c) If portions of more than one province are included within the boundary of the district, and the appointing authority is to be the governor in whose province the greatest number of service connections exists, then the power to appoint shall rotate between the governors involved with the initial appointments made. (Section 3b, PD 198)

3.2. Water Sector-specific Oversight Agencies

3.2.1. Local Water Utilities Administration (LWUA)

Presidential Decree (PD) 198 (amended by PD 768) establishes that LWUA "shall primarily be a specialized lending institution for the promotion, development, and financing of local water utilities." In the implementation of its functions, LWUA shall:

- a) prescribe minimum standards and regulations to assure acceptable standards of construction materials and supplies, maintenance, operation, personnel training, accounting, and fiscal practices for local water utilities;
- b) furnish technical assistance and personnel training programs for local water utilities;
- c) monitor and evaluate local water standards; and
- d) effect system integration, joint investment and operation, district annexation, and de-annexation whenever economically warranted. (Section 50, PD 198, as amended by Section 22, PD 768).

It is worth noting that the primary activity of LWUA is as a lending institution for water districts. This affects the nature of their regulatory functions and actions.

Powers of LWUA. Sections 59-66 of PD 198 define the powers of LWUA, all of which are discussed below:

Table 6. Powers of LWUA

Specific Powers	Description
General Corporate Powers	LWUA shall have general corporate powers as expressly granted in PD 198 or necessary, implied, or incidental to the authorities and purposes in the law. (Section 59, PD 198)
Borrowing and Security	LWUA is allowed to borrow funds or issue debt securities and pledge all securities, covenants, and obligations of water districts held by LWUA. (Section 60, PD 198)

Specific Powers	Description
Loans	As a specialized financial institution, LWUA can lend to local water districts out of its revolving fund subject to qualifications per law and other procedures approved by its Board. Worth noting is that in the event of default of water districts, LWUA may take over and operate the facilities or properties of the defaulting water district without the need for any judicial process. (Section 61, PD 198)
Regulations	Subject to consultations and coordination with other Government agencies, LWUA has the power and duty to establish standards and adopt rules and regulations for water districts. The following standard was enumerated in the law: (1) Water Quality; (2) Design and Construction; (3) Equipment, Materials and Supplies; (4) Operations and Maintenance; (5) Personnel; (6) Organization; and (7) Accounting. (Section 62, PD 198)
Rate Review	<p>Publicly owned local utilities holding a Certificate of Conformance or Conditional Certificate of Conformance shall be subject to the rate review of LWUA. Any rates or charges shall be adequate to:</p> <ul style="list-style-type: none"> a. Provide for reimbursement from all new water customers for the cost of installation of new services and meters; b. Provide for revenue from all water deliveries and services performed by the district; c. Pay the operating expenses of the district; d. Provide for the maintenance and repairs of the works; e. Provide a reasonable surplus for replacement, extension, and improvements; and f. Pay the interest and principal and provide a sinking fund for the district's payment of debts as they become due and establish a fund for reasonable reserves. (Section 37, PD 198). <p>A rate review shall be conducted by LWUA after a public hearing has been completed.</p> <p>A rate appeals process is described under PD 198. A water concessionaire may appeal to the National Water Resources Council (predecessor agency of the National Water Resources Board) whose decision shall be appealable to the President's Office. The study will further delve into whether this is being practiced presently. (Section 63, PD 198)</p>
Technical Assistance	LWUA shall provide technical assistance to local water utilities, their boards, management, and operating personnel, aid in meeting the standards and criteria established by LWUA, and encourage the upgrading of the operations and management of such local water utilities. (Section 64, PD 198)
Training and Programs	LWUA shall establish training programs to assist local water districts and its personnel. (Section 65, PD 198)
Certificate of Conformance	LWUA shall have the power to issue a Certificate of Conformance to certify that the local water district complies with its standards and procedures. It may be revoked after due notice and hearing if a local water district fails to conform to such standards. A Conditional Certificate of Conformance may be issued where procedures and

Specific Powers	Description
	practices have been adopted to assure conformance and a reasonable schedule has been adopted. Failure to reach conformance as contemplated shall cause revocation of such conditional certificate, without hearing or other cause. The law is unclear as to the purpose of the certificate. The study will clarify this. (Section 66, PD 198)
Other Powers	<ul style="list-style-type: none"> a. LWUA may charge local water districts for services it renders to them to the extent that these services are beneficial to local water districts. (Section 70, PD 198). b. LWUA may borrow from all domestic loan sources, whether Government or private, provided that outstanding loans shall not exceed PHP1 billion. (Section 72, PD 198) c. LWUA has the authority to contract foreign loans subject to rules promulgated by the Secretary of Finance and the Monetary Board. Such authorization shall also be following the Foreign Borrowing Act. (Section 73, PD 198). d. LWUA has control and supervision over national government releases for the account of local water districts. (Section 75, PD 198) e. LWUA shall determine the financial requirements of non-viable water districts, which LWUA shall propose to be included in the General Appropriations Act. These funds shall be released to LWUA for the account of the non-viable local water district (Section 76, PD 198)

Supervision over Rural Waterworks and Sanitation Associations (RWSA). Executive Order 124, dated January 30, 1987, abolished the Rural Waterworks Development Corporation (RWDC) and transferred its functions to LWUA. Thus, LWUA effectively acquired supervision over Rural Waterworks and Sanitation Associations, non-stock, non-profit cooperative associations organized under and registered with LWUA.

Key informant interviews confirmed that currently, there is no specific technical standard nor water rate setting regulations concerning RWSAs. There also have been no recent applications for water rates increases. In its Memorandum Circular No. 008-118 (April 2, 2018), LWUA reiterated its mandate over RWSAs to submit critical documents to LWUA in furtherance on the mandate it inherited from the RWDC. In particular, the LWUA required submission of the following documents: (i) All articles of incorporation and by-laws and amendments thereof; (ii) Consolidations, mergers, conversions, dissolution; (iii) Annual financial statements; (iv) Changes in the location of principal offices; (v) Annual elections; and (vi) other related documents.

Lending Function of LWUA. The primary function of LWUA to serve as a specialized lending institution to support investments in the water sector. All other powers of supervision are in the context of its lending mandates. Based on Board Resolution no. 92, Series of 2017, has approved to rationalize the interest LWUA charges on loans to water districts:

Table 7. Schedule of interest rates of LWUA loans to water districts

Fund Source	Interest Rate
1. National Government	4.0% p.a. maximum
2. LWUA Internal	4.0% p.a. maximum
3. ADB-WDDSP	4.0% p.a. maximum
4. PDEIF	4.0% p.a. maximum

Source: LWUA Board Resolution no 92, Series of 2017

In general, LWUA's sources for funds for lending to water districts comes from internally generated funds of LWUA, funds from the National Government via the General Appropriations Act and Foreign funding from loans with development and multi-lateral agencies. Funds are relent to water districts as loans or grants. For loans, it is relent at competitive rates. Every three years, interest rates are reviewed by the Board of Trustees to reflect the current market circumstances. In 2017, LWUA reduced the rates significantly from around 8% to the current 4%, reflecting the low-interest rate environment at that time. The latest relending policy is as follows:

Table 8. Loan Terms and Condition

National Government / LWUA Internal / PDEIF	Water District Categories			
	A	B	C	D
Operational Loan for O&M costs, re-activation for inactive water supply system or Emergency Loans	Not Applicable		1% p.a. interest with repayment period of no more than 10 years	
Operational Loan for O&M costs, re-activation for water supply system damaged by disasters	Not Applicable		1% p.a. interest with repayment period of no more than 15 years	
Water Supply Development, Watershed Management, Sanitation Programs and Efficiency Improvement projects	4% interest with repayment period of not more than 15 years		0% to 4% interest repayment period not more than 20 years	0% to 4% interest repayment period not more than 25 years
	Interests billable upon disbursement		Grace period – may be allowed during construction plus 1 year operation	
Project Loans funded by ring-fenced funds from pre-terminated WD loans sourced from Official Development Assistance (ODA) loans	4% interest with repayment period not more than 15 years per BOT Res. No. 67, series of 2017.			
Others: Loans for projects not directly used in water production and distribution	4% interest with repayment period not to exceed life of acquired asset: interest billable upon disbursement			
Purchase of vehicle and other tools and equipment	4% interest with repayment period not more than 5 years: interest billable upon disbursement			

National Government / LWUA Internal / PDEIF	Water District Categories			
	A	B	C	D
Water District Equity	Minimum 10% of total project cost; compliance with existing policy guidelines on equity contribution.		Water District may put up equity to the water supply project	
ADB-WDDSP Funded Projects	4% interest with repayment period of not more than 20 years, provided maximum repayment period should not end beyond 2041 per ADB loan agreement: interest billable upon disbursement			
Debt Relief Assistance	4% interest with applicable repayment period and other terms and conditions under existing debt relief policy			

Source: LWUA Board Resolution no. 92, series of 2017

Water Districts are Categorized into four Categories – Category A, B, C and D. The categorization of water districts is a two-step process:

1. Initial categorization based on the number of active service connections following the table below:

Table 9. Categories by Active Service Connections

Category	Number of Active Service Connections
A	At least 30,000
B	At least 10,000
C	At least 3,000
D	Below 3,000

Source: Revised Local Water District Manual of Categorization, re-Categorization and other Matters

2. The second stage of categorization considers the following factors: Gross Revenues, Total Assets, Net Income before Interest and Depreciation and Staff Productivity Index.
3. The resulting point rating category is compared with the service connection category; whichever is lower, is the final category of the water district. As of December 2015, the summary of water district categorization is below:

Table 10. Categories by Active Service Connections

Category	Number of Water Districts
A	27
B	57
C	134
D	297
Total	515

Source: LWUA Website, Summary of WD Categorization

All water districts are eligible for loans from LWUA, subject to the following rules:

- a) Water districts in arrears (unpaid debt service including penalties) and with unsettled Open Account Billings (OAB) – provided settlement of arrears and OABs are determined during loan evaluation and proposed arrears restructuring or debt relief assistance are endorsed with the new loan, for approval by the Administrator or Board of Trustees, and,
- b) Water districts with Joint Venture Agreements or proposals for Bulk Supply only.
- c) Excluded are water districts with existing Joint Venture Agreements.

3.2.2. National Water Resources Board (NWRB)

Presidential Decree 424 established the National Water Resources Council (NWRC), the predecessor organization of the NWRB. Several executive orders then shaped the mandate, scope, and function of the NWRB. In its current form, NWRB has three primary mandates as follows: (1) Policy formulation and coordination within the framework of Integrated Water Resources Management (IWRM); (2) Water resource regulation through the issuance of Water Permit (WP) and resolution of water use conflicts; and (3) Regulation of water service providers through the issuance of Certificate of Public Convenience (CPC)/Certificate of Public Convenience and Necessity and setting of water tariffs of these water utilities. Note that Section 4 of Executive Order (EO) 280 s. 2010 excluded local water districts from NWRB's tariff regulation mandate.

Powers of the NWRB. The original NWRC has the following powers following PD 424:

Regulatory and Executory

1. Coordinate and integrate water resources development activities of the country within the context of national plans;
2. Determine, adjudicate, and grant water rights;
3. Formulate and promulgate:
 - a. Standards on primary data collection, project investigation, formulation, planning and design, and feasibility evaluation; and
 - b. Rules and regulation for optimum utilization of water resources.
4. Review and approve water resources development plans and programs;
5. Undertake river basin survey, inventory and appraisal of water and related resources and develop comprehensive basin-wide plans of storage and control;
6. Undertake hydrologic surveys and establish, operate and maintain observation station networks and a centralized water resources data center; and
7. Conduct and promote special studies and researches with other Government or private agencies.

Advisory and Recommendatory

1. Advise NEDA on matters about water resources development projects and programs;
2. Recommend to NEDA the adoption of general policies and guidelines and short/long-range plans and water resources development programs. (Section 2, PD 424)

It can be concluded that the NWRB/NWRC was initially formed to be a technical body, with the mandate to integrate water resources plans nationwide. Several other Executive Orders shaped the functions of the NWRB (Table 11).

Table 11. Other functions of NWRB

Executive Orders	NWRB Functions
Presidential Degree 1206 (October 6, 1977)	PD 126 abolished the Board of Power and Waterworks, thereby transferring its waterworks powers to the NWRC. The Board of Power and Waterworks inherited the regulatory and adjudication functions of the Public Services Commission according to the reorganization plan mandated in Presidential Decree 1 (Reorganizing the Executive Branch of the National Government). Through PD 1206, it effectively included economic regulation based on the principles of the Public Services Law.
Executive Order 124-A (July 22, 1987)	EO 124-A renamed and reorganized the National Water Resources Council to the National Water Resources Board and attached to the Department of Public Works and Highways. Moreover, all its technical functions were transferred to the Bureau of Research and Standards and other DPWH offices.
Executive Order 123 (September 12, 2002)	EO 123 reconstituted the NWRB to strengthen its mandate concerning the enactment of the Water Code of the Philippines. The EO transferred the attachment of NWRB from the DPWH to the Office of the President and then to the Department of Environment and Natural Resources after approval of its revised organizational chart. The EO also transferred the water tariff regulation of Water Districts from LWUA to NWRB.
Executive Order 860 (February 8, 2010)	This EO underscored that the primary function of the NWRB should be to control and regulate the utilization, exploitation, development, conservation, and protection of water resources by the specific provisions of the Water Code. Thus, the NWRB was directed to desist from regulating the water tariffs of Water Districts, which shall be undertaken again by the Local Water Utilities Administration per PD 198.

Resource Regulation Powers. The Water Code of the Philippines (PD 1067) is a law enacted to establish governance over the ownership, appropriation, utilization, development and protection of water resources. In essence, Article 3 of PD 1067 provides for the following underlying principles:

1. All waters belong to the State
2. All waters that belong to the State cannot be the subject of acquisitive prescription.
3. The State may allow the use or development of waters by administrative concession
4. The utilization, exploitation, development, and protection of water resources shall be subject to the Government's control and regulation through the National Water Resources Council (now the National Water Resources Board).
5. Preference in the use and development of waters shall consider current usages and be responsive to the country's changing needs.

