

Domestic End-users' Participation in Managing Urban Water Supply in Emerging Cities: Evidence from Wa, Ghana

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ABSTRACT

Domestic end-users' participation in urban water management is essential to achieving improved water delivery system that meet the needs of all urban dwellers in Ghana. This paper examined how domestic end-users can effectively participate in managing urban water in Wa. The study used semi-structured questionnaires and key informant interviews with a sample of 379 households and two staff from Ghana Water Company Limited (GWCL) and Public Utilities Regulatory Commission (PURC). Kendall's coefficient of concordance analysis and content analysis were the analytical techniques employed. It found that households' level of participation in urban water management was 14%. Results of the Kendall's analysis showed a coefficient of 0.59, which indicates that there is a high agreement level among households that the low level of participation is attributed to GWCL's lack of trust in end-users' capacity to make meaningful inputs. It identifies formation of urban zonal water management committees, communication and information sharing, operational transparency and assigning specific roles to end-users as some of the strategies for improving participation in urban water management. These findings have implications for the realisation of the Ghana National Water Policy objective of participatory decision-making in urban water management. It is important that GWCL streamlines its operations and sensitise end-users on its operations.

Keywords: End-users, Participation, Urban Water, Management, Challenges

INTRODUCTION

The need to manage urban water supplies became apparent with the advent of urbanisation and industrialisation, and the requirement for urban water supply to keep pace with demand for drinking, industry, health and sanitation (Hurlimann & Wilson, 2018). However, management of urban water supplies has, over the years, been considered a technical issue and is limited to the technical professionals with little or no participation of the end-users.

In recent times, there has been the growing concern, especially within contemporary development theory and practice, for user participation in urban water management. User participation is conceived as a process in which ordinary people such as domestic end-users or households influence or take part whether out of free will or on mandatory basis and whether acting alone or as part of a group – with the goal of swaying the outcomes of decisions involving meaningful choices that affect them (Daemane, 2015).

The relevance of participation of users is articulated in vital state documents. The National Water Policy of 2007, for instance, mentioned the importance of contribution of users to the realisation of the targeted goals of the policy (Amexo, 2014; GoG, 2007). While substantial attention is on technical aspects of utilities, the voice of users is often muted, and the consequence is that service providers do not take account of end-users' priorities and preferences. The service, in turn, loses the trust and cooperation of the users that it is supposed to serve. The result is often a vicious cycle of unreliable water delivery systems that produce services that do not meet end-users' needs, deterioration in service delivery and alienating users (Avolio, 2016). The main argument of this paper is that the need to manage urban water effectively is also the need to reflect upon end-users' participation.

In Wa, like any other urban area in Ghana, GWCL is responsible for managing water supply. Following the completion of the Jambusi water treatment plant, the water supply situation in the city is expected to improve since the project is supposed to generate additional 3.6 million gallons of water per day. But the key concerns are: (i) How can this improvement be managed and maintained in the face of limited end-user participation? and (ii) In what ways could users' participation be enhanced? Studies by Kosoe & Osumanu (2015) and Amoah and Yahaya (2013) on water supply in the city have focused on its evolution and accessibility to the neglect of how the

domestic water users participate in the management of water delivery. The aim of this paper is to explore and understand how domestic end-users participate in the management of urban water in Wa and how their participation can be enhanced.

LITERATURE REVIEW

Urban Water Supply Management Process

Thompson et al. (2017) affirm that urban water is distributed by either networked utility systems or non-networked provision through kiosks or tankers. The notion of water supply process constitutes three main components that are one-way directional and sequentially complementary in significance and criticality (Okoye, 2015). They are inextricably linked through design, function, and performance. These are the source, treatment and transmission/distribution (Chukwu, 2015). Mayer et al. (2013) assert that, water pumped to households through municipal systems is generated from a source of water, transmitted to the end-users in their homes via a network of pipes and appurtenances (reservoirs, valves, bends and meters) known as the distribution systems that transfer the water. The water source varies, and based on the treatment system and the technique, the water may come from either a large managed reservoir or surface water, among others. The transmission system on the other hand, consist of a very large pipe through which the water is transferred from the production and treatment centre, sometimes to other stations for distribution to the various communities. The distribution or delivery networks, however, are relatively medium or small size pipes normally laid in the community and to the households (Mayer et al., 2013).

