

Philippine Journal of Development

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on Government Employees' Productivity

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Perceived Effects of the Performance-Based Bonus on Government Employees' Productivity

Jose Ramon G. Albert, Ronald U. Mendoza, Janet S. Cuenca,
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ABSTRACT

The Philippine government established the Performance-Based Bonus (PBB) in 2012 to reward exemplary employee performance, align individual- and team-level efforts with agency-wide targets, and improve public service delivery in the executive department. At the time, the PBB was meant to augment salaries while the government was preparing to increase public sector wages in phases. With the implementation of the last phase of salary increases in 2019, it is important to assess the effects of the PBB on the country's bureaucracy. The Department of Budget and Management, together with the Development Academy of the Philippines and other oversight agencies, administers the PBB using the Results-Based Performance Management System framework. In light of the incentive scheme's budgetary implications, the agencies deem it critical to study how the PBB affects government efforts to push reforms and boost the individual- and team-level motivation and productivity of employees. This study, a follow-up of a process evaluation of the PBB conducted in 2019, employs a mixed-method research drawn on primary and secondary data. It undertook a perception-based survey on the effects of the PBB with more than 1,200 respondents and focus group discussions with PBB focal persons

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and members of the performance management teams of selected agencies, including oversight agencies. Empirical findings suggest that while the PBB has had design issues and implementation challenges (e.g., changes in eligibility requirements across the years and gaming and dysfunctional behavior of employees), it is generally welcomed across the bureaucracy. There is evidence that the PBB has helped boost the motivation and productivity of employees, which can lead to individual and agency-wide improvements. The results show that the PBB can be redesigned to hone its effects on public sector reforms.

INTRODUCTION

Improving public sector performance has been a development concern across countries, given the critical role of the government in providing public goods and setting a country's overall socioeconomic climate. The effectiveness of public services depends on the performance of the people who deliver them, making performance management in the public sector critical (World Bank 2014a).

In 2012, the Philippines established the Performance-Based Incentive System (PBIS) for employees in the executive department in the context of broader results-based management reforms (Administrative Order 25, series of 2011; Executive Order [EO] 80, series of 2012). Developed to support the government's reform agenda (EO 43, series of 2011), the PBIS harmonized and rationalized the incentives and bonuses granted to employees in government agencies. The PBIS is composed of the productivity enhancement incentive (PEI) and the Performance-Based Bonus (PBB). The first incentive is an across-the-board bonus, while the latter is a top-up incentive associated with organization-wide compliance of several requirements as well as team-level and individual performance conditions. Compliance with these multilevel requirements has become a part of the rollout objectives of the PBB. In this sense, the PBIS, particularly the PBB, can help improve service delivery by linking monetary incentives with the performance of employees and recognizing or rewarding exemplary performance in government service. Such an approach emphasizes vertical coherence across agencies, teams, and individuals, which is necessary to ramp up their performance and productivity. Implementing the PBB is premised on the theories of motivation (Maslow 1943; Vroom 1964; Kohn 1993; Montana and Charnov 2008). It is based on the assumption that managers can differentiate the performance of employees. Albert et al. (2019) pointed out the literature on performance-based incentives in the public sector focusing on two broad strands: (a) developing various measures of performance in the public sector and (b) examining links between measures and performance-based incentives geared towards achieving them.

Various guidelines (e.g., Memorandum Circular [MC] 2012-02) have been released for the annual grant of the PBB with the criteria and conditions on physical targets, good governance conditions, and performance management. The protocols include conditionalities for access at agency, teams, and individual levels, which effectively add policy outcomes that the PBB has incentivized. This can be interpreted as vertical coherence in incentivizing and promoting reforms and actions to support a higher level of productivity and stronger performance. It builds on the evidence in the management literature that the conditions for individual and team performance are linked to broader organizational systems of governance and that the incentives need to be balanced, particularly for work where collective action and teamwork are necessary for optimal performance results (Gibbons 1998; Garbers and Konradt 2013; Bayo-Moriones et al. 2015; Ladley et al. 2015; Burgess et al. 2017). Only a few studies (World Bank 2014b; Torneo et al. 2017; World Bank 2020) have assessed the effects of the PBB since its establishment in 2012 when the

incentive scheme was meant to partly augment salaries while the government was preparing to increase public sector wages in phases. With the implementation of the last phase of salary increases in 2019, it is important to conduct a comprehensive evaluation of the PBB. This will help determine whether the incentive scheme is worth continuing, given its budgetary implications, and in the wake of other salary increases in the public sector.

Albert et al. (2019) conducted a process evaluation study of the PBB to look into whether or not the program was executed in the past years according to its intended design and plans. This article, a condensed version of Albert et al. (2020), is a follow-up study tackling the central question: “What are the effects of the PBB on the performance and productivity of employees in the public sector?” It aims to (a) describe the PBB’s theory of change given the PBIS design and its policy objectives and implementation; (b) determine the employees’ level of awareness of the PBB, the challenges in the program’s compliance and eligibility, and its overall effects using data collected from a perception-based survey among government employees from the executive department; (c) examine the results of focus group discussions through thematic and content analyses; and (d) analyze secondary data on institutional outputs of the PBB, such as participation rates, eligibility rates, and budgets, as mentioned in the reports of the Department of Budget and Management (DBM) and the AO25 Secretariat of the Inter-Agency Task Force on the Harmonization of National Government Performance Monitoring, Information, and Reporting Systems.

REVIEW OF RELATED LITERATURE

The use of incentives, such as monetary and nonmonetary rewards, has long been practiced in many private organizations (Burgess and Ratto 2003; Lewin 2003; Mogultay n.d.) and later adopted in the public sector. In particular, pay for performance (PFP) started in the private sector and was later introduced in the public sector to improve productivity, thus producing better results despite limited government funds. The PFP is grounded on the assumption that goals should be clearly defined and that rewards for achieving these goals can help motivate employees and enhance their accountability. Nevertheless, the precise impact of incentives may depend on the nature of the job, career path of employees, and other key drivers of employment decisions. In addition, the adoption of the PFP from the private sector to the public sector poses a challenge (Montoya and Graham 2007).

Festre and Garrouste (2008, p. 3) pointed out that performance measurement in the public sector was more complicated than in the private sector due to the following reasons:

1. “There is not always a perfectly identified output in the public sector as it is the case in the private sector. The quality of the output is an important element to take into account. Although the problem applies more generally to public goods and services sectors, regardless of them belonging to the public or the private sector, the focus is on the public sector.
2. The same output can be due to different agencies (or services or departments); it can be produced by different sets of inputs.
3. The same agency can produce different outputs; it can participate in the production of different sets of outputs.
4. The outputs can be complementary or substitute.
5. The agencies may produce positive as well as negative externalities.
6. The output is not sold on the market or, if it is the case, not at its market price.
7. Statisticians have to get the information they need, knowing the above difficulties. For example, if different ministries together produce one output, one needs to obtain the relevant information from all of them.”

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Due to the complex nature of incentives schemes, there are a few rigorous impact evaluations based on experimental methods, such as randomized controlled trials. Impact evaluations on healthcare services in Indonesia (Olken et al. 2014), and tax collection in Pakistan (Khan et al. 2016), revealed that incentives could produce improvements in specific target outcomes (e.g., child and maternal health indicators and tax collection targets). Nonfinancial incentives like flexibility in assignment choice can also be effective (Khan et al. 2016).

There are more mixed-method studies drawn on qualitative analyses, surveys, and interviews. Studies of healthcare in Rwanda (Rusa et al. 2009), and public services in Nigeria, show that incentives can improve results orientation among government bureaucrats or trigger dysfunctional responses to game the incentives.

There have been a few studies that looked into the PBB. In 2014, the World Bank conducted a study on pay for performance in the Philippine civil service. Using a perception survey with 4,500 officials from eight government departments, the study suggested that the PBB yielded a positive impact on government performance (World Bank 2014a). Support for the PBB was found to be strong in the bureaucracy, with 70 percent of respondents agreeing that the PBB helped improve their performance. The study found evidence of improvements in management practices, such as greater teamwork, better target setting and monitoring, and fostering trust within units. World Bank (2020) also came up with a study on improving talent management in the Philippine civil service. Findings from the Philippine Civil Servants Survey 2019 suggest that while the PBB is not fully effective, the program has improved. About 57 percent reported that the performance evaluation scheme identified “bad” performers (compared with 39% in the 2013 survey), while 67 percent felt that the PBB process was transparent (compared with 38% in 2013).

Another study by Torneo et al. (2017), supported by the Australian Agency for International Development (AusAID), looked at the entire PBIS. The study used mixed-method research, document analysis, interviews, and surveys focused on the Commission on Higher Education (CHED), the Department of the Interior and Local Government, and the Department of Education (DepEd). Results of the AusAID-supported study suggested that the PBIS improved the previous incentive system, notably in terms of framework, comprehensiveness, details required, and financial rewards. Further, it noted the high compliance of employees with the PBIS. However, it found evidence of transparency and fairness issues and allegations of some staff gaming the system to get higher PBB, which was reported in Albert et al. (2019).

Financial incentives through pay flexibility can help improve the performance of government employees (World Bank 2014b). Pay flexibility is defined in the study as either performance-related pay (PRP), i.e., “enabling pay to differ for workers doing the same job by linking a portion of pay to the achievement of performance targets”, or differentiation, i.e., differences in pay between similar workers across agencies, career groups, and geographical locations that reflect the need to compete for specific skills in the labor market (World Bank 2014b, p. v). Nevertheless, the evidence is mixed. Based on a review, 93 of 153 studies on PRP indicated some forms of positive effects of the PRP; 65 of 110 studies of craft and coping jobs also found positive effects. In contrast, “several studies identified problems of unintended consequences or gaming of the incentive program” (World Bank 2014b, p. vii).

World Bank (2014b, p. viii) argued that the initiative by Korea, Malaysia, and the Philippines to “counter the tendency toward uniformly high-performance ratings and equal distribution of the performance bonus” (i.e., mandating a forced distribution of performance ratings) is a risky policy that can “harm staff morale”. Also, the efficacy of such policy varies on the “level of trust in an organization and the legitimacy of performance appraisals among staff”. More specifically, in the case of the Philippines, where a combination of “individual- and group-based incentives from

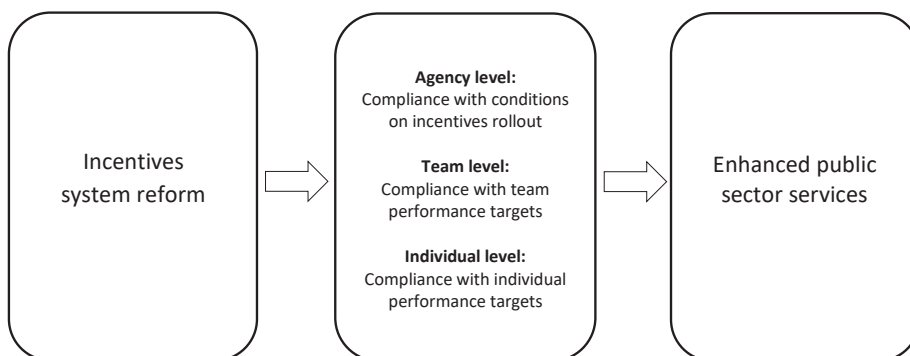
a mandated ranking of both working units and individuals within those units” is adopted (World Bank 2014b, p. viii), the survey results suggested little but direct effect on staff effort. The survey revealed a divergence of views depending on factors that include (i) performance ranking of the respondent, (ii) effectiveness of the individual performance appraisal process, (iii) transparency of individual performance ratings, and (iv) impact of the incentive on staff morale.

In addition, the World Bank survey (2014b) showed that respondents believed that the PBB scheme motivated their management to focus more on the following: (i) organizational target-setting, (ii) monitoring of the accomplishment of targets, (iii) engaging staff in the process, and (iv) fostering greater teamwork and collaboration among staff. “Despite the lack of credibility of the individual performance appraisal process”, the staff were optimistic about the PRP scheme (World Bank 2014b, p. viii). In the final analysis, the report concluded that direct and indirect pay flexibility levers had opposite effects on individual productivity and organizational citizenship (i.e., willingness of staff to provide extra effort to achieve organizational goals).

STUDY DESIGN, METHODS, AND LIMITATIONS

The design of the PBIS has several policy objectives, including incentivizing agency-level reforms to comply with the conditions for access and incentivizing team- and individual-level efforts and performance (Figure 1). Based on MC 2012-1, the grant of PBB aims to recognize and reward exemplary performance in the public sector, rationalize the distribution of incentives across performance categories of groups and individuals, nurture team spirit toward the effective execution of operational plans by linking personnel incentives with delivery unit’s performance, and strengthen performance monitoring and appraisal systems based on existing systems.

Figure 1. Theory of change



Source: Albert et al. (2020)

Incentive system reforms can trigger changes in management policies and behavior of employees at the individual, team, and agency levels. The underlying assumption is when changes in these levels cohere and reinforce toward agency objectives, public sector services, and, ultimately, development outcomes, can also be enhanced. This can be interpreted as a form of vertical coherence in agency, team, and individual reforms, and actions toward enhanced productivity. The theory of change or results chain is based on a framework that performance is a function of motivation, ability, aptitude level, skill level, understanding of a task; a choice to expend effort, a choice of degree of effort, and a choice to persist—facilitating and inhibiting conditions beyond the control

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of the individual, among others. It is based on the framework that job performance (i.e., an important organizational factor that the management aims to influence) is improved through a motivational scheme as a primary cause of behavior, whether intrinsic or extrinsic (Mitchell 1982). Establishing identification is expected to be challenging given the multiplicity of policy interventions involved at different levels and the high likelihood that those who are most ready to comply with the PBBs are also some of the strongest performing government agencies and public sector workers.

This study attempts to provide information on the possible effects of the PBB. Evaluations generally help determine what works well and what can be improved in a program or policy. As such, it aims to guide policymakers in making adjustments in policies related to the PBB incentives based on information that pertains to implementation deficits from the bureaucracy. The study, however, is not meant to be a rigorous impact evaluation because of the complex nature of the PBB reform. It involves multiple levers for incentivizing agencies, teams or units, and individuals to improve performance directly or indirectly. The timing of the elements of the PBB also makes it difficult to focus on any policies for isolated study and assessment. It highlights how multiple incentives constituted the PBB and that these were not rolled out uniformly and may have created a myriad of incentive effects on employee performance.

To overcome the complexity in conducting a comprehensive assessment of the PBB, this study measured the effects of the program by (i) making use of data collected from a perception-based survey on the motivation and performance of government employees across the executive department, (ii) examining quality data from focus group discussions (FGDs), and (iii) analyzing secondary data on institutional outputs. Altogether, the data sources provide an initial assessment of the possible effects of the PBB while recognizing that one cannot isolate the impact of a myriad of incentives that make up this reform. The methods cohere with the PBB and give a more holistic picture of the many moving parts of the reform. In light of the limitations on the identification strategy, all analyses are carefully framed in terms of possible joint effects of different factors underlying performance.

As pointed out in Albert et al. (2020), the survey was designed to be a face-to-face (FTF) interview of the desired sample size of 2,000 government employees from the executive department. The targeted sample size was adjusted to 2,200 to account for nonresponse. Respondents were chosen through a two-stage stratified random sampling scheme. The primary sampling units (PSUs) were government entities, while the secondary sampling units were employees holding permanent positions. The PSUs were stratified according to (a) cluster type, (b) size of the government entities, (c) location, and (d) eligibility for the PBB in fiscal year (FY) 2016–2017 using the information provided by the DBM and the AO 25 Secretariat. Following Albert (2019), the cluster types of studied government entities include (i) national government agencies (NGAs), constitutional commissions, and government-owned or controlled corporations (GOCCs); (ii) the CHED and state universities and colleges (SUCs); and (iii) the DepEd and public schools (elementary and high school).

Location was taken into account to minimize data collection costs while ensuring representativeness. Most NGAs were located in Metro Manila, but some field or satellite offices of NGAs and GOCCs were selected for the study according to the recommendation of the AO 25 Secretariat, aside from SUCs and other offices in Luzon, Visayas, and Mindanao. To attempt a counterfactual analysis in the study, stratification of the PSUs involved whether or not the government entities were eligible for the PBB for FY 2016–2017. Survey respondents were randomly selected proportional to the size of two groups, namely, (a) rank-and-file positions (salary grade [SG] 23 and below) and (b) managerial positions (SG 24 and above). With the onset of coronavirus disease 2019 (COVID-19) and the enforcement of movement restrictions to manage the spread of the disease, data collection plans were adjusted, such as doing remote interviews through

cloud-based video chatting platforms. Since there had been problems in contacting the targeted respondents and institutions due to the lack of accurate or working contact information, only 1,259 employees were interviewed. Along with the analysis of primary and secondary data gathered largely by a description of the aggregate survey data broken down by clusters and counterfactual analyses, seven FGDs were conducted. The FGDs were meant to solicit information about the PBB implementation to complement insights gained from the survey and secondary data on institutional outputs. Participants in the FGDs include the PBB focal persons and members of the performance management team of select government agencies, representatives of the AO 25 Inter-agency Task Force and secretariat, and representatives of validating agencies.

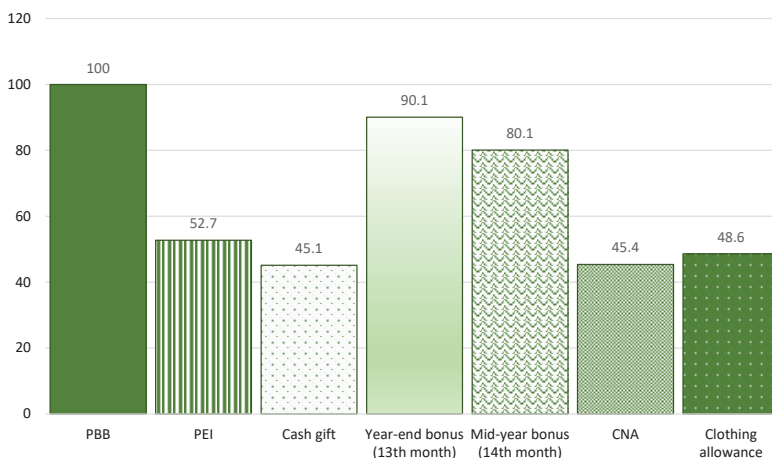
ANALYSIS OF SURVEY RESULTS

In the interest of brevity, the study focuses on the key results of the PIDS Survey on the Effects of the PBB (PSEPBB).² The PSSEPBB results confirm high awareness of the PBB reform and strong perceptions of its effectiveness in boosting the motivation of employees. There are, however, some issues in the implementation and possible gaming of the incentives.

High awareness of the PBB

First, all PSEPBB respondents are aware of at least one bonus that they received as of 2019. After the PBB, which all survey respondents are aware of,³ the 13th-month pay and the 14th-month pay have the highest level of employee awareness at 90.1 percent and 80.1 percent, respectively. Meanwhile, less than half of the respondents are aware of the cash gift, the collective negotiation agreement (CNA) bonus, and the clothing allowance (Figure 2).

Figure 2. Proportion of respondents who are aware of various bonuses (in %)



PBB = Performance-Based Bonus; PEI = productivity enhancement incentive; CNA = collective negotiation agreement
Source: PIDS (2019)

² For further details on the survey (i.e., selected agencies and the distinction between staff with and without eligibility to the PBB) and the FGDs, readers may refer to the full study by Albert et al. (2020).

³ While 90.9 percent of respondents reported about the PBB in the “unaided” question on their awareness of various bonuses, further probe with other survey questions revealed that all respondents were aware of the PBB. Even without accounting for the probing done in other questions, the PBB still had the highest awareness ratings among the seven bonuses identified in the survey.

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Furthermore, about two-thirds of respondents are aware of individual-level objectives of the PBB (e.g., to reward good performance and motivate higher performance and productivity), but less than half are aware of the objectives at the team and agency levels (e.g., ensuring accomplishment of targets, improving public service delivery and accountability, and strengthening teamwork). Differences in awareness of all PBB objectives are much more evident between rank-and-file employees and managers, with the latter being more aware of the PBB objectives than among employees from eligible and ineligible agencies in FY 2016–2017 (Table 1).

Table 1. Proportion of respondents aware of the PBB objectives by position status of respondent and eligibility status of agency, FY 2016–2017 (in %)

Objectives of the PBB	Leadership position status of personnel								
	Rank-and-file employees			Managers			All staff		
	Ineligible	Eligible	All agencies	Ineligible	Eligible	All agencies	Ineligible	Eligible	All agencies
Reward good performers	65.0	61.4	62.5	70.8	72.0	71.7	66.0	63.5	64.3
Motivate higher performance and productivity	65.9	67.1	66.7	70.8	72.6	72.1	66.8	68.2	67.8
Increase accountability in the public sector	18.0	15.2	16.1	18.5	28.6	25.8	18.0	17.9	18.0
Ensure accomplishment of commitments and targets	42.1	37.8	39.2	49.2	53.1	52.1	43.3	40.9	41.6
Strengthen teamwork within the agency	24.5	21.3	22.3	24.6	36.6	33.3	24.5	24.3	24.4
Enhance public service delivery to the citizens	29.1	21.0	23.6	33.8	38.3	37.1	29.9	24.5	26.1
Do not know	2.5	1.3	1.7	1.5	0.0	0.4	2.3	1.0	1.4

PBB = Performance-Based Bonus; FY = fiscal year

Source: PIDS (2019)

Practically all (98%) PSEPBB respondents are aware of agency performance reviews; two-thirds of them reported that this is undertaken every semester; a tenth says annually while another tenth does not know (Table 2).

Nearly all (97.8%) rank-and-file respondents reported that they have individual performance targets. More than two-thirds (68.4%) of them, whether from eligible or ineligible agencies, suggested that their immediate superiors determine the targets. Meanwhile, more than half (52.7%) of respondents indicated that they are responsible for the targets, and less than 1 percent (0.6%) could not identify the responsible party (Figure 3a).

Further, three in four (74.4%) rank-and-file respondents reported that their immediate superiors respond to monitoring and evaluation (M&E) of their individual performance targets

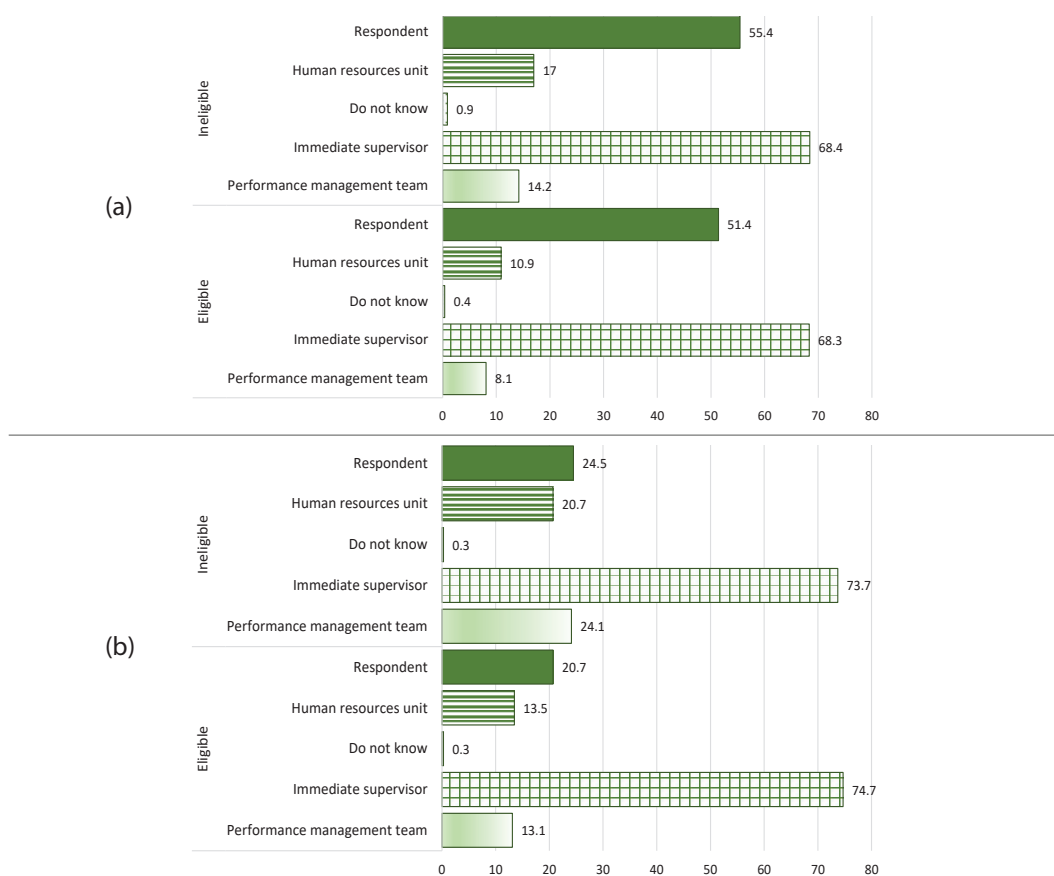
while a fifth (52.7%) suggested that they are responsible for M&E. A negligible proportion (0.3%) stated that they do not know (Figure 3b).