Article 13 of the Water Code of the Philippines provides that "no person, including government instrumentalities or government-owned or controlled corporations, shall appropriate water

without a water right, which shall be evidenced by a document known as a water permit." Water sources owned by the state can be used for domestic use, municipal, irrigation, power generation, fisheries, livestock raising, industrial, recreational and other purposes. (Article 10, PD 1067)

Authorization from the NWRB is required for the following acts:

1. Article 16, PD 1067 – Appropriation of water for any purpose through the water permit application.
2. Article 19, PD 1067 – lease, lending or transfer of water rights.
3. Article 12, PD 1067 – change in the purpose of the appropriation
4. Article 42, PD 1067 – developing a stream, lake or spring for recreational purposes
5. Article 64, PD 1067 - the manner, location, depth, and spacing in which borings for subterranean or groundwater may be made.
6. Article 67, PD 1067 – transfer of water from one river basin to another river basin

The Water Code of the Philippines (Article 83) allow the NWRB to impose and collect reasonable fees from water appropriators based on its water use. On the part of water districts, this conflicts with Section 46 of PD 198 which exempts water districts from all national Government, local Government and municipal taxes, including any franchise, filing, recordation, license or permit fees or taxes and any fees.

Utility Regulation Powers. As previously discussed, the NWRB became the Public Services Commission's successor agency for issuance of Certificates of Public Convenience (CPC) in the water sector. Thus, they are mandated to issue CPCs and, along with the issuance, are also tasked to regulate water utilities. The NWRB has issued guidelines which provided detailed guidance on its framework for economic regulation. It has grouped water utilities into four categories defined below:

1. Category "A" – Water Utilities operating for profit:
 - a. Privately-owned or run Water Utilities (WUs)
 - b. Government-owned or run WUs that opted to:
 - i. subject themselves to NWRB regulation and,
 - ii. be classified, or NWRB has classified as Category A
 - c. Community-Based WUs that:
 - i. Have expanded or expanding outside original area of jurisdiction or
 - ii. Opted to be classified as Category A
 - d. Category "B" – Government-owned or run WUs that do not opt to be classified as Category A or NWRB has classified as Category B. Note that this category only applies for those who voluntarily opt for NWRB regulation.
 - e. Category "C" – Community-based WUs that:
 - i. Are not operating for profit;
 - ii. Have not expanded/or are not expanding outside their original jurisdiction
 - iii. Do not opt to be classified as Category A or B, or NWRB has classified as Category C.

Table 12. Summary of Revised Economic Regulation Framework of the NWRB

	Category A	Category B	Category C
Validity of the CPC	10 years	Only the certificate is not required	5 years
Tariff Review	Mandatory every five years or motu propio	Mandatory every five years or motu propio	Every five years or as necessary

Review of Business Plan	Upon application	Upon application	Upon application
Application for CPC Renewal	May be filed on or before expiration date	No CPC required	May be filed on or before expiration date
Operations and Financial Review	Mandatory every five years or motu propio	Mandatory every five years or motu propio	Every five years or as necessary

Source: Memorandum Circular 2019-001, Series of 2019, NWRB

3.3. Modes of Water Infrastructure Implementation

There are also several modes of water service delivery to the public. Listahang Tubig is a national survey of all water service providers covering all service levels - Level I or point source, Level II or communal faucets, and Level III or piped connections. NEDA categorizes water supply services into three categories as defined below:

- Level I (Point Source). This service level provides a protected well or a developed spring with an outlet but without a distribution system. Hence, the users go to the source to fetch water. Level I sources are generally adaptable in rural areas where the houses are thinly scattered. These sources serve an average of 15 households within a radius of 250 meters.
- Level II (Communal Faucet or stand post). A piped system composed of a source, a reservoir, a piped distribution network, and communal faucets. Each communal or public faucet usually serves four to six households within a radius of 25 meters. Users still go to the supply point (communal faucet) to fetch water. This type of system is generally suitable for rural and urban fringe areas where houses are clustered densely to justify a simple piped system.
- Level III (Waterworks System). This system includes a source, a reservoir, a piped distribution network, and individual household taps. It is generally suited for densely populated urban areas where the population can afford individual connections. (p. 26, NEDA, 2019).

Unnamed water service providers are the largest in number compared to other types of WSPs (Table 13). An unnamed water service provider is one that serves at least 15 households, and which is not registered formally with any government agency (National Economic and Development Authority 2019). These are followed by BWSAs and LGU-run water service providers.

Table 13. List of water service providers by level of service

Management Type	Total No. of WSPS		Level of Service		
	No.	%	Level 1	Level 2	Level 3
BWSA	7,719	28%	3,914	2,582	1,219
RWSA	1,487	5%	65	637	785
Cooperative	408	2%	46	89	273
Unnamed Water Service Provider	8,651	32%	7,945	497	202
LGU-Run Utility	4,326	16%	1,190	1,665	1,470
Water District	695	3%	19	5	670
Homeowners' Association	380	1%	168	75	137
Real Estate Developer	111	0%	8	8	95
Industrial Locator	45	0%	3	3	39
Peddler	275	1%	148	104	23

	Total No. of WSPS		Level of Service		
Ship Chandler	4	0%	1	2	1
Other Private Operators	1,914	7%	728	267	919
Refilling Stations	1,177	4%	1,123	35	18
Grand Total	27,192	100%	15,358	5,969	5,853

Source: Listahang Tubig (2020)

3.3.1. Water-District Run Utilities

Water Districts are government-owned and controlled corporations created by LWUA may operate a pre-defined service area as defined in the Certificate of Conformance issued by LWUA based on the resolution of the LGU. LWUA capitalizes water Districts, but the LGU primarily appoints members of the Board.

There are currently 696 water districts nationwide, representing 3% of total water suppliers in the Philippines. (Listahang Tubig, 2020). It is interesting to note that some water districts are not Level III water suppliers given the funding and support from LWUA. Based on the PWSSMP, there are a total of 748 water districts, of which 515 (69%) are operational and 233 (31%) are non-operational.

3.3.2. LGU-run Utilities

As mandated in RA 7160, LGUs may run their water utilities without forming a water district. Usually, a department for water supply is created within the executive office of the LGU. For instance, the Municipality of Magdalena, Laguna, runs its water supply system as a department. There are 4,326 LGU water service providers which make up 16% of total water service providers in the Philippines. (Listahang Tubig, 2020). It is worth mentioning that only 34% of all LGUs are Level III providers. There has been numerous supports to LGUs for investments in the water sector and it would be interesting to find out what challenges LGU-run utilities encounter during implementation.

3.3.3. Privately-run Utilities

Through Certificate of Public Convenience issued by the NWRB. As previously mentioned, the NWRB inherited the Public Services Commission's powers in issuing a Certificate of Public Convenience (CPC) for water supply. Thus, private entities may incorporate companies and apply for these Certificates of Public Convenience to operate water systems in a pre-defined area. Numerous corporations have a Certificate of Public Convenience from the NWRB. Examples of entities that can operate via obtaining CPC are Homeowners' Associations, Industrial Locators, among others.

Through Franchises issued by Congress or Local Legislative Councils. RA 7160 provides legislative councils and Congress to issue franchises to private corporations to operate water supply services. Congress or local legislative councils may provide franchises to private corporations to operate the water system in a defined area. An example of this is Calapan Waterworks System and Development Corporation provided by Congress with a 25-year franchise to construct, install, operate and maintain a water supply system in the City of Calapan, Oriental Mindoro. Local legislative councils may also provide local franchises to private operators according to their powers under RA 7160.

Through PPP Contracts with LGUs or Water Districts via the BOT Law or NEDA/LGU Joint Venture Guidelines. Using their corporate powers, Water Districts or LGUs can enter into Public-Private Partnerships or Joint Venture Agreements with the Private Sector to expand, operate, maintain, and manage their respective service areas. While these private sector operators are non-government-run, they derive their authority to operate from their Water District/LGU partners.

Public-private partnership between the public and private Sector can be implemented via two legal bases:

1. RA 6957, amended by RA 7718 (The Philippine Build-Operate-Transfer Law)

The Philippine BOT Law outlines several contractual arrangements which Implementing Agencies can use as basis for private sector participation in public infrastructure projects. The BOT Law also outlines the rules and procedures in procuring private partners in the contractual arrangements identified in the Law.

Section 2.2 (j) of the BOT Law IRR (2012) includes water supply, sewerage, drainage and related facilities, as eligible projects to be undertaken under the contractual arrangements enumerated in the law. Therefore, the BOT Law may be utilized by government agencies to expand investments in the water sector with the help or private funding.

Under the BOT Law, the following are the allowable contractual arrangements with the private Sector:

- a) Build-and-transfer (BT)
 - Under this arrangement, the private sector finances and constructs an infrastructure and after its completion turns it over to the Government for a price specific.
- b) Build-lease-and-transfer (BLT)
 - An arrangement where the private sector finances and constructs an infrastructure and after its completion turns it over to the Government on a lease arrangement for a fixed period, Once fully paid by Government, ownership of the facility is automatically transferred.
- c) Build-operate-and-transfer (BOT)
 - A contractual arrangement where the private Sector undertakes the construction, financing, operations and maintenance of an infrastructure. The private Sector operates the facility over a fixed term during which it is allowed to charge facility users appropriate tolls, fees, rentals, and charges per contract. At the end of the fixed term, the facility is transferred to the Government.
- d) Build-own-and-operate (BOO)
 - Under this arrangement, the private sector partner is authorized to finance, construct, own, operate and maintain an infrastructure. It is allowed to recover its total investment, operating and maintenance costs by collecting tolls, fees, rentals, or other facility users' charges. Note that there is perpetual ownership by the private sector under this arrangement and there is no automatic transfer to the Government at the end of a fixed term.

- e) Build-transfer-and-operate (BTO)
 - An arrangement where the Government contracts out the construction of an infrastructure facility to a private entity such that the contractor builds the facility on a turnkey basis. Once the facility is commissioned satisfactorily, title is transferred to the Government. The private entity however operates the facility on behalf of the Government under an agreement.
- f) Contract-add-and-operate (CAO)
 - An arrangement where the private partner adds to an existing infrastructure facility is renting from the Government and operates the expanded project over an agreed term. There may or may not be a transfer arrangement about the added facility provided by the Project Proponent.
- g) Develop-operate-and-transfer (DOT)
 - An arrangement where favorable conditions external to a new infrastructure project which is to be built by a private partner are integrated into the arrangement by giving that entity the right to develop adjoining property, and thus, enjoy some of the benefits the investment creates such as higher property or rent values.
- h) Rehabilitate-operate-and-transfer (ROT)
 - An arrangement where an existing facility is turned over to the private Sector to refurbish, operate and maintain for a fixed term, at the expiry of which the legal title to the facility is turned over to the Government.
- i) Rehabilitate-own-and-operate (ROO)
 - An arrangement where an existing facility is turned over to the private partner to refurbish and operate with no time limitation imposed on ownership. As long as the operator is not in violation of its contract, it can continue to operate the facility in perpetuity. (Section 1.3 (f), BOT Law IRR)

The most recent water project undertaken under the BOT Law is the Bulacan Bulk Water Supply Project. The project is a 30-year BOT project aiming to provide treated bulk water to various water districts and water service providers in the Province of Bulacan. Specifically, the private partner will finance, build, operate, and maintain conveyance facilities, treatment facilities, and water sources (PPP Center, 2020).

2. 2013 NEDA Joint Venture Guidelines for Government-Owned and Controlled Corporations

In May 2013, NEDA approved the 2013 NEDA Joint Venture Guidelines for GOCCs. NEDA's guidelines are being issued under Section 8 of Executive Order 423 dated April 30, 2005, which mandated NEDA to issue Joint Ventures guidelines. The guidelines are applicable for all GOCCs, thus covers local water districts. The enactment of the guidelines gave water districts significant leeway and accountability in deciding whether they would enter into Joint Venture agreements with the private Sector.

Section 5.7 of the Guidelines defines a joint venture as an arrangement whereby a private sector entity, on the one hand, and a GOCC, on the other hand, contribute money/capital, services,

assets (including equipment, land, intellectual property, or anything of value). The JV involves a community or pooling of interests in the performance of the investment activity, and each party shall have the right to direct and govern the policies in connection and share both profits and risks and losses subject to agreement by the parties. Water supply and sewerage are included as infrastructure or development projects allowed to be implemented as a Joint Venture. (Section 5.9, NEDA JV Guidelines).

Through PPP Contracts with Entities who may operate water supply services according to Special Laws (Like MWSS, BCDA). Some special laws may create powers for some government agencies to partner with the private sector and develop concessions for water systems operations. This was the case for the MWSS when it created two concessions through the water crisis act. According to its Charter, the BCDA also developed its own Joint Venture Guidelines and bided out a joint venture project for the construction, operations, and maintenance of the New Clark City's water supply and sewerage system.

Through Rural Waterworks and Sanitation Associations (RWSA) or Barangay Water and Sanitation Associations (BWSA). RWSAs are non-stock, non-profit cooperative associations organized and registered with LWUA, intended to operate Level II water systems. There are 1,487 RWSAs and 7,719 BWSAs which accounts for 33% of the total water service providers. Combined, only 22% of the RWSAs and BWSAs are Level III water systems (Table 13).

4. Regulatory and Implementation Issues

4.1. General Issues on Regulation – Overlap in Regulation

A review of the regulations of LWUA and NWRB reveals that there are current conflicts between the regulations of NWRB and LWUA. The table below is a summary of the findings.

Table 14. Summary of the regulatory involvement of various Water-related Agencies

Water Utility	Resource Regulation	Technical / Operations Regulation	Economic Regulation
Water Districts	NWRB	LWUA, Optional NWRB (Category B)	LWUA, Optional NWRB (Category B)
Private Water Utilities with CPCs	NWRB	NWRB	NWRB
LGU-Run Utilities	NWRB	LGU, Optional NWRB (Category B)	LGU, Optional NWRB (Category B)
Rural Waterworks and Sanitation Associations	NWRB	NWRB (Category C) and LWUA	NWRB (Category C) and LWUA (if with Loans with LWUA)
Other Community Based Utilities	NWRB	NWRB (Category C)	NWRB (Category C)
Maynilad and Manila Water	NWRB	MWSS – Regulatory Office	MWSS – Regulatory Office

Source: Author's summary based on the guidelines and enabling laws of LWUA, NWRB, LGUs and MWSS

Resource regulation refers to the issuance of water permits to different users of water resources across the country. In effect, NWRB monitors and regulates the use of all waters, and allocates them for various uses. Based on the analysis, NWRB has full powers of water resource regulation and recognized across different water service providers.

Technical Regulation refers to the minimum performance standards and specifications that water utilities should maintain or attain. These key performance indicators define good performance and the measures of satisfactory service to the public. Economic regulation on the other hand refers to water-rate setting – including the necessary procedures, review of operations and business plans that will be the basis of water rates that the public pays.

