

Accra's Poverty Trap: Analysing Water Provision in Urban Ghana

Ebenezer Forkuo Amankwaa¹, Alex Barima Owusu², George Owusu³ & Fatima Eshun⁴

Abstract

The urban landscape of Ghana, like most developing countries, is characterised by a mix of areas without water supply, and those with erratic and unreliable supply. These inadequacies are felt disproportionately in low-income communities, where their needs are often hidden in the aggregate statistics of the wider urban context. Using transect walks, in-depth interviews and GIS mapping technique, this paper analyzes the water supply challenges faced by Korle Gonno, an indigenous community in Accra. The paper argues that the shortcomings in the formal water supply system combined with the unique characteristics of poor communities has resulted in a complementary informal and needs-driven practices, which partly takes account of the forms of access that are otherwise neglected such as clandestine connections, and purchases from water kiosks and small-scale vendors. The paper calls for a 'service co-production' model which looks beyond the accessibility of water to include other pervasive issues such as quality, affordability, reliability, equitability and acceptability. It concludes that understanding the implication of these dynamics is key for poverty alleviation.

Keywords: Urban poverty, service delivery, water supply, GIS, Ghana

1. Introduction

It seems customary for discourses on the water challenge to start by highlighting that the world is undergoing a dramatic urban transition.

¹ PhD Candidate, Department of Geography and Resource Development, P. O. Box Lg 59, University of Ghana, Legon. E-mail: ebenchief@yahoo.com Tel No: +233 243 222509

² Department of Geography and Resource Development, P. O. Box Lg 59, University of Ghana, Legon. E-mail: owusuba@yahoo.com

³ Department of Geography and Resource Development, P. O. Box Lg 59, University of Ghana, Legon. E-mail: gowusu@gmail.com

⁴ Department of Geography and Resource Development, P. O. Box Lg 59, University of Ghana, Legon. E-mail: fatimakors2000@gmail.com

In sub-Saharan Africa (SSA), the low coverage of water supply forms part of a systemic urban problem (Songsore & McGranahan, 1993). Ghana is no exception, as city authorities' grapples in attempt to improve water supply to its urban populations. At present, although water coverage in urban areas has increased from 75% in 2005 (UNDP, 2007) to 83% (UN-Habitat, 2008) many households remain unconnected to potable water from the national mains, Ghana Water Company Limited (GWCL), and in areas with access, service is increasingly unpredictable and unreliable. For instance, in Accra, the gap between production and consumption has widened from 74 million gallons per day in 2008 to 170 million gallons per day in 2010 (Essel, 2010).

In Ghana, undoubtedly, urban growth outpaces infrastructural development and therefore limits government's ability to provide adequate services (Owusu & Afutu-Kotey, 2010). This is compounded by the observed pattern of poverty discrepancies and skewed provision of services. CHF International (2010) reports Accra's mean household income to be US\$ 8.86 per day, while that of the high income areas- Airport Residential, Roman Ridge, and Cantoments- is US\$ 294 per day. The very poor areas- Sabon Zongo, Nima, and Korle Gonno- have an average household income of US\$ 3.5 per day. The report adds that Korle Gonno is a "high poverty pocket⁵," in terms of income levels. Such communities are largely inhabited by squatters and migrants workers, and usually lack basic services.

Generally, three modes of service provision exist in Ghana. First, the delivery of services is contracted out wholly or partially through public-private partnerships (PPP) to private firms (local or foreign). Second, communities are encouraged to provide services for themselves in the form of self-help projects.⁶ Third, central government effort to downsize the state has led to the decentralisation of services to local governments, without commensurate financial resources, which has forced local authorities to offload the new responsibilities to the private sector (Crook & Ayee, 2006).

Although more people can now access water, frequent shortages, water rationing and interruptions to supply have substantially negated the gains of private participation.

⁵ It is important to note that daily income levels can be misleading as indicators of household wealth or poverty. A "high poverty pocket" in terms of income is defined as income levels of \$1-2 dollars per day, or as poor as some of those inhabiting Ghana's most remote villages.

⁶ This result has been achieved by persistently denying communities adequate municipal services and extolling the idea of 'community' self-help and 'do it yourself'.

