
ACCESS TO WATER AMID URBANIZATION: SMALL-SCALE PROVIDERS IN THE WATER SUPPLY CONTEXT OF CEBU CITY, PHILIPPINES

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Water supply is a most pressing need for barangays in Cebu City, Philippines, which are unable to obtain water services from the franchised utility. While many of the communities have been absorbing much of the city's expansion, the water utility has not been able to keep pace with this growth. The situation has prompted local private entrepreneurs to develop and invest in water systems to augment services. This paper presents data obtained from the mapping activities and the survey with close-and open-ended questions. It revolves around two major themes: an inventory of small-scale water providers who offer household connection services within the franchise area of the water utility, and the level of satisfaction of communities served by operators. The crucial importance of local water distributors in addressing the service provision gap is evident. Their presence is highly appreciated despite the relatively higher tariff which comes with the service. This situation has raised the providers' stature in the neighborhood to something akin to a patron as loyalty blocs are boldly defined in their favor. They established the business to share water resources and

fulfill a community need. This study lends a deeper understanding of the current water landscape amidst the rapid urban growth of the city.

KEYWORDS: informal sector, water, sanitation, urbanization, community

INTRODUCTION

STUDIES HAVE SHOWN that many urban populations in developing countries are still without access to water and sanitation services despite development efforts made in this sector (Snell, 1998; McIntosh, 2003). The situation has prompted local private entrepreneurs to develop and invest in water systems as an alternative means of water provisioning. Snell (1998) wrote that in Africa, Latin America, Caribbean, and Asia, small-scale water distributors have been able to fill the service provision gap. They have reduced the public burden on utilities, and have proven to be effective in scaling-up water and sanitation levels and quality. Similarly, Solo (1998) implied that private water entrepreneurs are well able to respond to local conditions. The capacity of the private sector to provide a competitive and appropriate service to households without access to utility connections has also been established by McIntosh (2003) in his study on Asian water supplies. The tariff charged by providers is in line with the type of service and the size of the initial investment. Given this, they are likely to proliferate in underserved communities with low connection rates and low levels of service (Conan & Paniagua, 2003). In urban poor areas, local water providers are appreciated for their entrepreneurship and their ability to share their water resource even if services may still be considered inadequate by international standards (Kjellen & Mcgranahan, 2006).

Earlier reports would lead one to say that private sector participation in water provisioning and its ability to respond to the local water resource situation are a significant concern for development planners. Water is a basic necessity and inadequate provision of this need has wide repercussions. Such inadequacy, according to Kjellen & Mcgranahan (2006), has serious implications for women and children. Women bear the bigger share of the

inconvenience, infectious diseases are spread, and children are likely to suffer from illnesses. Similar observations were noted by Cuesta (2007) and Bartlett (2003) pointing to the relationship between water and sanitation provision and nutritional status. In particular, they found that the nutritional status and well-being of children are compromised and the situation is severe in poor urban settlements where there exist other environmental concerns. Issues that relate to water and sanitation, however, go beyond health and nutritional considerations. How government can improve existing infrastructures, promote public-private partnerships, and develop other surface water alternatives to improve water service delivery must therefore be seriously considered.

In Cebu City, Philippines, the proliferation of private water providers is evident albeit little data that can be found in this regard. As in other developing nations, low-income households bear the greatest bulk of inconvenience as a result of intermittent water supply and the utility's low coverage areas. Residents face difficulty in availing of water even in communities where the utility's piping network has reached their area.

In this paper, the sector will be referred to as small-scale water providers (henceforth, SSWP). They are classified as small-scale because the types of services they offer are limited, production capacity is minimal, technical innovations and capital investments are lower, and the number of households served is essentially small compared to the area of coverage as well as the number of households served by the formal utility. The consideration for a formal provider is on the context of having a franchise. This gives the formal utility control over the water resource in their franchise area. SSWPs are considered "informal" because they do not have a franchise, nonetheless, some of them are recognized by the water utility and are given permit to operate a water system. Each one operates independently from others and is usually driven by different motivations for doing so. While others have established the business to share their resources and fulfill a community need, others have set up water systems for business purposes (Nolasco, Alburo & Abrenica, 2009). Whether community residents are satisfied with the quality of water and the services availed of from SSWP are concerns which this paper will explore. Specifically, the study is confined only to level-3 SSWPs, or providers that offer direct household connection services. Data obtained shall form

part of the database on water and sanitation services in Cebu City and hopefully provide an appreciation of the relative importance of the informal water sector in meeting underserved niches of the water and sanitation market.