End-users' Participation in Urban Water Supply Management

Decades of varying development views have seen alternating national and global water policies emphasise government, users and markets as crucial for resolving water supply challenges (Karar, 2017). The purpose of urban water management currently focuses on maintaining good relations among users and develop systems that will accommodate future generations. The participation of households (domestic users) based on their willingness to contribute mostly leads to effectiveness, efficiency, empowerment, equity, coverage and the overall sustainability of water supply systems (Daba & Wolde, 2016). For water providers, the benefits of involving users in managing water can include lower levels of non-revenue water losses, improved cash flow, and more resources for investment in infrastructure and increasing service quality (Thompson et al., 2017). For Clavreul

et al. (2012), listening to stakeholders' concerns and receiving their feedback can prove a valuable source of information for improved water system design and its management. Involving people makes it possible to utilise their knowledge about local conditions to solve problems more efficiently and effectively (Daemane, 2015).

Addo (2010) evinces that end-user participation in decision making is fundamental to the successful implementation of decisions on water supply. Addo stresses that if there is a problem in the water supply situation in Ghana, the assumption is that the challenge can be traced to the non-participation of users in the decision-making process for the supply of water that they so much depend on. For Brikké & Rojas (2001), the lingering poor relationship between customers and utility companies managing water services is a major constraint to cost recovery. The traditional approach has been to approximate users' needs without consultation, provide a level of service deemed good in quality and then expect the users to pay.

Gupta affirms that generally, urban centres show less interest in participation than rural areas since communal ties are weaker in the former (Gupta, 2009). On the contrary, Darmayanti and Koudstaal (2016) affirm that experiences in countries across the globe confirm that people in urban and rural communities are very much willing and able to co-manage systems.

Challenges to Domestic End-users' Participation in Urban Water Management

There is fear among central utility providers of unrestrained empowerment of service users and lack of trust in their capacity to make meaningful decisions or inputs, which prevents state utility companies from moving away from their paternalistic method in decision-making relating to water management (Karar, 2017; Bassi & Kumar, 2012). Lack of political will and leadership, lack of clarity on the use of stakeholder inputs, institutional fragmentation and weak legal frameworks, lack of funding, crisis of trust between the users, administrations and utilities, growing mutual discontent and underdeveloped practices of citizen participation are all impediments to involving household water users and other stakeholders in managing urban water supply (Karar, 2017; OECD, 2015).

Another major challenge to involving domestic users in urban water management is that the current GWCL delivery approach does not have any clear role carved out for user participation in the management process. Therefore, customers' participation does not fit directly into GWCL operations (GoG, 2012) yet there is no dearth of international conventions declaring user participation as essential

to water management principles. Conceivably, the best-known one is the Dublin Statement (1992) which stressed amongst other things that water development and management should be based on a participatory approach (Amexo, 2014). Effective urban water management requires open, transparent and outward-looking state institutions appreciating that they cannot all alone resolve current water management challenges, and having enough confidence to enter into direct discussion with users. Clearly, water utility providers lack this knowledge and therefore consider their involvement as a clear waste of resources (Vasquez, 2004).

RESEARCH METHODOLOGY

Study Area

This study was conducted in Wa, one of the emerging Ghanaian cities. The total population of the city in 2017 was estimated at 82,005 (GSS, 2017). The city lies within latitude 10.0601° N and longitude 2.5099° W (WMA, 2010). The map of the study area is in Figure 1. Potable water provision in the city can be traced back to the colonial era. In the 1980s, a concrete water treatment tank with a capacity of one thousand eight-hundred-meter cube (1800 m³) per day was constructed to augment the water situation (Amoah & Yahaya, 2013). Rapid urbanisation in the city led to the construction of a US\$51.4m water project in Jambusi to supply water to Wa and its environs.