Table 2. Frequency of agency performance review by position status of respondents

Reported frequency of the conduct of agency performance reviews	Eligibility status of agency		Total
	Ineligible	Eligible	
None	0.5	0.1	0.2
Once	15.1	13.0	13.6
Twice (every 6 months)	57.1	67.1	64.0
Monthly	0.8	1.7	1.4
As need arises	2.9	2.4	2.5
Do not know	12.2	8.7	9.8
Others	11.4	7.1	8.4
Total	100.0	100.0	100.0

Source: PIDS (2019)

Figure 3. Persons/units responsible for (a) determining individual performance targets and (b) monitoring and evaluation of these as identified by respondents



Source: PIDS (2019)

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Challenges in compliance and eligibility

Among those who did not receive PBB at least once, the most common reason for ineligibility reported by respondents was that their respective agencies, as a whole, did not meet the requirements to qualify for the PBB, e.g., budget utilization rate, ISO 9001 Quality Management System (ISO-QMS) certification, and Freedom of Information and Commission on Audit reports (Table 3).

Table 3. Reasons for not availing of the PBB according to respondents who did not receive PBB at least once, by cluster type of agency

Cluster type	Reasons				
	I had been working for less than three months from the reference fiscal year	Our agency did not meet the requirements to qualify for the PBB	Our delivery unit was isolated for not meeting the targets/ requirements to qualify for the PBB	My individual performance rating did not qualify for the PBB	Others
NGAs	3.8	80.8	13.1	2.3	15.0
SUCs	7.1	79.9	23.7	1.8	10.7
DepEd	8.7	56.5	8.7	0.0	39.1
GOCCs	0.0	66.7	2.8	2.8	41.7
Total	5.0	78.0	16.1	2.0	16.8

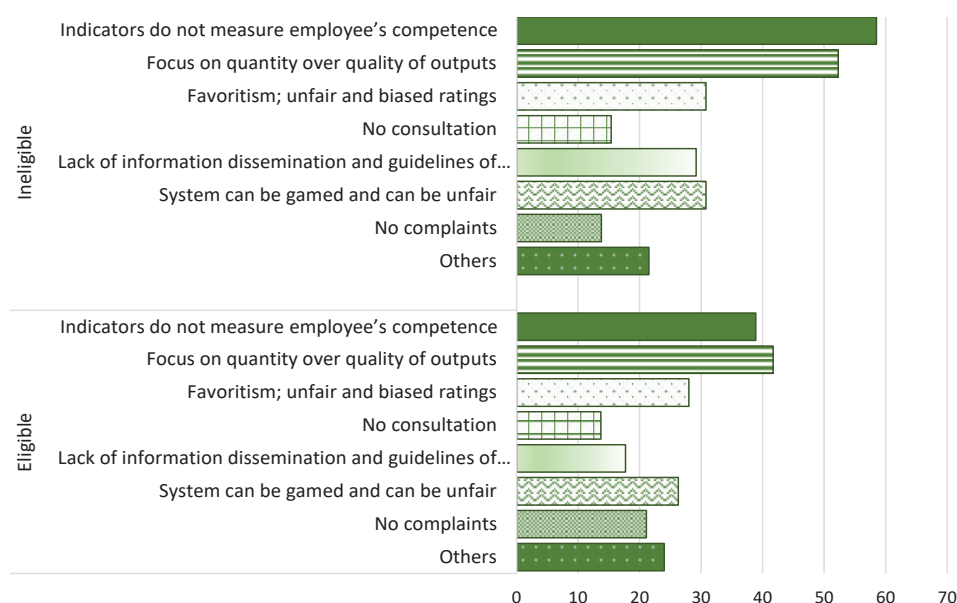
PBB = Performance-Based Bonus; NGAs = national government agencies; SUCs = state universities and colleges; DepEd = Department of Education; GOCCs = government-owned or controlled corporations
Source: PIDS (2019)

Meanwhile, about a quarter of survey participants from SUCs cited the isolation of their delivery units as the reason for not availing of the PBB. They did not meet the targets (i.e., enrollment rates, completion rates, and board passing rates) set for their specific groups to qualify for the PBB. The PBB focal persons in SUCs also mentioned this during the FGD conducted by the PIDS study team.

As shown in Figure 4, more than half of the complaints from ineligible agencies are about “indicators not being able to measure employee’s competence” or “focus on quantity over quality of outputs”. A third complained about “favoritism and unfair and biased ratings” or “the system being gamed” or the “lack of information dissemination and guidelines on the goals or targets”. A bigger share of managers (21%) from eligible agencies reported “no complaints” about the PBB than those from ineligible agencies (14%).

According to managers from the DepEd, SUCs, and NGAs, the top two complaints among employees about the PBB are “indicators not being able to measure employee’s competence” or “focus on quantity over quality of outputs”. The proportions of reports, however, are much higher with DepEd at about three-fifths, compared with about half among SUCs, and two-fifths among NGAs (Table 4). Meanwhile, among managers from GOCCs, about a third reported that “indicators do not measure employee’s competence, favoritism, and unfair and biased rating”, and “the system can be gamed and be unfair” as common complaints about the PBB.

Figure 4. Common complaints of employees from eligible and ineligible agencies about the PBB, according to managers



PBB = Performance-Based Bonus

Source: PIDS (2019)

Table 4. Common complaints of employees about the PBB, according to managers by cluster of agency

Complaints about PBB	Cluster type				Total
	NGAs	SUCs	DepEd	GOCCs	
Indicators do not measure employee's competence	43.2	47.3	62.5	34.6	44.2
Focus on quantity over quality of outputs	42.4	52.7	62.5	26.9	44.6
Favoritism and unfair and biased ratings	31.8	24.3	12.5	30.8	28.8
No consultation	10.6	23.0	12.5	7.7	14.2
Lack of information dissemination and guidelines on the goals or targets	13.6	36.5	12.5	15.4	20.8
System can be gamed and be unfair	28.8	24.3	25.0	30.8	27.5
No complaints	23.5	13.5	12.5	15.4	19.2
Others	22.0	21.6	37.5	30.8	23.3

PBB = Performance-Based Bonus; NGAs = national government agencies; SUCs = state universities and colleges; DepEd = Department of Education; GOCCs = government-owned or controlled corporations

Source: PIDS (2019)

Perceived Effects of the Performance-Based Bonus on Government Employees' Productivity

Impact perception at the individual and agency levels

About four-fifths (79%) agreed, either strongly or somewhat strongly, that the PBB measures actual performance and productivity of individuals. A similar proportion (84%) agreed that the PBB measures the actual performance and productivity of bureaus or delivery units. Many found the PBB requirements fair (67%), and the basis of qualification objective (75%). Still, most of them (85%) suggested that the PBB needs further refinement. Meanwhile, 9 in 10 respondents from GOCCs provided the lowest agreement rate in the implementation of the PBB, except on the need to further refine the PBB, where the agreement rates were constant across the cluster types. The share of respondents from GOCCs and DepEd who agreed that the payouts are released on time is practically the same at about 30 percent (Table 5).

Table 5. Proportion of respondents by extent of agreement on statements on the PBB implementation by cluster type of agency (in %)

Statement	Cluster type	Level of agreement					Total
		Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	
The PBB measures the actual performance and productivity of individuals.	NGAs	37.6	42.4	11.2	6.5	2.4	100.0
	SUCs	37.6	43.3	10.2	7.0	1.9	100.0
	DepEd	48.7	33.9	9.6	5.2	2.6	100.0
	GOCCs	22.1	45.9	14.8	13.9	3.3	100.0
	Total	37.1	42.2	11.1	7.2	2.4	100.0
The PBB measures the actual performance and the productivity of the bureau/delivery unit.	NGAs	44.1	40.0	9.2	5.7	1.0	100.0
	SUCs	43.0	42.4	7.3	6.1	1.3	100.0
	DepEd	44.4	38.3	12.2	3.5	1.7	100.0
	GOCCs	27.9	49.2	13.9	7.4	1.6	100.0
	Total	42.3	41.3	9.5	5.7	1.2	100.0
The PBB requirements are fair and applicable to all government institutions.	NGAs	30.6	36.1	19.7	10.1	3.5	100.0
	SUCs	32.2	37.3	19.1	8.3	3.2	100.0
	DepEd	38.3	35.7	13.9	7.8	4.4	100.0
	GOCCs	18.9	36.1	23.8	14.8	6.6	100.0
	Total	30.6	36.4	19.4	9.9	3.8	100.0

Table 5. (continuation)

Statement	Cluster type	Level of agreement					Total
		Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	
The PBB payouts are released on time.	NGAs	11.7	27.0	23.9	22.9	14.6	100.0
	SUCs	19.2	28.4	26.2	17.3	9.0	100.0
	DepED	6.1	25.2	18.3	25.2	25.2	100.0
	GOCCs	8.2	22.1	18.0	26.2	25.4	100.0
	Total	12.7	26.7	23.4	22.0	15.2	100.0
The basis of qualification for the PBB is objective.	NGAs	30.4	43.8	15.5	7.7	2.7	100.0
	SUCs	34.1	44.0	13.1	6.7	2.2	100.0
	DepED	30.4	47.0	16.5	2.6	3.5	100.0
	GOCCs	14.8	54.1	19.7	9.8	1.6	100.0
	Total	29.8	45.1	15.4	7.2	2.6	100.0
The PBB needs further refinement.	NGAs	41.4	42.5	12.0	2.4	1.7	100.0
	SUCs	48.7	36.0	10.5	2.9	1.9	100.0
	DepEd	45.2	42.6	8.7	2.6	0.9	100.0
	GOCCs	50.0	36.1	9.0	1.6	3.3	100.0
	Total	44.4	40.3	11.0	2.5	1.8	100.0
The PBB has improved our institution's compliance with government regulations (e.g., good governance conditions, use of budget, and delivery of targets).	NGAs	44.3	41.1	10.8	2.8	1.0	100.0
	SUCs	51.0	37.6	6.7	4.1	0.6	100.0
	DepEd	41.7	44.4	8.7	3.5	1.7	100.0
	GOCCs	32.8	45.9	14.8	4.9	1.6	100.0
	Total	44.6	41.0	9.9	3.4	1.0	100.0

Perceived Effects of the Performance-Based Bonus on Government Employees' Productivity

Table 5. (continuation)

Statement	Cluster type	Level of agreement					Total
		Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	
Changes in the requirements of the PBB are properly communicated and disseminated.	NGAs	30.5	39.8	20.8	6.9	2.0	100.0
	SUCs	37.9	41.4	14.0	5.7	1.0	100.0
	DepEd	36.5	40.9	13.0	8.7	0.9	100.0
	GOCCs	23.8	42.6	13.1	17.2	3.3	100.0
	Total	32.2	40.6	17.7	7.8	1.8	100.0
The PBB incentivizes good performance.	NGAs	38.6	43.4	10.6	5.4	2.1	100.0
	SUCs	38.2	42.0	12.4	4.8	2.6	100.0
	DepEd	43.5	43.5	7.0	3.5	2.6	100.0
	GOCCs	30.3	37.7	19.7	9.8	2.5	100.0
	Total	38.1	42.5	11.6	5.5	2.3	100.0
Complying with good governance conditions increased our efficiency in service delivery.	NGAs	53.3	37.8	6.8	1.6	0.6	100.0
	SUCs	60.2	31.9	4.8	2.6	0.6	100.0
	DepEd	50.4	43.5	3.5	1.7	0.9	100.0
	GOCCs	44.3	39.3	10.7	4.9	0.8	100.0
	Total	53.9	37.0	6.4	2.2	0.6	100.0

PBB = Performance-Based Bonus; NGAs = national government agencies; SUCs = state universities and colleges; DepEd = Department of Education; GOCCs = government-owned or controlled corporations

Source: PIDS (2019)

About half of respondents from all clusters strongly agreed that complying with good governance conditions as part of the PBB requirements has increased their agency's efficiency in terms of service delivery (Table 5). While at least 30 percent of respondents in NGAs and SUCs strongly agreed that the PBB measures actual individual and delivery unit performance and that the requirements are fair and applicable to all agencies. Meanwhile, a smaller proportion of GOCC respondents agreed with these statements. It was also noticeable that only less than 20 percent of all clusters strongly agreed that the PBB payouts are released on time.

A considerable share (about 90%) of respondents across various subgroups (i.e., rank-and-file employees versus managers, those from eligible agencies versus ineligible ones, and across cluster types) expressed that their agencies would continue to comply with the PBB requirements in the long run even without an incentive (Table 6).

However, the proportion of those positive about sustained compliance with the PBB requirements even without incentive seems highest among respondents from SUCs (94.9%) than those from NGAs who have the least share (86.2%).

Table 6. Proportion of respondents who think their agencies will continue to comply with the PBB requirements in the long run even without an incentive (in %)

Group	Continued compliance of agency even without incentive			
	No	Yes	Not sure	Total
Rank-and-file employees	4.6	89.6	5.8	100.0
Managers	7.1	87.1	5.8	100.0
Ineligible	3.1	91.2	5.7	100.0
Eligible	6.0	88.2	5.9	100.0
NGAs	5.1	86.2	8.8	100.0
SUCs	3.2	94.9	1.9	100.0
DepEd	6.1	93.0	0.9	100.0
GOCCs	9.1	87.6	3.3	100.0
Total	5.1	89.1	5.8	100.0

PBB = Performance-Based Bonus; NGAs = national government agencies; SUCs = state universities and colleges; DepEd = Department of Education; GOCCs = government-owned or controlled corporations
Source: PIDS (2019)

Counterfactual analyses

The PSEPBB respondents were asked to identify their level of agreement on 12 statements pertaining to the effect of the PBB on their individual performance. Figure 5 shows that about 60 percent of respondents, whether from eligible or ineligible agencies, strongly agreed that they have become more conscious of accountability requirements. Further, compared with about 40 percent of respondents from ineligible agencies, about half of those from eligible agencies strongly agreed that:

- they are more conscious of their work;
- their individual performance targets are fair, objective, and measured with up-to-date data; and
- they submit quality outputs and deliverables within deadlines.

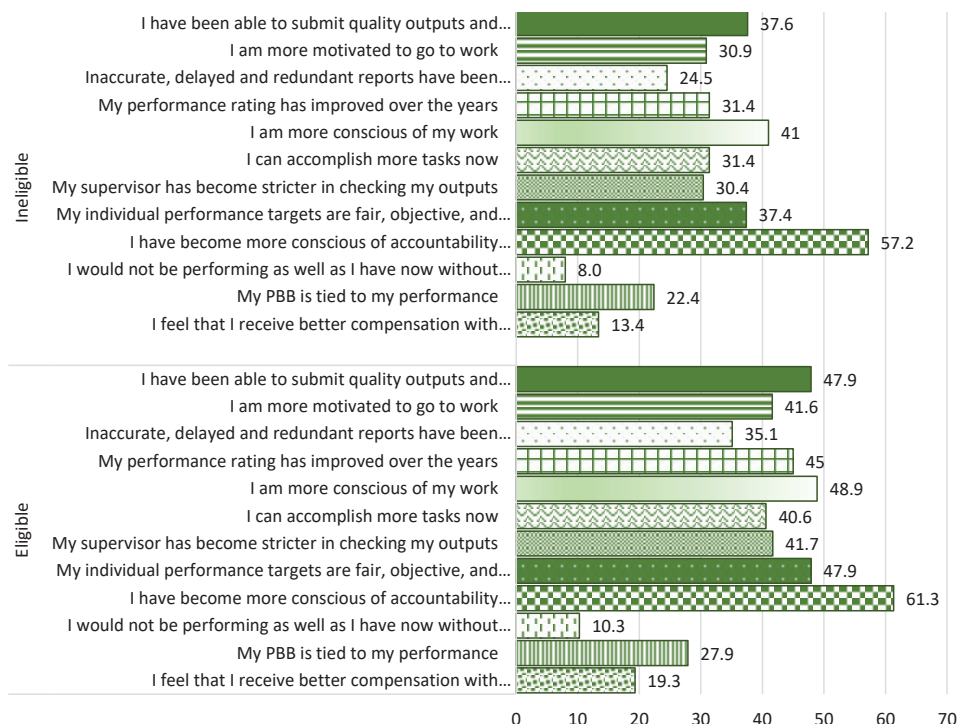
Nearly 40 percent of respondents from eligible agencies, compared with about 30 percent from ineligible ones, strongly agreed that:

- their performance rating has improved over the years;
- their supervisors have become stricter in checking their outputs;
- they are more motivated to go to work; and
- they can accomplish more tasks.

Meanwhile, only 10 percent strongly agreed that they would not have performed as competently as they had without any sort of a reward system.

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Figure 5. Proportion of respondents who strongly agree with various statements on the PBB's effect on individual performance by eligibility of agency (in %)



PBB = Performance-Based Bonus

Source: PIDS (2019)

To perform a counterfactual analysis between respondents from eligible agencies and their counterparts from ineligible agencies, the researchers looked into a composite indicator of the individual effects of the PBB, particularly the proportion of respondents who strongly agreed with at least one of the 12 statements. The researchers noted a 6.2-percentage point difference in favor of those from eligible agencies. However, when the PSM model that controlled for age, educational attainment, and employee status (i.e., managers versus rank-and-file) was used, the difference was even larger, i.e., a nearly 10-percentage point (Table 7). Both estimates from a standard survey data analysis and the PSM model suggest that the difference is statistically significant.

Table 7. Results of counterfactual analysis of the PBB's effects on individual performance

Group	Strongly agree in at least 1 of 12 statements in Section D on the effect of PBB on individual performance		
	No	Yes	Total
Ineligible	29.9	70.1	100.0
Eligible	23.7	76.4	100.0
Total	25.6	74.4	100.0
Difference between eligible and ineligible groups		6.2	
Estimated standard error		2.7	
Estimated difference from propensity score matching		9.9	
Estimated standard error		4.6	

PBB = Performance-Based Bonus

Source: Authors' calculations based on microdata of PIDS (2019)

For agencies, the PSEPBB respondents were asked to give their perceptions and level of agreement with the 10 statements describing the PBB's effects on the performance and productivity of their department or agency.

Survey respondents from agencies eligible for the PBB in FY 2016–2017 answered “strongly agree” more often than their counterparts from ineligible agencies. About half of the sampled respondents from eligible agencies, compared with about 40 percent from ineligible agencies (Figure 6), strongly agreed that:

- their respective agencies have since become more focused on results that matter to clients;
- their organizational goals have become clearer and more aligned;
- the management is more focused on working with staff to serve the public's interests;
- there have been positive changes in their department/agency; and
- systems and operations have become more efficient, more effective, and better documented.

Perceived Effects of the Performance-Based Bonus on Government Employees' Productivity

Figure 6. Proportion of respondents who strongly agree with various statements on the PBB's effect on agency performance by eligibility of agency (in %)



PBB = Performance-Based Bonus

Source: PIDS (2019)

Meanwhile, the least strong agreement rate among the PSEPBB respondents on the PBB's effects on their agency performance was that the management identified poor performers since the implementation of the PBB.

The effect of the PBB on agency performance was also studied in the earlier examination of the perceived effects of the program on individual performance. A regular survey data analysis revealed a 9-percentage point difference in favor of respondents from eligible agencies.

The estimated difference was noted to be statistically significant. However, when the propensity score matching model was used, the difference between the respondents from eligible and ineligible agencies was statistically significant. The difference between the two groups was at 13-percentage points (Table 8). Thus, the survey data revealed that the perception of respondents was that the PBB had effects on both individual and agency-wide performance.

Table 8. Results of counterfactual analysis on the PBB's effect on agency-wide performance

Group	Strongly agree with at least 1 of 10 statements on the effect of PBB on agency performance		
	No	Yes	Total
Ineligible	37.6	62.4	100.0
Eligible	28.6	71.4	100.0
Total	31.4	68.6	100.0
Difference between eligible and ineligible groups		9.0	
Estimated standard error		2.8	
Estimated difference from propensity score matching		13.6	
Estimated standard error		4.7	

PBB = Performance-Based Bonus

Source: Authors' calculations based on microdata of PIDS (2019)

Synthesis of results and policy implications

The empirical findings in this study suggest that the PBB has contributed to improving public sector performance at the individual, team, and agency or department levels. However, survey respondents and FGD participants identified design and implementation issues in the PBB, such as (a) changes in requirements across the years and the varying periods when the PBB guidelines were released to agencies that made the compliance challenging and (b) the relatively low level of awareness of the PBB's institutional objectives and the linkage of the PBB with the RBPMS. Further, agency representatives in the FGDs expressed psychic pains about the shift in pay from a fixed amount to a percentage of the base pay of employees, which, as they pointed out, was unfair to those at the lower ranks. This suggests a need to improve how the PBB processes are communicated to agencies. Finally, although a few respondents identified the organizational objectives of the PBB, many are aware of the performance targeting and M&E of targets and suggest that managers take the lead in interventions to help those in need of improvements. A tenth of survey respondents reported that their supervisors did not assist poor performers. This suggests either capacity gap issues among managers in performance delivery or the lack of attention given to those identified as poor performers in an agency.

This study revealed evidence of the positive outcomes of the PBB reform, which include increasing compliance among agencies with the conditions for PBB access. For instance, in terms of the transparency seal requirements, the compliance of government agencies increased from less than 90 percent before 2014 to as much as 98 percent from 2014 to 2016, although rates decreased in 2017 given the PBB's tightening phase (AO 25 Secretariat 2019). Posting at the Philippine Government Electronic Procurement System (PhilGEPS) was less than 90 percent prior to 2014 (with only 32% of the awards posted against total notices in 2011 before the PBB rollout). PhilGEPS posting was at over 90 percent from 2014 to 2016 but again dropped to 78 percent in 2017 during the tightening phase of the PBB (AO 25 Secretariat 2019).

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There is also a widely shared perception among survey respondents, particularly the staff of compliant agencies, that the PBB strengthens staff members' motivation to achieve strong results and enhance public services. While it is not based on actual outcome indicators, such a shared perception, nevertheless, signals strong legitimacy and uptake for the incentive reform.

Issues in the rollout of this reform were also observed. There is evidence of dysfunctional behavior among employees, including allegations that some staff are gaming the incentives. Some agencies appear to lag behind in complying with PBB access requirements. During the process evaluation, (Albert et al. 2019) noted that the requirement for ISO-QMS certification was a contributing factor as to why many agencies and SUCs were ineligible to receive the PBB grant starting 2015. Amid the rising ineligibility rates from 2015 to 2017, the share of agencies among ineligible groups that were also not ISO-compliant increased from about 20 percent in 2015 to nearly 80 percent in 2016 and 2017.

While it is reasonable for the government to continue the implementation of the PBB, it is also important to develop ways to improve it. Given that the PBB implementation is in its 9th year, it may be an opportune time to start planning for a grand revision in the design and implementation of the PBB by 2022 when a new administration is in place. International evidence and good practice suggest that output- and performance-based incentives are much preferred over across-the-board increases, not only from a performance viewpoint but also in terms of budget sustainability. Possible improvements in the PBB incentives framework can touch on the following aspects:

1. Implement a moratorium on changes in the agency-level conditions so that agencies will have an opportunity to comply with existing conditions and in light of the seeming increased workloads amid the COVID-19 pandemic and in the new normal.
2. Create agency-level redress mechanisms for complaints, such as alleged issues of unfairness and gaming of incentives.
3. Provide support mechanisms for lagging agencies on access conditions (e.g., leadership and strategy reviews and technical assistance on change management).
4. Take the opportunity amid the pandemic to enhance nonfinancial incentives. Flexibility on assignment location and work-from-home options, among others, can be powerful incentives. This time, a rigorous impact evaluation framework must be considered for the nonfinancial incentives.
5. Consider small-scale experimentation on the provision of incentives to agencies based on the contribution to sectoral targets, such as the *Philippine Development Plan* (NEDA 2010) and/or the Sustainable Development Goals (Reyes et al. 2019).