NWRB’s Memorandum Circular No. 2019-001 opened the opportunity for Category B or government entities (LWUA and LGU) to voluntarily subject themselves to NWRB economic regulation. While this will ensure harmonization of tariff principles, implementing this on a voluntary basis may pose the following problems:

1. It is unclear whether they will also be subjected to the same technical regulations. Economic and technical/operational standards are intertwined. Technical regulations direct water utilities on the standard quality of operations and which drives the kind of investments and expenses that they will implement. Thus, disconnecting technical and economic regulation may be problematic. It is unclear whether NWRB will have the power to impose its technical standards on water districts or LGUs.
2. It is unclear whether LWUA and Local Legislative councils will provide consent on this arrangement. It is obvious that there is a regulatory conflict between LWUA/Local Legislative Councils and NWRB once a water district or LGU-run water utility opts to subject itself under NWRB’s economic regulation. On the part of LWUA, it is also unclear whether their role as a lender will be affected by such change. Based on the key informant interviews, LWUA intends to push to implement its mandate over water districts.

Another clear overlap is in terms of regulation for RWSAs. LWUA inherited the powers of the RWDC when it was abolished. Thus, as the successor agency of RWDC, LWUA has the mandate to exercise oversight over these water providers. However, LWUA has been remiss in its oversight over RWSAs. As confirmed during KIIs, there are no specific guidelines for technical nor tariff regulation for RWSAs. It is worth noting that LWUA is stepping by, starting with gathering the details and constitutive documents of all RWSAs via Memorandum Circular No. 008-2018 issued in April 2018. NWRB has RWSAs as Category C Water Utilities in its own Memorandum Circular No. 2019-001. Thus, there is an apparent conflict of rules in this case.

4.2. Technical Operating Standards and Regulations

Technical and operating standards are critical to a nationwide water sustainability program. Technical and operating standards define the desired performance of a water utility that will enable it to provide adequate standards to its influence area. Based on the analysis, there is no unified minimum technical key performance indicators for water utilities across the different implementing agencies. A survey of key performance indicators can be gleaned in the table below.

Table 15. Key Performance Indicators for Water Districts regulated by LWUA

Indicator	Description
Non-Revenue Water	(m3 produced – m3 billed) / m3 produced; must be less than or equal to 30%.
Collection Efficiency	Total Current Collection / Total Current Billing; must be greater than or equal to 90%
Market Growth	Number of service connections generated for the specific year compared to approved CO Budget
Capital Expenditure	Actual implementation of Scheduled CAPEX per approved CO Budget
Reserves	Actual amount of reserves compared to approved CO Budget
Water Quality	PNSDW Compliant
Current Ratio	Current Assets / Current Liabilities; at least 1.50:1
Net Income	Positive Net Income for the past twelve months
Staff Productivity Index	Ratio of Water District employees to Active Connections
24/7 Water Service	Percent of Households enjoying 24/7 Water Service
Sanitation Facilities	Percent of Households enjoying sanitation facilities

Source: LWUA Memorandum Circular 011-2018, June 1, 2018

Table 16. Key Performance Indicators for Category A Water Utilities Regulated by the NWRB

Service Quality Standards	Description
Non-Revenue Water	(m3 produced – m3 billed) / m3 produced; must be less than or equal to 25%.
Potable Water Quality	PNSDW Compliant
Service Continuity	Greater than or equal to 12 hours per day
Operating Ratio	Total Operating Expenses / Total Revenues; must be less than or equal to 80%
Customer Feedback	Percent of Households Satisfied; must be at greater than or equal to 80%
Service Level Targets	Description
Non-revenue Water	Further reduction based on the approved 10-year business plan
Continuous water supply	To gradually increase until it reaches 24 hours based on the approved 10-year business plan
Water Pressure	To gradually increase based on the approved 10-year business plan
Service Coverage	To gradually increase based on the approved 10-year business plan

Source: NWRB Memorandum Circular No. 019-001, July 8, 2019, based on NWRB Board Resolution No. 25-2018 (August 28, 2018).

Note that the following conflict arises:

1. The LWUA technical and operating standards do not consider customer feedback or satisfaction and water pressure in their required key performance indicators. Worth noting also that the LWUA allows a higher NRW threshold (30%) versus the 25% requirement of the NWRB.
2. The NWRB regulations for Category A and B Water Utilities are simplistic and do not cover many of the metrics of LWUA, such as collection efficiency, capital expenditures, and the staff productivity index. Efficiency metrics are all lumped into the Operating Ratio metric, which may not be the best way to capture operations' efficiency.

3. While both the NWRB and LWUA assert that they are under their respective regulatory ambit, neither NWRB nor LWUA has specific technical or operational metrics for RWSAs. Thus, there is no governing standard for Community Based or RWSAs, even for water services lower than Level III.
4. LGU-run Utilities may enact their service standards through their respective local legislative councils – thus will be required to define their standards, which may deviate from that of LWUA and NWRB.

Monitoring operational efficiency and spending prudence is critical since operational costs are the primary determinant for water rates charged to the public. Inefficiency and wastage may be priced-in and passed on to consumers without a clear technical benchmark. Thus, there should be more stringent and nationally aligned technical standards to ensure fairness and greater transparency in water rates charging.

Ensuring uniform standards also will facilitate the allocation of funding support to various regions of the country. With a common yardstick and common developmental objective, we can easily spot performing and non-performing water utilities. Thus, resources may be deployed to areas where it is needed

4.3. Water Rates Regulation

Water rates determination methodology varies across the different regulators in the Philippine water supply space. A summary of the principles for major local water regulators are below:

Table 17. Fundamental Principles of Water Rates Setting for Water Districts regulated by LWUA

Requirement	Description
Review of Business Plan	Review of five-year historical cash flows and ten-year projections submitted by the water district.
Operations and Financial Review	Annual submission of operations and financial results, but a formal review is made only during water rates increase applications.
Tariff Review	Tariff review is done once a water district applies to a tariff increase.
Tariff Calculation	Tariffs are approved based on the required tariff that will allow sustainable cash balances during the ten-year business plan
Allowable Return	Not applicable. No prescribed return as the tariff setting is not return-based.
Tariff Inflation	No automatic tariff increases due to inflation?
Investment recovery	Investment recovery is impliedly considered be ensuring that loans used to cover it will be repaid through the cash flow review. However, investments not funded by debt (internal funding or government subsidy) are not explicitly covered.
Tariff Design	Progressive based on consumption blocks and customer type

Source: Manual on Water Rates and Related Practices, 1994

Table 18. Fundamental Principles of Water Rates Setting for Water Utilities regulated by NWRB

Requirement	Category A	Category B	Category C
Review of Business Plan	Review of ten-year business plan upon application	N/A	Review of One-year business plan upon application
Operations and Financial review	Every five years	Every five years	Not applicable
Tariff Review	Every five years (part of operations and financial review)	Every five years (part of operations and financial review)	Every five years
Tariff Calculation	Plot project cash flows over the planning period in constant prices. The tariff model computes for the tariff that will yield a project return equal to the allowable return.	Plot project cash flows over the planning period in constant prices. The tariff model computes for the tariff that will yield a project return equal to zero.	Compute for annual revenue requirements (Operating expenses, Contingencies for Working Capital, Loans amortizations and Depreciation) and divide by Annual volume sold.
Allowable Return	Allowable return set by the NWRB, which cannot be higher than 12%	Allowable return is zero.	Not applicable since methodology does not consider project cash flows
Tariff Inflation	Basic tariff adjusted using CPI set by NWRB	Basic tariff adjusted using CPI set by NWRB	Basic tariff adjusted using CPI set by NWRB
Investment recovery	Investment in facilities will be recovered over the useful life of the asset	Investment in facilities will be recovered over the useful life of the asset	Not applicable, tariff is computed based on the revenue requirement.
Tariff Design	Progressive based on consumption blocks and customer type	Progressive based on consumption blocks and customer type	Progressive based on consumption blocks and customer type

Source: Tariff Model for Regulated Water Utilities User's Manual, NWRB, December 2016.

Note that the following conflict arises:

LWUA's tariff setting guidelines for water districts encourage the utilization of debt rather than reinvestment of capital and retained earnings since investments funded out of internal cash will not necessarily be considered in tariff applications. Only debt is expressly recovered in LWUA's water calculation.

While LWUA's tariff setting includes a review of the actual cash flows, it is not apparent whether benchmarks are used to ensure that operations are prudent and efficient. The guideline should specify clear opportunities to "disallow" imprudent and inefficient expenses in the cash flow review to ensure that consumers can be assured that they are paying for fair and reasonable rates.

LWUA only reviews rates when there is an application for water rates increase. If a water district implements its efficiency targets, it may be the case that operations will be better and come costs will decrease. This is the case when non-revenue water is reduced – production cost

decreases due to fewer leakages. If there is no regular review, then there is no opportunity to revise the tariff downwards to reflect the more efficient operations.

NWRB's formula is theoretically sound – for both Category A and Category B. However, there is a need to define and refine the basis of the "allowable rate of return" for Category A water utilities. While there is a cap provided (12%), the determination of the allowable return must be transparent and market-based. While we appreciate the 12% cap, without a proper methodology, there could be instances that acceptable returns below 12% may still be above market rates or standards. Thus, it may result in the over-charging of consumers.

LGUs can create their water rate-setting formula through their respective local legislative councils. Thus, numerous other tariff-setting formulas and procedures are depending on the ordinances of each LGU. The danger is that these formulas' soundness may be in question – mainly because each LGUs do not necessarily have the core knowledge to design a fair water tariff setting process. They are better off established practices of the LWUA or NWRB – however, this is optional for LGUs. The tariff setting formula adopted may ultimately be the reason for success or failure in an LGU water system.

Tariff regulation issues include: (1) LWUA’s tariff setting guidelines for water districts encourages the utilization of debt rather than reinvestment of capital and retained earnings since investments funded out of internal cash will not necessarily be considered in tariff applications; (2) While LWUA’s tariff setting includes a review of the actual cash flows⁴, it is not apparent whether benchmarks are used to ensure that operations are prudent and efficient; (3) LWUA only reviews rates when there is an application for water rates increase. If there’s no regular review, then there’s no opportunity to revise the tariff downwards to reflect the more efficient operations; (4) NWRB’s formula is theoretically sound – for both Category A and Category B. However, there is a need to define and refine the basis of the “allowable rate of return” for Category A water utilities.

4.4. Investment Planning and Coordination

The following agencies have comprehensive planning related mandates in the water supply services:

Table 19. Agencies with Planning Related Mandate concerning Water Supply Services

Agency	Planning Mandate
National Economic and Development Authority	<p>The country's socio-economic planning body. NEDA is responsible for developing policies and targets for the water sector.</p> <p>NEDA's Regional Offices include domestic water supply in its regional development plans but do not approve Water District water projects, regardless of amount. It has no visibility on the investment requirements of Water Districts and Private Water providers.</p>
Department of Environment and Natural Resources	The primary government agency responsible for the conservation, management, development, and proper use of the country's environment and natural resources.

Agency	Planning Mandate
National Water Resources Board	Review and approve water resource development plans and programs of other agencies
River Basin Control Office	The lead government agency in the integrated planning, management, rehabilitation, and development of its river basins.
Department of the Interior and Local Government	Manages specific foreign-assisted water and sanitation projects. Also, it develops and strengthens the capacity of LGUs in planning, financing, implementation, and management of WSS programs and projects within the IWRM framework.
Local Water Utilities Administration	Establish minimum standards and regulations to ensure acceptable standards of construction materials and supplies, maintenance, operation, personnel, training, accounting, and fiscal practices for WDs; Furnish technical assistance and personnel training programs for WDs; Monitor and evaluate WDs
Department of Health	Review, update, and promote the Philippine National Standards for Drinking Water (PNSDW); Develop and implement programs related to drinking-water quality, such as water safety plans.
Department of Public Works and Highways	Conducts the planning of infrastructure (e.g., national roads and bridges, flood control, and water resources projects) and the design, construction, and maintenance of national roads and bridges and significant flood control systems

While there are numerous agencies involved in water supply delivery, there is no single agency responsible for water delivery nationwide – no single agency has responsibility and accountability on access and availability. Water resource management and development falls squarely within the ambit of the DENR and NWRB. However, water resources that translate to available and potable water for domestic consumption are up to the various actors in the water supply sector – water districts, LGUs, and private water utilities. Being a devolved function makes sense to allow LGUs and other local entities to take care of water supply. However, national coverage for piped water is only at 50% of the country's households (NEDA 2019), with some regions lagging. Poor LGUs are trapped in a vicious cycle since they could only invest in water supply due to a lack of funding. Thus, local and regional planning on water supply infrastructure must be strengthened.

The ability of LGUs to supply their municipalities and cities with water from groundwater or aquifers are also at risk. Due to this, surface water is the more sustainable source of raw water for domestic use. Most surface water sources (like lakes, rivers, or springs) are shared resources by adjacent municipalities or provinces. Therefore, municipalities and provinces can coordinate investments to tap the shared water source jointly to benefit from economies of scale. Currently, there is no concrete venue for such investment coordination.

Due to non-coordination, multiple water supply utilities operate in the same areas. Multiple supply utilities may result in inefficient use of funding and may duplicate investment, for example, in Taytay, Palawan, where there is a Water District and an LGU-run Water Utility (Taytay, Palawan Water System Management Operating Office). In this case, there are overlaps in the coverage area and, therefore, duplication in investments (Santos 2020). The table below shows samples of cities and municipalities with multiple operators, which may cause inefficient funding allocation.

Table 20. Sample Municipalities with More than One Water Service Providers

Municipality	Water District	LGU-run	Others
Urbiztondo, Pangasinan	Urbiztondo Water District	Malayo Urbiztondo Water Utility	None
Alcala, Cagayan	None	Alcala Municipal Water System	Pinopoc, Alcala (BWSA)
Baler, Aurora	Baler Water District	Multiple Barangay Water Systems	Multiple BWSAs
Liliw, Laguna	None	Liliw Waterworks System	Laguna AAAWater Company (Private, Province-wide), Multiple BWSAs

Source: Listahang Tubig (2020)

5. Case Study -Sta. Maria, Bulacan

The Municipality of Santa Maria is a first-class municipality in the province of Bulacan. It has a population of 256,454 people, according to the 2015 PSA Census. It is located along the Santa Maria River, which passes through the Santa Maria, Bocaue, and San Jose Del Monte, all located in Bulacan.

Its water system is being primarily served by the Santa Maria Water District, a government-owned and controlled corporation, which provides level III water services to the municipality population. The water system in Santa Maria was first implemented in 1931 under the then National Waterworks and Sewerage Authority (NAWASA). When NAWASA was dissolved in 1977, the water system's management was transferred to the Local Government of Santa Maria. In 1986, under Sangguniang Bayan Resolution no. 12 series of 1986, the LGU-run water system was transferred to the newly formed Santa Maria Water District (SMWD). The LGU hoped that it could improve water supply service operation in the municipality through the formation of a water district. At that time, 241 customer accounts, three production wells at Dulong Bayan, Macaiban and Villarica, and one concrete reservoir at Gulod, Poblacion, were taken over by SMWD.