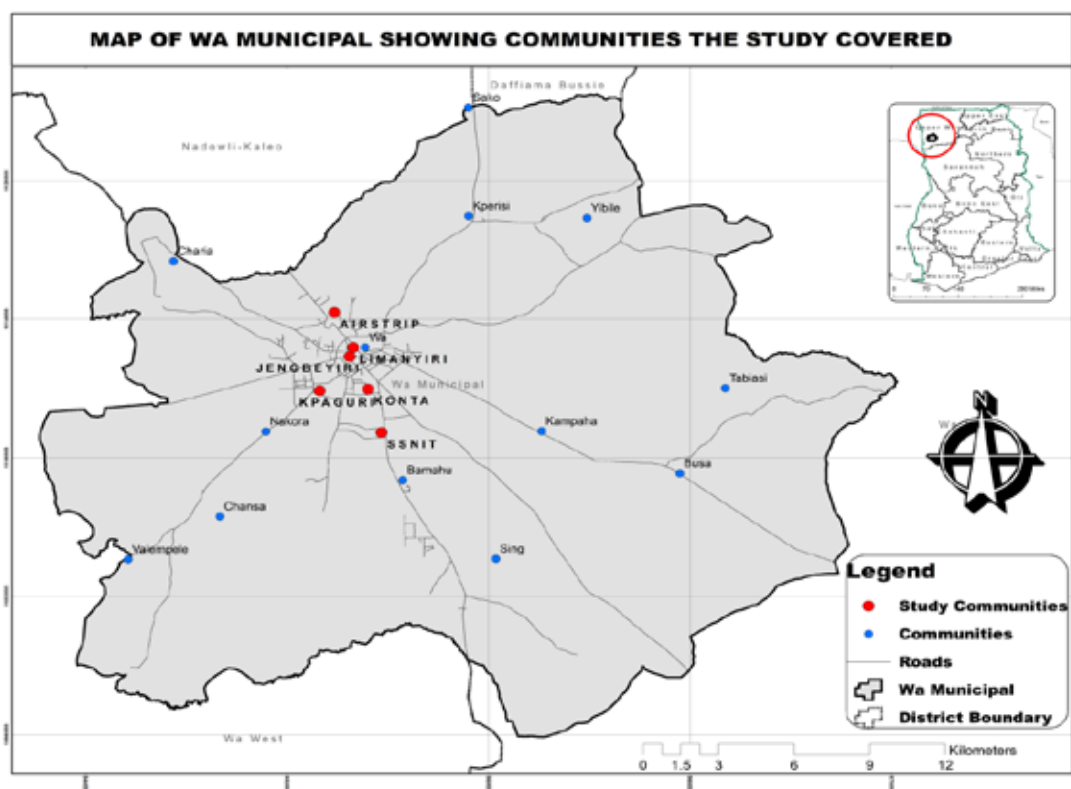


Figure 1: Map of Wa Municipality showing the study communities

Source: Authors' construct, 2019

Methods

The paper employed mixed methods research design, which involves a methodical integration of both qualitative and quantitative data in a single study (Wisdom & Creswell, 2013). A sample was drawn from households (domestic end-users) that depend on water from GWCL. The total number of households who depend on water from GWCL is 9,106 (GSS, 2014). A sample-size of 379 was computed at 95% confidence-interval using Yamane's (1973) formula as shown here;

$$X = \frac{N}{1 + N(e)^2}$$

Where

X = sample-size, N = total households and e = sample error

N = 9,106 and e = 0.05

The domestic end-users were selected using a combination of methods (multi-stage). Stratified sampling was initially employed to divide Wa into three strata based on the residential/income classification of the city according to GSS. Based on this criterion, the city was classified into high class/income residential, middle and low-class residential areas. A simple random sampling method was then used to select two communities from each stratum. A total of six communities were sampled for the research. The outcome of this process, led to the inclusion of Limanyiri, Jengbeyiri, Kpaguri, Konta, SSNIT and Water-Village in the study. The proportionate sampling method was then used to apportion the sample size of 379 households to the randomly selected six areas based on the total population of each of the areas. Additionally, the paper targeted two types of domestic end-users of water from GWCL-households with in-house connections and households that depend on public-stand-pipes. Proportionate sampling methods was used to distribute the sample-size across these two sets of customers based on the total number of households of each. The total number of households in the city with in-house connection is 7,527 and households that depend on public stand-pipe is 1,579 (GSS, 2014). The result of the proportionate distribution of the sample size is shown in Table 1.

Table 1: Sampled size distribution

Residential classification	Sampled communities	Total population (2017)	Sample-size	In-house Connection	Public-standpipe
Low-class (income)	Limanyiri	4,015	84	69	15
	Jengbeyiri	2,392	50	41	9
Middle-class (income)	Kpaguri	6,301	131	108	23
	Konta	2,980	62	51	11
High-class (income)	SSNIT	1,828	38	31	7
	Water-village (airstrip)	668	14	12	2
			379	312	67

Source: GSS, 2017 and Authors' own computations, 2019

After this, simple random sampling was employed to randomly select the apportioned sample-size for the two types of end-users from each of the selected suburbs. Two respondents (one each) from GWCL and Public Utilities Regulatory Commission (PURC) were purposively selected as key informants for the study.

A total of 379 questionnaires were administered to the domestic end-users. The questionnaire was made up of both open and closed ended questions covering domestic end-users' level of participation, challenges to their participation and how to enhance domestic end-users' participation in managing urban water supply in Wa. Key Informant Interviews (KII) were employed to collect data from staff of GWCL and PURC.

Data on end-users' participation was analysed using simple descriptive such as percentages and content analysis, where the researchers qualitatively make meaning out of the data collected based on established themes and patterns from the data collated and supported by direct quotations from respondents. Quantitative data gathered on the challenges was analysed using Kendall's coefficient of concordance (W). The model specification is presented below.