With funding from the Commission on Higher Education, Office of Policy, Planning and Information (CHED-OPPRI), through the Philippine Higher Education Research Network (PHERNet), the project was undertaken to validate earlier reports. The themes presented in this paper revolve around two objectives: [1] to make an inventory of all functional and newly-established level-3 informal water systems, and [2] to assess consumers' level of satisfaction in the areas of adequacy of supply, water quality, and service cost. It is not the purpose of the study to compare the quality of services that a provider delivers but rather to gain information on the usual practices that level-3 operators generally employ across sample sites. Among others, lessons learned can be used as guides for other communities to emulate, or provide practical insights to health practices and values that promote harmony, filial responsibility, and strong family and community relations.

The undertaking is just one among the many scientific endeavors that intend to address the various issues on water sustainability, and a crux for many relevant policy debates. Broadening the awareness of stakeholders and stimulating discussions on how best to develop an enabling policy that ensures a sustainable access to safe water supply are imperative. The topic is along the line of the UN millennium development goal set for the water sector that by 2015 half of the global population shall have access to safe and potable water. As contained in the Medium-term Philippine Development Plan (MTPDP), substantial increases in the population who have access to safe supply of water must have been fulfilled by 2015 (Government of the Philippines, National Economic and Development Authority, 2001). This implies that participation of local government units in the provision of water, improvement and expansion of existing infrastructures to improve access, and effective public and private partnerships are necessary steps toward the fulfillment of the MTPDP.

Both the public and private sectors are expected to benefit from the research because improvements in water supply and in the quality of water will redound to effective water service delivery, thereby contributing to the well-being of families and

communities. Recognizing the serious implications of the problem of access to water, it is imperative that water discourse is focused on addressing pressing issues in the local setting to ensure culturally relevant policies. It is for this reason that impressions from consumers are given special attention. The main premise here is that the informal water sector complements the services of the franchised utility and undeniably provides an effective means to provide underserved communities access to water resources.

THE WATER SITUATION IN CEBU CITY

Cebu City, the capital of the province of Cebu and regional capital of the Central Visayas region of the Philippines, has a population of 798,809 (Philippines, National Census and Statistics Office, 2010). The city forms the core of Metro Cebu which includes three other rapidly growing cities and six municipalities. Cebu City is politically subdivided into 80 barangays, the smallest political unit in the Philippines, 50 of which are classified as lowland and the remaining 30, upland. The term lowland should not be understood to mean as strictly non-elevated areas because parts of these barangays are elevated and are sometimes beyond the service capacity of the formal utility. The lowland barangays cover approximately 17 percent of the city's land area while upland barangays account for 83 percent (Etemadi, 2000). Despite the rural character of upland or mountain barangays, these are officially classified as urban. As currently applied in the Philippines, an urban settlement, regardless of its demographic, social and economic characteristics, refers to any barangay, situated in a city or municipality that has an average population density of at least 1000 per square kilometer (Flieger, 2000).

Fifty lowland and two upland areas, out of the 80 barangays in Cebu City, are serviced at varying degrees of percentage by the Metropolitan Cebu Water District (henceforth, MCWD), the franchised utility and the only recognized formal water utility in Metro Cebu being the franchise holder. In the face of growing water demand, attempts to expand water services have not measured up to expectations due to implementation problems and other serious limitations. Foremost of these constraints is the critical state of existing groundwater resources which could not meet the demands of a growing population and a booming economy.

Since the 90s, water supply which is derived mostly from the groundwater aquifer has rapidly been depleting. Heavy reliance on the already deteriorating groundwater and over-extraction of the resource has brought about the serious problem of seawater intrusion into the coastal aquifers in Metro Cebu (Alingasa, 2000). The paper by Alingasa (2000) establishes the criticality of the water situation in Cebu. Further, studies conducted by the University of San Carlos Water Resources Center point to a similar direction; an alarmingly low water table and neglected watersheds. Engelen (2003) reported that the growing water demand has led to further exploitation of ground water resources, both by government and private entities.

MCWD also faces other constraints in servicing all households within its franchise area. Some areas do not have defined access roads where pipes can be laid out, or the barangays are situated at an elevation higher than the service reservoir. Other constraining factors faced by the utility are right-of-way limitations or the absence of right-of-way agreements with lot owners, losses incurred in distribution which result in a low return of investment, and lack of funds for expansion. Presently, MCWD can only supply roughly 38 percent of the water demand, thus depriving a large segment of the population with potable water (Nolasco, 2003). To address the service provision gap, informal water distributors have emerged to complement the services of the franchised utility. The Cebu local government and MCWD have expressed reservations on the existence of private water providers. However, knowing full well that the utility cannot satisfactorily fulfill its mandate under the franchise, it is presumed to have a lax attitude towards the private water sector to prevent serious implications that might arise as a result of a water crisis. The situation would have been different if the water sources upon which Cebu City depends were adequate to serve the needs of residents.