The PBB must be understood within a broader reform context across agencies. Staff from agencies that are "overwhelmed" with requirements may be discouraged rather than incentivized, thus, reform roadmaps in each agency must be synced with the use of the PBB (Opiniano 2019). These roadmaps should include plans to streamline data collection for performance and enhance e-government, among other options, to lessen the reporting burden for staff members. Submission and processing of the PBB requirements may be simplified by shifting toward a digitalized process, rather than paper documentation submissions, to make reform gains more firmly established and help prevent regression in accomplishments. In addition, technical assistance and support for change management efforts can strengthen the compliance of agencies with the conditions for access to the PBB, particularly for lagging agencies. This should help address concerns that some agencies are left further behind, not because of the lack of staff members' efforts but because of the need for reform support.

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The Philippine Local Water Sector: Institutional Issues in Supply Governance

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ABSTRACT

Aligned with the United Nations' Sustainable Development Goal 6 to “ensure availability and sustainable management of water and sanitation for all”, the *Philippine Development Plan 2017–2022* recognizes the importance of water supply and sanitation (WSS) in accelerating the country's infrastructure development. The National Economic Development Authority's *Philippine Water Supply and Sanitation Master Plan 2019–2030* presents actions for universal access to safe WSS by 2030. Although national and international goals are already in place to attain water security, water service delivery remains devolved and dependent on local governments. The sector also receives uneven public investments through the national government.

With the implementation of the Mandanas ruling affirmed by the Supreme Court, which gives local governments increased grants, strengthened devolved functions, and reduced program assistance from the national government, water service delivery will continue to be the local governments' responsibility.

For decades, the literature has emphasized the need to address fragmentation among water institutions and in regulations that have resulted in uneven and inefficient investments. This study explains fragmentation by answering the question: “What institutional and regulatory factors affect the magnitude of investments in the local water sector?” It presents the current potable water access in the country and shows the resultant uneven public investments.

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The Philippine Local Water Sector: Institutional Issues in Supply Governance

It reviews the current mandates of the two main regulating bodies for potable water access in local communities and identifies various overlaps and ambiguities in managing the sector. The results show the need to streamline and align the sector's unclear economic and technical regulations with its operating standards to avoid fragmentation. In addition, investment coordination must be improved to ensure strategic investments and efficient use of limited financing. There should be a consolidated and complete database of water service providers, as well as key performance indicators and other data, to better monitor the investments in the local water sector.

INTRODUCTION

Aligned with the United Nations' Sustainable Development Goal 6 to "ensure availability and sustainable management of water and sanitation for all", the *Philippine Development Plan 2017–2022* recognizes the importance of water supply and sanitation (WSS) in accelerating the country's infrastructure development (NEDA 2017, p. 256). The National Economic and Development Authority's (NEDA) *Philippine Water Supply and Sanitation Master Plan (PWSSMP) 2019–2030* also presents actions for universal access to safe WSS by 2030 (NEDA 2019a). Although national and international goals are already in place to attain water security, water service delivery, as a devolved public service in the country, depends heavily on local governments.

The literature identifies fragmentation as a major challenge in the provision of local water services (ADB 2013; World Bank 2015; NEDA 2019a). The national government offers assistance to local government units (LGUs) and local water districts (LWDs) through various programs and financing options. However, the sector receives uneven investments. This calls for a systematic review of the institutional mandates affecting local water services to ensure strategic investments among LGUs, which will receive increased intergovernmental fiscal grants by 2022, owing to the Supreme Court Mandanas ruling.²

Decentralized water services and evidence on water service providers

The Local Government Code (LGC) of 1991 devolves the delivery of local water services to LGUs. Water services operate under at least eight legal frameworks, with the Water Code of the Philippines as the basic law (Presidential Decree [PD] 1067, series of 1976). Several regulatory bodies are responsible for water service delivery in the country. The two main bodies are the (1) National Water Regulatory Board (NWRB), which is in charge of setting, administering, and enforcing all rules related to water, such as "control, conservation, and protection of waters, watershed, and related land resources" (Rola et al. 2015, p. 200); and the (2) Local Water Utilities Administration (LWUA), a "specialized lending institution for the promotion, development, and financing of local water utilities" (PD 768, Section 22).

The NWRB regulates 12 water resources regions in the country. Common sources are fewer and different from administrative regions. Thus, they are shared by different LGUs. This brings about the need for cooperation and comprehensive planning for water resources development across LGUs (Rola et al. 2015). Water service providers (WSPs) serve the population based on different management types (Table 1) and through different levels of water systems (Table 2).

² The Supreme Court Mandanas ruling broadened the tax base on which intergovernmental fiscal transfers are computed (GR No. 199802 and GR No. 208488, April 10, 2019).

Table 1. Water supply service providers by management type

Major groups	Management type	Description
Water districts	Water districts	A quasi-public corporation formed by the LGU under the Provincial Water Utilities Act and recognized with a Certificate of Conditional Conformance by the LWUA.
LGU-run utilities	LGU-run utilities	A water supply system owned and operated by the LGU.
Community-based organizations	Barangay water and sanitation association	A nonstock and nonprofit organization that owns, operates, and maintains water supply facilities in a <i>barangay</i> (village) or defined area.
	Rural water supply association	
	Cooperative	
Private utilities	Homeowners' association	An organization that operates and maintains a water supply system and registered with the Securities and Exchange Commission or the Housing and Land Use Regulatory Board.
	Real estate developer	A real estate developer operating a water supply system for lot owners.
	Unnamed WSP	An unregistered water provider serving at least 15 households.
	Industrial locator	An industrial estate operating a water supply system in an economic special zone to provide water to locators.
	Peddler	A nonpipe WSP that extracts water and delivers it through containers.
	Ship chandler	A WSP for ships.
	Other private operators	Other private entities formed under the general business and corporation laws of the country for the operation and maintenance of WSS.

LGU = local government unit; LWUA = Local Water Utilities Administration; WSS = water supply and sanitation; WSP = water supply provider

Source: NEDA (2019a)

Table 2. Definition of water systems

Level	Description
Level I (point source) ³	This service level provides a protected well or a developed spring with an outlet but without a distribution system. Hence, users go to the source to fetch water. Level I sources are generally adaptable in rural areas where houses are thinly scattered. These sources serve an average of 15 households within a radius of 250 meters.

³ Derived from the Philippine Statistics Authority's (PSA) definition of water system levels based on the National Statistical Coordination Board Resolution 9, series of 2012 (PSA 2012). There are unsafe sources of water classified under level I, such as unprotected springs, rivers, streams, dug wells, lakes, rivers, rainwater, and peddlers, among others.

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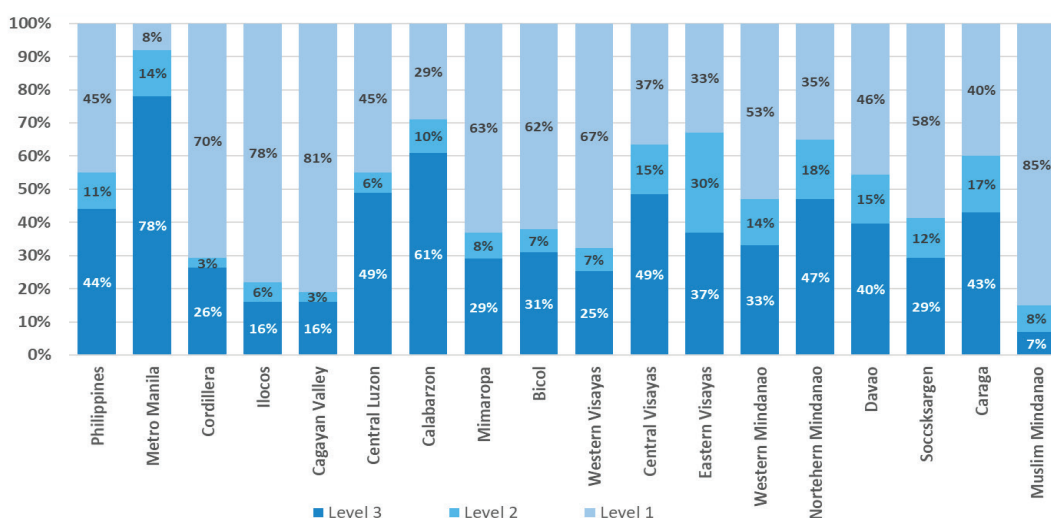
Table 2. (continuation)

Level	Description
Level II (communal faucet system or stand post)	A piped system is 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 go to the supply point (communal faucet) to fetch water. This 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”.

Source: NEDA (2019a, p. 26)

According to estimates from the 2015 Family Income and Expenditure Survey (PSA 2016), 43.6 percent of the population access water through level III systems, 11.2 percent get their water from level II systems, and a large proportion of 45.2 percent have access to water through level I systems (Figure 1).

Figure 1. Regional access to water supply by level of water supply system



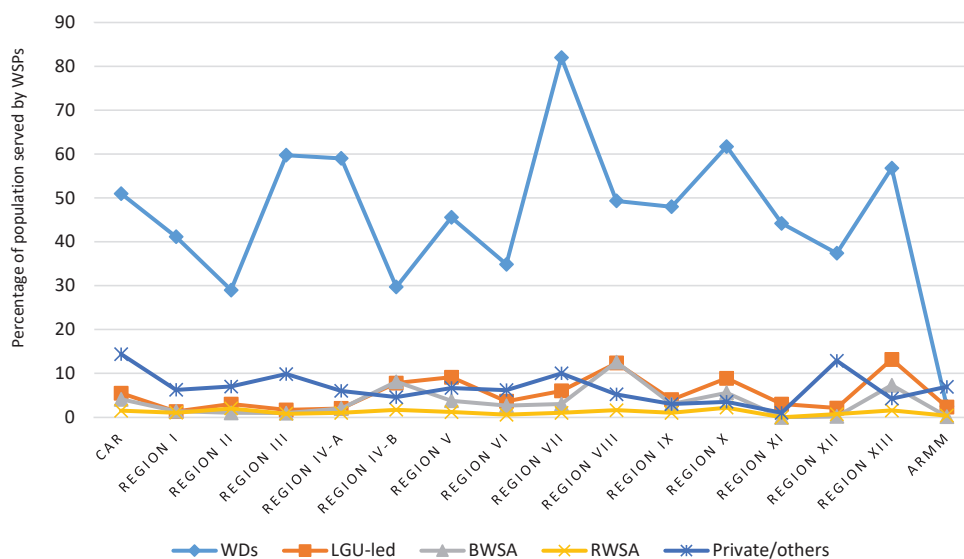
Calabarzon = Cavite, Laguna, Batangas, Rizal, and Quezon; Mimaropa = Mindoro, Marinduque, Romblon, and Palawan; Soccsargen = South Cotabato, Cotabato, Sultan Kudarat, Sarangani, and General Santos

Source: NEDA (2019b)

Based on the PWSSMP, about 12.32 percent of the population access water from unsafe sources. There are also some areas without WSPs. Meanwhile, 31 percent of established water districts in the country are nonoperational (NEDA 2019a).

In terms of the population served by the WSPs, water districts serve the largest proportion in all regions (Figure 2). The top three regions with the largest proportion of population served by water districts are Region VII (Central Visayas), Region 10 (Northern Mindanao), and Region III (Central Luzon).

Figure 2. Proportion of population served by type of WSPs, 2017



WSPs = water service providers; CAR = Cordillera Administrative Region; ARMM = Autonomous Region in Muslim Mindanao; WDs = water districts; LGU = local government unit; BWSA = barangay water and sanitation association; RWSA = rural water supply association

Source: NEDA (2019a)

Recent studies support examining and improving local water provision with considerable spillover effects. World Bank emphasized that national targets could be met only 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” (World Bank 2015, p. 33). However, these suggested reforms require capacity development. Another important recommendation from the 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 multistakeholder review process (World Bank 2015, p. vi).

An assessment of the Philippine water supply and sanitation sector by the Asian Development Bank (2013) found similar results. Meanwhile, Rola et al. (2015) recommended reviewing the legal and institutional framework. The case study focused primarily on water sources like watersheds and highlighted law and institutional framework conflicts that have caused various challenges in the sector, ranging from water sources to delivery of water services. Another study examines “conflicts arising from the layered legal treatment, fragmentation, and multiplicity of institutions” involved in the Philippine water governance (Hall et al. 2015, p. 946). It claims that the legal changes in the water sector have seen greater openness to market solutions and “more competition from private businesses in water sourcing and distribution” (Hall et al. 2015, p. 959). The role of the state has shifted from intervention and provision to regulatory mode. However, the local water sector was said to be challenged, while LWDs gradually adopted market benchmarks to improve their performance. Some cases of water conflicts showed “varied contestations that came about, given ill-defined property rights to water and parallel questions of legitimacy to these awarded rights” (Hall et al. 2015, p. 960). In one case, competing assertions of the rights by LWDs

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and the LGUs' claim of accountability to community members for service provision illustrate political tension between the two state actors.

Although some studies showed the challenges in potable water service delivery at the local level, their recommendations are general, such as reviewing institutional mandates. This study contributes to the literature by assessing the laws and legal mandates of oversight bodies involved in water services. It identifies the source of ambiguity and overlaps in managing the sector and provides the next steps in local water governance to facilitate efficient use of investments.

The following are the overall policy questions of this study: What institutional and regulatory factors affect the investments in the Philippine local water sector? How can these be improved to encourage and facilitate strategic investments? This study also examines water supply services among LGUs and how other sectors enable the delivery of this devolved basic service.

Research objectives

This study primarily aims to identify areas of improvement in water supply provision among LGUs and determine the practices that have led to successful local water delivery by mapping out the agencies involved in local water systems and assessing their mandates, scopes, and functions. The specific objectives are to:

1. review the current institutional and regulatory framework for devolved basic water service by answering the question: What are the mandates of the different government agencies in the water sector? How do they lead the provision of water services based on their mandates, scopes, and functions? and
2. analyze overlaps in the mandates, scopes, and functions of government agencies involved in local water service delivery.

CONCEPTUAL FRAMEWORK AND METHODOLOGY

Water as an economic good

Water is a complex good. The different stages of provision change the type of good it is perceived, and, therefore, the way it is provided, managed, and regulated. In the first stage, water at the source is a common resource. Unregulated access to a water source imposes negative externalities on users. It reduces supply with each additional user and results in overconsumption. The solution is to have a regulatory body to control water usage (Stiglitz and Rosengard 2015). In the Philippines, the NWRB is primarily responsible for regulating source water. It also regulates WSPs and resolves water disputes.

The second stage involves establishing water service distribution and ensuring potability of water. Water provision in the country is a natural monopoly, i.e., the large sunk costs needed to establish a water system make it more acceptable and efficient to have fewer providers take advantage of the economies of scale. Economic theory prescribes a different kind of regulation to ensure water quality and non-exploitative pricing (Zetland 2014; Stiglitz and Rosengard 2015). Furthermore, the nature of regulation and economic provision depends on who provides water and how it is provided. If it is the government, the pricing mechanism and regulation depend on whether water service is free or has a tariff, which may or may not recover costs.

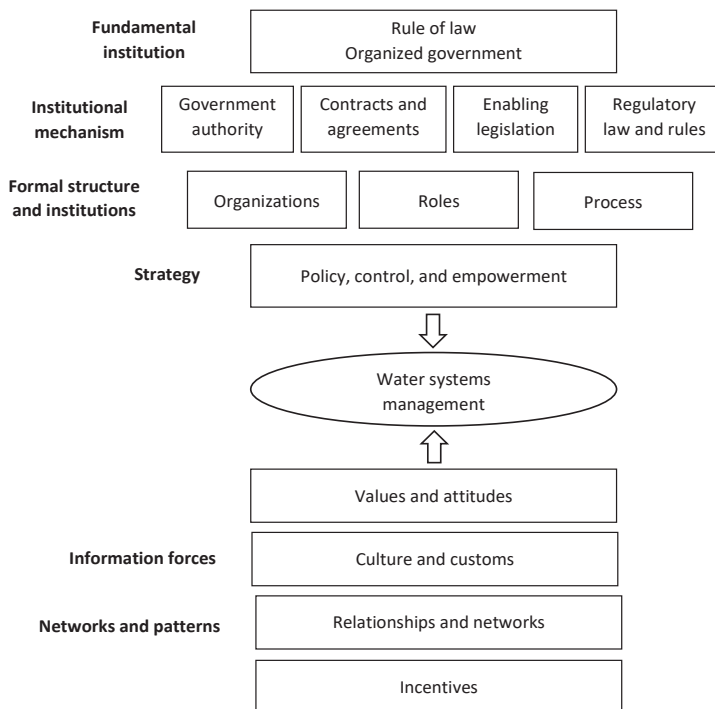
Pricing also depends on the level of water system and is determined in the realm of political economy (Zetland 2014). If the private sector or a hybrid of public and private entities provides water, regulators treat water service as a natural monopoly and manage the price (Stiglitz and Rosengard 2015).

For the second stage of potable water service provision, the LWUA is responsible for regulating local WSPs, especially LWDs, for which it serves as a lending institution.

Institutional framework for water service delivery

Water service provision and regulation happens within an institutional framework. Figure 3 shows Griggs' (2011b) framework for institutional arrangements in water governance. This “involves a broad set of enabling and regulating functions that support and oversee the organizations that use resources to manage water for human and environmental needs” (Griggs 2011b, p. 800). Fundamental institutions (laws, mandates, and organized government) work through institutional mechanisms (government authorities and legal instruments) to create formal structures (organizations, roles, and processes), which design policies. Unique characteristics, values, and the political economy also affect water systems management.

Figure 3. Institutional arrangements for water governance



Source: Griggs (2011a)

Methodology

This study focuses on fundamental institutions affecting local water service delivery in the Philippines, such as the NWRB and the LWUA. A mixed-method approach was employed using sequential parallel analysis and process evaluation. The research questions were answered in three parts. A public expenditure review of recent national government programs assisting LGUs in water service delivery was conducted. This was followed by an institutional review of the different modes of local water services. A process evaluation and explanatory sequential methods determined the institutional issues. Lessons from the first two parts were integrated into a cohesive policy recommendation.

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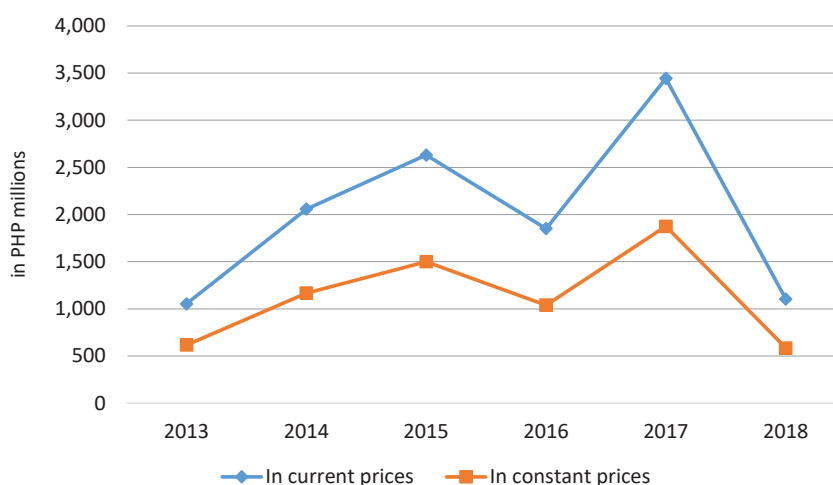
Key informant interviews with the LWUA, the Philippine Association of Water Districts, and the Department of the Interior and Local Government (DILG), provided the needed on-the-ground regulatory and industry context on these issues.

The study shows how the national government has supported investments in the fragmented local water sector, which resulted in uneven or irregular spending. It details the institutional landscape of local water service provision and reviews regulatory and implementation issues among the main water regulatory bodies.

UNEVEN PUBLIC INVESTMENTS DUE TO FRAGMENTATION

The national government recognizes the challenges in providing local water services and supports LGUs through various programs, such as the DILG's *Sagana at Ligtas na Tubig Para sa Lahat* (SALINTUBIG)⁴ and the Local Government Support Fund Assistance to Municipalities (LGSF-AM).⁵ The government finances local water service delivery through the LWUA, which receives budgetary support and gives loans to LWDs. However, these programs have received irregular funding through the years (Figures 4, 5, and 6). One reason could be that funding was based on water demand services, which, in turn, depends on the dynamism of the local economy and population (Appendices A to C). There are other ways to provide local water services, such as through LGUs and by establishing a water district or different private or public-private sector modalities. These uneven investments could also be due to fragmentation, i.e., the lack of an oversight body that monitors nationwide investments in the local water sector.

Figure 4. LGSF-AM expenditures, 2013–2018



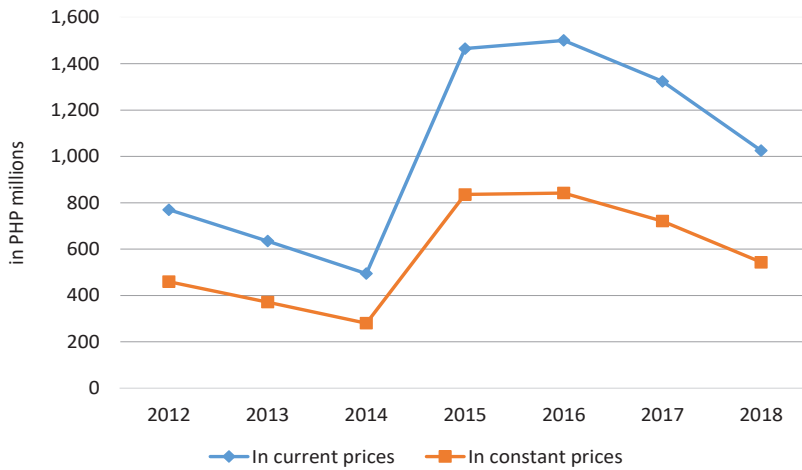
LGSF-AM = Local Government Support Fund Assistance to Municipalities; PHP = Philippine peso

Source: Authors' computation using data from the DILG (various years)

⁴ Originally of the National Anti-Poverty Commission (NAPC 2010).

⁵ The LGSF-AM is a performance- and equity-based program that started as the Bottom-up Budgeting (BUB) program. Other programs for water supply projects are the Performance Challenge Fund in 2015 and the water supply and sanitation for poverty areas and priority tourism sites led by the Department of Public Works and Highways in 2016.

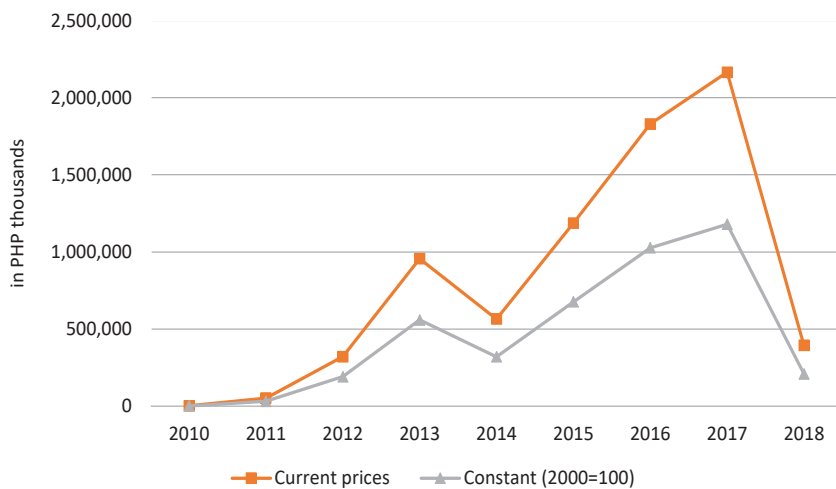
Figure 5. SALINTUBIG expenditures, 2012–2018



SALINTUBIG = *Sagana at Ligas na Tubig Para sa Lahat*; PHP = Philippine peso

Source: Authors' computation using data from the DILG (various years)

Figure 6. Budgetary support from LWUA, 2010–2018



LWUA = Local Water Utilities Administration; PHP = Philippine peso

Source: Authors' computation using data from the DBM (various years)

An exercise was conducted to see if the implementation of the programs served their purpose to bridge the gap in water access, particularly for poorer LGUs (as was the original intent of the SALINTUBIG and the LGSF-AM programs). Using correlation analysis, it was hypothesized that there should be (1) higher expenditures on water service provision in regions that have higher poverty incidence, i.e., positive correlation, and (2) lower expenditures for regions with a higher proportion of households with water access.

The results showed that poverty incidence was moderately correlated with SALINTUBIG expenditures and weakly correlated with LGSF-AM expenditures (Appendix D). This was expected more with SALINTUBIG program because it focuses on water service provision,

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compared with the LGSF-AM program, which can be used for several priority infrastructures. The correlation coefficients suggest that the regional poverty incidence accounts for 16 percent of the variation in SALINTUBIG expenditures, while the same does for only 15 percent of the LGSF-AM expenditure variations.