This model was used to identify challenges to domestic end-users' participation in urban water management in order of most pressing challenges to the least pressing one. It is a measure of the agreement among several (P) judges who are evaluating a given set of n objects (Legendre, 2005). W is an index that measures the ratio of the observed variance of the sum of ranks to the maximum possible variance of the ranks. The idea behind this index is to find the sum of the ranks for each challenge being ranked. If the rankings are in perfect agreement, the variability among these sums will be a maximum (Tanko et al., 2016). This was used to test the agreement among the rankers of the rankings. The test of significance of the Kendall's concordance was done using the chi-square (χ^2) statistic which was computed using the formula:

$$\chi^2 = P(n - 1)W$$

Where n = sample size, p =number of constraints, W = Kendall's coefficient of concordance. The hypothesis for testing W is given as:

H_0 : There is no agreement among respondents regarding the rankings of the challenges.

H_1 : There is agreement among respondents regarding the rankings of the challenges.

The Kendall's coefficient was estimated with the aid of Statistical Package for Social Scientists (SPSS).

RESULTS AND DISCUSSION

Domestic End-users' Participation in Urban Water Supply Management

Households were asked to determine whether they participate in the management process of the water they consume. The results showed 327 (86%) of the household respondents do not take part in the overall management process of water provision by GWCL while the remaining 52 (14%) households indicated they do, in one way or the other, take part in managing the water supply process.

This indicates that a significant number of domestic end-users interviewed do not take part in the management process (which according to GWCL, is about how water is abstracted from a source point, treated for onward distribution to customers). Thus, there is low level of participation of end-users in the process. This finding supports Brikké & Rojas (2001) argument that the traditional approach has been to approximate users' needs without their participation. The low level of participation could have implications on the effective operation of GWCL since the end-user participation is fundamental to the successful implementation of decisions on water supply. As noted by Addo (2010), if there is a problem in the water supply situation in Ghana, the assumption is that the challenge can be traced to the non-participation of users in the decision-making process for the supply of water that they so much depend on.

The 86% households who do not participate in water management attributed their non-participation to the following reasons:

Water delivery and its management is the responsibility of the provider (GWCL): the households interviewed evinced that GWCL is mandated by law to solely manage the delivery of water services in urban Ghana and thus, these end-users do not see the need to participate in GWCL operations. They argued that as customers of the company, they pay for the services rendered and it is therefore the responsibility of the company to ensure proper management of the services they provide.

They further affirmed that participation will only lead to delay and disruption in water supply since it will delay the decision-making process. A respondent retorted:

If they allow us to participate, we will most likely slow down the process because the tendency for us to argue amongst ourselves is high given our divergent backgrounds and opinions. Another respondent asserted: GWCL can do the job on their own, so I see no need for our involvement. Our participation could even ignite some religious and cultural problems which could make the process more challenging for the water provider.

Time constraints on the part of end-users was given as one of the major reasons why they do not participate. Most of the respondents complained of their busy schedules as constraints to their participation. Some admitted that they indeed would want to participate, but because of their occupation. Some of these respondents were mostly civil or public servants and traders who spend most part of the day at their workplaces. For instance, a respondent from SSNIT said:

I go to work as early as 8am and close at 5pm. I hardly even meet those who go around distributing the water bills. Another affirmed: I am a business woman (trader) and I do come home late in the evening so getting involved in their activities will be difficult for me.

Others also attribute their non-participation to lack of education: These end-users were mostly those without any form of education and located also in the low-class residential areas. To them, participation in water management is the preserve of the educated ones. The respondents mentioned that you need to have some level of formal education before you can understand the nature of water management in order to participate. Water management is a technical process which requires experts with the technical know-how. The respondents admitted to not having this technical know-how hence, their non-participation. A respondent acknowledged that they do not have the requisite skills to be able to make any meaningful inputs into the management process.

The 14% of households who also affirmed they do participate in the process indicated that they mostly participate in the distribution or transmission stage of the management process. This is illustrated in Figure 2.