Since then, SWMD has invested in more facilities and water sources to ensure water services delivery to its constituents in the Municipality of Santa Maria. As of 2019, SMWD has 21 groundwater production wells and bulk supply contracts from Philippine Hydro (Ph), Inc. and Luzon Clean Water Development Corporation. The combined production capacity of these operational production wells is about 27,638 cubic meters per day. During the dry season, almost all the wells' yield declines by about 10% to 15% of their usual yield capacities. These water sources are a marked improvement against the three wells it took over in 1986. SMWD has constructed eight reservoirs or water storage facilities with a combined capacity of 3,873 cubic meters to ensure continuity of supply. These reservoirs are as follows:

1. 272 cubic meter reinforced concrete tank at Gulod, Poblacion
2. 111 cubic meter elevated steel tank at Yakal St., Bgy. Sta. Clara
3. 200 cubic meter elevated steel tank at Garden Village, Bgy Pulong Buhangin
4. 90 cubic meter elevated steel tank at Glendale Subdivision, Bgy Sta. Clara
5. 1000 cubic meter glass-fused-to-steel bolted ground reservoir at Sitio Gulod I, Bgy. San Jose Patag (2018)

6. 1000 cubic meter glass-fused-to-steel bolted ground reservoir at Sitio Bato, Bgy. Guyong (2018)
7. 1000 cubic meter glass-fused-to-steel bolted ground reservoir located at Bgy. Manggahan with top elevation of 36.47 m. Expected to complete the construction by the 1st quarter of 2020.
8. 200 cu.m. reinforced concrete reservoir located at Sonoma Subd., Bgy. Sta. Cruz with top elevation of 32.18 m. was turned over by the homeowners.

To expand service coverage, SMWD invested in mainlines and secondary lines to reach as much households as possible. The total existing distribution pipelines as of December 31, 2019 is at 226,970.20 linear meters in various sizes, as summarized by the table below:

Table 21. Pipelines laid as of December 2019

Pipe Diameter	Linear Meters laid
300 mm	9,948.50
250 mm	41.00
200 mm	8,440.40
150 mm	82,489.50
100 mm	51,563.75
75 mm	46,940.40
50 mm	27,646.65
Total	226,970.20

Source: Annual Report, SMWD, 2019

At present, SMWD's service area covers all the 24 barangays of the municipality of Santa Maria and three barangays outside the municipality. These barangays are:

1. Pulong Yantok (Angat)
2. Sta. Rosa II (Marilao)
3. Turo (Bocaue)

In 2019, the total billed water volume was at 9,568,275 cubic meters, against a production volume of 11,050,538.98 cubic meters, which includes bulk water supply purchased from Philhydro and Luzon Clear Water Development Company.

In 2002, the performance of SMWD can be summarized through the following table:

Table 22. Comparative Operational Performance, 2002 and 2019

Performance Indicator	2002	2019
Service Connections	~3,000	37,000
Barangay Coverage	Three barangays served	24 barangays plus three barangays outside of Santa Maria
Water Availability	16 hours per day	24 hours per day
Non-revenue Water	39.6%	13.41%
Staff	23	142

Source: Key Informant Interviews (Engr. Carlos Santos, Jr., General Manager, SMWD)

Engr. Carlos Santos, Jr, the General Manager of Santa Maria Water District, narrated the critical strategies of SMWD, which allowed them to achieve better performance up to 2019.

In 2002, it was challenging to obtain loans to fund investments in equipment, water sources, and distribution lines. Since services covered merely three barangays, there was no credible way to convince financing institutions to extend credit. A key bane on operations is the high non-revenue water of Santa Maria Water District at 39%. Thus, a lot of production volume is left unbilled. Operations survived on a month-on-month basis, with collections barely enough to cover operating expenses. It was apparent that loans from LWUA or other institutions are not a viable proposition with such operations.

While loans were difficult to come by at that time, it was clear to the management of Santa Maria Water District that it must arrest NRW levels. To systematically improve NRW, pipeline replacement was an essential and most effective way to improve operations. With limited funding options, the management of SMWD relied on supplier credit to finance these initial pipeline replacements. The water leakages will be reduced through pipeline replacements and will bring additional billed volume through this previously unsold water volume. It was incumbent upon the water district's management to ensure that billable volume will increase to ensure to collect incremental sales. This will allow SMWD to pay off suppliers. This slowly improved operations and improved cash flows of SMWD. Eventually, SMWD now has excess earnings, which reinvests in pipeline replacement annually, which slowly reduced NRW, increasing the earnings of SMWD.

Eventually, SMWD's management proposed a bolder plan and finally applied for a loan from LWUA. Its first loan from LWUA was PHP 27 million, which is invested in expanding coverage in its most populous barangay. Management has embarked on a marketing program to aggressively connect new water supply connections to ensure that its investments will be recovered that will allow it to reinvest in other investment programs in other barangays. Incremental programs allowed it to slowly but surely, improved its credit rating – thus increasing its allowable credit lines from LWUA, Landbank of the Philippines, and Development Bank of the Philippines.

Table 23. Financial Highlights of Santa Maria Water District from 2015 to 2019

(In thousand pesos)	2015	2016	2017	2018	2019
Total Income	182,350	206,147	233,087	253,094	272,755
Net Income	28,354	39,822	39,540	55,638	21,141
Total Assets	420,533	447,991	477,388	554,911	561,180
Total Property, Plant and Equipment	335,158	352,443	371,147	401,631	421,686
Total Liabilities	223,754	214,526	204,229	211,015	195,552
Capital Purchase/Construction of PPE	10,092	11,269	41,092	30,649	29,939

Source: Audited Financial Statements, Santa Maria Water District (2015-2019)

Table 24. Operating Highlights of Santa Maria Water District from 2015 to 2019

	2015	2016	2017	2018	2019
Service Connections	2,949	3,051	2,964	2,831	2,660
Population Served (%)	59%	66%	69%	72%	69%
Non-Revenue Water (%)	9.45%	8.20%	11.93%	13.15%	13.41%
Staff Index	323	343	366	341	383

Source: Annual Report, Santa Maria Water District (2019)

The experience from Santa Maria Water District highlights the following determinants of success for water districts:

1. Availability of start-up funding to improve operations. Santa Maria Water District started as a small water district with minimal funding options. At that time, supplier credit may have been feasible under existing procurement and disbursement rules. However, such a set-up's success also depends on willing suppliers' availability, willingness to take on the collection risk. Such options may not be available today. Thus, the presence of coordinated funding or grants from the LGU or the National Government, through LWUA, that will help start-up or struggling water districts with critical infrastructure with no need for any repayment. Struggling or start-up water districts may be trapped in a vicious cycle with minimal options to get through this phase.
2. Investment funding through loans is a success but only for established water districts. GM Santos emphasized that the fact that the subsequent funding of SMWD came into the form of loans disciplined management into ensuring that investments funded will yield enough billings that would allow them to repay the loan. This behavior of management is present in profit-oriented companies with debt (Myers 1984). It is good to note that the same discipline was present in the SMWD management, even if it is not a profit-seeking entity. Thus, a key determinant for further investments in water districts is the availability of adequate funding sources. LWUA's ability to lend funding is, therefore, a critical determinant of success for water districts. Aside from the
3. The business acumen of management is critical. Throughout the interview, GM Santos always emphasized that the various strategies he implemented hinges on knowing the ins and outs of water operations – not just on the technical side but also on the commercial side. The ability to negotiate supplier credit was a critical first step for the turn-around story of SMWD. Also, the ability to translate investments into incremental cash flows is dependent on the realization of marketing programs. Sustainability of operations is heavily hinged on management's ability to execute programs and projects with a fiduciary duty of management in mind.

6. National government support programs for local water service delivery and evidence

There have been several national government programs offering support to LGUs in delivering water services. The major ones being the Sagana at Ligtas na Tubig Para sa Lahat (SALINTUBIG) of National Anti-Poverty Commission (NAPC) and Department of the Interior and Local Government (DILG); performance-based programs such as the Performance Challenge Fund (PCF); and combination performance and equity-based programs such as the Bottom-up Budgeting (BUB) and Local Government Support Fund Assistance to Municipalities program (LGSF-AM). In 2016, there was a policy on implementing water infrastructure projects under “water supply and sanitation for poverty areas and priority tourism sites” by the Department of Public Works and Highways under the general appropriations act FY 2015 and 2016.

6.1. Bottom-up Budgeting Program

Bottom-Up Budgeting was launched through Human Development and Poverty Reduction Cluster (HDPRC) and Good Governance and Anti-Corruption Cluster (GGACC) in year 2012. From the initial phase in 2013, HDPRC identified 609 municipalities/cities. For the year 2014, HDPRC expanded the identified municipalities/cities from 609 to 1,233 municipalities/cities. And for the following years (2015 to 2017) rounds, the BUB was expanded to all municipalities/cities across the country (Manasan, Adaro and Tolin 2017). The BuB program aimed to transform local governments through increased civil society organization participation in both the identification of projects and budgeting process participation. One of the most common BuB projects implemented from the menu of options were water systems which government agencies such as the Departments of Education and the Interior and Local Government also prioritize (Aceron 2019).

From 2014 to 2016, it can be observed that BuB expenditures on water systems were increasing peaking in 2016 (Table 25; Figure 5). As it evolved into the LGSF-ADM and AM programs, expenditures on water systems declined in 2017 and 2018. BuB expenditures averaged 0.01% of GDP, 0.08% of national government expenditures and 0.35% of local government expenditures. The top three regions receiving the largest amounts on average for water systems under this program were Region VII (Central Visayas), V (Bicol) and X (Northern Mindanao) (Table 26).

Table 25. Summary of BUB/ADM/AM Expenditures (Disbursements) for water supply systems, 2013 to 2018

	2013	2014	2015	2016	2017	2018
Total Expenditures (in nominal PHP million)	2,058	2,631	1,851	3,443	1,104	407
Total Expenditures (in real (2000=100) PHP million)	617	1,167	1,501	1,039	1,876	585
As % of gross domestic product	0.01	0.02	0.02	0.01	0.02	0.01
As % of national government expenditure	0.05	0.10	0.11	0.07	0.10	0.03
As % of Total LGU expenditures	0.25	0.42	0.46	0.30	0.50	0.14
Percentage changes of BUB/ADM/AM Water expenditures		95.26%	27.83%	-29.62%	85.95%	-67.93%
Memo Items:						
IPIN deflator (2000=100)	170.92	176.32	175.29	178.19	183.54	188.60
Nominal GDP (in PHP million)	11,538,410	12,634,187	13,322,041	14,480,349	15,807,596	17,426,202
National Government Budget	2,006,000	2,268,000	2,606,000	3,001,800	3,550,000	3,767,000
NG expenditures (in PHP million)	1,998,376	2,019,062	2,414,641	2,682,815	3,315,325	3,531,765
Total LGU Expenditures	415,489	492,003	569,273	621,020	684,242	766,404

Source: Authors' compilation, DILG

Figure 5. Summary of BUB/ADM/AM Expenditures (Disbursements), in current and constant prices, 2013 to 2018

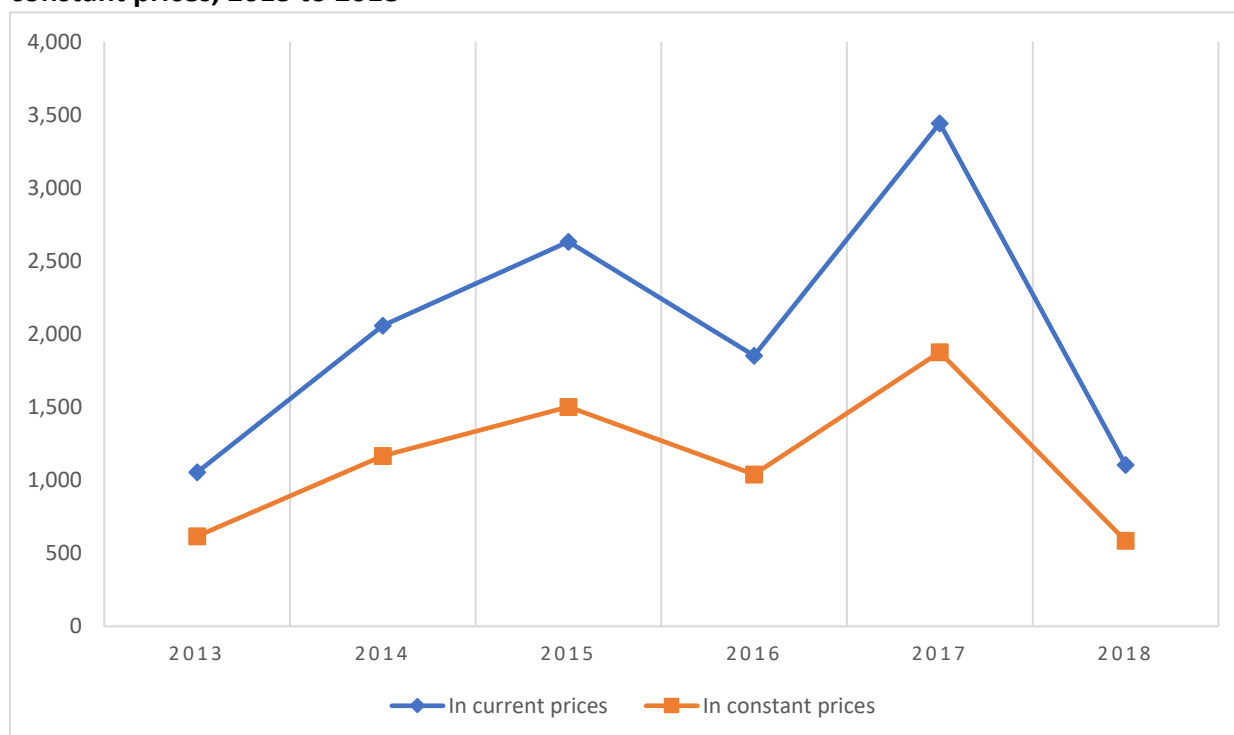


Table 26. Summary table of BUB/ADM/AM regional expenditures, current prices, 2013 – 2018

Region	2013	2014	2015	2016	2017	2018	Average
CAR	45	100	115	67	100	25	75
I	10	106	145	89	138	97	98
II	-	34	163	65	132	45	73
III	-	25	79	76	231	117	88
IV-A	10	67	92	125	359	107	127
IV-B	92	100	241	146	216	65	143
V	175	254	267	189	302	69	209
VI	39	116	135	60	194	31	96
VII	63	335	364	251	412	117	257
VIII	79	162	210	130	380	128	182
IX	137	209	195	118	161	49	145
X	92	198	203	252	372	96	202
XI	84	124	150	112	119	40	105
XII	66	134	108	79	142	50	96
XIII	67	94	164	92	185	69	112
TOTAL	1,054	2,058	2,631	1,851	3,443	1,104	2,023

Source: DILG

It is interesting to see that average allotment utilization (AU) of these projects is above 90% for most regions and over the years (Table 27). It is only in 2018 that there have been dips in AUs, though this could be because of the lag in reflecting such. It is also notable that Region 6 appears to have the lowest AU rates, though still above that average documented utilization rate of LGU local development funds (LDF) (Diokno-Sicat, et al. 2020). This could perhaps be because national government funds are time-bound relative to the LDF.