Looking at the association between the proportion of households with water service by region, it is hypothesized that areas with larger proportions of households with water access should receive less expenditures. The current access to water services is weakly correlated with the SALINTUBIG program, explaining only 3 percent of the variation. The sign was negative as expected. The results seem to suggest that there are other factors affecting national government program expenditures on local water services.

The budget for national government programs was almost fully utilized, compared with inadequate utilization of the LGUs' local development funds,⁶ or the source of funding of their infrastructure investments (Appendices A and B). This has major implications on whether LGUs will take on spending for water services in the event that the national government discontinues its programs supporting local infrastructures when the Mandanas ruling is implemented in 2022.⁷ This shows that while water service delivery is a devolved function, LGUs still receive support from the national government. However, public investment in the local water sector has been uneven, with factors such as poverty incidence or low access to water services weakly related to public expenditures, which are supposed to bridge the gap in water access. With strengthened devolution in 2022, LGUs will have to step up if the national government decides to discontinue its assistance for localized programs. Fragmentation in the local water can be one of the reasons for the uneven public investment and justifies the need for institutional and regulatory reforms.

ISSUES IN INSTITUTIONAL FRAMEWORK FOR LOCAL WATER SUPPLY

Although fragmentation in the local water sector has often been mentioned in the literature, studies have either discussed it generally or focused on other specific case studies. This section shows a survey among formal institutions and instruments (mandates, rules, and regulations) of entities primarily involved in local water service provision. It identifies specific mandates and rules that have caused weaknesses and ambiguities in the local water governance framework. The said weaknesses are the basis of recommendations to strengthen the sector.

Overview of implementing entities

There are several entities involved in the provision of local water supply in the Philippines. The two major implementers are LGUs and LWDs. The private sector may also participate in implementing water supply projects. A brief overview of water sector entities is provided to show the extent of fragmentation and how it impacts investments coordination.

LGUs

Section 17 of Republic Act (RA) 7160 devolved basic services to LGUs, transferring to them critical services, such as WSS, flood control, and enforcement of sanitation laws, among others (Table 3).

⁶ Philippine municipalities utilized 73 percent (20% of internal revenue allotment) in 2016, which suggests that "they did not spend the minimum mandated amount on development projects" (Diokno-Sicat et al. 2020, p. 32).

⁷ Executive Order (EO) 138, series of 2021.

Table 3. Water supply-related services by specific LGUs

Unit	Section (RA 7160)	Water supply-related services and facilities
Barangay	Section 17b.1v	Maintenance of barangay roads and bridges and water supply systems.
Municipality	Section 17b.2viii	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, artesian wells, spring development, rainwater collectors, and water supply systems.
Province	Section 17b.3vii	Infrastructure facilities intended to serve the needs of the residents in a province, and which are funded out of provincial funds including, but not limited to, intermunicipal waterworks, drainage, and sewerage.
City	Section 17b.4	All services and facilities of the municipality and province.

LGUs = local government units; RA = Republic Act

Source: RA 7160

LGUs establish water systems through their respective legislative councils, which enact ordinances to provide for the establishment, operation, maintenance, and repair of water systems in their influence areas. In addition, they have an oversight function and may determine and fix water rates, according to Sections 391g, 447a, 458a, and 468a of RA 7160, for the *Sangguniang Barangay*, *Sangguniang Bayan*, *Sangguniang Panlungsod* and *Saangguniang Panlalawigan*, respectively. LGU water systems can be funded through capital investments in their annual budget, which can be independent of other WSPs. While water infrastructure is included in the local development plans, it is not necessarily consolidated and monitored collectively.

LWDs

LWDs are government-owned or controlled corporations (GOCCs) authorized to operate, manage, and maintain water systems in cities, municipalities, and provinces in the Philippines. They were created through PD 198 or the Provincial Water Utility Act of 1973. Section 5 of PD 198 outlines that LWDs 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”.

The board of directors of the water district oversees the operations of LWDs. It should be composed of representatives from civic organizations, professional associations, business and commercial or financial organizations, educational institutions, and women’s organizations. Aside from the board of directors, the LWUA exercises oversight functions over water districts. Investment plans are also submitted to the LWUA for monitoring purposes.

Other implementing entities

Private entities through Certificate of Public Convenience (CPC). Private companies or associations may apply for a CPC from the NWRB. They may incorporate companies and operate water systems in a predefined area through the CPCs. Numerous corporations have obtained CPCs, such as homeowners’ associations and industrial locators. Their investment plans are submitted to the NWRB as part of the reportorial requirements of the CPC.

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Private entities through public-private partnerships (PPPs) or joint ventures. Using their corporate powers, water districts or the LGUs may enter into PPPs or joint venture arrangements with the private sector to expand, operate, maintain, and manage their respective service areas. While these operators are privately run, they derive their authority to operate from their water district or LGU partners who may use the provisions of RA 6957, as amended by RA 7718, known as the Philippine Build-Operate-Transfer Law. Water districts may also form joint ventures with the private sector by invoking the 2013 NEDA joint venture guidelines for GOCCs. Investment requirements are usually submitted by the private sector to the public sector partner. On the other hand, LGUs may form joint ventures with private sector partners through ordinances. Under these arrangements, the private sector coordinates its investment plans with an LGU or water district partner.

Other public sector entities as mandated by special laws. Some special laws may create powers for government agencies to partner with the private sector and develop concessions for water system operations. This was the case when the Metropolitan Waterworks and Sewerage System (MWSS) created two concessions through the Water Crisis Act. The Bases Conversion and Development Authority developed its own joint venture guidelines and bid out a joint venture project for the construction, operation, and maintenance of the New Clark City's water supply and sewerage system.

FINDINGS

Lack of investment planning and coordination

Table 4 summarizes the findings for the preceding discussion. It shows that the approval and monitoring of water system investments are scattered across different government entities and result in the lack of investment coordination.

Table 4. Investment coordination summary

Implementing entity	Investment coordination
LGUs	No explicit inter-LGU coordination required. Investment plans are subsumed in the LGUs' local development plans but may be aligned with higher level LGUs and/or regional plans.
Water districts	Investment plans are submitted to the LWUA.
Private entities with CPCs	Investment plans are submitted to the NWRB as part of the rate-setting process.
Private entities with PPP or joint venture contracts	Investment plans are submitted to the respective government counterparty to the PPP contract (water district, MWSS, and BCDA, among others).
Other public entities (BCDA, TIEZA, etc.)	No explicit coordination required.

LGUs = local government units; LWUA = Local Water Utilities Administration; CPCs = Certificates of Public Convenience; NWRB = National Water Resources Board; PPP = public-private partnership; MWSS = Metropolitan Waterworks and Sewerage System; BCDA = Bases Conversion and Development Authority; TIEZA = Tourism Infrastructure and Enterprise Zone Authority

Source: Authors' summary

Several agencies are involved in water supply delivery in the country, but there is no single agency responsible for the water delivery nationwide. As a devolved function, water supply delivery

is a responsibility of the LGUs and other local entities. However, the national coverage for piped water was only at 50 percent of households (NEDA 2019a). Some regions are also lagging, while poor LGUs are trapped due to the lack of funding. Thus, local and regional planning on water supply infrastructure must be strengthened.

The lack of investment coordination has resulted in multiple water supply utilities operating in the same areas. An example is Taytay municipality in Palawan, where both LWD and LGU-run water utilities are operating. Along with a water district, the LGU provides water through the Taytay, Palawan Water System Management Operating Office. The overlap in the coverage area shows duplication in investments and inefficient use of funds.⁸ Table 5 shows the examples of other cities and municipalities with multiple operators.

Table 5. 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 AAA Water Corporation (private, province-wide) and multiple BWSAs

LGU = local government unit; BWSAs = barangay water and sanitation associations

Source: NWRB (2020)

Noncoordination also stresses water resource sustainability. The ability of LGUs to supply municipalities and cities with groundwater or aquifers is already at risk. This has made surface water a more sustainable source of water for domestic use. Most surface water sources like lakes, rivers, or springs are shared by adjacent municipalities or provinces. Municipalities and provinces can synchronize their investments to tap shared water source jointly and benefit from economies of scale. There is currently no concrete venue for such investment coordination and regional planning, specifically for the water sector.

Overlap in regulatory scope

There are two major oversight agencies for water supply provision whose mandates and coverage are discussed below.

1. **LWUA.** The LWUA “shall primarily be a specialized lending institution for the promotion, development, and financing of local water utilities” (PD 768, Section 22).

In the implementation of its functions, the 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;

⁸ Carlos Santos Jr. (general manager, Santa Maria Water District, Santa Maria, Bulacan), in discussion with the authors, October 19, 2020, via Webex conference call.

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- 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” (PD 768, Section 22).

The primary activity of the LWUA is to lend to water districts, which influences the nature of their regulatory functions and actions. Sections 59–66 of PD 198 define the powers of the LWUA (Table 6).

Table 6. Powers of the LWUA

Specific powers	Description
General corporate powers	General corporate powers (Section 59).
Borrowing and security	Allowed to borrow funds and pledge all securities, covenants, and obligations of water districts it holds (Section 60).
Loans	Lend to LWDs out of its revolving fund (Section 61).
Regulations	Establish standards and adopt rules and regulations for water districts (Section 62).
Rate review	Review the rates of water districts according to the provisions of PD 198 and the rules promulgated by the LWUA. A rate review shall be conducted by the LWUA after a public hearing is completed (Section 37).
Technical assistance	Provide technical assistance to LWDs (Section 64).
Training and programs	Establish training programs to assist LWDs and their personnel (Section 65).
Other powers	<ul style="list-style-type: none"> a. Charge LWDs for services it renders to them to the extent that the services are beneficial to LWDs (Section 70). b. Control and supervise over national government releases for the account of LWDs (Section 75).

LWUA = Local Water Utilities Administration; LWDs = local water districts; PD = presidential decree
Source: PD 198

Supervision over rural waterworks and sanitation associations (RWSAs). EO 124, dated January 30, 1987, abolished the Rural Waterworks Development Corporation (RWDC) and transferred its functions to the LWUA. The latter effectively acquired supervision over RWSAs, which are nonstock, nonprofit cooperative associations organized under and registered with the LWUA. Key informant interviews confirmed LWUA’s lack of specific technical standards nor water rate-setting regulations for RWSAs. LWUA had not received any application from RWSAs to increase water rates, which emphasizes its ineffective oversight.

Lending function. The LWUA serves as a specialized lending institution to support investments in the water sector. All other powers of supervision are in the context of its lending mandate. Sources of funds are internally generated funds or from the national government through the General Appropriations Act, and foreign funding from loans with development and multilateral agencies. Funds are relent to water districts as loans or grants. Relending rates are reviewed by its board of trustees to reflect current market conditions. All water districts in good standing are eligible to apply for loans from the LWUA.

2. **NWRB.** PD 424, series of 1974, established the National Water Resources Council (NWRC), the NWRB's predecessor. Several EOs have shaped the mandate, scope, and function of the NWRB. It has three primary mandates, including "(1) policy formulation and coordination within the framework of Integrated Water Resources Management, (2) water resource regulation through the issuance of water permits and resolution of water use conflicts, and (3) regulation of WSPs through the issuance of CPCs or Certificate of Public Convenience and Necessity and setting of water tariffs for water utilities". Section 4 of EO 860, series of 2010, excluded LWDs from the NWRB's tariff regulation mandate.

Powers of the NWRB. Following PD 424, Section 2, the original NWRC has the following powers:

- a. Regulatory and executory
 - Coordinate and integrate water resources development activities of the country within the context of national plans
 - Determine, adjudicate, and grant water rights
 - Formulate and promulgate:
 - Standards on primary data collection, project investigation, formulation, planning and design, and feasibility evaluation
 - Rules and regulations for optimum utilization of water resources
 - Review and approve water resources development plans and programs
 - Undertake river basin survey, inventory, and appraisal of water and related resources, and develop comprehensive basin-wide plans of storage and control
 - Undertake hydrologic surveys and establish, operate, and maintain observation station networks, and a centralized water resources data center
 - Conduct and promote special studies and research with other government or private agencies
- b. Advisory and recommendatory
 - Advise NEDA on water resources development projects and programs
 - Recommend to NEDA the adoption of general policies and guidelines and short or long-range plans and water resources development programs

Resource regulation powers. The Water Code of the Philippines (PD 1067) enacted the establishment of governance over the "ownership, appropriation, utilization, development, and protection of water resources" (PD 1067, Article 2). Article 13 of the Water Code of the Philippines provides that "no person, including government instrumentalities or GOCCS, 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, municipal, irrigation, power generation, fisheries, livestock raising, industrial, recreational, and other purposes" (PD 1067, Article 10).

According to PD 1067, authorization from the NWRB is required for the following acts:

1. Appropriation of water for any purpose through the water permit application (Article 16)
2. Lease, lending, or transfer of water rights (Article 19)
3. Change in the purpose of the appropriation (Article 12)
4. Development of a stream, lake, or spring for recreational purposes (Article 42)
5. Manner, location, depth, and spacing in which borings for subterranean or groundwater may be made (Article 64)
6. Transfer of water from one river basin to another (Article 67)

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Utility regulation powers. Pursuant to PD 1206, the NWRB became the successor agency of the Public Services Commission for the issuance of CPCs for WSPs. The NWRB has issued guidelines on its framework for economic regulation (NWRB Memorandum Circular [MC] 2019-001, series of 2019) and grouped water utilities into three categories:

1. Category A – Water utilities operating for profit, such as privately owned or run water utilities.
2. Category B – Government-owned or run water utilities. This category applies only to those that voluntarily opt for the NWRB regulation.
3. Category C – Community-based water utilities, such as BWSAs and RWSAs, among others.

MC 2019-001 allows water utilities under categories B and C to be classified as category A, which can operate at a profit and versus non-profit operations for categories B and C.

A review of the regulations of the LWUA and the NWRB revealed conflicts between the two agencies in terms of technical and economic regulations. Technical regulation refers to the minimum performance standards and specifications that water utilities should attain or maintain. Key performance indicators define good performance and the measures of satisfactory service for the public. Meanwhile, economic regulation refers to water-rate setting, including the necessary procedures, operations review, and business plans that will be the basis of water rates. These findings are summarized in Table 7.

Table 7. Summary of the regulatory involvement of water-related agencies

Water utility	Technical/operations regulation	Economic regulation
Water districts	LWUA Optional: NWRB (category B)	LWUA Optional: NWRB (category B)
Private water utilities with CPCs	NWRB	NWRB
LGU-run utilities	LGU Optional: NWRB (category B)	LGU Optional: NWRB (category B)
Rural waterworks and sanitation associations	NWRB (category C) and LWUA	NWRB (category C) and LWUA (if with loans with LWUA)
Other community-based utilities	NWRB (category C)	
Maynilad Water Services and Manila Water Company	MWSS Regulatory Office	MWSS Regulatory Office

LWUA = Local Water Utilities Administration; CPC = Certificate of Public Convenience; NWRB = National Water Resources Board; LGU = local government unit; MWSS = Metropolitan Waterworks and Sewerage System

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

MC 2019-001 allowed government-run utilities (water districts, LGUs, and other government entities) to voluntarily subject themselves to the NWRB's economic regulation.

This voluntary option poses the following problems:

1. The LWUA and the NWRB are currently using different technical standards. The MC is unclear whether water districts or the LGUs will be subjected to the NWRB's technical regulations. Economic and technical or operational standards are intertwined and the attainment of technical standards determines the investment priorities of utilities. Thus, disconnecting the two may be problematic.

2. It is likewise unclear if the LWUA and the local legislative councils may legally provide consent to water districts and LGUs to opt-in to the NWRB's economic regulation. There is a conflict in the mandates of the LWUA or LGUs and the NWRB, since each has its own powers, pursuant to respective laws. The LWUA providing any consent may violate PD 198.

Another clear overlap is the regulation of RWSAs. The LWUA claims that it inherited oversight powers over RWSAs when the RWDC was abolished. However, the LWUA has been remiss in its oversight functions over RWSAs. Key informant interviews confirmed that LWUA has no specific technical standards nor water rate-setting regulations for RWSAs. The LWUA has not received any recent applications for water rates increases. A conflict arises since MC 2019-001 includes RWSAs in category C, which is subjected to the LWUA's economic regulation. In MC 008-18, dated April 2, 2018, the LWUA reiterated its directive over RWSAs to submit critical documents in furtherance of the mandate. This is clearly an area of unresolved regulatory overlap.

Non-uniform technical operating standards

Technical and operating standards define the desired performance of a water utility that will direct its investment priorities to overperform these standards. There are no unified minimum technical key performance indicators for water utilities across different implementing agencies (Table 8).

Table 8. Misaligned technical operating standards between the LWUA and the NWRB

Technical standard	LWUA	NWRB
Nonrevenue water	Less than or equal to 30%	Less than or equal to 25%
Collection efficiency	Must be greater than 90%	N/A
Capital expenditure	Actual implementation of scheduled CAPEX	N/A
Reserves	Actual amount of reserves compared with approved budget	N/A
Current ratio	At least 1.50:1	N/A
Net income	Positive net income	N/A
Staff productivity index	Ratio of water district employees to active connections	N/A
Water availability	Percentage of households enjoying 24/7 water service	Greater than or equal to 12 hours per day
Operating ratio	N/A	Less than or equal to 80%
Customer feedback	N/A	Satisfied customers should be greater than 80%
Water pressure	N/A	Gradual increase per plan

LWUA = Local Water Utilities Administration; NWRB = National Water Resources Board; CAPEX = capital expenditure; N/A = not applicable

Source: MC 011-18; MC 2019-001

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In addition, the following conflicts arise:

1. The LWUA does not consider customer feedback and water pressure as key performance indicators for water districts. It also allows a higher nonrevenue water threshold (30%) versus the 25-percent requirement of the NWRB.
2. The NWRB technical regulations for water utilities under categories A and B are simplistic and do not cover many of the LWUA metrics, such as collection efficiency, capital expenditures, and staff productivity index. Efficiency metrics are all lumped into the operating ratio metric, which may not be the best way to capture the efficiency of operations.
3. While both the NWRB and the LWUA assert that RWSAs are under their respective regulatory ambits, neither of them 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.

The comparison does not include LGU-run utilities because they may enact their service standards through their respective local legislative councils. The services standards that LGUs may implement could deviate from that of the LWUA and the NWRB.

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

Ensuring uniform standards will facilitate the allocation of funding to various regions of the country. With a common yardstick and developmental objective, performing and nonperforming water utilities can be identified, and resources can be deployed to areas where they are needed.

RECOMMENDATIONS

Given the current regulatory and implementation framework of the local water service sector, attaining the goal of 100-percent access to potable water by 2030 will be challenging. The inability to assess the impact or success of water service provision efforts in the country has caused inefficient government programs and interventions and failure to address shortcomings in the sector.

Because of the fragmented water sector and the overlapping mandates of oversight agencies, there has been a lack of coordination, which has resulted in uneven and duplicative public sector investments. While various studies recommend reviewing the water sector's regulatory landscape, this study shows how regulatory uncertainty may impact implementation. As such, it recommends the following:

- **Streamline and delineate the regulations for the water sector.** Delineate or consolidate the regulations to ensure uniformity of rules, principles, and standards in governing the sector. Conflicts in the mandates of agencies have caused divergence in rules and applications or implementations of water rates. By streamlining and unifying the regulations, the government can further hone its regulatory knowledge and apply uniform rules nationwide. This may harmonize water rate-setting formulas and ensure that consumers benefit from the same principles of prudence and operating efficiency. In particular, the government needs to reconcile PD 198, RA 7160, and NWRB MC 2019-001 to identify the proper

technical and economic regulators and various economic actors. A quick fix is to amend the MC 2019-001 and clarify overlaps in RWSAs and government-run utilities.

- **Align technical regulations with operating standards.** Harmonizing the technical regulations and operating standards is needed for a unified view of the level of efficiency that consumers nationwide should expect. Uniform key performance indicators will contribute to the alignment in the developmental plans and objectives of WSPs. Moreover, aligned key performance indicators can better guide investments planning nationwide. With uniform objectives, funding allocation can easily be implemented, since it is clear whether an area is strong in one key performance indicator or weak in another, where interventions in funding support can be helpful. A technical working group composed of the LWUA, NWRB, MWSS, and LGUs, among others, may be formed to unify key performance indicators and jointly implement them. Executive actions, such as the issuance of an EO or an administrative order, may harmonize key performance indicators among all entities.
- **Empower a central coordinating body to keep track of the targets, investments, and funding needs regardless of the implementing entity.** It is critical to start tracking performance and investments nationwide. Coordination is necessary to avoid potential duplication of investments in the same city or municipality. However, not all duplications are inefficient. There could be multiple WSPs in a municipality, but if they serve different barangays, then there is no investment duplication. However, this conclusion cannot be confirmed without ample monitoring by a coordinating body.
- **Oversight should be tightened in the post-Mandanas ruling scenario:**
 - a. By ensuring that LGUs spend on water supply services sector if national government support programs are discontinued. This requires strengthening investment planning, identifying bottlenecks, and finding solutions to delayed local development fund utilization; and
 - b. If the national government maintains a local water supply support program, it should be better targeted.

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APPENDICES

Appendix A. SALINTUBIG expenditures

Appendix A1. Summary of SALINTUBIG expenditures, 2012–2018

	2012	2013	2014	2015	2016	2017	2018
Total expenditures (in nominal PHP millions)	770	635	495	1,465	1,501	1,324	1,025
Total expenditures (in real [2000=100] PHP millions)	460	371	281	836	842	721	543
As % of GDP	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 millions)	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 millions)	1,816,000	2,006,000	2,268,000	2,606,000	3,001,800	3,550,000	3,767,000
National government 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
Total LGU expenditures	415,489	415,489	492,003	569,273	621,020	684,242	766,404

SALINTUBIG = *Sagana at Ligas na Tubig Para sa Lahat*; PHP = Philippine peso; GDP = gross domestic product; LGU = local government unit; IPIN = implicit price index

Source: Authors' computation using data from the DILG (various years)

Appendix A2. SALINTUBIG expenditures to obligations ratios, 2012–2018

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

Appendix A2. (continuation)

Region	2012	2013	2014	2015	2016	2017	2018
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

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

SALINTUBIG = *Sagana at Ligas na Tubig Para sa Lahat*; CAR = Cordillera Administrative Region

Source: Authors' computation using data from the DILG (various years)

Appendix B. BUB/LGSF-ADM/LGSF-AM expenditures

Appendix B1. Summary of BUB/ADM/AM expenditures (disbursements) for water supply systems, 2013–2018

	2013	2014	2015	2016	2017	2018
Total expenditures (in nominal PHP millions)	2,058	2,631	1,851	3,443	1,104	407
Total expenditures (in real [2000=100] PHP millions)	617	1,167	1,501	1,039	1,876	585
As % of GDP	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

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Appendix B1. (continuation)

	2013	2014	2015	2016	2017	2018
National government budget	2,006,000	2,268,000	2,606,000	3,001,800	3,550,000	3,767,000
National government 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

BUB = bottom-up budgeting; ADM = assistance to disadvantaged municipalities; AM = assistance to municipalities; PHP = Philippine peso; LGU = local government unit; IPIN = implicit price index

Source: Authors' computation using data from the DILG (various years)

Appendix B2. BUB/LGSF-ADM/LGSF-AM expenditure (disbursement) to obligation ratio

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

BUB = bottom-up budgeting; LGSF = local government support fund; ADM = assistance to disadvantaged municipalities; AM = assistance to municipalities

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

Source: Authors' computation using data from the DILG (various years)

Appendix C. National government budgetary support to LWUA (in PHP millions)

	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

LWUA = Local Water Utilities Administration; PHP = Philippine peso; IPIN = implicit price index

Source: Authors' computation using data from the DBM (various years)

Appendix D. Pairwise correlations

Appendix D1. 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)

SALINTUBIG = Sagana at Ligtas na Tubig Para sa Lahat

Source: Authors' estimates

Appendix D2. Regional poverty incidence, proportion of regional population with water access, 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)

BUB = bottom-up budgeting; ADM = assistance to disadvantaged municipalities; AM = assistance to municipalities

Source: Authors' estimates



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An Assessment of the Financial Sustainability and Performance of Philippine Water Districts

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ABSTRACT

This study evaluates the consolidated financial condition and performance of local water districts (LWDs) in the Philippines. Water districts are government-owned or controlled corporations (GOCCs) tasked to construct, operate, maintain, and expand water and sanitation systems in the countryside. They are instrumental in the Philippines' objective to attain 100-percent water supply and sanitation access by 2036. National data show that the consolidated financial performance of LWDs has improved from 2009 to 2018, as reflected in their high and stable cash flows, high debt service coverage ratios, and lower debt ratios. With the aggressive spending program of the government on water infrastructure, lower debt ratios are needed to prepare LWDs to achieve the 2023 and the 2030 goals of universal access to water supply and sanitation. However, the government's spending plans are so ambitious that the current balance sheets of LWDs cannot sustain the planned investments financed through debt. The national government needs to bolster the balance sheets of LWDs by infusing fresh equity of PHP 22 billion to PHP 56 billion to achieve the Philippines' 2030 water supply and sanitation targets. The study likewise shows a significant disparity in water investments across the country's different regions, which impacts the uneven water service coverage throughout the Philippines.