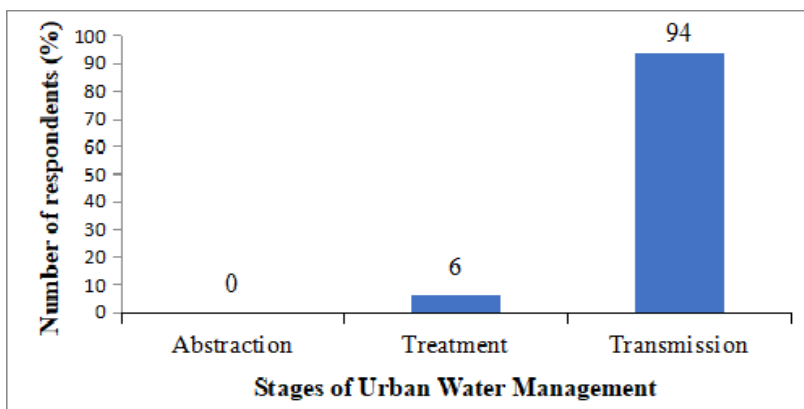


Figure 2: Water management stages

Source: Authors' Estimates, 2019

In Figure 2, none of the 52 (14%) end-users who acknowledged they participate in the management process did take part in the abstraction stage with just three (6%) who admitted having ever taken part in the treatment stage. These three end-users further revealed they take part in the treatment process by merely observing the processes involved in treating water at the treatment plant. This, they affirmed was done periodically. During a Key Informant Interview (KII) session, the company revealed that the abstraction stage involved extracting water from the main source (Black Volta). The company further explained that the treatment plant is located in the Jambusi community, where after extraction, the water goes through a treatment process. At this stage chemicals such as chlorine are used to treat the water to improve its quality for wholesome consumption. The remaining 49 (94%) end-users out of which 38 were from low and middle-income areas and 11 from the high-income residential suburbs of SSNIT and Wa-Airstrip confirmed they do take part in the transmission process. This view was corroborated by the utility provider who maintained in a KII that the whole process is quite technical, more especially the abstraction and treatment stages and as such, end-users are often allowed to take part in the transmission stage which is also made up of a chain of processes.

The household end-users were queried further as to what kind of role they play at this stage and the following roles were proffered:

1. Taking part in stakeholder consultation meetings on water tariff settings
2. Involve in water scheduling during water rationing
3. Laying of complaints to the company
4. Taking part in radio discussions on water issues
5. Calling to give information about leaking pipes, blockages, illegal connections
6. Informing water officials on leakages and poor services
7. Participating in the maintenance and separation of meters
8. Payment of water bills
9. Maintenance and taking care of pipelines and household taps

It can be observed from the summarised responses that their form of participation can best be described as merely passing information to management. This form of participation is known as passive participation and under this, management is not bound to consider their views in the company's final decisions.

In an interview, the PURC, the sole regular of GWCL, confirmed that they do involve all the category of water users through consultative meetings especially with regard to taking decisions on tariff settings. The PURC director maintained that they do wide stakeholder consultations involving a section of water consumers, groups (NGOs, Consumer Protection Units) with interest in water before coming out with tariffs that attempt to reflect current socioeconomic circumstances of the end-user. The GWCL also asserted that they do involve the end-user in their operations, albeit, much of the work is done with little participation of the domestic end-user because of the technical nature of the process involved. Notwithstanding the technical nature of the water management process, especially the abstraction and treatment stages, the company, according to the commercial unit manager still makes efforts to involve the end-users. For instance, he stated:

The company does try to involve the end-users at the abstraction and treatment stages by organising periodic field trips to the main treatment plant in Jambusi especially on World Water Day. We sometimes also organise such visits to our treatment plants for consumers (including school children) who are interested in knowing how we operate. During such visits, we take them through the processes involved in water extraction and treatment and subsequently how the water is finally distributed to the various households (KII, 2019).

He further indicated that financial and logistics constraints were the reasons for not organising such trips regularly. Still on the issue of domestic end-users' participation, the sole provider (GWCL) added that the only form of participation that is visible and regular is their payment of water bills which can be termed as economic participation. The Commercial Unit Manager explained:

We are solely responsible for water management and the end-users are expected to participate by paying their monthly bills for us to be able to continue providing them quality water. The other ways that they participate is by giving us feedback on quality of service, sending complaints to the company (via phone call, radio phone-in programmes, attending to questionnaire surveys on service satisfaction, personally visiting the office and passing it through the billing agents), reporting on leakages and illegal connections and water distribution schedules (KII, 2019).

End-users' participation in water management is quite low though the provider admitted to making efforts to increase their participation. Low levels of domestic end-users' participation as revealed by this paper will have a negative impact on the company's ability to address its numerous challenges. As noted by Lai et al.

(2017), that water problems cannot be solved effectively without sufficient public or end-users' participation. For Clavreul et al. (2012), listening to stakeholders' concerns and receiving their feedback can prove a valuable source of information for improved water design and its management. Involving people makes it possible to utilise their knowledge about local conditions to solve problems more efficiently and effectively (Daemane, 2015).

Challenges to Domestic End-users' level of Participation in Managing Urban Water Supply

The paper sought to identify and assess the various challenges that limit or serve as obstacles to domestic end-users' active participation in urban water management using Kendall's coefficient of concordance. Results from the Kendall's showed an average Kendall's (W) co-efficient of 0.59, which is statistically significant (see Table 2).