Section 37 of Presidential Decree 198 mandates that a private water distributor is required to secure clearance from the barangay where the business is located, secure a business permit from the City, obtain a permit to operate from the National Water Resources Board (NWRB) which is the designated water-resource regulator in the Philippines, and pay a levy to the formal water utility, being the franchise-holder and deputy to the NWRB. NWRB has the sole authority to issue the right to operate a water source which is obtained through a water permit. The office also grants franchises

or licenses to sell to all water distributors. Applications for water permits are either coursed through MCWD or filed directly with NWRB. These are evaluated for compliance under the water policies for Metro Cebu which have been formulated by MCWD and approved by NWRB through Board Resolution No. 002-1106. This set of policies gives MCWD the right to oppose water permit applications that are deemed prejudicial to its operations (Corporate Planning Division-MCWD, 2009).

To determine the distribution of SSWP in Cebu City, a rapid assessment was conducted by the Asian Development Bank in 2003 and the Building Partnerships for Development in Water and Sanitation in 2009. Approximately 447 SSWPs operating at varying levels of service in 43 barangays were noted in the 2003 study. Given the variety of services that the SSWPs provide, they have been classified into three categories based on Snell (1998): Category A are providers (resellers, community-managed standpipes) operating in partnership with the formal water utility; Category B are those who bring in piped water in advance of utility expansion (deep-well owners); and Category C are providers that sell water to augment the utilities' services (deep-well owners, mobile water truckers, water carriers). Providers claim that they operate legally with the necessary permits, including a local government clearance, business permit, authorization from the MCWD or agreements with the NWRB. Periodic tests are reportedly undertaken by accredited laboratories to ensure the safety and quality of the water. Of the 43 barangays in the study, only 10 barangays were serviced by level-3 operators (Nolasco, 2003).

The study conducted in 2009 was confined only to level-3 SSWP found in 14 barangays, which were classified into three categories: [1] level-3 providers organized for the sole purpose of doing business as a water entrepreneur, [2] water cooperatives organized for the purpose of providing potable water for a specific community, and [3] highly informal level-3 providers, usually household-based, catering to consumers located proximate to the water source (Nolasco *et al.*, 2009). While categories 1 and 2 are generally presumed to have legal personalities, the third category is highly informal as they are not covered by the regulation of the formal water utility and are responses to expressed individual needs of the community usually prodded by neighbors and friends. The high cost of installation and the requirement of MCWD for a

lot title upon which the house is built are two major constraints faced by residents in low-income communities since many of them are informal settlers who do not have land titles. MCWD has, however, shown some flexibility on the land title requirement, that is, water connection can be installed as long as the applicant obtains a written consent from the lot owner (Etemadi, 2012). Despite this, many households still face difficulty in completing other administrative and legal requirements. To validate earlier reports and determine the extent to which the number of level-3 operators has increased or decreased are significant concerns in this paper.

Community organizations are common phenomena in the Philippines particularly when government operations have been decentralized and localized in recognition of the role of civil society and community participation in development pursuits. Studies in other countries found that partnerships between communities, non-government organizations (NGOs), and water service providers are capable of bridging the service delivery gap. Lidonde (2008) and Dickson (2006) implied that the poor can pay for the water service as long as efficient management of the system and accountability and transparency are guaranteed. In a study conducted in Southwest Cebu, Abrenica (2011) noted that community-managed water supply systems play a crucial role in increasing access to water in both upland and lowland barangays. Her analysis gave a premium to the significant role played by stakeholders in a specific locale in helping make the breakthrough stories of community-led and managed water facilities.

METHODOLOGY

The methodology employed for this component is governed first and foremost by the identification of barangays in the city of Cebu with functional level-3 water operators. Mapping activities, with the assistance of a geographic information system specialist, were conducted in 55 barangays to determine functional and newly-established level-3 water systems operating in various areas. Based on the mapping results, a survey among consumers was conducted but only in five areas due to time and resource limitations which could not allow for a more expanded coverage. The choice of sites had to be decided on the basis of the number of



Figure 1. Locations of level-3 sswp and total number of households served per barangay.

households served and geographic representation.