Table 27. BUB/ADM/AM expenditures to obligations

Region	2013	2014	2015	2016	2017	2018
CAR	100	100	100	100	100	90
I	100	100	100	100	100	100
II	-	100	100	94	100	97
III	-	100	100	99	100	100
IV-A	100	100	97	99	93	69
IV-B	100	100	99	94	91	61
V	100	99	98	92	94	86
VI	100	97	95	88	90	82
VII	100	100	99	94	96	80
VIII	100	97	94	91	96	87
IX	100	100	100	100	100	100
X	100	99	100	89	96	75
XI	100	99	99	89	100	72
XII	100	96	100	100	99	100
XIII	100	100	100	100	100	94
TOTAL	100	99	99	94	96	84

Source: DILG

Note: DO is disbursement to obligations defined as disbursements divided by obligations showing the amount of public funds actually spent compared to what was promised through obligations.

Looking at the distribution of the BUB/ADM/AM project by region, the top 3 regions with the highest number of recipient municipalities were Region VII (Central Visayas) at 11.53%, Region V (Bicol) at almost 10% and Region VIII at 9.38 % (Eastern Visayas) (Table 28). In terms of expenditures, the top 3 regions are Region VII (Central Visayas) at 12%, Region V (Bicol) at 10.7% and Region 10 (Northern Mindanao) at 9.9%.

Table 28. Summary distribution of BUB/ADM/AM water expenditures by recipient municipalities and expenditures, 2013-2018

Region	2013		2014		2015		2016		2017		2018	
	Municipal Recipient	Expenditures	Municipal Recipient	Expenditures	Municipal Recipient	Expenditures	Municipal Recipient	Expenditures	Municipal Recipient	Expenditures	Municipal Recipient	Expenditures
CAR	6.07	4.26	6.18	4.87	5.19	4.36	3.88	3.60	3.58	2.89	3.77	2.22
I	1.45	0.97	5.34	5.17	6.03	5.53	4.48	4.82	3.78	4.00	7.17	8.78
II	0.00	0.00	3.17	1.65	6.73	6.19	3.88	3.49	5.17	3.83	5.28	4.05
III	0.00	0.00	2.34	1.19	3.93	3.02	4.18	4.13	4.57	6.71	6.79	10.58
IV-A	1.45	0.98	3.84	3.27	5.33	3.48	5.97	6.78	9.54	10.43	9.81	9.66
IV-B	6.07	8.68	5.34	4.88	6.17	9.16	6.87	7.86	6.76	6.29	8.30	5.85
V	12.14	16.56	11.69	12.36	9.82	10.14	10.15	10.22	9.94	8.77	6.04	6.26
VI	6.65	3.74	8.68	5.61	6.87	5.13	3.88	3.22	7.16	5.64	3.02	2.79
VII	6.94	6.00	12.19	16.27	12.76	13.84	14.63	13.56	11.73	11.97	10.94	10.60
VIII	9.54	7.54	8.51	7.87	8.56	7.99	6.87	7.05	11.13	11.04	11.70	11.61
IX	10.12	13.00	7.51	10.14	6.03	7.41	6.87	6.37	4.57	4.69	6.04	4.47
X	9.25	8.76	8.85	9.62	6.59	7.70	11.64	13.61	8.75	10.80	6.79	8.72
XI	6.94	7.95	5.68	6.02	5.33	5.71	6.87	6.05	3.98	3.46	5.28	3.64
XII	6.94	6.25	4.34	6.50	4.49	4.10	4.78	4.26	4.17	4.12	4.15	4.51
XIII	7.80	6.38	6.34	4.59	6.17	6.24	5.07	4.99	5.17	5.36	4.91	6.28

Source: DILG

A recent PIDS study assessed the BuB program focusing on improved access of local communities to basic services and strengthening social capital. To do so the study surveyed 62 LGUs in Luzon, Visayas and Mindanao outside of ARMM and NCR that participated in the BUB starting in FY2013. It found, that for the period 2013 to 2015, there were improvements in access to transport services and water and sanitation through the BuB projects (Manasan, Adaro and Tolin 2017) as based on the majority response of their respondents. Interestingly, water and sanitation was one of most highly recognized BuB projects by household respondents, at 17.34 % (Table 29).

Table 29. Household awareness of available public services, by category

Type of Project	Count	%
Agriculture and Fisheries	1,829	19.47
Transport	1,671	17.79
Water and Sanitation	1,629	17.34
Livelihood	1,472	15.67
Health	674	7.17
Social Welfare	571	6.08
Community Development	553	5.89
Disaster Risk Management	339	3.61
Education	284	3.02
Economic Development	212	2.26
Tourism	63	0.67
Environment	62	0.66
Power	25	0.27
Capacity Building	10	0.11
Total	9,394	100.00

Source: (Manasan, Adaro and Tolin 2017)

6.2. *Sagana at Ligatas na Tubig sa Lahat (SALINTUBIG)*

The “Sagana at Ligatas na Tubig sa Lahat” or SALINTUBIG program was first implemented in 2012. It started as a pro-poor initiative designed to provide community-based water supply systems to 455 waterless municipalities (NEDA 2017). Waterless areas are those wherein more than 50% of the total poor population in a municipality or barangay do not have access to safe water supply. By providing grant financing and capacity development programs to local governments, the goal is to improve planning, implementation, operation and management of water supply facilities of both LGUs and water service providers in a sustainable manner.

SALINTUBIG program LGU beneficiaries are identified based on poverty incidence, presence of waterborne diseases, and access to water from the priority list identified by National Anti-Poverty Commission (NAPC) using the DSWD’s National Household Targeting System (NHTS). In its initial implementation, the LGU was required to be an awardee for Seal of Good Housekeeping (SGH) but through time the program was improved and expanded its implementation through other national government programs such as the BuB, Grassroots Participatory Budgeting (GPB), and the LGSF-AM. Eligible projects for infrastructure investment included the rehabilitation/expansion/upgrading of Level 3 water supply systems, construction/rehabilitation/expansion/upgrading of Level 2 and 1 water supply systems. The selection of the eligible projects followed a participatory process involving the affected communities; endorsed by the Local Development Council (LDC); and were projects be

included in the local Comprehensive Development Plan (CDP) and Local Development Investment Program (LDIP) (DILG 2012). The amount of grant given to LGUs depended on the kind of water supply project requested but could be topped up by the LGU and/or co-financed on top of the LGU equity share (DILG 2012).

As continued commitment of government to providing water for poor and waterless communities, the SALINTUBIG program, adopted the Bottom-Up Planning and Budgeting (BUB) approach in identifying and prioritizing funding for poverty reduction projects including water supply projects (DILG 2013). In the succeeding year, the SALINTUBIG program was implemented by the DILG using the Grassroots Participatory Planning and Budgeting (GPPB) approach in identifying and prioritizing funding for poverty reduction projects, including water supply projects for (DILG 2013).

Though the number of waterless municipalities decreased from 455 in 2010 to 234 in 2015, budget allocations increased in succeeding years because of the increasing number of waterless barangays within the remaining waterless municipalities. The targets of SALINTUBIG widened for the year 2016 wherein the budget allocated for the program increased to PhP1.8 billion with the same LGU eligibility criteria (DILG 2016). Local Government Support Fund was introduced last 2018 wherein all the overall implementation of water supply subprojects will be under the LGSF-SALINTUBIG with budget amounting for PhP1.4 billion (DILG 2018).

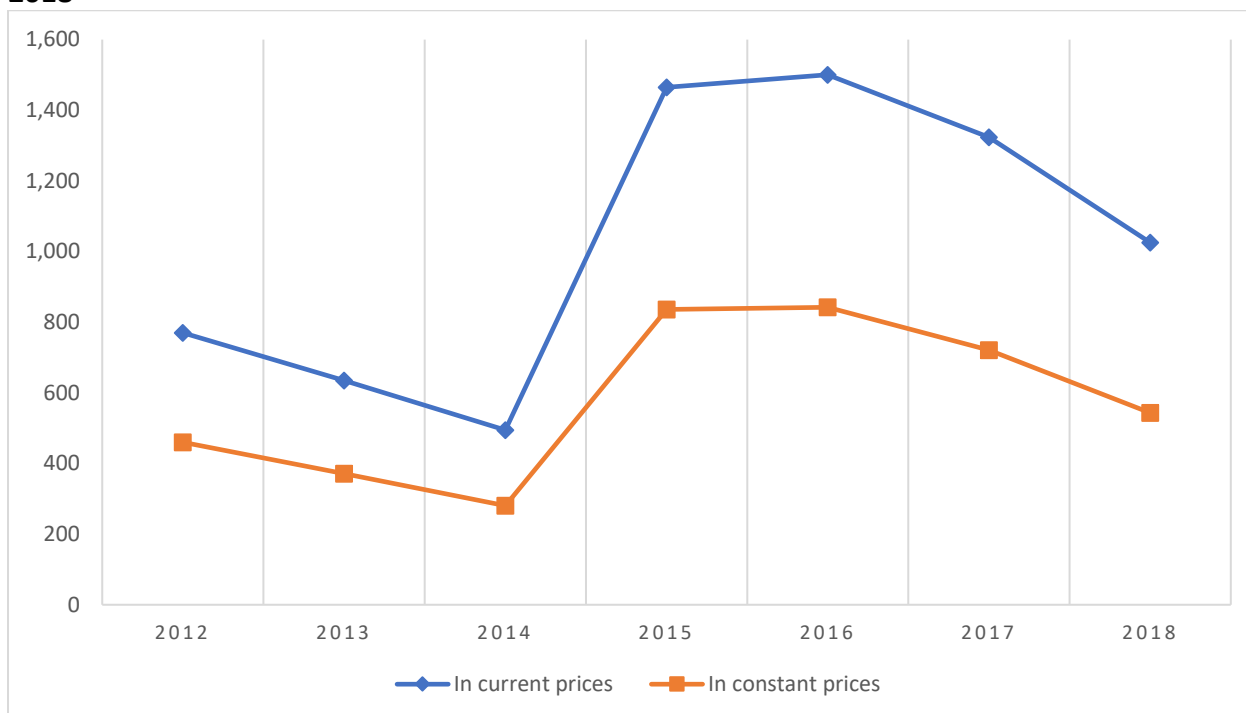
SALINTUBIG expenditures peaked in 2016 at PHP1.5 billion but has been declining since then. (Table 30, Figure 6). It has averaged 0.01% of GDP, 0.04% of national government expenditures and 0.18% of local government expenditures, seemingly half of BuB shares. The top three regions receiving the largest amounts on average for water systems under this program were Region VII (Central Visayas), IX (Zamboanga), V (Bicol) and VI (Western Visayas) (Table 31).

Table 30. Summary of SALINTUBIG Expenditures, 2012 to 2018

	2012	2013	2014	2015	2016	2017	2018
Total Expenditures (in nominal PHP million)	770	635	495	1,465	1,501	1,324	1,025
Total Expenditures (in real (2000=100) PhP million)	460	371	281	836	842	721	543
As % of gross domestic product	0.01	0.01	0.00	0.01	0.01	0.01	0.01
As % of national government expenditure	0.04	0.03	0.02	0.06	0.06	0.04	0.03
As % of Total LGU expenditures	0.19	0.15	0.10	0.26	0.24	0.19	0.13
Percentage change		-17.57%	-22.07%	196.23%	2.42%	-11.77%	-22.58%
Memo Items:							
IPIN deflator (2000=100)	167.5	170.92	176.32	175.29	178.19	183.54	188.60
Nominal GDP (in PHP million)	10,561,089	11,538,410	12,634,187	13,322,041	14,480,349	15,807,596	17,426,202
National Government Budget (in PHP million)	1,816,000	2,006,000	2,268,000	2,606,000	3,001,800	3,550,000	3,767,000
NG expenditures (in PHP million)	1,828,981	1,998,376	2,019,062	2,414,641	2,682,815	3,315,325	3,531,765

	2012	2013	2014	2015	2016	2017	2018
Total LGU Expenditures	415,489	415,489	492,003	569,273	621,020	684,242	766,404

Figure 6. Summary of SALINTUBIG Expenditures, in current and constant prices, 2012 to 2018



Source: Authors' compilation

SALINTUBIG allotments have been utilized fully for the entire period under study (Table 31). The same generally goes for paying off obligations except for dips in 2018 for Region IV-B (MIMAROPA) at 25.6%, Region X (Northern Mindanao) at 40.7% and Cordillera Autonomous Region (CAR) at 60%. Similar to BuB, the allotment utilization rate of SALINTUBIG is higher than LGU utilization of the local development fund (LDF) (Diokno-Sicat, et al. 2020).

Looking at the distribution of SALINTUBIG by region, the top 3 regions with the highest number of recipient municipalities were Region V (Bicol) at almost 11.7%, Region VIII (Eastern Visayas) at 9.92%, and Region VI (Western Visayas) at 8.8 % (Table 21). In terms of expenditures, the top 3 regions are Region VI (Western Visayas) at 10.5 %, Region VII (Central Visayas) at 10.3%, Region IX (Zamboanga Peninsula) at 9.6 %.