Table 2: Challenges to involving domestic end-users in urban water supply management

Challenges	Mean Rank	Rankings
Lack of willingness or desire to engage with end-users	3.48	2
Lack of resources or technical capacity for effective engagement of end-users	5.36	6
Lack of trust in end-users' capacity to make meaningful decisions or inputs	2.92	1
GWCL delivery approach does not have any clear role carved out for user participation	4.02	3
End-users' lack of awareness	4.11	5
Lack of clarity on the use of end-users' inputs	4.09	4
Growing mutual discontent and underdeveloped practices of citizen participation	9.94	10
Fear of unrestrained empowerment of service users	6.1	7
Little widespread belief that engagement is their mandate	6.2	8
Perceived symbolic rather than real	8.79	9
N	379	
Kendall's W^a	0.585	
Chi-Square	1996.131	
Df	9	
Asymptotic Significance	0.00	

Source: Authors' estimates, 2019

A Kendall's coefficient of 0.59 simply means there is a statistically significant (high degree) agreement of 59% among end-users that the utility provider's lack of trust in domestic end-users' ability to make meaningful contributions is the most pressing challenge to end-users' participation in urban water management in the city. The end-users asserted that the GWCL's lack of trust in their ability to make meaningful contributions towards effective decision making is the major constraint to realising any meaningful form of participation in their activities. The households were of the view that the company maintained that the process involved in managing urban water delivery is quite technical and thus requires the participation of people with such technical expertise. The end-users conceded that they do not have the technical expertise, and hence the company does not always see the need to actively involve them in the management process. This was corroborated in an interview with the company (GWCL) that their mode of operation is technical, particularly the processes that goes into the production and treatment of water for onward supply to consumers. This makes it a bit difficult to involve the end-users at these stages because it involves expert knowledge which the end-user does not possess. These stages, the company acknowledged, are handled only by workers who have the requisite technical capacity and the needed skills in water engineering. The commercial manager indicated:

The domestic end-user does not have the necessary expertise that we require to manage the supply of water, so we often do not involve them, especially at the production level because they will really have less to offer in terms of relevant inputs. We are supposed to produce the water and theirs is to pay for its consumption (KII, 2019).

This situation, Bassi & Kumar (2012) conclude prevents government establishments (like utility companies) from moving away from their paternalistic method in decision-making relating to water management.

The second ranked challenge that hinders domestic end-users' level of participation in urban water management is the seeming lack of willingness or desire on the part of the GWCL to engage with the end-users who constitute the largest customer base of the company in the city. The households blamed their low level of participation on the apparent lack of willingness or desire on the part of the company to effectively engage them in their operations. This, they observed, stems from the attitude of the staff towards educating them on their operations and staff reluctance in addressing their concerns. For instance, one respondent affirmed: "sometimes when they come around to distribute bills and you try to engage them

to understand how they operate, particularly how the billing is calculated, they are often so reluctant to engage you in that regard”.

Another respondent added:

They always maintain their mode of operation is quite technical and so even if they involve us, we won't appreciate it and for them it is only a waste of time to engage us. Thus, their lack of desire to involve us. Another respondent from Konta community gave a reason for GWCL disinterest in engaging them when he stated it is difficult to handle large numbers in a participatory process. Therefore, they are unwilling to involve us.

In reaction to this claim, the provider blamed it on the inadequate staffing and logistics situation and maintained that it is not that they (provider) are unwilling to involve them, but sometimes the resources to do that are always limited.

The 3rd ranked challenge had to do with GWCL delivery approach which the respondents claim does not have any clear role carved out for user participation. Most of the households who affirmed that they do not participate in the management of water supply argued that they are not given any specific role(s) by the company and hence their inability to take active part in the management process. A respondent in Limanyiri gave an interesting response when asked why she does not participate in the GWCL operations.

She opined:

How do I participate in something I have no knowledge in and have not been given any role to play? So, for me if they want us to take part in their activities, they should first design specific roles for us.

Another respondent from Kpaguri maintained:

The company itself does not have guidelines for involving domestic water users. They just don't know how to incorporate us fully into their operations even if they want to.

This finding supports the views that customers' participation does not fit directly into GWCL operations (GoG, 2012) yet there is no dearth of international conventions declaring user participation as a key water management principle (Amexo, 2014).

More so, the households ranked lack of clarity on the use of end-users' inputs as the 4th major hindrance to their involvement. They held the view that the company does not often incorporate its inputs into their final decisions. The households bemoaned that they only make their inputs through the billing agents and sometimes through customer complaints units. However, whether those inputs are considered or not, the end-user has no knowledge on that. For the end-user, there is no clear-cut process as to how their inputs are considered and incorporated by the company. The end-users generally believe there is no transparency in the way their inputs are handled.