An instrument with both open-ended and close-ended questions was administered to 30 participants from each area, accounting for a total of 150 interviews. The survey employed a random selection approach. A given location in the area was identified as the starting point and respondents were spaced out at five, that is, every 5th house after the last interviewed participant was targeted for the next interview. Apart from determining the household demographic and socioeconomic characteristics, questions that relate to water sources and utilization were asked. Quantitative data were analyzed using the SPSS software and are presented in the succeeding sections using simple frequency distributions. On the other hand, responses to open-ended questions were collated and clustered to generate the common impressions of beneficiaries about the services they availed. In this study, the sample households are equivalent to the ethnographer’s traditional “native informants.”

RESULTS

Inventory of Cebu City Level-3 SSWP

Eighteen out of 55 barangays visited in Cebu City were found to have level-3 operators in 2013. The number is, however, presumed to be higher if all of the real estate operators and homeowners' associations had been considered in the study. In some areas, the team was refused outright either because their personnel had a heavy load of work or they were suspicious of the study's intentions. The barangays in the study include Apas, Bacayan, Banilad, Bulacao, Busay, Calamba, Cogon Pardo, Guadalupe, Inayawan, Kalunasan, Kinasang-an, Labangon, Lahug, Pardo Poblacion, Punta Princesa, Quiot Pardo, Talamban, and Tisa. Three of these are classified as upland (Busay, Kalunasan, Bacayan) and the remaining 15, lowland. The total number of households served per area ranges from a low of 40 to a high of 3,645 (Fig. 1).

A total of 55 level-3 operators servicing a highly uneven number of households is presented in Table 1. The number of households served per operator ranges from a low of four to a high of 1,401, for a total of 15,253 households. The LGU-owned system which provides free water services to a public elementary school in Barangay Kalunasan is counted here as one household. Ownership of the systems is varied and categorized into private proprietorship (42), community/cooperative-owned (5), non-government organization-initiated (5), and LGU-initiated and community-managed (3). The private proprietors usually started out as deep-well owners whose water systems were designed to serve only the owner's household. Over time, they established and expanded the water business in response to a strong felt need by their community. Some of them are driven by business agenda and are formally organized with the necessary permits to operate the water supply system, while others are highly informal and generally do not possess a legal personality. Relationships in the latter are anchored mainly on feelings of community rather than clear-cut business agenda. The community/cooperative-managed systems, on the other hand, have evolved from a community's desire to operate and manage their own water system and at the same time generate income to be used for maintenance and other operating expenses. The NGO-initiated systems were established

TABLE 1. Level-3 SSWP by barangay, type of ownership, year established, number of households served, and cost per cubic meter.

No.	Barangay and No. of Level-3 SSWP	Ownership	Year Established	No. of Households Served	Cost per m ³ in PhP
1	Apas (1)	Private	2010	1200	15.00
2	Bacayan (2)	Private	2002	150	40.00
		Private	2005	15	40.00
3	Banilad (1)	Community	2010	70	12.00
4	Bulacao (5)	Private	2004	600	20.00
		Private	1999	700	18.00
		LGU and community	2005	250	12.50
		Community	2012	4	14.00
		Private	2005	300	16.00
5	Busay (4)	NGO	2008	176	20.00
		NGO	2007	46	20.00
		NGO	2008	88	20.00
		Private	2011	90	28.70
6	Calamba (1)	Private	2004	40	12.60
7	Cogon Pardo (1)	Private	2011	50	18.00
8	Guadalupe (4)	Private	1995	20	50.00
		Private	2006	25	30.00
		LGU and community	2011	60	66.75
		Private	2012	1200	15.00
9	Inayawan (2)	Private	2006	220	20.00
		Private	2006	300	18.00
10	Kalunasan (9)	Community	2003	413	15.10
		Community	1975	580	15.00
		Community	2004	760	13.00
		NGO	1992	300	13.00
		Private	2007	1401	28.70
		NGO	2008	152	11.00

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TABLE 1. Level-3 sswp by barangay, type of ownership, year established, number of households served, and cost per cubic meter.