Table 31. Summary table of SALINTUBIG regional expenditures, current prices 2012 – 2018

Region	2012	2013	2014	2015	2016	2017	2018	Average
CAR	21	17	9	66	17	22	42	22.00
I	42	67	23	92	64	97	83	66.85
II	43	32	15	67	38	43	42	40.03
III	21	14	12	55	26	22	42	27.41
IV-A	116	40	23	84	50	78	55	63.72
IV-B	50	42	9	108	117	83	21	61.46

Region	2012	2013	2014	2015	2016	2017	2018	Average
V	52	64	49	105	171	144	64	92.73
VI	88	182	32	102	41	147	62	93.43
VII	83	34	71	152	105	146	133	103.36
VIII	99	31	14	97	181	87	81	84.18
IX	5	25	126	149	155	112	86	94.05
X	26	69	47	112	119	69	35	68.08
XI	35	16	40	106	78	92	65	61.69
XII	45	-	12	86	47	112	99	57.23
XIII	44	3	13	84	133	70	115	65.85
TOTAL	770	635	495	1,465	1,501	1,324	1,025	1,030.56

Source: Authors' compilation

Table 32. SALINTUBIG expenditures to obligations ratios, 2012 to 2018

Region	2012	2013	2014	2015	2016	2017	2018
CAR	100	100	100	100	100	91.67	60.87
I	100	100	100	99.92	99.98	97.25	100
II	100	100	100	100	95.00	90.00	65.63
III	100	100	100	100	100	87.28	73.68
IV-A	100	100	100	99.38	96.04	74.62	82.09
IV-B	100	100	100	100	93.02	85.15	25.61
V	100	98.15	100	99.06	78.94	92.56	71.11
VI	100	99.39	100	97.14	86.38	80.11	63.27
VII	100	97.10	100	100	98.13	100.00	98.52
VIII	100	96.83	90.00	100	95.47	76.81	82.65
IX	100	100	100	100	99.99	92.13	100.00
X	100	98.19	98.67	100	97.21	90.53	40.70
XI	100	100	100	100	96.93	85.46	69.15
XII	100		100	100	100	97.89	100
XIII	100	100	100	100	100	100	98.29
TOTAL	100	99.13	99.57	99.69	92.81	89.05	77.36

Source: DILG

Note: DO is disbursement to obligations defined as disbursements divided by obligations showing the amount of public funds actually spent compared to what was promised through obligations.

Table 33. Summary distribution of SALINTUBIG water expenditures by recipient municipalities and expenditures, 2012-2018

Region	2012		2013		2014		2015		2016		2017		2018	
	Municipal Recipients	Expenditures	Municipal Recipients	Expenditures	Municipal Recipients	Expenditures	Municipal Recipients	Expenditures	Municipal Recipients	Expenditures	Municipal Recipients	Expenditures	Municipal Recipients	Expenditures
CAR	5.39	2.73	4.55	2.71	5.56	1.82	5.60	4.50	1.69	1.13	1.49	1.66	4.19	4.10
I	5.99	5.45	9.09	10.57	4.63	4.65	3.45	6.27	2.97	4.24	4.98	7.35	4.79	8.10
II	3.59	5.58	6.49	5.04	3.70	3.03	2.59	4.57	1.69	2.53	1.99	3.26	3.59	4.10
III	4.19	2.73	3.90	2.21	2.78	2.43	5.17	3.75	1.27	1.75	1.99	1.63	2.99	4.10
IV-A	13.17	15.06	5.84	6.30	4.63	4.65	3.02	5.77	2.97	3.33	4.98	5.86	3.59	5.37
IV-B	6.59	6.49	5.19	6.69	3.70	1.82	7.76	7.37	7.20	7.81	5.47	6.24	6.59	2.05
V	7.19	6.75	13.64	10.02	8.33	9.91	13.36	7.17	14.83	11.40	15.42	10.91	9.58	6.24
VI	9.58	11.43	24.03	28.67	5.56	6.47	5.17	6.96	3.39	2.71	8.96	11.13	4.79	6.05
VII	8.98	10.78	5.19	5.28	11.11	14.36	6.90	10.37	9.32	7.00	8.46	11.03	10.18	12.98
VIII	14.37	12.86	4.55	4.82	4.63	2.73	12.93	6.62	11.02	12.09	12.94	6.56	8.98	7.90
IX	2.40	0.65	3.90	3.94	16.67	25.48	7.76	10.17	9.32	10.33	8.46	8.49	8.38	8.39
X	4.79	3.38	8.44	10.84	8.33	9.58	5.60	7.64	8.05	7.90	5.97	5.20	7.78	3.41
XI	2.99	4.55	3.90	2.52	7.41	8.09	6.03	7.23	5.51	5.17	5.97	6.97	8.38	6.34
XII	5.39	5.84	0.00	0.00	7.41	2.43	6.47	5.87	4.66	3.13	6.97	8.43	5.99	9.66
XIII	5.39	5.71	1.30	0.39	5.56	2.57	8.19	5.71	10.17	8.86	5.97	5.29	10.18	11.22

Source: DILG

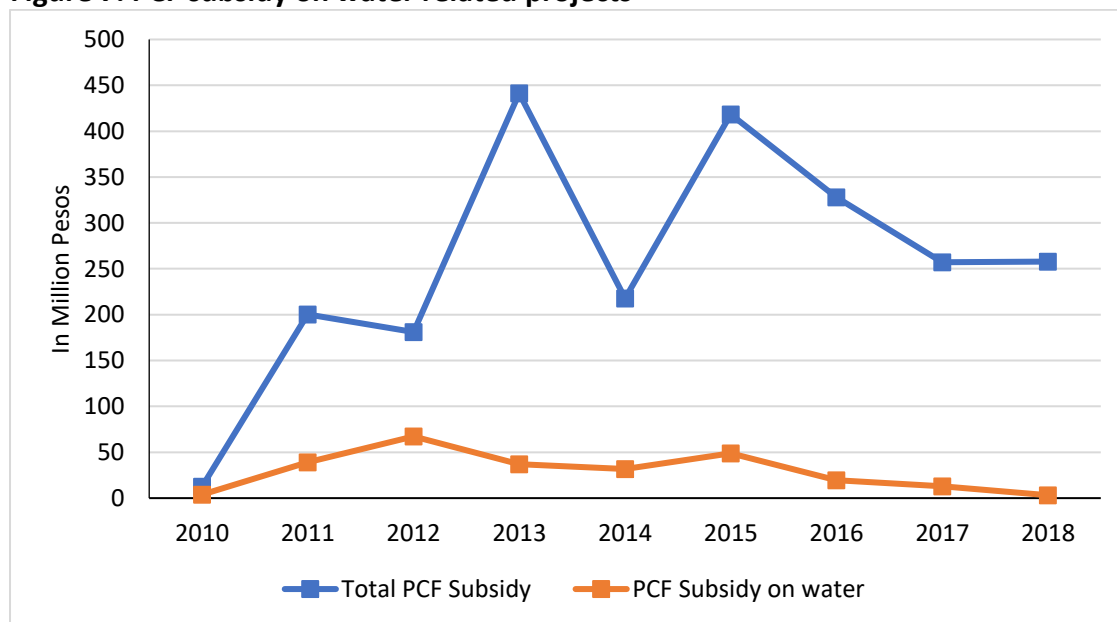
In 2016, Philippine Institute for Development Studies conducted an impact evaluation study for selected government water supply and sanitation programs specifically the President’s Priority Program for Water (P3W) and the SALINTUBIG. The study finds out that there is underachievement of targets and due to unmet needs in water and sanitation, the study recommends having an improved successor program (Porciuncula, Erfe and Navarro 2016).

6.3. Performance Challenge Fund

The Performance Challenge Fund (PCF) is a performance-based incentive that was given to the LGUs that passed the Seal of Good Local Governance (SGLG). According to the recent assessment of PIDS on PCF, that majority of the local government appreciated the PCF and recognized its importance. The study shows that 20 percent of the surveyed municipalities were never eligible to receive the incentive and there were some municipalities that were either consistently or not consistently recipients of PCF (Sicat, Mariano, et al. 2020).

One of the eligible projects of PCF is the water and sanitation projects as an indicator of the attainment of Sustainable Development Goals (SDGs). Figure 7 shows that, on the average, from year 2010 to 2018, only 15 percent of the total PCF subsidy were for water related projects.

Figure 7. PCF subsidy on water related projects



Source: DILG

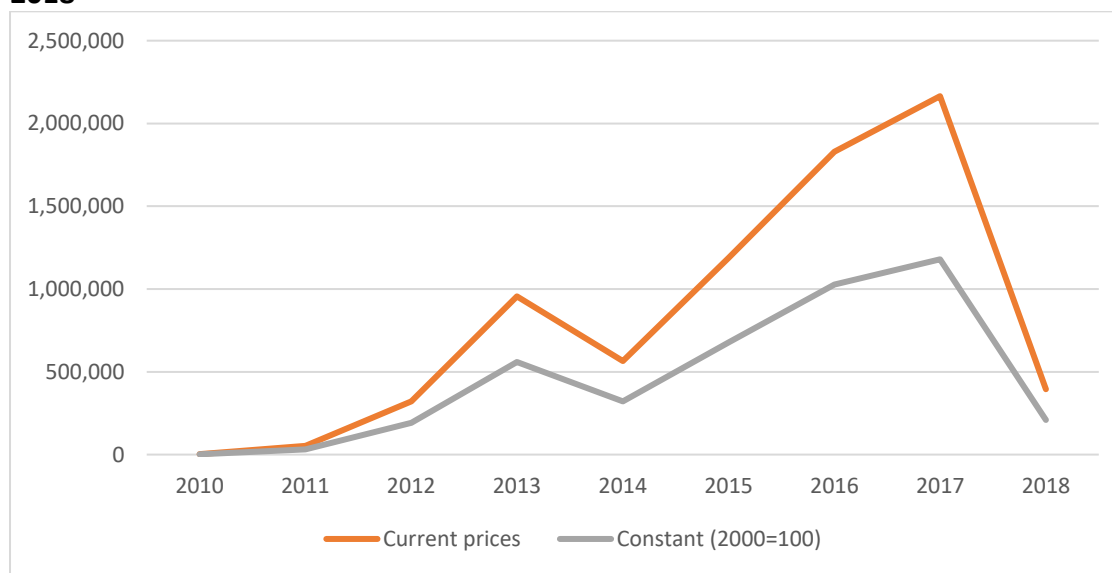
6.4. Local Water Utilities Administration

LWUA, a government-owned and controlled corporation attached to the Department of Public Works and Highways, has the primary mandate of giving affordable loans to local water districts. Its’ sources of funds for lending comes from internally generated funds, budgetary support from the national government via the General Appropriations Act (GAA) and foreign funding from loans with development and multi-lateral agencies. Table 35 and Figure 8 below shows the allocations received from the national government for the period 2010 to present. The trend was increasing since 2014 but dipped after its peak in 2017.

Table 34. LWUA budgetary support to government corporation, 2010-2018

<i>In Million PhP</i>	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current prices	2,702	52,800	320,873	956,137	565,000	1,187,075	1,829,170	2,164,745	394,502
Constant (2000=100)	1,711	32,144	191,566	559,406	320,440	677,206	1,026,528	1,179,440	209,174
Memo items:									
IPIN	157.91	164.26	167.50	170.92	176.32	175.29	178.19	183.54	188.60

Source: DBM, 2010 to 2018

Figure 8. LWUA budgetary support to government corporation (in Thousand PhP), 2010-2018

Source: DBM, 2010 to 2018

6.5. National government support programs in water service delivery and poverty incidence

One of the challenges of having different programs spread across government agencies all addressing the same concern of local governments, is being able to assess their efficacy and impact on the targeted sector. Given the available data, an exercise was conducted looking at the correlations of regional poverty incidence and expenditures of the two main programs BuB/ADM/AM and SALINTUBIG. The latter program that was initially designed to bridge the gap in access to water for poorer LGUs, while the former gives assistance to all LGUs for national government priority infrastructure services including. The hypotheses are the following: (1) there should be higher expenditures on water service provision for regions with higher poverty incidence, i.e. correlation should be positive; and, (2) there should be lower national government water expenditures for regions with a higher proportion of households with access to water.

The results, in Appendix C, show that poverty incidence is moderately correlated to SALINTUBIG expenditures and weakly correlated to BuB/ADM/AM expenditures. Such a relationship is more clearly expected for the SALINTUBIG program since it focuses on water service provision compared to the BuB/ADM/AM programs which can be used for several priority infrastructure. The correlation coefficients seem to suggest that regional poverty incidence accounts for 16% of the variation in SALINTUBIG expenditures while the same does for only 15% of BuB/ADM/AM expenditure variations.

Looking at the association between the proportion of households with water service by region, the hypothesis is that BUB/ADM/AM water and SALINTUBIG expenditures should be negatively associated with household with water service. That is, as a larger proportion of households in the region have water service, it needs less expenditures. The results show that current access to water service is weakly correlated to the SALINTUBIG program only explaining only 3% of the variation. The sign was negative as expected.

What these results seem to suggest is that there may be other factors that determined expenditures of these programs.

7. General Findings and Discussion

- Obstinate fragmentation in the water sector, especially for local government water systems, is primarily due to ambiguous or overlapping institutional mandates.

It was found that rules and regulations may be in conflict with each other, reinforced by various agencies in fulfilment of their respective mandates. It is apparent in the review of the mandates of the LGU/Local Legislative Councils, NWRB, and LWUA that there are overlaps in terms of economic regulation. Based on existing laws, local legislative councils may provide technical and economic regulations for their LGU-run utilities, and the same is true for LWUA in water districts. However, the current regulations issued by NWRB provides an option for these entities to subject themselves to the economic regulation of the NWRB. While only an option, it creates ambiguity and vagueness on the regulatory scope of the NWRB. It is also unclear how this option can be implemented when the original enabling laws are still in force.

The study likewise highlighted various computing water rates methodologies depending on the regulatory body in question (LGU, NWRB, or LWUA). This could be a reason for varied successes and failures of different water service providers. Furthermore, there was evidence of different technical standards across different regulators which influence the investment priorities of these water service providers.

- Identified weaknesses in institutional mandates both cause and exacerbate the lack of consistently and regularly reported data which poses challenges in monitoring and evaluating the water service providers as basis for sector reforms.

The study brought to light that no single water-related planning agency keeps track of the amount invested already in the Sector and the specific targets for every entity in the water sector (whether water districts, water utilities with CPCs, or LGU-run entities). Without robust monitoring on a nationwide, all public and private entities basis, the goal of water security and water for all will not be achieved.

There were three sources of local water sector indicators explored in this study, the NWRB's Listahang Tubig, the DTI's Cities and Municipalities Competitiveness Index (CMCI) and documentation of an effort under a PIDS-DILG Baseline Study on Fiscal and Governance Gaps. Among the three, the most comprehensive one was the Listahang Tubig that covers all service providers with household connections greater than 15. But because this database is populated by submissions of intended respondents, if they do not accomplish the survey, then data will not be complete. This could explain why there were provinces that did not have data for keep performance indicators.