A woman from Wa air strip retorted:

You complain through the billing agents, no feedback, you visit the office to lay a complaint or give suggestions and the story is still the same. It appears they either do not value our inputs or don't know how to incorporate it.

Interestingly, end-users' lack of awareness that they are required to participate in managing water supply in the city emerged as the 5th constraint to their participation. Some of the households maintained that water supply is the responsibility of the state and for that matter the GWCL and hence, they are not supposed to take part in its management. Lack of resources or technical capacity for effective engagement of end-users was also identified as the 6th constraint to domestic end-users' inability to take active part in managing water supply. The households bemoaned that the company does not have the requisite capacity (especially the required human capital that understands and appreciates the principles of participation) to engage them. For instance, it was observed that their customer client unit was understaffed. Effective participation also requires the use of other resources financial and logistical, which the company lacks. For example, the billing agents do not have motor bikes to aid their movements and interactions with customers. The company agreed with the end-users on this issue by admitting that the company lacks the needed skills and resources to regularly engage the end-user. The commercial manager affirmed: "The company is doing its best to actively engage end-users, but it comes with its own associated cost that the company sometimes struggles to finance, which affects the sustainability of these engagements" (Kil, 2019).

The fear of unrestrained empowerment of service users by public utility providers was the 7th challenge to end-users' involvement. The end-users revealed that they

are unable to participate in the management of water because both the provider (GWCL) and the regulator (PURC) fear that if they are made to participate fully in their operations, they will be empowered, which will make their operations difficult for them. This view was, however, discounted by the provider who maintained that they are doing their best to involve end-users despite the technical nature of the process.

The widespread belief that engagement is their mandate was ranked 8th. Domestic end-users blamed their inability to participate in water management on the fact that the utility operator does not really see engagement with end-users as a constitutional mandate. This, they stated, is borne out of the attitude of the staff of the company towards their engagement. As a case in point, a respondent from Jengbeyiri averred:

Some of the workers are simply arrogant and have no time to listen to you even if you try to engage them. Usually, it is the billing agents who exhibit this attitude and it makes me wonder if they are really aware that at all times, they are supposed to engage us in the management process.

Tied to this is the perception of both the utility provider and end-users about user participation. They perceive participation as highly symbolic rather than an actual process that seeks to incorporate the views of users in water delivery management. This perception, according to the households interviewed, has developed over the years because of lack of transparency or clarity on how users' inputs are utilised. This was ranked 9th with an average mean score of 8.79. Growing mutual discontent and underdeveloped practices of citizen participation was the least ranked (10th) challenge.

How Domestic End-users can Participate in Managing Urban Water

Though end-users' (domestic) current level of participation can fairly be described as low, a good number of the household heads (70%) interviewed expressed their willingness to participate in urban water management as against 30% who do not see the need for end-users' participation in the management process since according to them it is technical and requires technical experts. Since a good number of the end-users believed that they should take part in the management process, relevant data was gathered on how domestic end-users could actively be involved in the management of urban water. The 70% households constituted

end-users from the low, middle and high-class residential areas of the city and their views on how participation can be improved are discussed as follows:

Education and awareness creation: the interview results revealed that sustained education and awareness creation programmes on the processes involved in managing urban water, the role domestic end-users can play and the relevance of their participation is one sure way of ensuring households' participation according to the end-users. Their level of participation is low because of their limited knowledge of the processes and the specific role they could play. These, the end-users suggested could be addressed through sustained education and sensitisation campaigns to enlighten the end-user on the need to participate in the operations of the company. They further proposed this could come in the form of periodic seminars or workshops, and quarterly radio discussions. A respondent mentioned that "having periodic meetings with GWCL management, we can give our views on the service they provide. This in itself is a way of getting involved in their activities". An interview with the GWCL corroborated the end-users' view, but indicated that the company periodically embarks on these sensitisation programmes. The company however maintained that the resources to sustain it are a major constraint.

Assigning specific roles to end-users: End-users proffered that their level of involvement in urban water management could be enhanced if the utility provider clearly carved out specific roles for them. They argued that if they are given the specific roles to play in the management process, then they will be able to take active part in the process. They were further queried about what kinds of roles should be assigned to them. The following were given: simple engineering roles such as repairing of burst pipelines, drilling and fixing of standpipes, and taking part in monitoring of facilities. This strategy was advanced strongly by households from both the low and middle-class residential areas.