No.	Barangay and No. of Level-3 sswp	Ownership	Year Established	No. of Households Served	Cost per m ³ in PhP
10	Kalunasan (continued...)	Private	2009	25	25.00
		Private	1996	13	13.00
		LGU	2012	[school]	—
11	Kinasang-an (2)	Private	1997	280	13.50
		Private	1995	80	16.00
12	Labangon (7)	Private	2000	5	20.00
		Private	2004	10	30.00
		Private	2006	213	12.50
		Private	2004	20	30.00
		Private	2011	9	30.00
		Private	2002	20	30.00
		Private	2010	15	30.00
13	Lahug (1)	Private	2010	400	28.70
14	Pardo Poblacion (1)	Private	1996	300	16.00
15	Punta Princesa (1)	Private	2005	275	11.25
16	Quiot Pardo (7)	Private	1990	60	25.00
		Private	1997	1109	13.60
		Private	1997	150	15.00
		Private	2006	1000	11.00
		Private	1994	140	15.00
		Private	2009	60	11.00
		Private	2012	110	11.00
17	Talamban (1)	Private	2005	63	12.50
18	Tisa (5)	Private	2005	1000	13.50
		Private	2000	150	15.00
		Private	2007	520	27.00
		Private	2004	11	35.00
		Private	1999	4	35.00

with external funding support. The LGU and community-managed systems usually emerged and developed through a Congressional Representative's Community Development Fund (CDF). Management of the system is entrusted to the beneficiary community.

One can also see in Table 1 that the oldest operating level-3 provider, which started operations in 1975, is a cooperative-managed water system. It is situated in an upland area and is currently servicing 580 households. The youngest of the systems was made operational only in October 2012 and is already servicing 1,200 households in a lowland barangay. On average, the 55 level-3 SSWP have been in operation for roughly 10 years. The water tariff set by operators across the 18 barangays range widely, from Php11.00 (US\$0.26), the lowest reported cost, to Php66.75 (US\$1.55) per cubic meter. The rates apply only to volume of monthly consumption which does not exceed 10 cubic meters. Additional charges are required for increments in consumption. The high rate of Php66.75 for one level-3 SSWP is attributed to location and elevation factors as these require more power for water delivery. In this study, the mean and the median costs are computed at Php21 (US\$0.49) and Php16.00 (US\$0.37) per cubic meter, respectively. Individual meters are used to determine the monthly household water consumption. The data show that the SSWP rates appear to be relatively higher when compared to the rates of the formal water utility.

In Cebu City, the MCWD charges a monthly minimum of Php136.00 (US\$3.16) for the first 10 cubic meters. Increments in consumption are charged much higher. Consumption of 11-20 cubic meters and 21-30 cubic meters, for example, has an add-on of Php15.00 per cubic meter and 17.65 per cubic meter, respectively. Operators generally source out their water supply from a deep well, and a submersible pump is, in most cases, used to extract water with power ratings ranging from 1hp-10hp. The material used in the delivery of water is either galvanized iron pipe, because it is reportedly not prone to leakage, or polyethylene pipe because it is cheaper and does not rust.

Comparing the current data with the 2003 and 2009 rapid assessments, this latest study clearly shows an uptrend in the number of barangays with level-3 operators, from 10 and 14 in 2003 and 2009, respectively, to 18 barangays in 2013. Consequently, the number of operators has also increased, from 25 in 2003 to

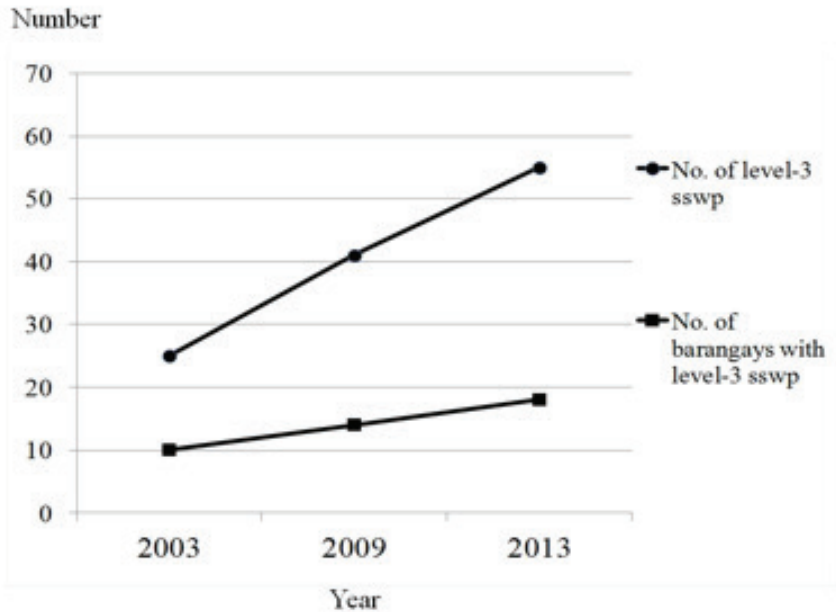


FIGURE 2. Number of level-3 SSWP and number of barangays by year

41 in 2009 and 55 in 2013 (Fig. 2). The percentage of increase in level-3 operators in 2009 is computed at 64 percent and in 2013, 34 percent.