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INTRODUCTION

The *Philippine Development Plan 2017–2022* (NEDA 2017) underscores the importance of accelerating infrastructure development as a critical economic bedrock for the country and outlines key strategies to achieve this goal. Realizing the gains from strategic infrastructure programs and projects, the National Economic and Development Authority instituted several strategies to ramp up spending in the infrastructure where water supply and sanitation are crucial components.

Water supply complexities and the service levels of different water systems in the country are categorized into three, as laid out in Letter of Instruction No. 683:

- **“Level I (point source).** This service level provides a protected well or a developed spring with an outlet but without a distribution system. Hence, 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 is 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 supply point (communal faucet) to fetch water. This 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” (NEDA 2019, p. 26).

The United Nations (UN) General Assembly adopted on September 25, 2015, the 2030 Agenda for Sustainable Development, which outlines a shared global blueprint and vision to achieve peace and prosperity for people and the planet. The agenda includes adopting 17 Sustainable Development Goals (SDGs) defining the critical areas of coordinated global action and cooperation toward attaining a shared vision (UN DESA 2020). The sixth SDG pertains to clean water and sanitation with the specific objective to ensure “availability and sustainable management of water and sanitation for all” (UN DESA 2020). According to the UN-SDG Report (UN 2020), the Philippines’ SDG index score was 65.50. The country was ranked 99th out of 193 nations worldwide in 2020. The report assesses significant challenges for SDG 6 in the Philippines, such as the use of at least basic sanitation services and anthropogenic wastewater treatment, use of at least essential drinking water services, and freshwater resources withdrawal.

In addition to the SDGs, the international community of nations declares and recognizes the human right to water and sanitation. It is essential to realize all human rights based on the UN General Assembly’s Resolution No. 64/292 (UN General Assembly 2015). Thus, the Philippine government must uphold this right by ensuring clean water access and timely and environmentally sound sanitation services for all Filipinos regardless of their socioeconomic status.

The Philippine water sector has been characterized by various difficulties, such as achieving the universal human right to clean water. In 2015, 87.7 percent of the national population had access to water supply in one way or another, i.e., including any of the service levels as previously described (NEDA 2019). This leaves 12.4 million people waterless. The same survey indicates that only 43.6 percent of the country’s population were supplied with water through piped household connections (level III) during the said year. The rest were communal faucets (11.2%) and point sources (45.2%). The disparity is more pronounced on a regional basis.

While there is fundamental access to water in the country, there is pronounced inequality in the level of water services. The *Philippine Water Supply and Sanitation Master Plan (PWSSMP) 2019–2030* further asserts that some households, even those with access to water services, get unsafe water from the tap (NEDA 2019).

Numerous government and private entities are tasked with constructing, operating, maintaining, and expanding provincial or local government water supply and sanitation systems outside the Metro Manila concession. *Listahang Tubig* (Water Register), a national survey endorsed by the Department of the Interior and Local Government (DILG), National Water Resources Board (NWRB), and Local Water Utilities Administration (LWUA), attempts to build a national register of all water service providers covering all service level classifications. There were 27,192 registered water service providers in Listahang Tubig as of September 2020 (Table 1).

Table 1. List of water service providers by level of service, September 2020

Management type	No. of water service providers		Level of service		
	No.	%	I	II	III
Barangay water and sanitation associations	7,719	28%	3,914	2,582	1,219
Rural waterworks and sanitation associations	1,487	5%	65	637	785
Cooperatives	408	2%	46	89	273
Unnamed water service providers	8,651	32%	7,945	497	202
LGU-run utilities	4,326	16%	1,190	1,665	1,470
Water districts	695	3%	19	5	670
Homeowners' associations	380	1%	168	75	137
Real estate developers	111	0%	8	8	95
Industrial locators	45	0%	3	3	39
Peddlers	275	1%	148	104	23
Ship chandlers	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

LGU = local government unit

Source: NWRB (2020)

Of all water supply operators in the country, only service providers classified under local government unit (LGU)-run utilities and water districts are run by government entities. The rest are privately run and have independent operations, which, more often, are small organizations with limited service coverage areas. For instance, *barangay* (village) water and sanitation associations (BWSA) and rural waterworks and sanitation associations (RWSA) are community-based organizations intended to supply a few barangays in a municipality or city. Meanwhile, homeowners' associations operate water systems as part of the turned-over common facilities in a property or subdivision. These entities serve areas where an LGU-run utility, water district, or other dominant private players have no operations. Thus, investments from private players (except for the Manila concession and other concessions with government entities like

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the Bases Conversion and Development Authority and the Tourism Infrastructure and Enterprise Zone Authority, among others) are uncoordinated, and sometimes, overlapping (Velasco et al. 2020). With numerous water service providers run by many entities, the most direct way for a coordinated investment program financed by the government is through LGU-run utilities and water districts.

LGU-run utilities operate water systems for their constituents. Their power was derived from Republic Act (RA) 7160 or the Local Government Code of 1991 since water supply is a devolved function. On the other hand, water districts are GOCCs created by the LWUA under Presidential Decree (PD) 198 or the Provincial Water Utilities Act of 1973. The LWUA loans funds to water districts and exercises oversight and coordination functions nationwide. While there are numerous LGU-run utilities, NEDA (2019) quoted Castalia Strategic Advisors (2009) that LGU-run utilities are considered the “least successful” management model for providing water supply.

LWDs are GOCCs authorized to operate, manage, and maintain water systems in cities, municipalities, and provinces in the Philippines. Section 5 of the PD 198 outlines that LWDs are formed to:

- “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;
- provide, maintain, and operate wastewater collection, treatment, and disposal facilities; and
- 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”.

Water districts play an essential role in attaining these objectives, most especially in areas outside Metro Manila. There is considerable literature on Metro Manila’s east and west zone concessions, particularly its evolution, issues, and regulatory framework (Dumol 2000; Jensen and Wu 2016).

As one of the channels to implement water supply capital expenditures, water districts can help contribute to the attainment of the universal water supply access. However, water districts are hardly subsidized by the national or local government.

This study hopes to bring to light the current situation of water districts in the Philippines and answer whether they are primed to support the ambitious water access targets in the countryside. It looks at the collective financial performance of water districts from 2009 to 2019. It focuses on water districts as the most systematic avenue to channel government funding and support through the oversight and supervision functions of the LWUA and having made the most impact on water supply regionally. The specific objectives of this study are as follows:

1. Understand the profitability and financial performance and position (assets and liabilities) of the water districts’ aggregated national-level financial statements;
2. Evaluate the regional context of the national performance of water districts by examining the financial statements information of the regional aggregations of water districts; and
3. Assess water districts’ ability to carry out spending targets under the *PWSSMP 2019–2030*.

SITUATION OF WATER SUPPLY PROVISION IN THE PHILIPPINES

The *PWSSMP 2019–2030* lays down the needed reforms, investments, and financing in the Philippine water supply and sanitation sector. It outlines the plan to achieve universal access to water supply and sanitation by 2030. Among its pertinent goals are to achieve the water supply and sanitation milestones, as shown in Tables 2 and 3, respectively.

Table 2. Proposed benchmarks for government agencies and water service providers

	2015 baseline	2022 targets	2030 targets
Households with no access to safe water	12.8%	6.6%	0.0%
Households with access to level III water systems	43.6%	58.3%	77.1%
Households with access to level II water systems	11.2%	15.0%	14.0%
Households with access to level I water systems	32.4%	20.1%	8.9%

Source: NEDA (2019)

Table 3. Proposed benchmarks for government agencies and sanitation service providers

	2015 baseline	2022 targets	2030 targets
Households with septic tanks	74%	97%	100%
Households with access to septage collection services	12%	69%	100%
Households with access to sewerage systems	12%	23%	60%
Households connected to a sewerage system	3%	20%	50%

Source: NEDA (2019)

NEDA estimates a total investment spending of PHP 1,069.3 billion from 2019 to 2030 to achieve 100-percent water supply access, 77-percent piped water connection access, and 100-percent septage collection coverage, among other targets in the PWSSMP. The breakdown is shown in Table 4.

Table 4. Total investment requirements for the Philippine water sector, 2019–2030

Investment requirements (in PHP millions)	2019–2023	2024–2030	Total
Physical infrastructure	733,657	334,529	1,068,186
Water supply	278,070	233,011	511,081
Level III	234,107	216,953	451,060
Level II	37,559	15,315	52,874
Level I	6,404	743	7,147
Sanitation	455,587	101,518	557,105
Improved/basic	349,495	84,022	433,517
Septage	48,891	5,998	54,889
Sewerage	57,201	11,498	68,699
Nonphysical	658	469	1,127
Reform programs	323	-	323
Project management	335	469	804
Total	734,315	334,998	1,069,313

PHP = Philippine peso

Source: NEDA (2019)

Investment is split among the different implementers in the sector: LGU-run systems, water districts, and other private players. The financial plan is identified in the PWSSMP. The expected financing mix of these investments is shown in Tables 5 and 6 for water supply and sanitization, respectively.

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Table 5. Sources of financing for water supply investments, 2019–2023 (in PHP billions)

Item	% of total	Amounts
Water sector investment		278.10
Development loans	37.4%	104.0
LWUA (level III)		19.5
GFIs/WD (level III)		70.6
GFIs (level II)		14.0
Private sources	6.3%	17.6
Commercial loans	42.8%	118.9
Highly urbanized cities and public-private partnerships		99.2
Private water service providers		19.6
Grants	13.5%	37.60
LWUA		4.2
Department of Finance (level II)		13.0
DILG/LGU (level I–level III)		20.4

PHP = Philippine peso; LWUA = Local Water Utilities Administration; GFI = government financial institutions; WD = water districts; DILG = Department of the Interior and Local Government; LGU = local government unit
Source: NEDA (2019)

Table 6. Flow of funding for sanitation investments, 2019–2023 (in PHP billions)

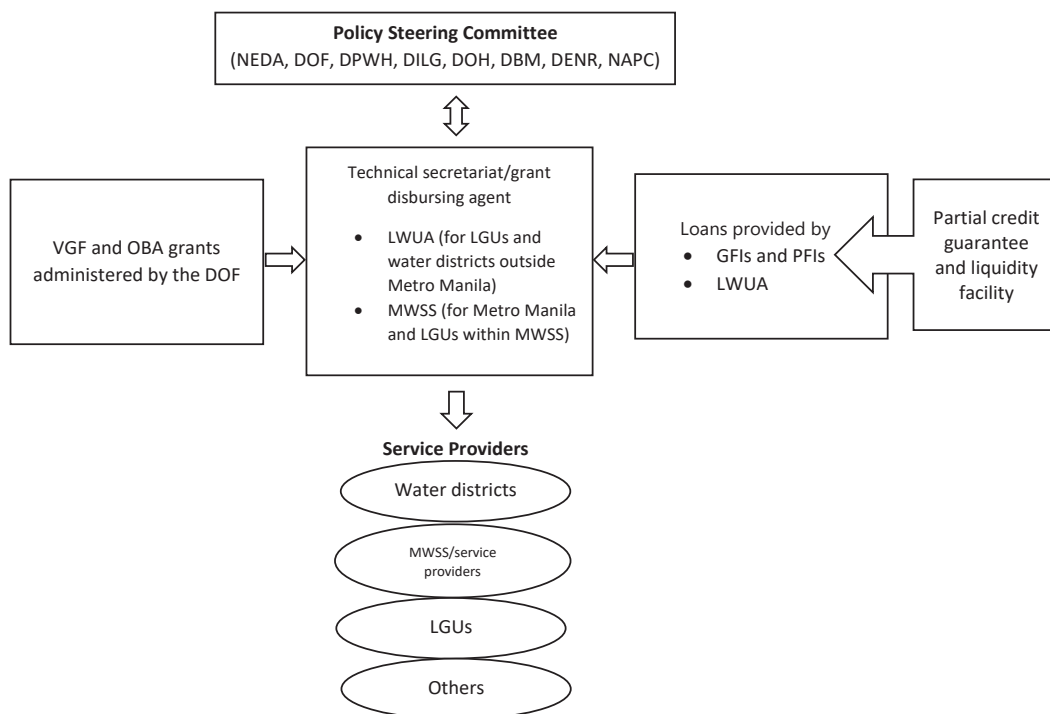
Item	% of total	Amounts
Sanitation sector investment		455.6
Development loans	37.4%	243.2
GFI/LWUA implementation		196.7
GFI/LGU Implementation		46.5
Private sources	0.6%	1.9
LGU/WD equity	1%	4.7
Grants	45%	205.8
LWUA		41.0
DILG/LGU implementation		12.0
GFI/LGU implementation		152.8

PHP = Philippine peso; GFI = government financial institutions; LWUA = Local Water Utilities Administration; LGUs = local government unit; WD = water district; DILG = Department of the Interior and Local Government
Source: NEDA (2019)

NEDA expects the private sector to raise 49.1 percent of the total water supply investment requirements. On the other hand, water districts are expected to invest PHP 94.2 billion for water supply and PHP 87.4 billion for sanitation from 2019 to 2023. These investments are intended to be funded through loans from the LWUA and government financial institutions (GFIs). As a channel for the national government to implement water supply investments, it is vital to study whether water districts can absorb this tremendous capital expenditure target. It is critical to assess if water districts can pay down the expected loans while remaining financially viable.

In 2014, NEDA commissioned a study to craft a unified financing framework (UFF) to overcome various financial, institutional, and regulatory problems in the water sector. As early as 2014, equity in the form of grants was identified as an integral component of the financing program. The structure of recommended UFF is shown in Figure 1.

Figure 1. Overview of the unified financing framework



NEDA = National Economic and Development Authority; DOF = Department of Finance; DPWH = Department of Public Works and Highways; DILG = Department of the Interior and Local Government; DOH = Department of Health; DBM = Department of Budget and Management; DENR = Department of Environment and Natural Resources; NAPC = National Anti-Poverty Commission; VGF = viability gap funding; OBA = output-based aid; LWUA = Local Water Utilities Administration; LGUs = local government units; MWSS = Metropolitan Waterworks and Sewerage System; GFIs = government financial institutions; PFIs = private finance initiative
Source: Castalia Strategic Advisors (2014)

The UFF recognizes that it will take multiple financing modes to fund the various needs of the sector. It defined two financing tracks: the output-based aid (OBA) and viability gap funding (VGF) track and the loans track. Under the UFF, a policy steering committee set policies on the financing program.

DATA AND METHODOLOGY

Data and limitations

Section 4, Article XI-D of the 1987 Philippine Constitution requires the Commission on Audit (COA) to submit to the President and the Congress an annual financial report (AFR)

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of the government and all its instrumentalities, including LWDs. A separate volume of the report is dedicated to LWDs. The AFR for water districts contains the consolidated national and regional financial position and performance of LWDs. Such reports are the primary data source of this study. The AFR also provides an aggregation of all available financial statements of LWDs in the Philippines. Consolidated financial position, performance, and cash flows are likewise presented on a regional, provincial, city, and municipality basis in the AFR.

One limitation of the study is that the national aggregate operational data, such as billed volume, nonrevenue water, and employees, among others, were unavailable, despite efforts to communicate with the relevant sources of this information (i.e., individual water districts and the LWUA). Thus, this study primarily relies on financial information as reflected in the consolidated national and regional annual financial statements and the accompanying notes to financial statements from the COA.

Methodology

A mixed-method approach was used in this study. A sequential explanatory approach was employed where information from the COA AFR was first obtained and processed to look for significant factors explaining the financial position and performance of water districts. In detail, the following steps were undertaken:

Financial position and performance

1. Data from the COA AFR for the period 2013–2018 were gathered, with relevant information summarized from the consolidated balance sheets, income statements, statements of changes in equity, and statements of cash flows at the national and regional levels.
2. Key trends, common-size financial statements², and other financial ratios were then determined to bring to light an understanding of the financial position and performance of water districts at the national level.
3. To provide additional context to the national performance, selected regional financial statements data were obtained and analyzed to supplement the consolidated national financials.

Financial sustainability

Spending and financing plans and coverage targets in the PWSSMP were used as input to forecast the consolidated financial performance and conditions of water districts. This was undertaken to determine whether the system of water districts could sustainably finance the required investments as designed in the PWSSMP. To determine whether the investment and financing plan can reasonably be absorbed, an analysis of the carrying capacity for additional debt and free cash flows at the national level was carried out. Through these analyses, an estimate of the equity requirements of water districts was obtained.

To introduce further analysis in the base forecast, additional scenarios were run to consider potential financing constraints. In particular, the study determined the required additional equity infusion needed by the government to make the balance sheet of water districts sustainable as they take on debt to finance these projects. The study explored sensitivity analysis on the level of equity

² Common-size financial statements are reports where the percentage distribution of the components of financial statements are reflected as a percentage of its total. For example, a common-size balance sheet involves expressing each balance sheet item as a percentage of total assets. This provides an avenue to detect structural differences across time (Ybanez and Ilano 2009).

needed, in case the financing institutions capped the debt capacity to 50 percent and 60 percent of the total assets, to guide policymakers on the equity funding requirements of water districts and enable them to contribute to the goals of the PWSSMP.

ASSESSMENT FRAMEWORK FOR FINANCIAL SUSTAINABILITY

In assessing the financial sustainability of GOCCs like LWDs, the financial statement analysis approach was adopted, similar to the methodology employed by Wirick et al. (1997) and Burdescu et al. (2020). The financial statement analysis approach uses the financial accounting information of the public utility indicated in the AFR. Key financial ratios and relationships among line items in the financial statements were computed to show various aspects of the water utility's financial performance and position. The key financial ratios refer to a standard framework of analysis in corporate finance and could be applied to LWDs, given the sustainability objective of operations and financials. The key considerations in financial statement analysis are discussed below.

Profitability and operating margin

Critical for firms, especially public utilities, profitability measures the ability of a company to generate income on its investments above costs incurred (Ybanez and Ilano 2009). In the context of water districts, profitability is critical because water districts are expected to be self-sufficient and be able to recover investments. A modest excess over the investments, which constitutes profit, is needed so that water districts may have stock resources to cushion against fluctuations in cost and revenues. The profitability of water districts is dependent on their ability to recoup costs via water tariffs. Section 37 of PD 198 mandates that charges to consumers shall be adequate and result in revenues to:

1. "provide for reimbursement from all new water customers for the cost of installation of new services and meters;
2. provide for revenue from all water deliveries and services performed by the district;
3. pay the operating expenses of the district;
4. provide for the maintenance and repairs of the works;
5. provide a reasonable surplus for replacement, extension, and improvements; and
6. 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".

While there is no prescribed rate of return for water districts under PD 198, generated net income should be enough to cover debt service and a reasonable surplus for contingency items like repairs and replacement. Thus, high returns are not expected from water districts. However, their profitability should be enough to cover some contingencies and debt service. The following measures were used in this analysis:

- **Net profit margin** measures as a percentage of sales the excess of all revenues over all costs of a company (Ybanez and Ilano 2009). Costs include costs to supply water to consumers and other costs not necessarily directly linked to the day-to-day operations of the company, such as interest expenses from financing, depreciation of property, plant, and equipment, and taxes. It is computed by dividing the net income of the company by its sales for a certain period. A positive net income margin is desired.

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- **Earnings before interest, taxes, depreciation, and amortization (EBITDA) margin** measure as a percentage of sale the excess of all revenues over the cost of the operations of the company, excluding non-operations items like interest expense, taxes, depreciation, and amortization expenses (Ybanez and Ilano 2009). This measure is critical because it demonstrates the ability of a water utility to recoup its operating costs, which is important for the sustainability of operations.

Adequacy of capital investment and fixed assets

Water utilities are among the most capital-intensive infrastructure companies (Hull 2013). A large amount of funding is required for water utilities to tap water sources, treat water, and distribute clean water to households. The capital expenditures are likewise bulky and costly, but massive capital investments are required to ensure that a satisfactory level of service is provided to the public. Capital expenditures for pipelines are required to expand service coverage, which, in turn, expands revenue base. Such an expanded revenue base contributes to the financial sustainability of water utilities. Capital expenditures are important for water utilities with less than universal coverage like in the Philippines. The adequacy of capital investments was assessed using two indicators:

1. Capital expenditure (CAPEX) per capita is calculated as the CAPEX spent in a year divided by the number of people in the service area at the end of the period (Burdescu et al. 2020). Water utilities with high CAPEX per capita means they invest in service coverage expansion, upgrades, and improvements annually.
2. Property, plant, and equipment (PPE) per capita is calculated as the cumulative amount of property, plant, and equipment in the balance sheet of water districts divided by the population in the service area. As opposed to CAPEX per capita, which measures annual investments, PPE per capita shows the cumulative investments of a water utility per population. This is expected to be sustained and increased as service coverage also increases.

Financial leverage and solvency

Financial leverage and solvency analysis delve into the financial policies adopted by companies (Weston and Copeland 1992). Financial leverage or capital structure refers to the mix of funding of a company. CAPEX may either be funded by debt or through infusions of equity to a company. Debt is borrowed money from banks, investors, or the general public, which is lent to corporations in exchange for payment of interest. The amounts borrowed are then expected to be returned to lenders. On the other hand, equity is funding that business owners infused in the company.

The choice of funding mix, whether new investments are to be funded out of debt or out of equity, is called capital structure policy (Ybanez and Ilano 2009). Financial ratios related to leverage seek to check whether debt levels are reasonable and will be justifiably paid down by the company. If debt levels are unreasonably high, the company may not be able to pay off its debt, resulting in water utility's nonviability.

- **Debt ratio** is the ratio of total debt of a company to total assets. It measures the proportion of asset investments funded by debt. A high debt ratio is not necessarily bad, but there are tolerable debt levels for specific kinds of businesses. In the water sector, a modest debt ratio is between 67 percent and 75 percent (Jordan 1998).
- **Current ratio** is measured by dividing current assets by current liabilities. Current assets are cash and other assets easily converted into cash like receivables, inventories,

short-term investments, prepayments, and other current assets. On the other hand, current liabilities are debt of companies due to be paid within a year or within the operating cycle of a company, such as salaries payable, trade payables, and debts due within a year (Ybanez and Ilano 2009). It is a measure of the ability of a water utility to pay its debt that is due. If the current ratio is above 100 percent, it means the company has enough current assets to pay off the liabilities in the near term. An acceptable current ratio is between 160 percent and 200 percent (Dreese and Beecher 1993; Jordan 1998).

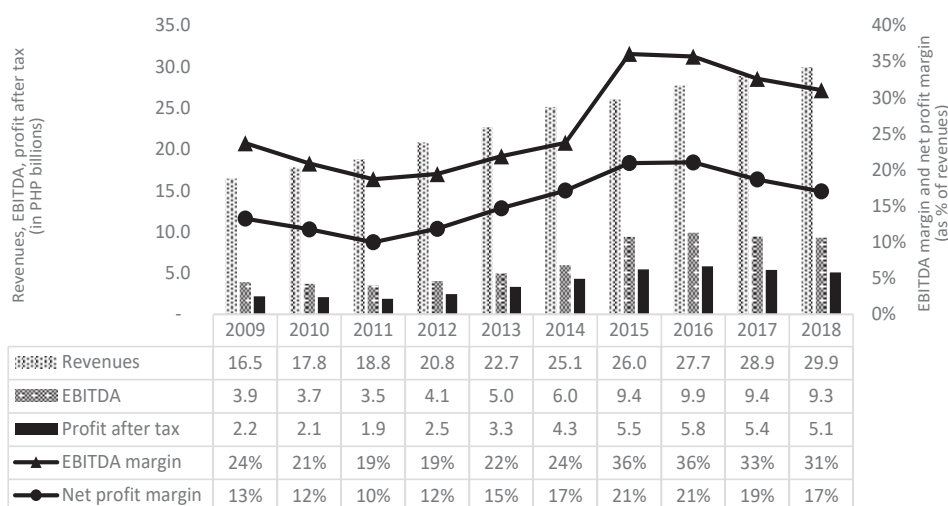
- **Debt service coverage ratio (DSCR)** is obtained by dividing the cash flows from operations within a period by the amount of debt and interest payments for the same period (Gatti 2013). Ratio indicates whether the financial resources generated by water utility can cover debt service paid to lenders. A business must ensure that the ratio is at least 100 percent to be financially viable. This means that a water utility can generate enough cash flows from its operations to pay for debt and interest. The acceptable minimum DSCR for water utilities is between 120 percent and 130 percent (Gatti 2013).