This situation has created distinct hierarchies of consumers (Obeng-Odoom, 2011), and three classes of consumers have been identified in Accra (UN-Habitat, 2009). There are those who have uninterrupted access to water and so pay the official rates, ranging from US\$0.0019 to US\$0.007 a bucket. Also, there is the much larger proportion of consumers with access to water but whose supply is regularly interrupted and, therefore, supplement it by purchasing water from vendors at prices of between US\$0.15 and US\$0.25 a bucket, some 80% higher than the official rates. Finally, the poor majority who are not connected to the network at all. In turn, they have to depend on or "live off" the other (better-off) groups (UN-Habitat, 2009, p. 12) who sell water to them at prices which are about 3 times or 20 times higher than those the supplier groups paid in the first place (Abraham et al., 2007; Osumanu, 2008).

Recognising these complexities the paper argues that, eventually the urban poor is the hardest hit by the shortfall in water provision due to the high transaction cost and rising poverty. Specifically, it interrogates aspects of existing studies which either consider water access and its links to health (Galea et al., 2005), or its differentials between rural and urban areas, and between and within cities (JMP, 2010), or written from the methodological standpoint of public administration and governance (Suleiman & Cars, 2010). It thus complements previous studies by using the experience of a traditional community in Accra, Korle Gonno, as a lens through which to zoom into the issues of poverty and water supply and the available options. The novelty of this paper is that, it adopts geographic information system (GIS) technique to produce a water accessibility map, and examines how quality, cost, and reliability combined with the mode and level of delivery, in turn, impact poverty.

After the introduction, the paper describes the study area and methodology. It then looks at water supply and the development challenges of the urban poor, followed by a GIS analysis of water provision in Korle Gonno and concludes with a discussion on the multiple avenues for water delivery and their implications for poverty reduction.

2. Study Area and Methodology

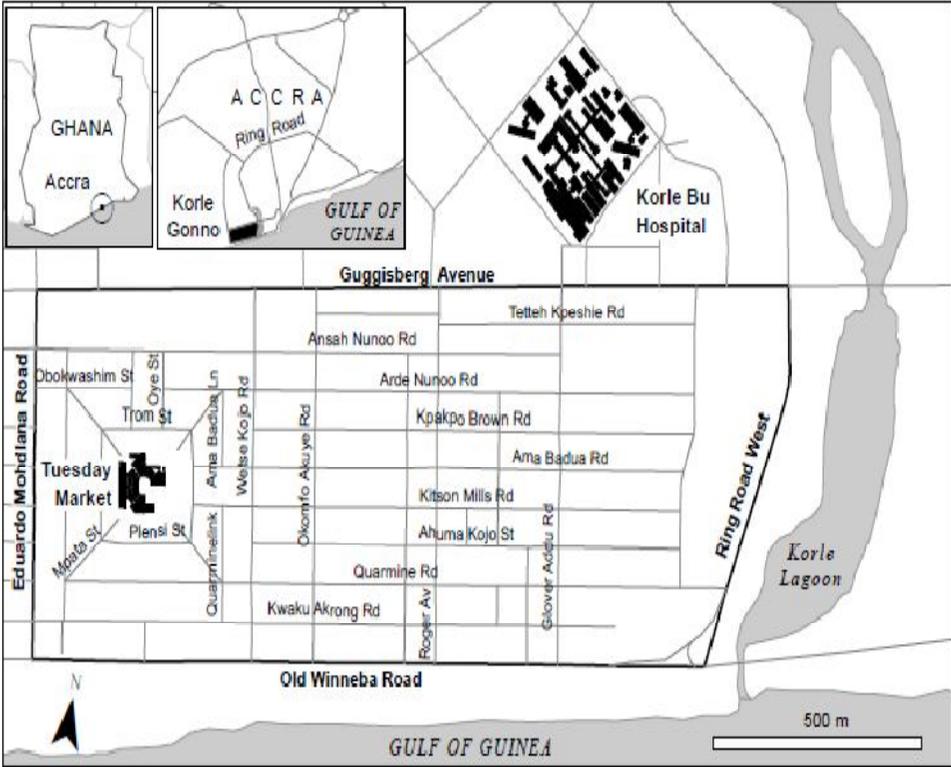
Korle Gonno is one of Accra's coastal communities located to the west of Korle Lagoon and the densely populated districts of Ga Mashie (see figure 1).