Background Information

The primary socio-demographic data analyzed in this section were collected through personal interviews of 150 household-consumers from five sample sites to give context to their impressions regarding the services availed of from level-3 SSWPs. The survey area covers five barangays, namely Bulacao, Kalunasan, Lahug, Quiot Pardo, and Tisa. In Table 2, one can see that the proportion of female respondents (68.7%) across sites is considerably greater than the males (31.3%)—owing perhaps to women being primarily concerned with water and sanitation issues. Less than a fifth of the sample are employed. Close to 50 percent are self-employed, particularly respondents from Lahug and Kalunasan. Those who are unemployed account for 26 percent and is more pronounced among respondents in Bulacao and Quiot Pardo. The estimated monthly family income of the

sample households across sites are usually between PhP 5,000—PhP 11,999 (US\$116—US\$279). Only six percent of the sample has a monthly family income of PhP18,000 (US\$418) and above.

Consistent with the regional data for Central Visayas, the mean household size is five. In reference to length of stay in the barangay, majority of the respondents have lived in the community for more than seven years. House owners represent 86 percent of the sample across sites but only 42.7 percent of them also own the lot on which their dwelling units are located. The materials used in the construction of the houses are predominantly made of semi-concrete materials (58.7%) particularly those who live in Quiot, Bulacao, and Tisa. Some concrete structures (16.7%) were found but the figure registered for those with light-material houses is greater, at 24.7 percent.

TABLE 2. Study sample by background information (in percent).

	All	Bulacao	Kalunasan	Lahug	Quiot	Tisa
<i>Gender</i>						
Male	31.3	36.7	23.3	23.3	43.3	30.0
Female	68.7	63.3	76.7	76.7	56.7	70.0
<i>Employment</i>						
Unemployed	26.0	33.3	16.7	20.0	33.3	26.7
Employed	16.7	26.7	3.3	6.7	23.3	23.3
Self-employed	46.0	30.0	66.7	70.0	26.7	36.7
Public employee	4.7	3.3	3.3	3.3	10.0	3.3
Business	3.3	—	—	—	6.7	10.0
Pensioner	3.3	6.7	10.0	—	—	—
<i>Estimated Monthly Family Income</i>						
<5,000	18.0	6.7	16.7	13.3	30.0	23.3
5,000 – 8,999	36.7	50.0	43.3	36.7	23.3	30.0
9,000 – 11,999	29.3	30.0	23.3	33.3	26.7	33.3
12,000 – 14,999	4.0	6.7	—	6.7	3.3	3.3
15,000 – 17,999	6.0	3.3	6.7	3.3	10.0	6.7
>18,000	6.0	3.3	10.0	6.7	6.7	3.3
Mean HH Size	5.0	5.0	6.0	5.0	6.0	5.0
<i>Length of Stay in Barangay</i>						
< 1 year	0.7	—	—	—	3.3	—
1 – < 3 years	5.3	—	3.3	—	13.3	10.0
3 – < 5 years	8.7	6.7	3.3	13.3	10.0	10.0
5 – < 7 years	6.7	3.3	3.3	13.3	13.3	—
>7 years	78.7	90.0	90.0	73.3	60.0	80.0

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TABLE 2. Study sample by background information (in percent).

	All	Bulacao	Kalunasan	Lahug	Quiot	Tisa
<i>Own Lot</i>						
Yes	42.7	60.0	73.3	36.7	13.3	30.0
<i>Own House</i>						
Yes	86.0	83.3	90.0	100.0	83.3	73.3
<i>Type of House</i>						
Light material	24.7	23.3	26.7	40.0	13.3	20.0
Semi-concrete	58.7	70.0	43.3	46.7	73.3	60.0
Concrete	16.7	6.7	30.0	13.3	13.3	20.0
No. of Cases	150	30	30	30	30	30

TABLE 3. Study sample by water utilization and consumption (in percent).