RESULTS

Profitability and operating margin

Figure 2 summarizes the results of the profitability and operating margin. The consolidated national revenues of water districts rose by a compounded annual growth of 6.9 percent in 2009 to PHP 29.9 billion in 2018. Growth in the EBITDA and profit after tax is stronger than revenue growth at 10.1 percent and 9.9 percent, respectively. Over the 10-year horizon, the EBITDA and net profit margins of water districts increased from an average of 21.4 percent and 13.1 percent in 2009 to 2014, to a step increase to 33.9 percent and 19.4 percent, respectively, from 2015 to 2018. Improvement in the EBITDA was driven by lower maintenance and other operating expenses (MOOE), which shrank from 47 percent (as a percentage of sales) in 2009 to 38 percent in 2018. Personnel expenses mostly held still at 30 percent of sales.

Figure 2. Nationwide revenues, EBITDA, profit after tax, and some profitability measures, 2009–2018



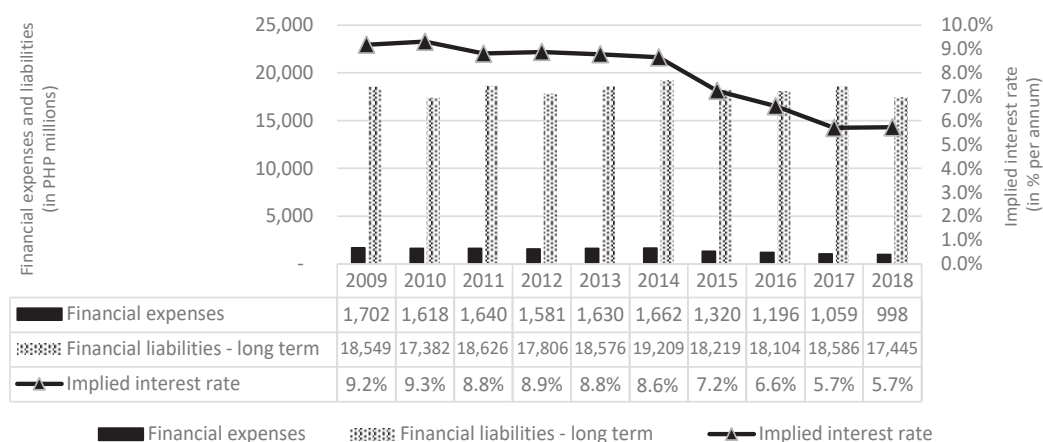
EBITDA = earnings before interest, taxes, depreciation, and amortization; PHP = Philippine peso

Source: COA (2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, and 2019); author's calculations

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Profit after tax was further boosted by lower financial expenses from 11 percent of sales in 2008 to 4 percent in 2018. The reduction in financial expenses is a function of the reduction of LWUA's lending rates to water districts and a diversification of their funding base to include loans from the Development Bank of the Philippines and the Land Bank of the Philippines. The reduction in the LWUA's interest rates was approved in 2017 (Resolution 57, series of 2017). This reduced the effective nationwide interest on loans from 9.2 percent in 2009 to 5.7 percent in 2018, as illustrated in Figure 3.

Figure 3. Financial expenses, financial liabilities, and implied interest rate, 2009–2018



PHP = Philippine peso

Source: COA (2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, and 2019); author's calculations

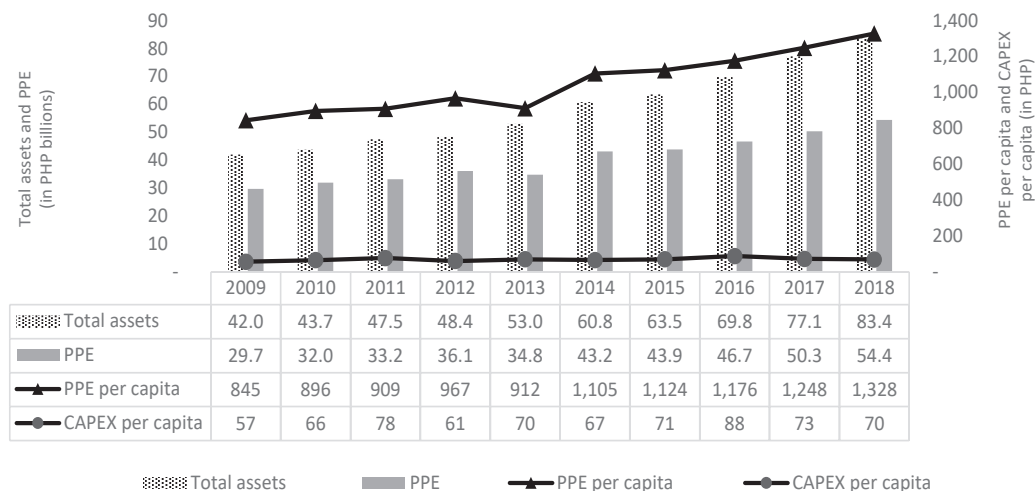
Water districts' operations have improved over the last 10 years, as shown by EBITDA and net profit margins. This bodes well for the overall sustainability of the sector and shows it is not in a losing situation and may sustainably operate at its current levels. While the national performance of water districts appears positive, it may mask subnational performance. This is expounded on the section on regional performance.

Given where the country is on piped water supply availability, the status quo operations are not enough. An investigation of asset investments is important to ensure that the 2022 and the 2030 goals of the PWSSMP are achieved.

Adequacy of capital investment and fixed assets

The asset base of water utilities is an important success measure. Being in a capital-intensive operation, water utilities need frequent and regular capital expenditures to ensure service coverage expansion, water availability and quality, and sustainable use of water resources. An analysis of capital investments is shown in Figure 4. The consolidated national total assets grew by 7.9 percent on a compounded basis from PHP 42.1 billion in 2009 to PHP 83.4 billion in 2018. Consolidated total assets grew at this pace on the back of a 7-percent growth from investments in PPE, representing investments in water treatment plans, wells, distribution pipelines, and other water supply and sanitation facilities.

Figure 4. Nationwide total assets, PPE, and CAPEX per capita of water districts, 2009–2019



PPE = property, plant, and equipment; CAPEX = capital expenditure; PHP = Philippine peso

Source: COA (2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, and 2019); authors' calculations

During this period, growth in total assets was driven by an accumulation of cash and cash equivalents, rising by a compounded annual growth rate of 13.7 percent from PHP 2.1 billion in 2009 to PHP 12.2 billion in 2018. Cash balances from 2009 to 2019 were equivalent to 4.2 months' worth of operating expenses on average, which is above the LWUA's prescribed cash balance for two to three months.³ The same growth in more liquid assets was observed as the total current assets grew by 11.5 percent over the 10-year horizon. Total assets and PPE grew slightly faster in the last five years (9.5% and 9.3%, respectively) versus the last 10 years (7.9% and 7.0%, respectively). This is a good sign because broader and more equitable water access is dependent on increased capital expansion, water quality, and water resource expenditures.

PPE per capita (excluding Metro Manila) was at PHP 845 per capita in 2009 and rose to PHP 1,328 per capita in 2018 with a compounded annual growth rate of 5.2 percent. The growth in the past five years (7.8%) is higher than in the last 10 years, mirroring total assets and PPE trends.

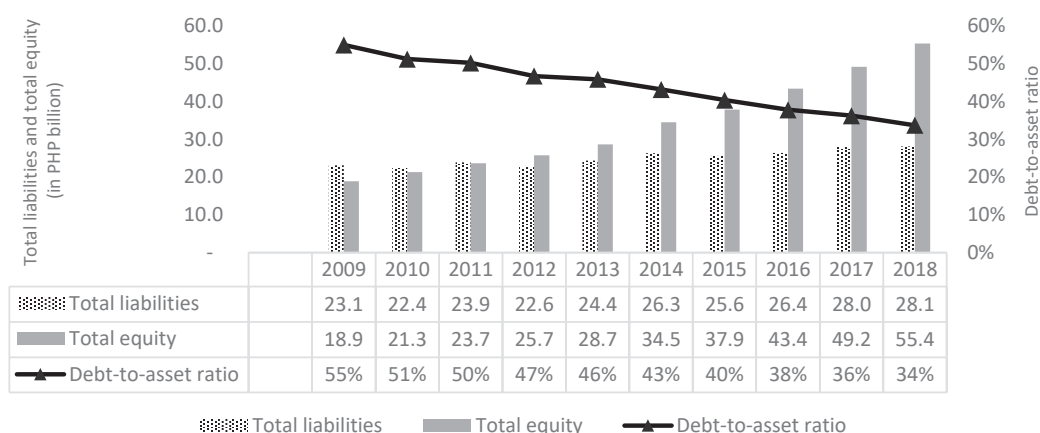
Financial leverage and solvency

The capital structure of water districts is shown in Figure 5. Total assets and PPE have grown over the past 10 years, although at a modest increase, given the massive investment requirements laid out in the PWSSMP. Total liabilities have been stable over the 10-year horizon, growing at a compounded annual growth rate of 2.2 percent versus an asset growth of 7.9 percent. Thus, water districts were able to fund some of this asset growth through their accumulated retained earnings. The accumulation of equity bodes well for the sector as it buckles down with an aggressive capital expenditure plan from 2019 to 2030. The sector's debt ratio steadily declined in the past 10 years and was at 33.7 percent at the end of 2018.

³ Based on the author's interview with key informant Marites D. Talavera, division manager A at the Loans and Water Rates Division 3 of the LWUA, Quezon City, Philippines, on October 8, 2020.

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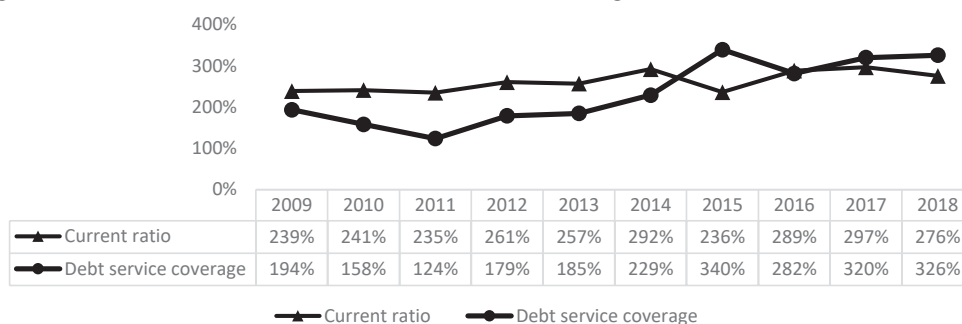
Figure 5. Nationwide total debt, equity, and debt-to-asset ratio of water districts, 2009–2018



PHP = Philippine peso

Source: COA (2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, and 2019); author's calculations

Figure 6. Nationwide current ratio and debt service coverage ratio of water districts, 2009–2018



Source: COA (2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, and 2019); author's calculations

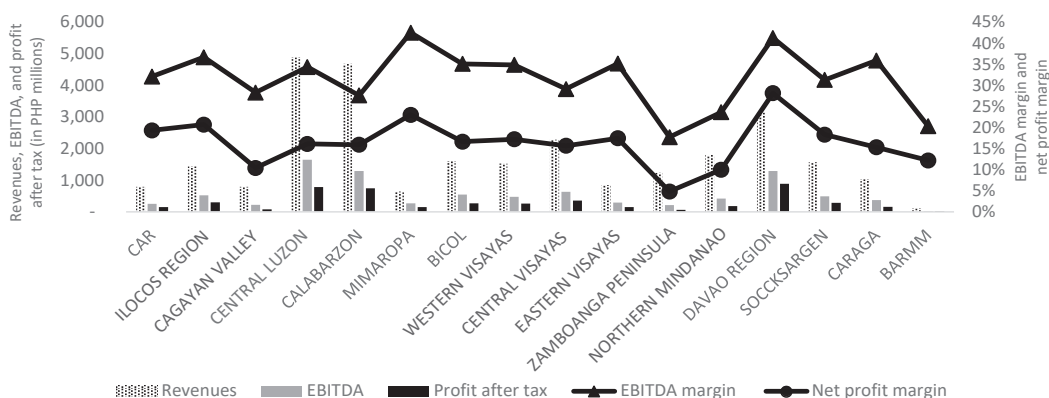
REGIONAL FINANCIAL POSITION AND PERFORMANCE OF WATER DISTRICTS

The AFR provided the aggregations of water districts' financial performance per region. The comprehensive comparative data for all regions are shown in Annex A and their summary performance in Figure 7. In terms of operation size, the smallest water district operations are in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM); Cordillera Administrative Region (CAR); and Mindoro, Marinduque, Romblon, and Palawan (MIMAROPA). Meanwhile, the largest operations were in regions with higher population and economic activity, such as Central Luzon; Cavite, Laguna, Batangas, Rizal, and Quezon (CALABARZON); and Davao Region. However, regions with larger asset base did not necessarily yield more profitable operations. CALABARZON and Central Luzon were in the middle of the pack in terms of profitability measures, while Davao Region, MIMAROPA, CAR, and Ilocos Region exhibited better profitability. On the other hand, BARMM, Zamboanga Peninsula, Northern Mindanao, and Cagayan Valley are the worst performers in terms of profitability.

Differences across regions are most pronounced in piped house connections (level III water system). As can be gleaned from Figure 6, areas with low level III water supply access have low gross regional domestic product (GRDP) per capita (Figure 8).

Velasco

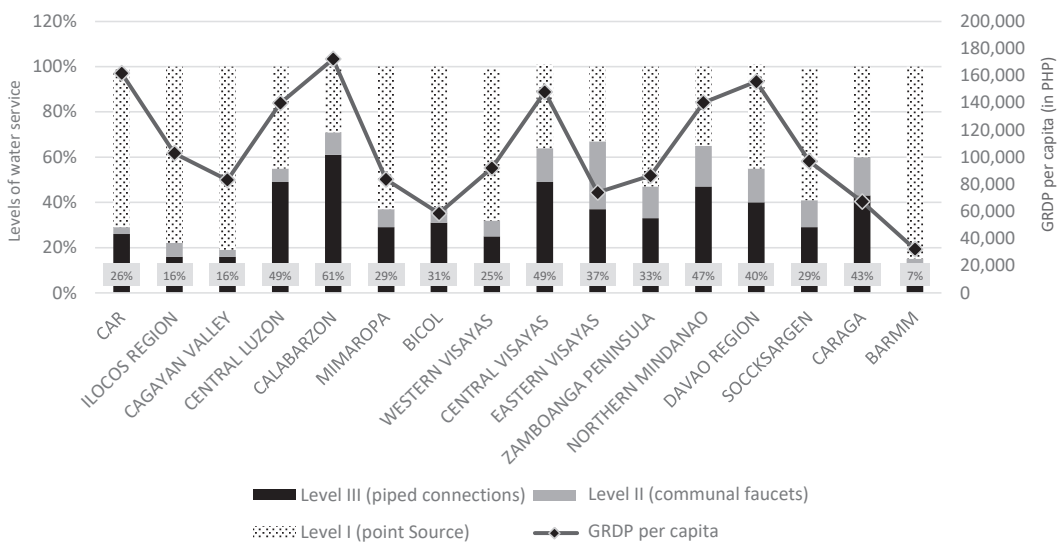
Figure 7. Revenues, EBITDA, and profit after tax of water districts per region, 2018



CAR = Cordillera Administrative Region; CALABARZON = Cavite, Laguna, Batangas, Rizal, and Quezon; MIMAROPA = Mindoro, Marinduque, Romblon, and Palawan; SOCCKSARGEN = South Cotabato, Cotabato, Sultan Kudarat, Sarangani, and General Santos; BARMM = Bangsamoro Autonomous Region in Muslim Mindanao; EBITDA = earnings before interest, taxes, depreciation, and amortization

Source: COA (2019); author's calculations

Figure 8. Levels of water service per region and GRDP per capita



CAR = Cordillera Administrative Region; CALABARZON = Cavite, Laguna, Batangas, Rizal, and Quezon; MIMAROPA = Mindoro, Marinduque, Romblon, and Palawan; SOCCKSARGEN = South Cotabato, Cotabato, Sultan Kudarat, Sarangani and General Santos; BARMM = Bangsamoro Autonomous Region in Muslim Mindanao; GRDP = gross regional domestic product

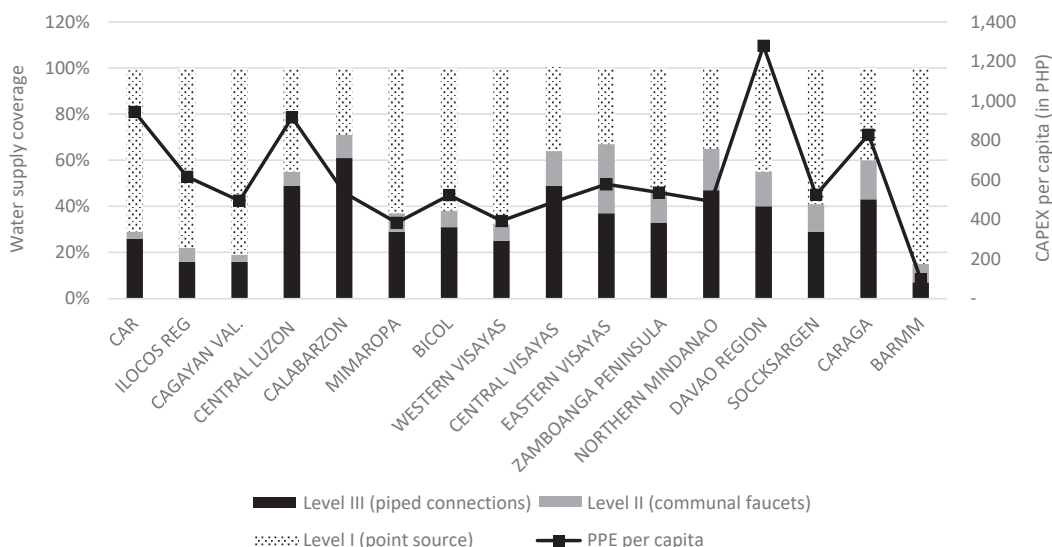
Note: Data labels refer to the percentage of population covered by level III water systems for emphasis. Moreover, levels of water service per region include all water service providers and not just water districts.

Source: NEDA (2019)

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Generally, the disparity is most apparent when PPE per capita is compared, representing investments in these regions for water distribution, facilities, and water quality, which is markedly lower in areas with low GRDP and service coverage for level III water systems. Thus, it is critical to ensure that the investments will help regions with a vast disparity in water availability (Figure 9).

Figure 9. Water supply coverage and capital expenditures spent per capita, 2018



CAPEX = capital expenditure; PHP = Philippine peso; PPE = property, plant, and equipment; CAR = Cordillera Administrative Region; CALABARZON = Cavite, Laguna, Batangas, Rizal, and Quezon; MIMAROPA = Mindoro, Marinduque, Romblon, and Palawan; SOCCCKSARGEN = South Cotabato, Cotabato, Sultan Kudarat, Sarangani and General Santos; BARMM = Bangsamoro Autonomous Region in Muslim Mindanao

Source: COA (2019); NEDA (2019); author's calculations

DEBT CAPACITY TO SUSTAIN INVESTMENT TARGETS UP TO 2023

To achieve the 2022 and 2030 targets enshrined in the PWSSMP, NEDA estimates a total investment spending of PHP 1,069.3 billion from 2019 to 2030. Of this amount, the LWUA and the water districts need to spend PHP 94.17 billion and PHP 87.41 billion for water supply and sanitation, respectively, from 2019 to 2023, based on the breakdown shown in Table 7.

Table 7. Breakdown of funding sources for the 2019–2023 investment plan of water districts (in PHP billions)

Source of financing for water districts	Water supply	Sanitation	Total
LWUA loans	19.45	46.45	136.41
GFI loans	70.51	-	-
Total debt	89.96	46.45	136.41
Grants	4.21	40.95	45.17
Total	94.17	87.41	181.58

PHP = Philippine peso; LWUA = Local Water Utilities Administration; GFI = government financial institutions

Source: NEDA (2019)

A significant majority of funding sources for water districts are in the form of loans. Thus, it is critical to assess whether water districts can reasonably absorb these loans to execute their investment program and pay them out subsequently. A review of the 2009–2018 financials points to a substantial reduction of debt burden. However, it is unclear whether a debt burden of PHP 136.4 billion from 2019 to 2023 is feasible. According to the author’s estimates, the available debt capacity of water districts nationally, based on their current financial position, is estimated to be at only PHP 43.3 billion from 2019 to 2023 at a maximum debt ratio of 70 percent. This is only 31.7 percent of water districts’ needed investments to reach NEDA’s 2023 vision for the sector.

Estimating debt capacity using balance sheet leverage limits

To fund the balance of PHP 93.16 billion, the government needs to infuse nearly PHP 28-billion fresh equity to water districts nationwide to finance the balance via debt, assuming a 70-percent debt ratio (Table 8). The next question is whether water districts can service debt at 70 percent, given that they have been operating at low levels for the past 10 years.

Table 8. Estimated potential debt capacity of water districts using balance sheet limits, 2019–2023

In PHP billions	2019E	2020E	2021E	2022E	2023E	Total
Equity	47.5	52.6	58.1	63.9	70.1	
Liabilities	26.4	24.6	22.9	21.2	19.5	
Total liabilities and equity	73.9	77.3	81.0	85.1	89.6	
Debt ratio before additional debt	35.7%	31.9%	28.3%	24.9%	21.7%	
Additional debt capacity at a hypothetical maximum debt ratio of 70%	25.7	4.1	4.3	4.6	4.9	43.2
Debt requirement (2019–2023 according to the PWSSMP)						136.4
Unfunded portion						93.2

PHP = Philippine peso; E = estimate; PWSSMP = Philippine Water Supply and Sanitation Masterplan

Source: Author’s calculations; NEDA (2019)

Assuming a lower feasible debt ratio of 60 percent or 50 percent, the amounts needed to be infused by the government to reach total funding of PHP 136.4 billion are PHP 40.9 billion and PHP 55.5 billion, respectively. These analyses are summarized in Table 9. The national government needs to step up and support water districts by ensuring that they have the necessary equity to scale up investments and leverage these through external debt financing. It is simply impossible to achieve the 2019–2023 investment plans of the PWSSMP by relying on debt funding alone.

Table 9. Debt and equity requirements to fund investment plan at different debt ratios (in PHP billions)

Debt-asset ratio	70%	60%	50%
Debt that can be raised by water districts given their current operations	108.5	95.6	80.9
Equity that needs to be infused by the national government to maintain debt-asset ratio	28.0	40.9	55.5

PHP = Philippine peso

Source: Author’s calculation

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Estimates are based on the aggregate balance sheets of 488 water districts. Some of them may be overperforming or underperforming versus the national average, which may increase or reduce the estimated equity requirement. Therefore, investment plans must be analyzed per water district to ensure that each can reasonably raise and support financing.

Estimating debt capacity using free cash flows to equity

A second approach to determine the debt capacity of water districts is through free cash flow estimates. Free cash flows refer to the amount of cash that a firm can pay out after making all necessary investments for its operations (Brealey et al. 2006). Free cash flows are cash generation free to be paid to different providers of capital—both creditors and investors. Free cash flows can be further classified into two types:

1. Free cash flows to firm – “cash flow available for the company’s suppliers of capital after all operating expenses have been paid and necessary investments in working capital and fixed capital have been made” (Clayman et al. 2012, p. 468).
2. Free cash flows to equity – “cash flow available to a company’s common shareholders after all operating expenses, interest, and principal payments have been made, and necessary investments in working and fixed capital have been made” (Clayman et al. 2012, p. 468).

Free cash flows to equity are useful in estimating the equity requirement of water districts. A positive free cash flow to equity implies that the water operations and debt financing program can generate enough cash so that there are excess cash flows, which water districts can retain as equity. A negative free cash flow means that the cash generation and lending program are not enough and require equity funding to ensure that operations and debt service are fully provided for. If the cumulative annual free cash flow to equity is negative, then the amount represents the equity needed to make operations sustainable.

Free cash flows to equity from 2019 to 2023 are estimated based on the forecasted operating cash flows and the capital expenditure program of the PWSSMP. For financing cash flows, the amount of loan was capped initially by a 70-percent debt-asset ratio. Under this base case, the equity requirement is estimated at PHP 21.3 billion from 2019 to 2023 (Table 10). Assuming a lower allowable maximum debt-asset ratio of 60 percent and 50 percent, estimated requirements are at PHP 31.9 billion and PHP 51.6 billion, respectively.