It lies within the Ablekuma South Sub-metro. The area emerged from a simple self-supporting fishing village, into one with an urbanized "traditional" status, but whose history is disjointed due to a scantiness of documentation (Earth Institute, 2012). The Town and Country Planning Department of the metropolitan authority, Accra Metropolitan Area (AMA), defines its borders as follows: Guggisberg Avenue (north), St. Mary's Secondary School (east), Old Winneba Road (south) and Eduardo Mohlana Road (west).

Historically, water supply has always been one of the main challenges of communities in Older Accra (Earth Institute, 2012), and Korle Gonno is no exception. Many residents had to sink boreholes to meet their water needs. Indeed, the name Korle Bu, originated from a well, which was dug by a woman called "Korley," who reportedly supplied water to Korle Gonno and its environs during the "lean season". The situation attracted a lot of commentary, and as far back as 1840, Alexander had written of Accra's water crisis:

The great want of Accra is water...for want of water, there is very little cultivation to be seen anywhere. European merchants got their water from a small tank of rain in the fort; whilst I saw the women returning from the country at 8'oclock am with round vessels on their heads full of water, to procure which they had risen at three.

Figure 1: Map of the study area: Korle Gonno

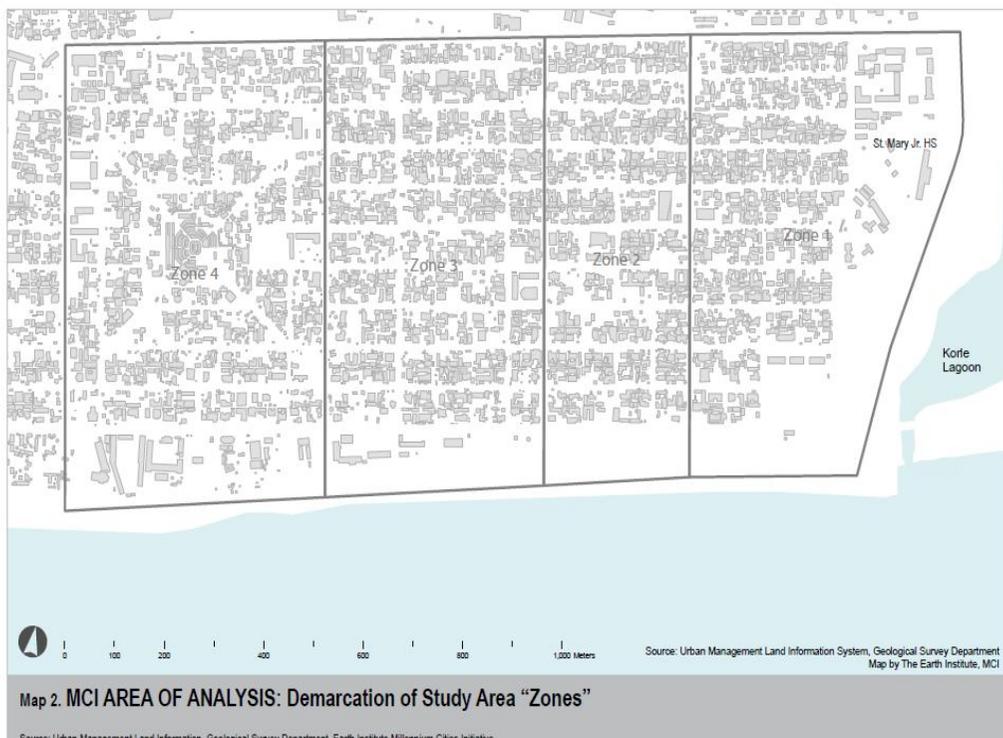


Source: Earth Institute, 2012

In terms of methodology, the fieldwork employed a mixed-methods approach and data was generated from both secondary and primary sources. Secondary data was obtained from the review of relevant literature whilst the primary data was obtained using GPS mapping of water points (standpipes, boreholes); unstructured interview schedules with policymakers including officials from Ghana water company limited (GWCL), and the elected assemblyman; key informal informants (water vendors, and kiosks' operators), and residents; as well as transect walks within the sites visited. The qualitative data specifically sought answers on water availability, accessibility (proximity), affordability (pricing), reliability, and quality, as well as general environmental sanitation. The use of multiple methods ensured triangulation of data by allowing for the cross-checking of information with the basic aim of validating answers and conclusions reached in the study.