	All	Bulacao	Kalunasan	Lahug	Quiot	Tisa
<i>No. of years using SSWP</i>						
< 1 yr	12.7	—	10.0	26.7	6.7	20.0
1 to 2 yrs	10.0	3.3	16.7	23.3	6.7	—
>2 to 3 yrs	8.7	—	—	20.0	10.0	13.3
>3 to 5 yrs	22.7	3.3	20.0	26.7	36.7	26.7
>5 yrs	45.3	90.0	53.3	3.3	40.0	40.0
No Response	0.7	3.3	—	—	—	—
<i>Consumption/month in m³</i>						
Median	13	14	12	11	15	12
<i>Cost/month in PhP</i>						
Median	287	276	232	338	244	270
<i>Hours of supply/day</i>						
Mean	22	18	24	24	19	24
Median	24	22	24	24	24	24
No. of Cases	150	30	30	30	30	30

Water utilization and consumption

Presented in Table 3 are data on water utilization and consumption by barangay. The number of years respondents have availed of the level-3 service varies, ranging from less than one year (12.7%) to

more than five years (45.3%). Of the five sites, Bulacao registered the highest number of households which have been using the level-3 water system for more than five years. The volume of water consumed per household per month ranges from 11 to 15 cubic meters. While the median monthly water consumption across sites is estimated at 13 cubic meters, the median monthly consumption cost is Php287.00 (US\$6). Level-3 SSWP in the five sample sites provides continuous supply of water from 18 to 24 hours a day. The mean hour of supply per day is 22 and the median, 24 hours.

Shown in Table 4 are the consumers' reasons for availing of the service and their impressions on water quality. Relative to other reasons, proximity to the house registered more mentions, accounting for 45 percent of the total respondent-consumers. It appears that Lahug and Kalunasan have the most number of consumers who live near the installed water systems. No MCWD line in the locality (32.7%) is another reason that emerged from the study and this is more pronounced in Lahug and Bulacao. While those who mentioned that water is affordable account for 31 percent of the sample across sites, more than a fifth of them cited that water obtained from the level-3 SSWP is of better quality. This is indicative of the residents' acceptance and positive impressions brought about by the water systems made available in the community where they live. A significantly high proportion of them gave a rating of good in the aspects color (98%), smell (97.3%) and taste (87.3%). Although the figure registered for those who gave a rating of poor in the three aspects is very low, such data indicate that there are SSWPs which need to improve the quality of water they provide to consumers.

As a whole, not much difference can be seen in consumers' responses to the question of adequacy of supply, service cost per cubic meter, and water quality. The water supply is perceived to be adequate, the service cost is generally acceptable, and water quality is rated as good. When asked whether they will recommend the system to a neighbor who does not have access to water, the majority of the sample responded in the affirmative. It is presumed, however, that there are concerns in the water system in Bulacao which have not been addressed by the operator, the reason why only 17 percent of them responded positively. Interestingly, many of them would still opt for the current service even if the formal utility would be made available.

TABLE 4. Study sample by consumers' reasons and impressions on the adequacy, service cost, and quality of water (in percent).

	All	Bulacao	Kalunasan	Lahug	Quiot	Tisa
<i>Reasons</i>						
Proximity to house	44.7	13.3	70.0	76.7	30.0	33.3
No MCWD line in the locality	32.7	53.3	6.7	63.3	3.3	36.7
Affordable	30.7	3.3	26.7	10.0	56.7	56.7
Better water quality	22.7	13.3	6.7	3.3	40.0	50.0
Cooperative	6.7	—	20.0	—	—	13.3
MCWD application declined	4.7	6.7	—	—	16.7	—
Others	9.3	10.0	6.7	3.3	3.3	23.3
<i>Multiple response</i>						
<i>Adequacy of Supply</i>						
Adequate	88.7	63.3	100.0	100.0	80.0	100.0
Impermanent	11.3	36.7	.0	.0	20.0	.0
<i>Service Cost/Rate</i>						
Reasonable	88.7	86.7	96.7	96.7	80.0	83.3
Not Reasonable	11.3	13.3	3.3	3.3	20.0	16.7
<i>Water Quality</i>						
<i>Color</i>						
Good	98.0	96.7	100.0	100.0	96.7	96.7
Poor	2.0	3.3	.0	.0	3.3	3.3
<i>Smell</i>						
Good	97.3	96.7	100.0	100.0	93.3	96.7
Poor	2.7	3.3	.0	.0	6.7	3.3
<i>Taste</i>						
Good	87.3	83.3	100.0	100.0	66.7	86.7
Poor	2.0	6.7	.0	.0	3.3	.0
No Response	10.7	10.0	.0	.0	30.0	13.3
<i>Would recommend system to neighbor</i>						
Yes	57.3	16.7	60.0	80.0	50.0	80.0
<i>Would continue to avail of service</i>						
Yes	54.0	60.0	76.7	63.3	33.3	36.7
No. of Cases	150	30	30	30	30	30

Consumer-Users' feedback

This section presents the summary of responses to the open-ended questions. Consumers presumed that resource-sharing is the driving motivation of providers who, over time, have expanded

their systems to accommodate requests from households. Providers are perceived as having established good relations with community residents. The personalized relations that providers in the sample communities have with their clients and the flexible regimen adopted are viewed as positive. Level-3 SSWPs are appreciated for putting up the system although resident-consumers look forward to some improvements particularly in ensuring the safety of the water. To their knowledge, periodic treatment with chlorine is being done by operators to guarantee the potability of the water. They know, however, that the periodic treatment may not be an assurance that the water is safe for drinking. Hence, some of them purchase drinking water from an alternative source such as bottled water. When asked about their willingness to pay for the water service, the sample population responded in the affirmative as long as water is safe and affordable, and available for 24 hours.