Table 10. Estimated potential debt capacity of water districts using free cash flow to equity, 2019–2023 (in PHP billions)

Debt-asset ratio cap	70%	60%	50%
Cumulative free cash flows to firm	(88.1)	(88.1)	(88.1)
Cumulative loan drawdowns allowed by debt cap	129.6	112.8	76.5
Cumulative loan and interest payments	(62.8)	(56.6)	(39.9)
Cumulative free cash flows to equity, which corresponds to equity requirement	(21.3)	(31.9)	(51.6)

PHP = Philippine peso

Source: Author’s calculations

Results from both methodologies are summarized in Table 11. Based on the two methodologies, the estimated equity requirement of water districts to implement the 2019–2023 spending program,

as outlined in the PWSSMP, is at PHP 21.3 billion to PHP 55.5 billion, with a range driven by debt-asset ratio cap that lending institutions allow.

Table 11. Summary of estimates of equity requirement, 2019–2023 (in PHP billions)

Equity requirement	Debt-asset ratio target		
	70%	60%	50%
Balance sheet limits	28.0	40.9	55.5
Free cash flows to equity	21.3	31.9	51.6

Source: Author's calculations

CONCLUSION

This study assesses the financial performance and conditions of water districts in the Philippines within the context of achieving the PWSSMP 2019–2030 objectives. Consolidated national data show that the performance of water districts has improved in the past 10 years, with their profitability significantly improving at the EBITDA and profit after tax levels. The strong performance of water districts is also reflected in high cash flows, debt service coverage ratio, and lower debt ratios. More capital investments are being funded internally, thus lowering the debt burden of water districts.

With the spending program under the PWSSMP, lower debt ratios primed the implementation of an aggressive spending program to achieve the 2023 and the 2030 goals of universal access to water and sanitation. However, the country's spending plans are so ambitious that the current balance sheets of LWDs cannot sustain planned investments through debt financing. Thus, the national government needs to bolster the LWDs' balance sheets by infusing fresh equity of PHP 21 billion to PHP 56 billion to attain the Philippines' 2030 water supply and sanitation targets. These infusion requirements are critical, considering the Mandanas ruling, wherein the internal revenue allotment of LGUs will increase by PHP 225.3 billion (Manasan 2020).

The national government is forced to review its spending program. The executive department needs to ensure that local governments invest in infrastructures, including water districts (Sicat et al. 2020). The study likewise shows a significant disparity in water investments across different regions, which significantly impacts the uneven water service coverage throughout the Philippines.

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ANNEXES

Annex A. Summary of consolidated regional financial position and performance of water districts in the Philippines

Unit	CAR	R1	R2	R3	R4-A	R4-B	R5	R6	R7	R8	R9	R10	R11	R12	R13	BARM
SIZE MEASURES																
Revenues	PHPM	790	1,443	788	4,888	4,683	639	1,608	1,532	2,283	847	1,235	1,794	3,147	1,568	1,036
Net Income	PHPM	153	299	82	787	745	147	268	264	358	148	60	179	886	287	159
Assets	PHPM	2,239	4,735	2,336	13,880	11,168	1,655	4,575	4,183	6,160	3,428	3,053	4,465	11,431	3,594	2,942
Property, Plant and Equipment	PHPM	1,625	3,099	1,708	10,285	7,719	1,136	3,036	2,960	3,617	2,567	1,948	2,310	6,257	2,386	2,154
Cash flow from Operations	PHPM	194	473	107	1,254	862	269	427	452	522	329	186	557	270	375	266
PROFITABILITY MEASURES																
Net Income per Capita	PHP	89	59	24	70	52	50	46	35	48	33	16	38	181	63	61
EBITDA Margin	%	32.1%	36.7%	28.3%	34.4%	27.6%	42.5%	35.1%	34.9%	29.1%	35.2%	17.7%	23.6%	41.3%	31.3%	35.9%
Net Profit Margin	%	19.3%	20.7%	10.4%	16.1%	15.9%	23.0%	16.7%	17.2%	15.7%	17.4%	4.8%	10.0%	28.1%	18.3%	15.3%
Return on Assets	%	7.4%	7.1%	4.9%	6.6%	7.3%	9.7%	7.3%	7.5%	6.4%	5.4%	3.0%	5.1%	7.9%	8.9%	7.2%
CAPITAL EXPENDITURE MEASURES																
Assets per Capita	PHP	1,300	942	677	1,237	775	559	789	555	833	772	841	952	2,336	791	1,133
PPE per Capita	PHP	944	617	495	917	535	383	524	393	489	578	537	493	1,279	525	830
LIQUIDITY																
Current Ratio	x	4.86	3.77	1.19	2.62	3.40	6.50	2.39	1.77	2.65	1.74	1.76	5.12	3.62	2.90	2.35
Quick Assets Ratio	x	2.03	3.33	0.92	2.25	2.29	5.22	1.99	1.53	2.30	1.35	1.42	2.31	2.63	2.29	1.82
SOLVENCY																
Debt Ratio	x	0.22	0.31	0.57	0.30	0.25	0.32	0.39	0.62	0.34	0.45	0.41	0.35	0.22	0.31	0.48
Debt Service Coverage Ratio	x	2.44	4.11	3.90	3.33	5.15	4.03	3.08	4.09	3.30	1.38	1.62	3.97	4.62	7.25	1.07
Debt - CFO Ratio	x	x	3.08	12.37	3.32	3.24	1.96	4.22	5.78	4.07	4.71	6.73	2.79	9.18	2.96	5.33
CASH FLOW MEASURES																
CFO per Capita	PHP	113	94	31	112	60	91	74	60	71	74	51	119	55	83	102
Debt - EBITDA Ratio	x	1.58	2.44	5.52	2.04	1.52	1.72	2.86	3.62	1.54	4.29	4.50	3.19	1.70	1.96	3.34
Debt - CFO Ratio	x	2.55	3.08	12.37	3.32	3.24	1.96	4.22	5.78	4.07	4.71	6.73	2.79	9.18	2.96	5.33

CAR = Cordillera Administrative Region; BARM = Bangsamoro Autonomous Region in Muslim Mindanao; PHP = Philippine peso; M = million; EBITDA = earnings before interest, taxes, depreciation, and amortization; PPE = property, plant, and equipment; CFO = cash from operations

Note: Boxes in green pertain to top performers, those in white are at the 50th percentile, and those in red represent the worst performers for each measure.

Source: COA (2018); author's calculations



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Primary Health Care and Management of Noncommunicable Diseases in the Philippines

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ABSTRACT

As the Philippines adopts major reforms under the Universal Health Care Act and embarks on an integrated and primary health care (PHC)-oriented system, it is critical to assess its readiness to manage noncommunicable diseases (NCDs)—the leading disease burden in the country. In 2019, NCDs accounted for about 70 percent of 600,000 deaths nationwide. Today, premature deaths caused by NCDs are increasing at a much faster rate, especially in poor communities. The Philippine health system, however, is historically designed to address infectious diseases and maternal and child health conditions. The delivery of health services in the country has also remained episodic and fragmented, a model unfit for the management of NCDs. This study assesses the readiness of the country's PHC in the context of governance, financing, service delivery, human resources, and information and communications technology. It identifies challenges in the availability, quality, and equity of the country's health system, which hamper the provision of comprehensive and continuous healthcare services in local communities.

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INTRODUCTION

Noncommunicable diseases (NCDs) are the leading cause of disease burden in the country. In 2019, NCDs accounted for 70 percent of the total 600,000 deaths and 65 percent of 33 million disability-adjusted life years (DALYs) (IHME 2020). NCDs are conditions of long duration and slow progression. Its common types are cancers, chronic respiratory diseases, cardiovascular diseases, and diabetes, among others.

In the Philippines, where out-of-pocket (OOP) expenses remain the major source of health spending, poor and near-poor patients can be impoverished because of the large and recurring health expenditures on NCDs (Allen et al. 2016; Flores and O'Donnell 2016). This has a tremendous consequence on a country's macroeconomic growth and poverty-reduction efforts (Bertram et al. 2019). The growing NCDs epidemic can result in cost pressure in the health systems of countries (WHO 1999) since NCDs are expensive to treat and require periodic laboratory diagnostics, physician consults, maintenance medications, and hospitalizations for complications (Kankeu 2013; Subramanian 2018). Given the possible economic and health consequences of NCDs, the government must adopt effective and efficient approaches to reduce the burden of NCDs in the country.

Robust primary health care (PHC) is critical in addressing NCDs (WHO 2011a, 2018; Demaio et al. 2014). PHC serves as the initial point of contact of individuals, families, and communities with a healthcare system. It provides greater access to early management of diseases through first contact and continuous healthcare services. Ideally, NCDs are managed in local communities, where people are closer to home, and interventions are more appropriate and less expensive (WHO 2020; NCD Alliance n.d.). PHC handles NCDs in mature health systems. However, it remains weak in most low- and middle-income countries (LMICs) (Islam et al. 2014; Elias et al. 2017).

This study assesses the readiness of PHC in the country by identifying challenges in its health system that hinder the comprehensive and continuous delivery of NCD interventions. It is of high relevance as the Philippines embarks on major health reforms under the Universal Health Care (UHC) Act.

NCD BURDEN IN THE PHILIPPINES

NCD deaths in the country have continuously increased in recent years. The contribution of NCDs to total deaths rose from 39 percent in 1990 to 64 percent in 2019 (IHME 2020). While infectious diseases (e.g., tuberculosis and lower respiratory tract infections [LRTI]) and maternal and child health conditions comprise a significant proportion of the disease burden, their share has declined in the past three decades. On the other hand, almost all NCDs have increased precipitously (IHME 2020). For example, the burden of ischemic heart disease in DALYs increased from 1.9 percent in 1990 to 7.5 percent in 2019. Other NCDs, such as stroke, LRTI, chronic kidney disease, and diabetes, are included in the top 10 burden of diseases in the country (Table 1) (IHME 2019, 2020).

Table 1. Top burden of diseases and share of total DALYs in the Philippines by cause, 2019

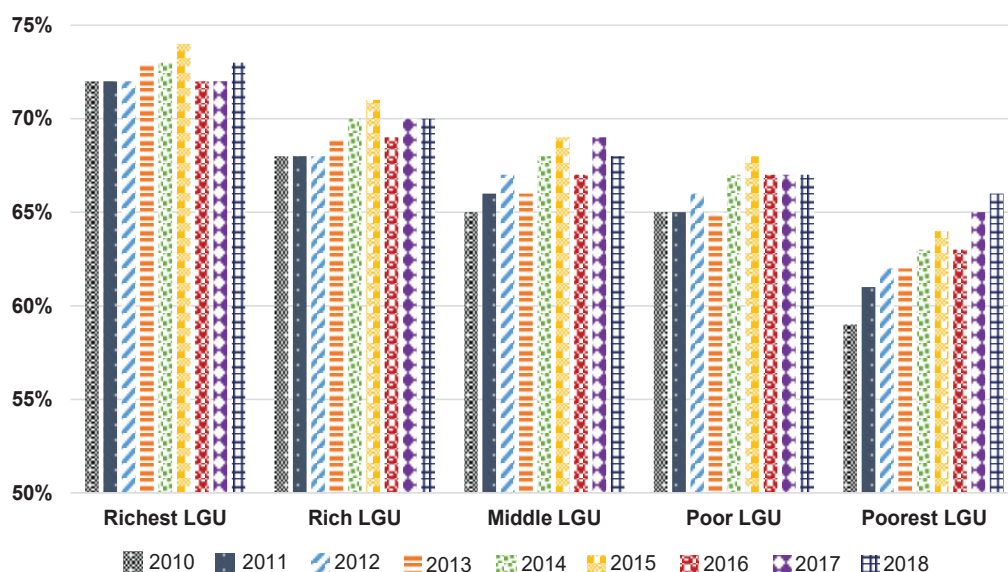
Rank	Cause	Share of total DALYs			
		1990	2000	2010	2019
1	Ischemic heart disease	1.9%	4.4%	6.7%	7.5%
2	Neonatal disorder	11.2%	11.1%	9.5%	7.4%
3	Stroke	2.0%	3.7%	6.0%	6.3%
4	Lower respiratory tract infections	11.3%	8.8%	7.0%	6.0%
5	Chronic kidney disease	1.5%	1.9%	2.9%	3.5%
6	Tuberculosis	4.5%	4.5%	3.9%	3.5%
7	Diabetes	2.4%	2.4%	2.5%	3.2%
8	Low back pain	2.5%	2.5%	2.7%	3.0%
9	Interpersonal violence	4.0%	4.0%	2.9%	2.8%
10	Congenital defects	3.1%	3.1%	3.3%	2.7%

DALYs = disability-adjusted life years

Source: IHME (2019, 2020)

NCDs afflict the poor segment of the population. Latest mortality data from the Philippine Statistics Authority (PSA 2018) suggest that NCDs are increasing at a much faster rate in poor than in rich communities. Figure 1 shows the share of NCD deaths in municipalities and cities in the last decade, disaggregated by local government unit (LGU) poverty incidence. While the share of NCD deaths among all deaths in the poorest communities was lower than in rich communities, an upward trend over the last decade was observed. Meanwhile, the share of NCD deaths in relatively rich communities remained stagnant.

Figure 1. Share of NCDs in total deaths by year and municipal poverty incidence



NCDs = noncommunicable diseases; LGU = local government unit

Note: Poverty incidence of LGUs are from the PSA.

Source: Authors' analysis of mortality data from PSA (2018)

Primary Health Care and Management of NCDs in the Philippines

The growing burden of NCDs has socioeconomic consequences (Engelgau et al. 2011), particularly on poor communities, which typically do not have enough resources to diagnose and manage NCDs. Because of the chronic nature of NCDs and the high health care costs associated with them, poor households are further pushed into extreme poverty, either through OOP health spending or loss of economic productivity (Datta et al. 2018; Rijal et al. 2018; Verma et al. 2021).

The epidemiologic transition to NCDs can be partly attributed to the fast-changing demographics (Omran 2005). Epidemiologic transition refers to the change in disease patterns and causes of death. This means children born in the 1900s would have likely died due to infectious diseases, but children in the 20th century will most likely die because of NCDs (Omran 2005).

The Philippine population is relatively young but now starting to age. Aging happens when fertility rates drop, and life expectancy remains unchanged or improves (Population Reference Bureau 2020). In the Philippines, the total fertility rate, or the average number of children a woman would have at the end of her reproductive period (WHO n.d.), has declined in recent decades (World Bank 2020). With such patterns, deaths attributed to infectious diseases and maternal and infant deaths will further decline, but the burden related to NCDs will increase.

Changing socioeconomic status explains the increasing NCD risk factors. In the Philippines, the percentage of the population living in urban areas had increased from 30 percent in the 1960s to 50 percent in 2019 (World Bank 2020). In the past decades, traditional communities in the Philippines experienced hurried and unforeseen urbanization, which resulted in lifestyle changes like unhealthy dietary patterns and sedentary behaviors (McDade and Adair 2001).

The nexus of PHC and NCDs

PHC serves as the entry point of a population to a healthcare system. It ensures that people receive comprehensive and continuous care ranging from promotion, prevention, treatment, rehabilitation, and palliation. As such, PHC should also be delivered in communities (WHO 2019). Table 2 shows the examples of PHC services for NCDs by prevention strategy.

Table 2. Examples of PHC services for NCDs by prevention strategy

Primordial (Interventions before risk factor)	Primary prevention (Control of risk factor)	Secondary prevention (Screening)	Tertiary prevention (Control the disease or minimize the disability)
<ul style="list-style-type: none"> Promotion of physical activities Population-based anti-smoking campaigns and tobacco ban advertising or promotion Promotion of healthy diet and reduction of salt and fat intake 	<ul style="list-style-type: none"> Smoking cessation interventions Weight control 	<ul style="list-style-type: none"> Pap smear (for possible cervical cancer) Colonoscopy (for possible colon cancer) Risk-screening for cardiovascular diseases Clinical breast exam (for possible breast cancer) 	<ul style="list-style-type: none"> Control blood glucose of diabetic patients Blood pressure control or provision of maintenance drugs for hypertension

PHC = primary health care; NCDs = noncommunicable diseases

Source: Authors' compilation; WHO (2011b)

Primordial prevention is the reduction of risk factors targeted toward an entire population. It focuses on social and environmental conditions and intends to decrease risk exposure. Primary prevention means preventing the occurrence of diseases, thus targeting healthy individuals susceptible to risk factors. Secondary prevention focuses on early detection through screening of people exhibiting signs and symptoms of a disease. Tertiary prevention targets to lessen the effects of a disease on an individual (Kisling and Das 2021).

Primary care facilities (PCFs) should serve as the first point of contact of patients, families, and communities with the healthcare system to access basic and comprehensive health services. If specialized care is needed, patients are referred to hospitals within the healthcare provider network (HCPN), which must have a network of PCFs like rural health units (RHU), *barangay* (village) health stations (BHS), and other private PHC facilities (DOH 2020).

PHC is critical in achieving a country's health system goals. It improves population health, healthcare access, and health system efficiency and equity. PHC increases access to essential health services, which is of great concern, especially to those living in isolated areas. As their initial contact with the health system, primary care providers can help discuss health issues prior to referral, if needed (van Weel and Kidd 2018; Smith 2019). Studies show that PHC reduces all-cause mortality (WHO 2008, 2018a; Kruk et al. 2010) and has resulted in the reduction of maternal, child, and neonatal deaths in LMICs (Perry et al. 2017; WHO 2018b). PHC is also linked with health system efficiency. This means wasteful use of healthcare resources, such as labor and capital, are minimized (WHO 2018a). Wastes in healthcare resources include avoidable hospitalizations, readmissions, and unnecessary emergencies.

Robust PHC is essential in addressing the increasing number of NCDs. The clinical goal is to improve the quality of life (e.g., reduce symptom or pain), which requires constant monitoring and evaluation of patients and referral between specialists and primary care practitioners. This goal will help the health system move away from episodic delivery of care and shift to a more integrated and whole-person approach (Kruk et al. 2015). Episodic care can be acceptable in infectious disease management because, in general, the health system aims to treat a patient until the infection is cured. However, this kind of single encounter between a patient and health providers does not address the needs of NCD patients.

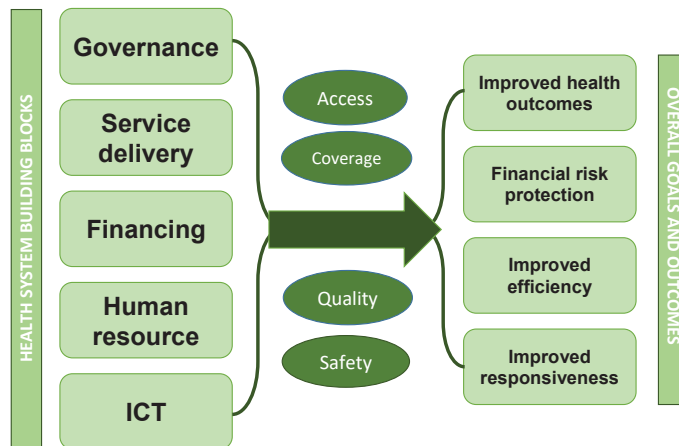
METHOD

Analytical framework

This study adopts the World Health Organization (2007) health system framework as a guide in the analysis (Figure 2). The health system framework identifies the pillars or building blocks of a health system, such as governance, financing, health service delivery, human resources, and information and communications technology (ICT). This paper examined the state of the building blocks of the country's health system and determined if it can make PHC a strategy to address NCDs. Through immediate goals like access, coverage, quality, and safety, the building blocks should be strengthened to achieve the overall goals of any health system, such as improved health outcomes, financial risk protection, efficiency, and responsiveness. If these goals are achieved, the health system will be more capable of dealing with the burden of NCDs.

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Figure 2. Health system framework



ICT = information and communications technology

Source: Adapted from WHO (2007)

Data

This study gathered information from a qualitative assessment or desk review of official government documents and relevant literature. It was supported by a quantitative analysis of secondary data from the National Demographic and Health Survey (NDHS) (PSA 2017), a national survey providing updated estimates of the basic demographic and health indicators; the Philippine National Health Accounts (PNHA), which presents data and analyses on healthcare financing, provision, and consumption; and the Department of Health's Service Capability Survey for Primary Care Facilities, which provides data on the indicators of PCFs' service capability (DOH 2019).

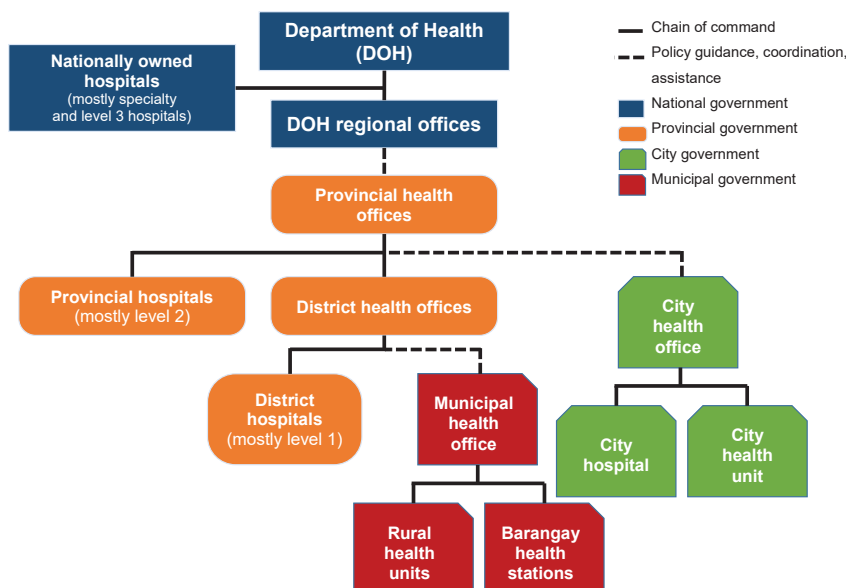
RESULTS AND DISCUSSION

This section presents the results of the assessment of the current state and readiness of the country's PHC in the context of health system building blocks, namely, governance, service delivery, financing, human resources, and ICT.

Governance

The Philippine health system is known to be highly decentralized. As mandated by the Local Government Code of 1991, the national government only sets national health policies and standards and provides assistance to the LGUs. Provinces and municipalities are responsible for the actual delivery of healthcare services and are autonomous from the national government. Figure 3 shows the current governance structure of the Philippine healthcare system. Provinces own and operate the district and provincial hospitals, while municipalities and cities are in charge of the RHUs and BHS. Both facilities provide population- and individual-based PHC services (Dayrit et al. 2018).

Figure 3. Governance structure of the Philippine public healthcare system



Source: Adapted from Dayrit et al. (2018)

The country's governance structure is fragmented. It caters to different levels and types of healthcare services under various political jurisdictions and leaderships. Individual health facilities provide different levels of care. These facilities operate in silos and do not have formal coordination in their clinical, managerial, and financing functions.

The delivery of public healthcare services is in parallel with the private system, but in a noncoordinated and fragmented fashion. The private sector provides healthcare services similar to the public system, but independently from the public system, and targets mostly the richer segment of the population. The private sector, however, is not formally integrated into the public system in providing comprehensive and coordinated healthcare services (Dayrit et al. 2018). Referral system between private and public health facilities is practiced in some LGUs but not formally institutionalized. Fragmentation makes care integration episodic and challenging to implement.

Service delivery

The country's health service delivery system is composed of the BHS, RHU or CHU, infirmaries, and hospitals. Ancillary facilities, such as standalone laboratories, pharmacies, and specialized facilities, support the functions of core facilities. RHUs and infirmaries are the main providers of PHC, while BHS can serve as extensions of RHUs in villages. BHS, RHUs, and infirmaries should provide primordial, primary, and secondary prevention for NCDs. Table 3 shows the different NCD services that are supposed to be provided in public PHC facilities.