The DTI CMCI database is also populated based on a survey conducted in local governments, however, the indicators reported here are for the overall local government and not the performance indicators of the individual WSP.

Finally, the PIDS-DILG LGSF-AM Baseline Study attempted to construct a comprehensive inventory of local water systems for all municipalities because of the lack of such. The exercise was not pursued because of incomplete LGU submissions and unclear coverage and chance of overlaps of the different water systems in a locality (Sicat, Adaro, et al. 2018) (Appendix B).

- The inability to effectively assess the impact or success of water service provision efforts result in subsequently inefficient policy/programs/interventions to address the shortcomings.

Because of the fragmented water sector, ambiguous and overlapping mandates of oversight agencies resulting in lack of consistent and regularly reported data, varied modes of water delivery there is the absence of investment coordination that may result in sub-optimal funding allocation and project implementation.

An exercise was done to see if budgetary allocations of the national government local water service assistance program, SALINTUBIG, followed a pattern at the regional level reflecting declared national government prioritization of assistance to poorer LGUs. It is expected that there should be larger allocations in poorer regions. Another variable examined was the percentage of households with access to water which is expected to be negatively associated with SALINTUBIG.

The results show that the SALINTUBIG program was moderately correlated to regional poverty incidence and weakly correlated to the proportion of households with access to water. That is, regional poverty incidence accounts for 16% of SALINTUBIG expenditure variations while the percentage of household with access to water accounts for only 3% of the same (Appendix C).

Within the wider landscape of local government investment efforts, and contrary to the evidence of low LGU utilization of LDF, NG support programs are almost always fully utilized. The main reason would perhaps be that these funds are time-bound following the former two-year validity of national budget allocations which more recently became cash-based budgeting with only one-year implementation.

The important policy question now is when the Mandanas ruling is implemented and some LG programs are discontinued, will the LDF utilization improve? Anecdotal evidence attributes low LDF utilization due to the need to implement NG funded projects first because of a hard budget constraint. If said NG programs are to be discontinued with the Mandanas ruling will LGUs now be able to invest in water services themselves in a timely manner? Remember, this is necessary for the Philippine to attain SDG 6. Unless we understand what causes bottlenecks in LDF utilization (i.e. institutional because of procurement or political will). If we want LGUs as partners in economic growth, once they received increased funding, this must be determined.

- It is possible for a water district to improve its coverage and services but this requires funding sources, business acumen and the support of the local government.

The case study of Sta. Maria, Bulacan showcased the evolution from an LGU-run utility to a fully developed water district that has 93 % coverage and provides 24/7 water service. The critical elements to its success was the presence of start-up funding, exploring investment funding to expand operations and proper business management.

8. Recommendations

Given the current regulatory and implementation framework of the local water service system, attaining the goal of 100% access to potable water in 2030 will be challenging. With this, the following policy recommendations are put forward:

- Streamline and align various rules and regulations relating to the sector

Provide a definitive streamlining of economic regulation for the sector. Delineate outright or outright consolidate the economic regulation to ensure uniformity of rules, principles and standards for water rates, resulting in water rates based on uniform rules nationwide.

By streamlining and unifying the tariff setting formula and principles, the Government as a regulator, will be able to hone its regulatory knowledge and apply rules uniformly nationwide. Once water rate-setting formulas are harmonized, we can have a systematic way of ensuring that all consumers benefit from the same principles of prudence and operating efficiency.

Align the formulation of technical regulation and operating standards. Harmonize and align technical regulation and operating standards to have a unified view of the level of standards and operating efficiency that consumers should expect nationwide. Uniform key performance indicators (KPI) will ensure alignment in the developmental plans and objectives of all water service providers in the Philippines. Moreover, alignment in KPIs will also guide investment planning nationwide. With uniform objectives, funding allocation can easily be implemented since it is clear whether one area is firm on one KPI or weak on another, where interventions in funding support could be helpful.

- Enhance investment coordination within the sector including public and private water service providers

Empower a Central Coordinating Body to keep track of targets, investments, key performance indicators and funding needs regardless of water supply implementation entity. It is critical to start tracking performance, investments, and investment needs nationwide. Investment coordination is apparent due to the potential duplication of investments in the same city or municipality. This is not to say that all duplications are inefficient – there could be multiple water service providers in a municipality, but if they service different barangays; therefore, there is no investment duplication. However, this conclusion cannot be answered definitively without ample monitoring, that could be performed by a coordinating body.

Systematic planning and funding support for water utilities. Based on the experiences of Santa Maria Water District, they had difficulty in initially jumpstarting the water system's improvement program due to limited funding options. There are other water districts in this kind of predicament. Thus, the presence of coordinated funding or grants from the LGU or the National Government, through LWUA, will help start-up or struggling water districts with

critical infrastructure needs without the burden of repayment. Struggling or start-up water districts may be trapped in a vicious cycle with minimal options to get through this phase. Of course, there should be close monitoring to ensure that the funding will translate to broader services to its constituents. Aside from grants, the experience of Santa Maria Water District also showed that the current model where LWUA provides loans to water districts could work and align the management of water districts' objectives to be disciplined and effective in managing the water system. In this case, the aggressiveness of investments in water service for these relatively successful water districts will be dependent on the ability of LWUA to fund loan requests. Thus, a financial review of LWUA should be done to study the optimal capitalization that will allow it to fund the Sector's needs

If any national government support programs for local water services will be pursued post-Mandanas, these must also be integrated in the central coordinating body. If the NG will continue with local water service investment support programs, the objectives and target LGUs must be clearly defined and done in coordination with the central coordinating body to avoid waste and inefficient use of public funds.

- National government oversight agencies should strengthen efforts in political economy issues affecting water service provision

Evidence of overlapping water service providers above highlight the impact of political economy on the local water sector which consequently affects the efficient provision of water services. At the same time, anecdotal evidence of stand-offs between local water districts and the local government could be cause for delays in providing potable water. In line with the latter, the DILG for decades, has been reissuing a memorandum circular on the “Operational Autonomy of the Local Water Districts” reminding LGUs to “allow them to operate with the least hindrance and interference from the local officials but with a maximum support and assistance.”¹ The impact of such conflict is vital to helping attain the goal of 100% access to potable water but can also be aggravated after more funds are infused post-Mandanas.

¹ DILG MC NO. 2019-03 Reiterating DILG MC No. 2016-146 on the Operational Autonomy of the Local Water Districts (Jan. 10, 2019); DILG MC No. 2016-146 Operational Autonomy of the Local Water Districts. (October 18, 2016); DILG MC No. 2013-113 Re-issuance of DILG MC NO. 2005-21 dated March 4, 2005, entitled, Operational Autonomy of Local Water Districts (October 11, 2013); DILG MC 2005-21 Operation Autonomy of Local Water Districts (March 4, 2005)

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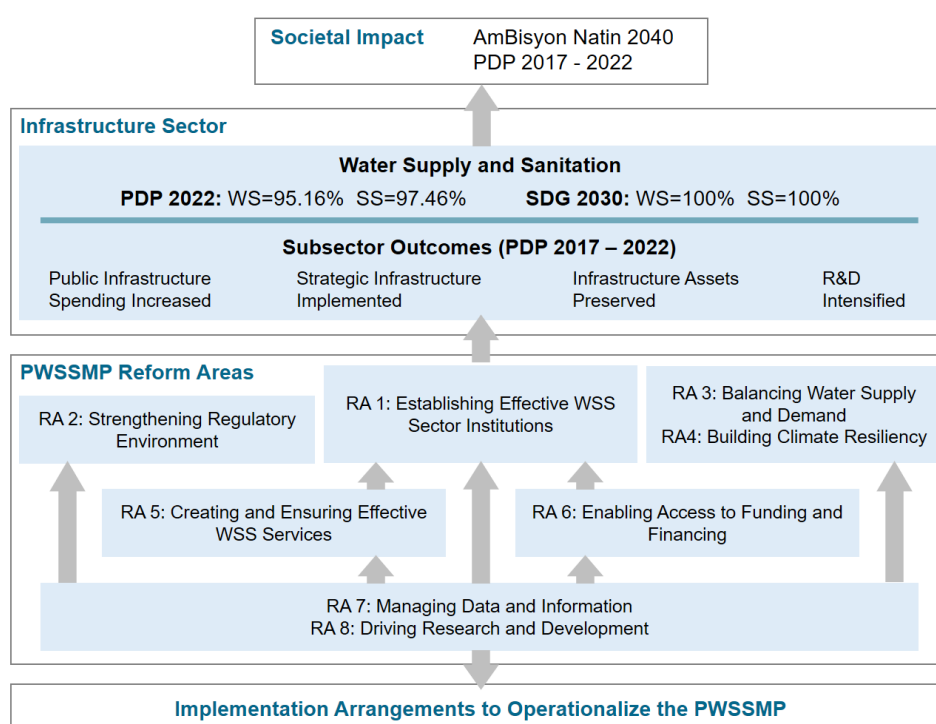
10. Appendixes

Appendix A

Focus Area from the Water Supply and Sanitation Master Plan, 2019-2030

Eight reform areas have been identified to prioritize interventions for the sector. These reform areas are based on the WSS issues and challenges. Figure 1 illustrates PWSSMP results framework with the eight reform areas and the priority programs

Appendix A Figure 1. PWSSMP Results Framework



Focus of the PIDS study on Local Government Water Systems:

Reform Area No. 5: Creating and Ensuring Effective WSS Services

Rationale and Objectives

Reform Area No. 5 focuses on interventions for WSPs. It aims to address the issues and challenges that hinder the effective delivery of WSS services to its target beneficiaries and franchise area. It ensures an effective and sustainable WSS services and providers with cost-efficient and well-designed WSS structures, and adequate institutional capability to efficiently operate and maintain the water supply and sanitation systems. This area has the following measures:

- Enhance the capacities of concerned entities by the government in developing and managing water-related projects;

- Support plans to broaden the scope of the NSSMP to improve the response from LGUs and WDs;
- Assist WDs to have expanded reliable and affordable water service coverage, as well as, reduce non-revenue water (NRW) through economically-viable operations; and,
- Expand sewerage and sanitation infrastructure.

Proposed Reforms

Reform Area 5.1: Define the most appropriate institutional arrangement for WSS provision. This reform includes the following:

- Adopt the most effective institutional arrangement for WSS provision, which is less fragmented and oriented towards efficient and sustainable operations;
- Increase the coverage of WDs by operationalizing non-functional WDs and requiring WDs to attain 100% service coverage;
- Recommend changes in certain governmental regulations that negatively affect WD operations;
- Evaluate the effectiveness of past and existing programs that are directed at the poor and waterless communities (SALINTUBIG, Assistance to Municipalities);
- Assess the performance of LGU-run utilities and determine the sustainability thereof;
- Study and develop alternative models of PPP or Public Social Partnership (PSP) for medium-sized WSPs where the community is the partner of government; and
- Review and revise the existing the Joint Venture guidelines to ensure that consumers are well protected.

Reform Agenda 5.2: Build capacities of the institutions. This reform includes the following:

- Develop and implement capacity building program for LWUA. Increase current manpower of LWUA from 447 to appropriate level to enable the agency to meet increasing demand;
- Empower LWUA to recommend the appropriate capacity building program for WDs;
- Develop LGU-run water utilities into financially viable and sustainable organizations;
- Strengthen Department of the Interior and Local Government (DILG) to effectively assist in the development of LGU-run utilities;
- Provide assistance (technical, managerial, financial, legal) to enable WDs and other WSPs to properly evaluate unsolicited proposals for JVs;
- Review and propose amendments to Presidential Decree (PD) 198 to enable less politicization of WDs – (appointment of the Board of Directors and appropriate sanctions);
- Build DILG and DOH’s partnerships with civil society, non-government organization (NGO), academe, and businesses to broaden capacity building assistance to poor and waterless municipalities; and,
- Develop and implement a capacity building program for other agencies that have a key role in the development of the WSS sector–NWRB, MWSS, DPWH, DOH, NEDA, Department of Finance (DOF), and Department of Budget and Management (DBM).

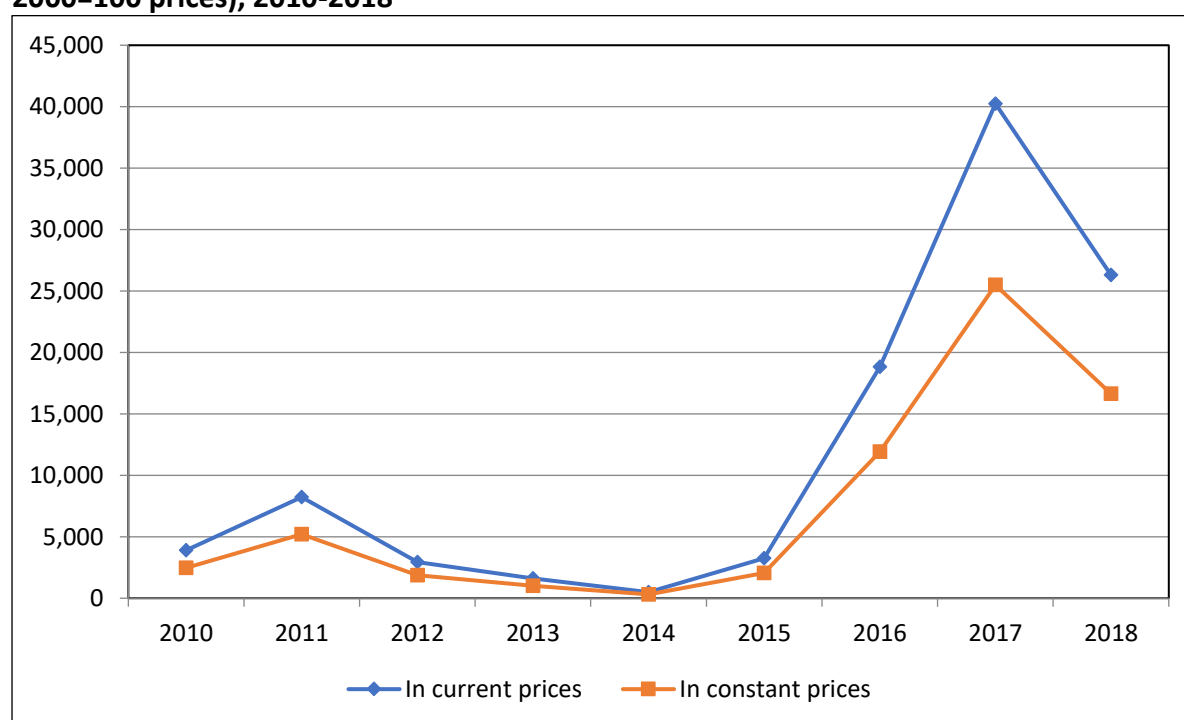
Appendix B

Results

Appendix B Table 1. Expenditure trend for the LGSF programs (in PHP million), 2010-2018