CONCLUSION

Similar to other studies done on the informal water sector, this study, albeit limited in scope, has demonstrated the relative importance of local private water entrepreneurs to the overall picture of the water supply context in Cebu City. Water is undeniably a scarce resource in Cebu City, Philippines, hence a deepening concern for the issue is crucial. The continuous growth of population has consequently led to the growing water demand. Many urban populations are left without access to water, a situation which has impinged on sanitation services and has therefore opened up a market for formal or informal business. It is clear that the decision to avail of water services is not a matter of choice among residents but a matter of need.

The growing number of level-3 SSWPs in Cebu City from 2003 to 2013 and the positive outlook among consumers towards this development are revealing findings. The viability of the business has been established in this study. Operators cater to consumers who are generally using polyethylene or galvanized iron pipes for household connection from constructed production wells. Consumers are generally satisfied with the adequacy of water supply, quality of water, and monthly tariff. The benefits currently enjoyed by them provide a justification for the higher cost per

cubic meter. Willingness to pay is apparent as long as access to safe and potable water is guaranteed. Consumers would still opt for their present level-3 provider even if the franchised water utility expands its network to their location. Impressions obtained from consumers indicate their positive level of satisfaction for the services provided them by level-3 operators.

A noted consequence of the SSWP phenomenon is the relevant socio-economic and political role played by this sector in the lives of community residents. The qualitative responses imply that consumers have inevitably accrued a sense of loyalty and patrimony to their provider. This can be attributed to a provider's efficient response to a primary need for water as evidenced by the high satisfaction rating given by consumers to the services availed of. This perceived loyalty will become a pertinent variable in the current water crisis debate in Cebu City.

As earlier implied, the increasing urban population converging with the decrease in groundwater source necessitates more government regulation. This would require mechanisms that favor more and even expand the operation of the franchised water utility over private operators. Even if this scenario is yet to unfold, loyalty blocs in favor of the existing private water providers are already taking shape. The consumers are open to recommending their current water providers to other community residents. The majority of these users are even willing to continue patronizing the SSWP even if the franchised utility will open local water connections. The journey of communities from having scarce water in the past to having their own household connections is something that defines the kind of loyalty they have to private water providers which inevitably characterizes them as similar to local patrons. As in many local water stories, community members have a high regard for individuals and institutions that have significantly contributed to the provision of this much-articulated need. This translates to loyalty to the provider of the service.

Hence, it must be understood that the sustainability of local water supply systems is highly dependent on the idiosyncratic socio-cultural, economic, technological, and political landscapes unique to each community. The experiences showcased in previous local water studies as well as in this current undertaking underscore the defining role of local personalities that carve the breakthrough in the installation and maintenance of water systems and their continued operation over time.

This study has shown that it is crucially informative to appreciate consumers' impressions regarding the services availed of from local private water entrepreneurs. This is indicative of residents' acceptance of the reality that the formal water utility encounters difficulty in providing services to all of the areas within its franchise and that the business established by the informal sector has provided them an equally satisfying option. Despite the limitations brought about by an environment with inadequate access to water, the immediate end of satisfaction still stands out among those who participated in the interview.

Access to water and sanitation is a fundamental right that government must guarantee and protect. However, despite the fact that the informal water sector has proven to complement the services of the formal utility, a mechanism to safeguard the water resources in the City must still be vigorously pursued by the local government so as not to jeopardize the already deteriorating water resource. It is clear that addressing the water and sanitation concerns of underserved communities will redound to better public health which, in effect, will result in contributing to the well-being of the entire Cebuano community, and a better Philippines. Though the study has inevitably contributed to the growing discourse on the socio-political dimensions of water, there is much to be said about how the resource defines the lives of residents in underserved communities. Current political landscapes in both developed and developing nation-states are urged to respond to the world's increasing need to access safe and clean water. An in-depth inquiry that elaborates and interrogates the socio-political fabric of the current water discourse is therefore worth pursuing.

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