Formation of urban zonal water management committees: These committees, the end-users proposed could be composed of representatives from the various zones, whose primary role could be to represent the interest of the domestic end-users in water management related issues. The zonal committee members will serve as liaison officers between domestic end-users and GWCL. Membership would be made up of only people who have interest in urban water delivery and are willing to participate in its management. The idea of forming urban zonal committees largely came from the low-class residential areas, who argued that they are ever willing to be part of such zonal committees. The implication is that, urban water management in the city could become more inclusive and participatory.

Improving communication and Information sharing: For the end-user, improvement in the flow of information between GWCL and household users is another way to achieving effective user participation. Communication they argued, is key to user involvement and thus, the company could strengthen their communication channels such as the hotline and radio discussions. The end-users suggested the company staff the customer complaint unit with people with good communication skills, excellent customer relations and a good appreciation of participatory tools and techniques. They indicated further that the existing negative perception, seeming lack of trust and subsequently poor relationship between the company and domestic end-users is due to inadequate information flow between them. This corroborates Brikké & Rojas's (2001) views that the lingering poor relationship between users and utility companies managing water service is partly due to lack of information on both sides. If communication and information sharing are embedded in water management, it will likely promote the principles of co-management and sustainability of water supply in the city.

Transparency in the management process: The end-users indicated that their level of participation could be enhanced if the company shows transparency in its operations. This alone, the end-users stressed could improve their relationship with the company. They suggested the company could become more transparent on the way tariffs are set and how the metering billings system works. They further argued that if they are fully made to appreciate the operational cost of managing water and what goes on at every stage of the process, then they are most likely to take part in the process. The finding supports Vasquez's (2004) view that effective participation requires an open, transparent and outward-looking state institution appreciating it cannot all alone resolve current water management challenges and having enough confidence to enter into direct discussion with its users.

Overall improvement on service quality: The end-users believe that this will, in no doubt, increase their level of participation. Service quality improvement touches on reliability and the degree of responsiveness of the company to the needs and complaints of the end-users. A respondent simply put it thus: "If we are served well, we will develop interest in their operations". Another mentioned that "if they give the best of service and priority, then I believe our level of participation will increase". Clearly, end-users' level of participation is contingent on the kind of service they receive from GWCL.

Privatisation of GWCL: A few of the end-users, particularly those from the high-class residential areas, advocated privatisation as key to enhancing end-users'

participation in urban water management. They contended that the private sector values the inputs of their customers more than the public sector. For instance, a respondent from SSNIT likened the phenomenon to the banking sector when he retorted:

Just look at the operations of the private banks as against the State banks. Customers of the private banks have more information on their operations than customers of the state banks. They often consult them to listen to their complaints and use their views to design new products that meet the needs of their customers. The state can learn from this and privatise GWCL fully or partially.

CONCLUSION AND RECOMMENDATIONS

The paper has brought to light domestic end-users' participation in urban water management, challenges to their participation and how their participation could be enhanced. Domestic end-users in the city currently participate less in urban water management as revealed by the study. This low level of participation is predicated on a combination of factors such as lack of trust in end-users' capacity to make meaningful decisions or inputs, lack of willingness or desire to engage with end-users and the GWCL delivery approach, which does not have any clear role carved out for user participation. While end-users' level of participation was low as a result of these challenges, they were however, willing to participate when given the opportunity. The end-users proposals included assigning specific roles to them, formation of urban zonal water management committees and improvement in communication and information.

These findings have implications for the realisation of the Ghana National Water Policy objective of participatory decision-making in urban water management. This paper recommends the sensitisation of domestic end-users since the research showed that a good number of end-users had no knowledge on the operations (management) of GWCL, which invariably accounts for their low levels of participation in the management of water supply in the city. This could be addressed through intensive education and sensitisation programmes that are specially designed with the intent of educating the end-users on the mandate of the company, its mode of operations and the need for them to at all times contribute meaningfully to decisions of the company. This could help address a number of the challenges such as the widespread belief that engagement is the mandate of GWCL and fear of unrestrained empowerment of service users.

GWCL needs to streamline its mode of operations. There is the need for the company to reassess its mode of operations to make clear which stages of its decision-making process users' inputs could be incorporated. When decisions of the company clearly reflect the inputs of the end-user, they are most likely to be willing to participate (both economically and socially) actively in the management process. This hinges on the level of transparency and accountability on the part of the provider. These can help address the perception that the company lacks the desire to engage with end-users. GWCL should put in place mechanisms to improve on domestic end-users' perception on the quality of service they receive. Mechanisms like deterrent/punitive measures for the billing agents could be helpful. The paper showed they are mostly users' first point of call when laying complaints and their attitude according to the end-user and the company itself is not too good for the corporate image of the company. The provider could consider recruiting people with expertise in customer relations into the customer complaints unit to help attend to the complaints of end-users in a timely manner.

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