LGSF Programs (in million PhP)	2010	2011	2012	2013	2014	2015	2016	2017	2018
<i>In nominal terms</i>	3,900	8,226	2,936	1,616	492	3,246	18,835	40,243	26,296
<i>In real terms (2000=100, IPIN)</i>	2,470	5,209	1,859	1,024	312	2,056	11,927	25,485	16,652
Percentage change		110.92%	-64.31%	-44.95%	-69.56%	559.80%	480.18%	113.66%	-34.66%
MEMO ITEM:									
IPIN (2000=100)	157.91	164.26	167.5	170.92	176.32	175.29	178.19	183.54	188.6

Appendix B Figure 1. LGSF program expenditures in current and constant (In Million PhP, 2000=100 prices), 2010-2018



Appendix B Table 2. Inventory of Major Sources of Water System: Level 1 by Region

Region/ Province	Level 1 Water Types					Total Number of Households		% of Household Served	
	Shallow	Deepwell	Improved Spring	Underdeveloped Spring	Total	LGSF-AM Data	2015 PSA CPH	LGSF-AM Data	2015 PSA CPH
All Regions (Exc	904,490	875,999	322,647	2,515	2,105,651	10,093,728	12,911,875	20.9%	16.3%
CAR	2,234	38	1,857	-	4,129	200,307	257,895	2.1%	1.6%
Region I	120,663	192,688	36,269	-	349,620	1,014,741	953,892	34.5%	36.7%
Region II	86,757	74,285	20,272	-	181,314	342,333	675,236	53.0%	26.9%
Region III	128,500	128,379	44,619	-	301,498	1,298,480	1,800,971	23.2%	16.7%
Region IVA	137,911	123,443	33,370	-	294,724	1,459,408	1,871,468	20.2%	15.7%
Region IVB	24,549	24,045	1,275	2,453	52,322	378,673	589,687	13.8%	8.9%
Region V	15,080	359	194	-	15,633	351,185	874,343	4.5%	1.8%
Region VI	95,122	60,158	15,964	-	171,244	1,016,106	1,104,983	16.9%	15.5%
Region VII	18,751	64,325	10,749	-	93,825	880,546	1,142,042	10.7%	8.2%
Region VIII	28,963	13,533	12,905	-	55,401	697,425	780,721	7.9%	7.1%
Region IX	7,264	3,790	13,785	-	24,839	314,826	492,898	7.9%	5.0%
Region X	40,374	37,755	34,642	-	112,771	646,086	621,623	17.5%	18.1%
Region XI	17,738	21,570	12,925	62	52,295	547,317	607,234	9.6%	8.6%
Region XII	140,606	95,506	50,232	-	286,344	613,212	749,490	46.7%	38.2%
CARAGA	39,978	36,125	33,589	-	109,692	333,083	389,392	32.9%	28.2%

Source: Baseline Study on Policy and Governance Gaps of LGSF-AM Component 3.1

Appendix B Table 3. Inventory of Major Sources of Water System: Level 2 by Region

Region/Province	Number of Level 2 Water Type			Number of Brgys Served	Total Number of		% of Household Served	
	Pumps	Communal Faucets	Total		LGSF-AM Data	2015 PSA CPH	LGSF-AM Data	2015 PSA CPH
All Regions (Except ARMM)	14,451	130,014	144,465	29,173	10,093,728	12,911,875	1.4%	1.1%
CAR	193	7,913	8,106	1,299	200,307	257,895	4.0%	3.1%
Region I	192	28,897	29,089	2,134	1,014,741	953,892	2.9%	3.0%
Region II	237	1,548	1,785	88	342,333	675,236	0.5%	0.3%
Region III	1,095	1,332	2,427	300	1,298,480	1,800,971	0.2%	0.1%
Region IVA	871	17,299	18,170	692	1,459,408	1,871,468	1.2%	1.0%
Region IVB	682	1,488	2,170	1,322	378,673	589,687	0.6%	0.4%
Region V	223	989	1,212	313	351,185	874,343	0.3%	0.1%
Region VI	7,288	9,319	16,607	1,735	1,016,106	1,104,983	1.6%	1.5%
Region VII	240	3,923	4,163	551	880,546	1,142,042	0.5%	0.4%
Region VIII	761	24,328	25,089	806	697,425	780,721	3.6%	3.2%
Region IX	134	2,870	3,004	459	314,826	492,898	1.0%	0.6%
Region X	400	6,435	6,835	18,451	646,086	621,623	1.1%	1.1%
Region XI	213	3,430	3,643	311	547,317	607,234	0.7%	0.6%
Region XII	210	14,900	15,110	359	613,212	749,490	2.5%	2.0%
CARAGA	1,712	5,343	7,055	353	333,083	389,392	2.1%	1.8%

Source: Baseline Study on Policy and Governance Gaps of LGSF-AM Component 3.1

Appendix B Table 4. Inventory of Major Sources of Water System: Level 3 by Region

Region/Province	Level 3 Type					Total Number of Households		% of Household Served	
	Domestic	Commercial	Industrial	Others	Total	LGSF-AM Data	2015 PSA CPH	LGSF-AM Data	2015 PSA CPH
All Regions (Except ARMM)	5,804,032	78,857	9,390	69,756	5,962,035	10,093,728	12,911,875	59.1%	46.2%
CAR	50,875	1,569	24	2,611	55,079	200,307	257,895	27.5%	21.4%
Region I	137,842	5,943	343	3,851	147,979	1,014,741	953,892	14.6%	15.5%
Region II	43,837	2,845	90	1,599	48,371	342,333	675,236	14.1%	7.2%
Region III	403,984	20,977	151	5,986	431,098	1,298,480	1,800,971	33.2%	23.9%
Region IVA	318,703	10,033	125	12,346	341,207	1,459,408	1,871,468	23.4%	18.2%
Region IVB	34,663	2,907	22	2,597	40,189	378,673	589,687	10.6%	6.8%
Region V	63,078	2,354	380	351	66,163	351,185	874,343	18.8%	7.6%
Region VI	75,864	2,981	70	2,284	81,199	1,016,106	1,104,983	8.0%	7.3%
Region VII	168,920	5,947	487	3,248	178,602	880,546	1,142,042	20.3%	15.6%
Region VIII	118,141	5,489	327	2,813	126,770	697,425	780,721	18.2%	16.2%
Region IX	40,341	1,172	87	7,656	49,256	314,826	492,898	15.6%	10.0%
Region X	4,200,585	5,722	5,076	1,141	4,212,524	646,086	621,623	652.0%	677.7%
Region XI	58,569	4,234	372	1,805	64,980	547,317	607,234	11.9%	10.7%
Region XII	38,351	4,704	1,363	17,786	62,204	613,212	749,490	10.1%	8.3%
CARAGA	50,279	1,980	473	3,682	56,414	333,083	389,392	16.9%	14.5%

Source: Baseline Study on Policy and Governance Gaps of LGSF-AM Component 3.1

Appendix B Table 5. Annual percentage change in household water service coverage

Region	2012	2013	2014	2015	2016	2017	Average
ARMM	7.5	11.6	2.1	6.1	0.0	0.0	4.6
CAR	0.5	-4.4	0.9	1.8	1.0	1.8	0.3
NCR	0.8	0.2	0.2	0.4	0.0	0.0	0.3
REGION I	2.2	2.9	-27.7	49.4	0.8	-23.3	0.7
REGION II	0.6	-3.2	2.1	-1.4	22.6	-2.1	3.1
REGION III	1.2	4.5	3.7	5.5	-2.0	3.7	2.8
REGION IV-A	2.7	0.5	1.6	1.7	3.0	1.3	1.8
REGION IV-B	0.5	-6.7	-8.6	13.3	5.1	-2.5	0.2
REGION IX	8.4	5.6	4.3	5.2	2.7	0.8	4.5
REGION V	8.8	-2.2	4.2	6.4	-10.3	6.4	2.2
REGION VI	1.8	3.7	-10.6	7.3	13.0	28.2	7.2
REGION VII	1.8	1.4	3.2	-0.4	1.9	2.6	1.8
REGION VIII	1.2	-1.1	0.6	3.4	4.5	-3.1	0.9
REGION X	2.6	5.1	2.2	3.7	0.6	3.7	3.0
REGION XI	5.0	-15.6	6.6	-1.3	9.8	5.4	1.6
REGION XII	-2.3	3.1	-9.7	1.5	13.1	4.5	1.7
REGION XIII	5.1	1.1	6.9	5.5	1.2	6.1	4.3

Appendix B Table 6. BUB/ADM/AM allotment utilization rates and disbursements to obligations

FY	2013		2014		2015		2016		2017		2018	
Region	AU	DO	AU	DO	AU	DO	AU	DO	AU	DO	AU	DO
CAR	100	100	100	100	100	100	100	100	100	100	100	89.54
I	100	100	100	99.94	100	100	100	99.68	100	100	100	100
II	-	-	100	100	100	100	100	94.44	100	100	100	96.75
III	-	-	100	100	100	100	100	98.71	100	100	100	100
IV-A	100	100	100	100	100	97.38	100	98.75	100	92.63	100	68.91
IV-B	100	100	100	100	100	98.97	100	93.72	100	90.94	100	61.18
V	100	100	100	99.42	100	97.76	100	91.81	100	93.61	100	85.95
VI	100	100	100	97.18	100	94.64	100	88.26	100	89.88	100	81.89
VII	100	100	100	100	100	98.67	100	94.02	100	95.86	100	80.48
VIII	100	100	100	96.60	100	94.35	100	90.56	100	96.43	100	86.63
IX	100	100	100	100	100	100	100	99.77	100	100	100	100
X	100	100	100	99.30	100	99.73	100	88.73	100	96.44	100	75.46
XI	100	100	100	99.39	100	98.95	100	89.27	100	100	100	71.81
XII	100	100	100	95.71	100	100	100	100	100	99.30	100	100
XIII	100	100	100	100	100	100	100	100	100	100	100	94.18
TOTAL	100	99.69	100	99.10	100	98.56	100	94.08	100	96.11	100	83.95

Source: DILG

Note: AU is the AU defined as obligations divided allotments. DO is disbursement to obligations defined as disbursements divided by obligations.

Appendix B Table 7. SALINTUBIG allotment utilization rates and expenditures to obligations

FY	2012		2013		2014		2015		2016		2017		2018	
Region	AU	DO	AU	DO	AU	DO	AU	DO	AU	DO	AU	DO	AU	DO
CAR	100	100	100	100	100	100	100	100	100	100	100	91.67	100	60.87
I	100	100	100	100	100	100	100	99.92	100	99.98	100	97.25	100	100
II	100	100	100	100	100	100	100	100	100	95.00	100	90.00	100	65.63
III	100	100	100	100	100	100	100	100	100	100	100	87.28	100	73.68
IV-A	100	100	100	100	100	100	100	99.38	100	96.04	100	74.62	100	82.09
IV-B	100	100	100	100	100	100	100	100	100	93.02	100	85.15	100	25.61
V	100	100	100	98.15	100	100	100	99.06	100	78.94	100	92.56	100	71.11
VI	100	100	100	99.39	100	100	100	97.14	100	86.38	100	80.11	100	63.27
VII	100	100	100	97.10	100	100	100	100	100	98.13	100	100.00	100	98.52
VIII	100	100	100	96.83	100	90.00	100	100	100	95.47	100	76.81	100	82.65
IX	100	100	100	100	100	100	100	100	100	99.99	100	92.13	100	100.00
X	100	100	100	98.19	100	98.67	100	100	100	97.21	100	90.53	100	40.70
XI	100	100	100	100	100	100	100	100	100	96.93	100	85.46	100	69.15
XII	100	100			100	100	100	100	100	100	100	97.89	100	100
XIII	100	100	100	100	100	100	100	100	100	100	100	100	100	98.29
TOTAL	100	100	100	99.13	100	99.57	100	99.69	100	92.81	100	89.05	100	77.36

Note: AU is the AU defined as obligations divided allotments. DO is disbursement to obligations defined as disbursements divided by obligations

Appendix C

Pairwise Correlations

Appendix C Table 1. Infrastructure gap (in Million Php), poverty incidence (in %) 2012, 2015, 2018, PCF and RGDP

	Total Infrastructure Fiscal Gap (for municipal roads, evacuation center in GIDA area, RHU)	2012 Poverty Incidence	2015 Poverty Incidence	2018 Poverty Incidence	Performance Challenge Fund recipient municipalities (as % of total municipalities in the region), 2010 to 2018	RGDP per capita
Total Infrastructure Fiscal Gap (for municipal roads, evacuation center in GIDA area, RHU)	1.00					
2012 Poverty Incidence	-0.03	1.00				
2015 Poverty Incidence	-0.16	0.96	1.00			
2018 Poverty Incidence	-0.08	0.93	0.94	1.00		
Performance Challenge Fund recipient municipalities (as % of total municipalities in the region), 2010 to 2018	0.03	-0.58	-0.59	-0.47	1.00	
RGDP per capita	0.33	-0.67	-0.69	-0.68	0.28	1.00

Note: Small correlation $0.1 < |r| < .3$; medium/moderate correlation $0.3 < |r| < .5$; large/strong correlation $|r| > .5$ (Cohen 1988)

Appendix C Table 2. Regional poverty incidence, proportion of regional population with access to water, and BUB/ADM/AM (water expenditures only) 2012 -2015

	Poverty Incidence	BUB/ADM/AM (water expenditures only)
Poverty Incidence	1	
BUB/ADM/AM (water expenditures only)	0.3932*	1
	0.0316	

	Proportion of households with access to water	BUB/ADM/AM (water expenditures only)
Proportion of households with access to water	1	
BUB/ADM/AM (water expenditures only)	-0.0904	1
	0.6349	

Note: Small correlation $0.1 < |r| < .3$; medium/moderate correlation $0.3 < |r| < .5$; large/strong correlation $|r| > .5$ (Cohen 1988)

Appendix C Table 3. Regional poverty incidence, proportion of households with water service and SALINTUBIG expenditures, 2012-2015

	Poverty Incidence	SALINTUBIG
Poverty Incidence	1	
SALINTUBIG	0.4017*	1
	0.0278	

	Proportion of households with water service	SALINTUBIG
Proportion of households with water service	1	
SALINTUBIG	-0.1840*	1
	0.3305	

Note: Small correlation $0.1 < |r| < .3$; medium/moderate correlation $0.3 < |r| < .5$; large/strong correlation $|r| > .5$ (Cohen 1988)