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Table 3. NCD services offered in public PHC facilities

Facility type	Owner	Catchment	NCD functions
Barangay health stations	Barangay or village executive head; barangay chairman	Barangay	<ul style="list-style-type: none"> • Primordial • Primary and secondary prevention (but limited)
Rural health units, city health units, or infirmaries	Municipality or city	Municipality or city	<ul style="list-style-type: none"> • Primordial (e.g., antismoking and other healthy lifestyle campaigns) • Primary care prevention (e.g., screening and diagnosis) <ul style="list-style-type: none"> • Cardiovascular diseases - cardiovascular risk screening in adults • EKG, CBC, and urinalysis capacities • Cancer - annual physical checkup, clinical breast exam, cervix acetic-acid wash, hepatitis B/HPV vaccinations, smoking cessation, counseling, and education • Tertiary prevention - surveillance and monitoring of diagnosed patients (e.g., follow-up checkup and monitoring of hypertension)
District hospital (level 1 hospital or specialized clinic)	Provincial; some municipalities own a level 1 hospital	District (group of municipalities) or province	<ul style="list-style-type: none"> • Specialized outpatient facility (e.g., diagnostic and medical consultation) • Management of early stages of cardiovascular diseases • Telecardiology, x-ray, and clinical chemistry, such as FBS/lipid profile/creatinine, capacities

NCD = noncommunicable disease; PHC = primary health care; EKG = electrocardiogram; CBC = complete blood count; HPV = human papillomavirus; FBS = fasting blood sugar

Source: Authors' compilation

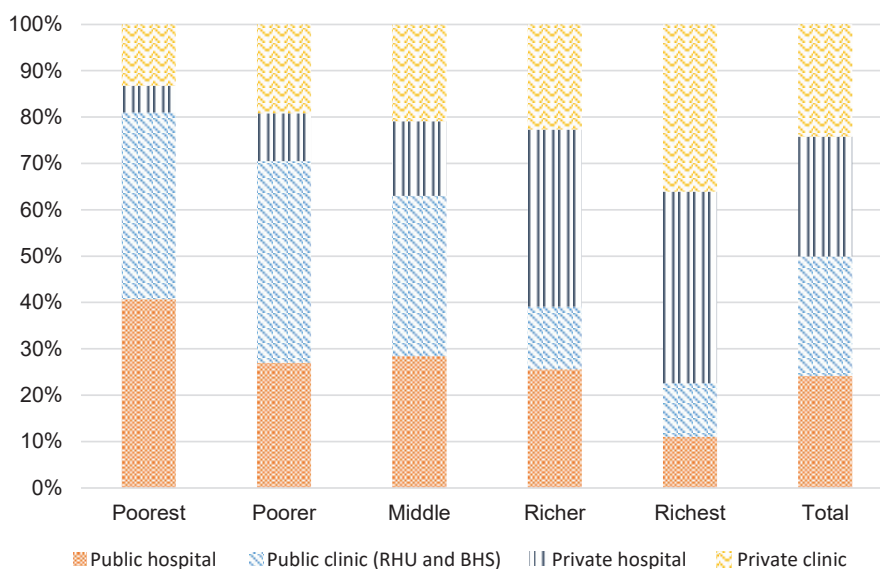
The national goal is for all Filipinos to have access to a PHC facility within 30 minutes. According to the DOH (2020), the Philippines currently has 2,600 RHUs and needs 2,600 more to reduce the gap in physical access. Moreover, based on a geospatial analysis, only half of the population have access to an RHU within this time duration (DOH 2020).

The Bangsamoro Autonomous Region in Muslim Mindanao, Bicol Region, and MIMAROPA (Occidental Mindoro, Oriental Mindoro, Marinduque, Romblon, and Palawan) have the highest percentage of population without timely access to RHUs. Private clinics provide nonhospital-based health services, but the DOH does not have complete data on private nonhospital facilities. Given that almost a fourth of PHC visits happen in private PHCs, its current supply is more or less similar to the number of public PCFs.

Data from the 2017 NDHS (PSA 2017) showed that a large population of the country was bypassing PHC. Figure 4 shows the shares of health visits due to NCD-related concerns by type of facility and wealth quintile.

Almost 50 percent of the population who visited health providers due to non-emergency and NCD-related concerns sought either private or public hospitals. The rest visited either private or public PHC facilities. However, the distribution shows a highly segmented market. Poor patients tend to visit public facilities, while rich patients tend to visit private facilities. The distribution of hospital and PHC visits are relatively equal across socioeconomic statuses. The large percentage of patients seeking health services in hospitals for non-emergency and NCD-related concerns suggests the lack of an effective gatekeeping mechanism in health facilities.

Figure 4. Shares of health visits due to NCD-related concerns by type of facility and wealth quintile



NCD = noncommunicable disease; RHU = rural health units; BHS = barangay health stations

Note: NCDs considered include hypertension, kidney disease, diabetes, and asthma. Ambulatory or outpatient cases wherein the purpose of visit is only medical checkup were excluded.

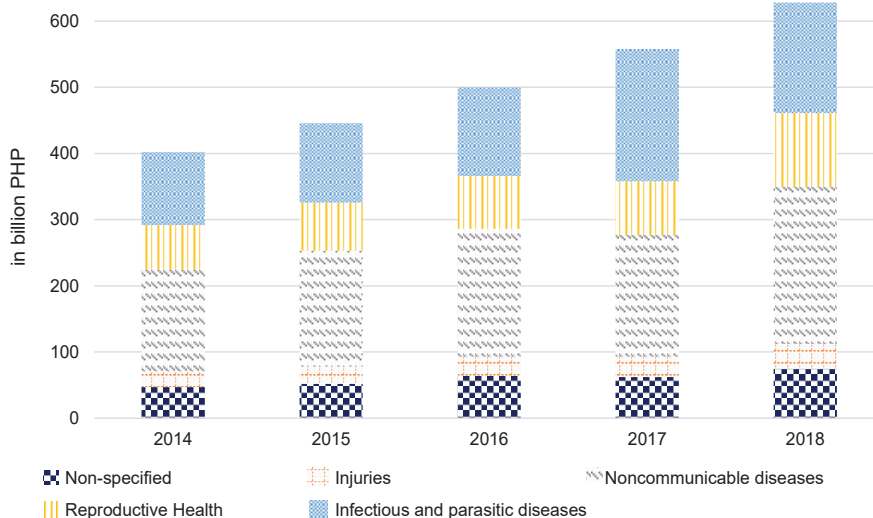
Source: Authors' analysis of the 2017 NDHS (PSA 2017)

Financing

In 2018, the country spent about PHP 640 billion on health care. Of this amount, about 40 percent were accounted for by NCDs. Figure 5 shows health spending data by disease category from the PNHA. From 2014 to 2018, health spending on NCDs increased from PHP 154 billion to nearly PHP 240 billion (in real terms using 2018 prices). Given the projected growth in prevalent cases, NCD-related health spending is expected to increase in the medium to long term.

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Figure 5. Health spending by disease category

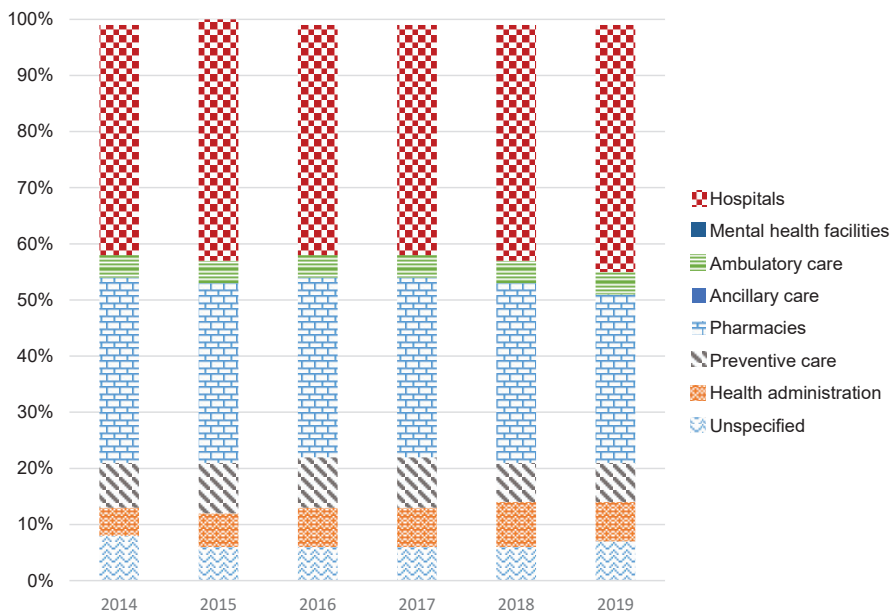


PHP = Philippine peso

Source: Authors' analysis of the PNHA data from PSA (2019) deflator using World Economic Outlook data from the International Monetary Fund (2018)

Moreover, only a small percentage (4%) of the country's health spending was accounted for by PHC facilities (Figure 6).

Figure 6. Share of total health expenditure by health providers, 2019



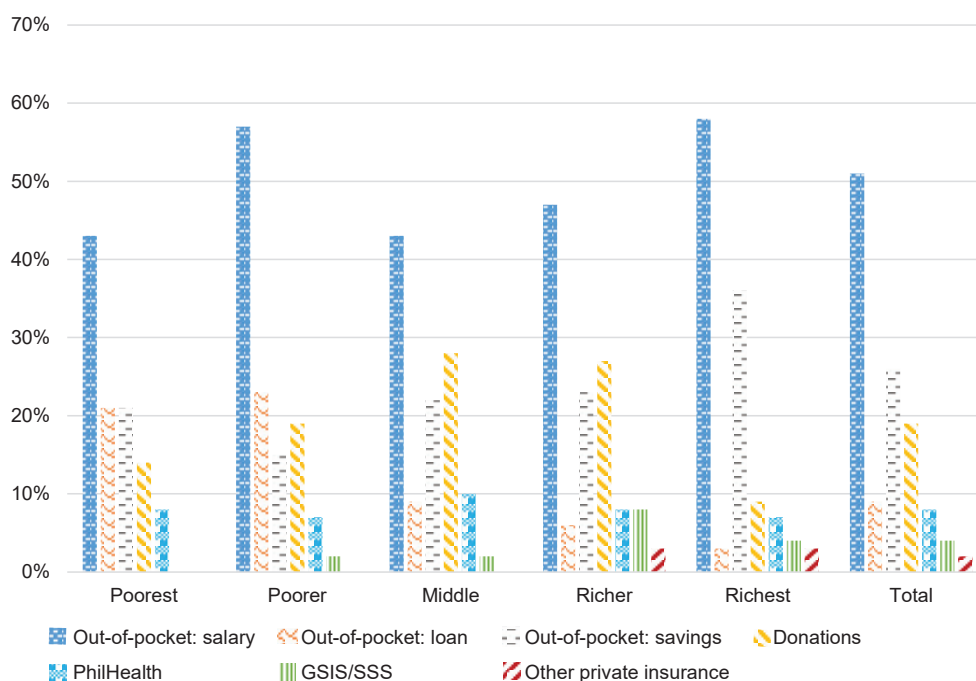
Note: Ambulatory care can be used as a proxy for PHC facility.

Source: Authors' analysis of the PNHA data from PSA (2019)

Based on the 2019 PNHA, if the country's health spending was disaggregated by type of healthcare provider, nearly 30 percent were accounted for by pharmacies, 19 percent for general public hospitals, 16 percent for private hospitals, and only 4 percent for PHC facilities.

In addition, OOP expenses are a major source of PHC spending. According to the 2019 PNHA, 52 percent of health spending accounted for OOP. The rest are public spending (e.g., national government, local government, and Philippine Health Insurance Corporation [PhilHealth]) and other private spending. The PNHA does not disaggregate the financing sources of PHC, but the majority of health spending in PHC facilities must be OOP because public spending is limited. PhilHealth, for instance, mostly covers inpatient benefits (i.e., 99% of total insurance claims are hospital claims). Figure 7 shows the sources of funds for PHC visits due to NCDs. Almost 50 percent used their salary to finance their PHC visits, and more than 20 percent of the poorest patients used loans. The large share of OOP, especially loans, and the low share of social protection schemes, such as PhilHealth, exposed households to financial catastrophe and impoverishment.

Figure 7. Sources of financing during NCD-related non-emergency visits



NCD = noncommunicable disease; PhilHealth = Philippine Health Insurance Corporation; GSIS = Government Service Insurance System; SSS = Social Security System

Source: Authors' analysis of the PNHA data from PSA (2019)

PhilHealth spending for PHC services remains negligible. In 2012, PhilHealth, the country's national purchaser, introduced the Primary Care Benefit (PCB) package, which covers pre-identified primary prevention, diagnostics, and drugs medicines in accredited RHUs. However, the package is offered only to sponsored members (i.e., poor households whose premiums are paid by the national government). In 2017, PhilHealth expanded the PCB by covering formal sector members. Benefits under this package include pre-identified

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health screening and consultations, diagnostics, and medicines for selected infectious diseases and NCDs at different stages (age groups). Payment mechanism was capitation with a fixed copayment. While there was an effort to expand the breadth of PHC benefits, the total number of claims remained very low, with less than 0.05 percent of total claims value (see Table 4).

Table 4. Number and value of PHC claims in PhilHealth

Year	No. of claims in primary care clinics	Value of claims in primary care clinics	Share of claims in primary care clinics to total claims
2016	107	164,000	0.00%
2017	939	2,722,000	0.01%
2018	1,483	7,286,000	0.01%
2019	570	2,630,700	0.01%

PHC = primary health care; PhilHealth = Philippine Health Insurance Corporation

Source: PhilHealth (2019)

Multiple and overlapping sources of health financing have contributed to the fragmented health service delivery in the country. The role of the DOH should be primarily in policy development and stewardship. However, service delivery remains an important function of the national government by providing direct subsidy to RHUs in the form of capital outlay, human resources, and commodities (e.g., NCD drugs, vaccines, and family planning commodities) on top of local government and PhilHealth spending. If the majority of health spending on PHC is mostly private OOP, and public spending is low and other types (e.g., national government, local governments, and PhilHealth) are not consolidated, the position of PhilHealth to negotiate HPCN integration or any efficiency-enhancing policies weakens.

Human resources

The scarcity of healthcare staff in PHC facilities remains pervasive. A typical RHU needs at least one medical doctor, a nurse, and a midwife. On average, there should be one doctor, two nurses, and six midwives per RHU. However, 10 percent of RHUs (N=2,400) in the Philippines reported not having a doctor, while a significant share do not have a nurse or a midwife (Tables 5 and 6).

Table 5. Share of RHUs without health workers, 2019

Region	Doctors	Nurses	Midwives	Laboratory technicians	Radiology technicians	Pharmacists	Dentists
CAR	9%	2%	4%	38%	98%	94%	50%
MIMAROPA	20%	5%	7%	54%	94%	96%	42%
NCR	1%	10%	13%	62%	97%	99%	10%
Region I (Ilocos)	2%	57%	14%	36%	99%	94%	30%
Region II (Cagayan Valley)	7%	10%	10%	14%	99%	86%	43%
Region III (Central Luzon)	8%	7%	10%	23%	97%	96%	34%
Region IV-A (CALABARZON)	14%	29%	16%	44%	93%	89%	32%

Table 5. (continuation)

Region	Doctors	Nurses	Midwives	Laboratory technicians	Radiology technicians	Pharmacists	Dentists
Region IX (Zamboanga Peninsula)	13%	19%	38%	40%	99%	91%	55%
Region V (Bicol)	10%	19%	13%	17%	99%	95%	37%
Region VI (Western Visayas)	3%	7%	15%	19%	95%	95%	36%
Region VII (Central Visayas)	8%	12%	16%	42%	99%	91%	62%
Region VIII (Eastern Visayas)	13%	5%	14%	29%	99%	93%	45%
Region X (Northern Mindanao)	18%	9%	11%	33%	99%	91%	53%
Region XI (Davao)	5%	19%	0%	14%	98%	84%	25%
Region XII (SOCCSKSARGEN)	5%	21%	36%	19%	100%	70%	41%
Region XIII (Caraga)	15%	16%	3%	29%	100%	95%	58%
Philippines	10%	15%	12%	32%	98%	92%	42%

RHUs = rural health units; CAR = Cordillera Administrative Region; MIMAROPA = Occidental Mindoro, Oriental Mindoro, Marinduque, Romblon, and Palawan; NCR = National Capital Region; CALABARZON = Cavite, Laguna, Batangas, Rizal, and Quezon; SOCCSKSARGEN = South Cotabato, Cotabato, Sultan Kudarat, and Sarangani

Source: Authors' calculation based on the 2019 Service Capability Survey for Primary Care Facilities (DOH 2019)

Table 6. Average number of health workers in RHUs, 2019

Region	Doctors	Nurses	Midwives	Laboratory technicians	Radiology technicians	Pharmacists	Dentists
CAR	1.2	2.4	3.6	0.8	0.0	0.1	0.5
MIMAROPA	1.1	2.6	7.1	0.5	0.1	0.1	0.6
NCR	1.2	1.4	2.3	0.5	0.0	0.0	0.9
Region I (Ilocos)	1.3	3.3	6.7	0.8	0.0	0.1	0.8
Region II (Cagayan Valley)	1.2	2.5	7.9	1.1	0.0	0.2	0.6
Region III (Central Luzon)	1.1	1.9	3.9	0.8	0.0	0.0	0.7
Region IV-A (CALABARZON)	1.2	2.2	4.8	0.7	0.1	0.1	0.8
Region IX (Zamboanga Peninsula)	0.9	3.8	5.3	0.8	0.0	0.1	0.5
Region V (Bicol)	1.3	3.6	7.4	0.9	0.0	0.1	0.7
Region VI (Western Visayas)	1.2	2.3	6.4	1.0	0.1	0.1	0.7
Region VII (Central Visayas)	1.2	2.4	4.6	0.7	0.0	0.1	0.4

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Table 6. (continuation)

Region	Doctors	Nurses	Midwives	Laboratory technicians	Radiology technicians	Pharmacists	Dentists
Region VIII (Eastern Visayas)	1.0	3.3	4.2	0.8	0.0	0.1	0.6
Region X (Northern Mindanao)	1.0	2.3	5.9	0.8	0.0	0.1	0.5
Region XI (Davao)	1.2	2.2	8.1	1.0	0.0	0.2	0.8
Region XII (SOCCSKSARGEN)	1.2	2.4	3.6	0.8	0.0	0.1	0.5
Region XIII (Caraga)	1.1	2.6	7.1	0.5	0.1	0.1	0.6
Philippines	1.2	1.4	2.3	0.5	0.0	0.0	0.9

RHUs = rural health units; CAR = Cordillera Administrative Region; MIMAROPA = Occidental Mindoro, Oriental Mindoro, Marinduque, Romblon, and Palawan; NCR = National Capital Region; CALABARZON = Cavite, Laguna, Batangas, Rizal, and Quezon; SOCCSKSARGEN = South Cotabato, Cotabato, Sultan Kudarat, and Sarangani

Note: Shaded in gray are the necessary cadre of professionals that a PCF should have.

Source: Authors' calculation based on the 2019 Service Capability Survey for Primary Care Facilities (DOH 2019)

Health workers in public PCFs carry gigantic tasks. For example, they need to implement the NCD program on top of at least 10 other DOH programs (DOH 2020; USAID 2020). Physicians and nurses also serve as administrators who organize the program implementation, budget, and data.

The current supply of primary care physicians in the country is not enough to meet the future needs of the population (DOH 2020). Based on the *Philippine Health Facility Development Plan 2020–2040*, more than 60,000 PHC physicians are needed to meet the PHC demand. The projected need is based on the service delivery model, as envisioned in the UHC Act.

However, the projected need for PHC physicians is equivalent to the current number of generalists and specialists in the country. Universal PHC, therefore, cannot be achieved if human production capacity remains the same and until bold reforms, such as task shifting, are pursued.

There is also limited training on NCD interventions in some PHC cadres in LGUs (DOH 2020). The NCD training offered by the national government is often limited and does not cover all staff. It is directed to doctors and nurses who share what they learn with midwives and community health workers. Among the common requests are regular refreshers on NCDs and training for more staff and cadres. Otherwise, PHC workers will find it difficult to implement new programs with only a few trained health workers or when trained personnel leave.

ICT

ICT should be used to enhance business processes and service delivery. It is useful in improving both backend and frontend health services. Backend services include the use of ICT, such as in medical record-keeping, an integral part of NCD management and healthcare integration between facilities and providers, especially during referrals. ICT can also be used at the frontend, in facilitating interaction between patients and physicians through telemedicine. This can improve the continuity of care and the monitoring and evaluation of patient progress, which are both critical in NCD management.

Despite the promising benefits of improved ICT, the adoption of e-Health (healthcare services provided electronically) solutions remains limited in the country. Most RHUs have NCD registries, but the majority of BHS use only paper, while RHUs have both paper and electronic medical records (EMRs). Access to computers and internet connectivity, however, remains a challenge in maintaining EMRs. Richer LGUs have better internet connections and resources to provide BHS with computers. Table 7 shows the share of RHUs with EMRs.

Table 7. Share of RHUs with EMRs, 2019

Region	Share
NCR	27.5%
CAR	32.9%
I - Ilocos Region	31.3%
II - Cagayan Valley	31.4%
III - Central Luzon	53.8%
IVA - CALABARZON	9.0%
IVB - MIMAROPA	28.2%
V - Bicol Region	37.4%
VI - Western Visayas	31.4%
VII - Central Visayas	6.0%
VIII - Eastern Visayas	45.4%
IX - Zamboanga Peninsula	57.1%
X - Northern Mindanao	47.9%
XI - Davao Region	26.3%
XII - SOCCSKSARGEN	29.1%
XIII - Caraga	58.9%
BARMM	no data
Philippines	35.8%

RHUs = rural health units; EMRs = electronic medical records; NCR = National Capital Region; CAR = Cordillera Administrative Region; CALABARZON = Cavite, Laguna, Batangas, Rizal, and Quezon; MIMAROPA = Occidental Mindoro, Oriental Mindoro, Marinduque, Romblon, and Palawan; SOCCSKSARGEN = South Cotabato, Cotabato, Sultan Kudarat, and Sarangani; BARMM = Bangsamoro Autonomous Region in Muslim Mindanao

Source: Authors' calculation based on the Service Capability Survey for Primary Care Facilities (DOH 2019)

Current monitoring and evaluation activities for NCD services are weak. For instance, RHUs primarily rely on counts of cases and deaths and often do not have patient management targets (e.g., percentage of patients with controlled blood pressure) or indicators to measure the effectiveness of NCD interventions. It is difficult to collect data for indicators that require blood chemistry (e.g., percentage of patients with controlled blood sugar) or medication adherence because patients cannot afford to have them regularly.

CONCLUSION AND RECOMMENDATION

The fast-changing pattern of diseases in the country—from infectious diseases to NCDs—is a signal to pursue reforms in the Philippine health system. A critical strategy to combat NCDs is the availability of robust PHC (WHO 2011a, 2018). In this study, the readiness of the Philippine healthcare system was examined in the context of (1) governance, (2) financing, (3) service delivery, (4) human resources, and (5) ICT. Issues in the availability, quality, and equity of services that hamper the healthcare system's readiness to provide comprehensive and continuous NCD care were identified. Under health service delivery and human resources, scarcity and geographic maldistribution of PCFs and health workers are major challenges.

The large inequalities in health facilities and human resources also suggest the variable capacity of local governments to implement NCD interventions in PHC settings. The national government has tried to address this in the past decade by providing grants to augment the capital infrastructure requirement (i.e., Health Facility Enhancement Program [HFEP]) and health human resources (e.g., Doctors to the Barrios program) of local governments. However, these grants do not fully address the supply constraints of LGUs in providing PHC services in communities. For example, Lavado et al. (2012) suggest that the HFEP was not allocated based on the capacity of LGUs, which makes the program inequitable. Under health financing, low public spending for PHC and hospital-centric health financing are also a challenge. Relative to other ASEAN (Association of Southeast Asian Nations) countries, the Philippines spends only about USD 6 per person for PHC. In contrast, selected ASEAN countries spend 8 percent of total health spending on PHC (about USD 20 or more per person) (DOH 2020). PhilHealth recently introduced a PHC benefit package that includes essential NCD services. However, the breadth (population coverage) and depth (i.e., expansion of current primary care package) of health insurance are offered to a limited population and health facilities (e.g., only in public facilities). Lastly, the devolved healthcare services delivery in local governments discourages integration and coordination among different levels of health facilities.

To address the growing threat of NCDs, a system-wide and comprehensive health system reform is needed. The overarching policy recommendation is to facilitate the implementation of the UHC Act (RA 11223), which already encompasses all required reforms under each domain. The UHC Act aims to expand the breadth and depth of PhilHealth. Another tenet of the UHC Act is to facilitate integration and referral systems through the creation of province- or city-wide HCPNs. Municipalities within provinces must coordinate to form an HPCN. Public and private health facilities should be integrated into the network that provides coordinated healthcare services. Healthcare integration and ownership across all levels entail the coordination of both clinical and nonclinical functions (e.g., interoperability of EMRs) of health facilities within the HPCN. This includes the expansion of breadth and depth of the current PCB package. The UHC Act also reinforces sustained capital investments to reduce the huge gap in the health infrastructure of PCFs and health human resources, as envisioned in the *Philippine Health Facility Development Plan 2020–2040* and the *National Health Human Resource Masterplan 2020–2040*.

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