The data collection took place between August and December 2013. At the initial stages, references were made to articles and reports on urban water supply and distribution across Accra. First, the sampling design involved a proportional stratification based on the gridded system of the Town and Country Planning Department, which incidentally coincided with the current observed differences in physical condition (decay) of housing and access to basic services. Figure 2 illustrates the four zones' demarcations, as developed by the Earth Institute. Zone 1 tend to be the most deprived in terms of infrastructure provision and having the largest concentration of dilapidated housing stock.

Figure 2: Demarcation of Study area Zones



Source: Earth Institute 2012

Additionally, the Earth Institute's zone boundaries track north-south corridors in the community with access to key piped water infrastructure, namely, Roger Avenue, Awestse Kojo Street, and Eduardo Mohlana Road (see figure 1).

Glover Addo Road and Nii Tackie Owouwou Road were used as boundaries for Zone 1, that neither has a water main running through. It, thus, warranted selection as the zone for the field work. In all, 25 stakeholders and 40 household interviews were conducted, and aided by a unit committee member 20 transect walks were carried out which provided an opportunity to observe directly the basic services. Within the visited sites, the head of households responsible for providing water was chosen for the interviews via a simple random sampling technique.

Using ArcGIS 10.2, point density analysis was done based on the data gathered from the GIS water point mapping. The process generated information about the number of standpipes, boreholes, water kiosks, mode (medium) of collection and storage, and users. Also, line features including pipelines, road networks were captured to help explore issues such as cost and preparedness of tanker providers to supply water by virtue of the poor layout of some settlements in zone 1. The water point features were overlaid on top of the base map of the study area containing boundaries, roads and settlement to show their interrelations.

3. Ghana's Water Supply and the Urban Poor in Context

For purposes of analysis, poor urban communities have been defined to include areas with irregular or without piped water services from GWCL, and those with higher concentration of residents with average annual income of GH¢600. The GWCL was created in 1998 to supply water to towns and cities in Ghana. There are spots within urban centers which exist almost as autonomous communities but are regarded as part of the larger city because of their geographic location within the city limits, and not necessarily their population size. Such areas are characterized by low-income dwellers, job-seeking migrants, and poor infrastructure. The GWCL, which caters for the needs of the traditional urban centers, appears to severely disadvantage such residents in terms of water provision.

Although an acute water supply shortage exists in low-income areas, their plight is often hidden within the aggregate data of the wider urban milieu. For instance, though UN-Habitat (2008) put urban water coverage at 83%, it is around 20% in the poor areas and in the worst areas below 5% (Ainuson, 2010).

In Accra, GWCL connection rates average 90% in high-income areas and 16% in low-income settlements (UNDP, 2006). In fact, in some of these poor neighborhoods, the living arrangements make it impracticable for the GWCL to extend pipe service. In Agboghloshie, Nima, and Ashiaman, it is difficult for vehicles to drive through the area because structures have been erected on every space. The political will needed to demolish illegal structures to pave way for pipes to be laid is often absent.

Poor communities therefore resort to buying water from water vendors, water kiosks, and other unapproved sources which inflates their household expenditure. In settlements with piped water close by, residents walk to fetch water or pay for people to cart water to their residence. Where they are far from piped water supply, residents contract small-scale suppliers who deliver water in motorized tanks, though this appears to be at the expense of quality. In turn, the urban poor pay three or four times what those on the GWCL network pay for water. Many of the 800,000 people living at or below the poverty line in Accra pay ten times more for their water than those in high income areas (UNDP, 2006).

The operations of the small-scale water suppliers do not come within the purview of the water regulator, public utility regulatory commission (PURC), and therefore are not required to adhere to their regulations. In its 2005 tariff policy statement, though PURC agreed that the best pro-poor measure of water supply will be to extend GWCL coverage to poor areas, it said that the operations of the small-scale water providers should be left to the market forces. Because of information asymmetry, the urban poor do not possess the necessary information to make the right decision as to whom to buy water from and how much to pay. They are therefore left at the mercy of the small-scale suppliers while the high income consumers enjoy the protection of PURC and the convenience of piped water from GWCL.

Suffice to add that, the Millennium Development Goal (MDG) 7 (target 7c), prioritises access to safe water – or widening the coverage of the infrastructure to supply water – as the main indicator of progress in water management. Against this background, it can be argued that Ghana is on track because, although the proportion of people in urban areas rose from about 30 to over 40% between 1990 and 2008 (MLGRD, 2010), the share of the urban population with access to safe drinking water increased from 86 to 93% (NDPC, 2010).

But, beyond the “wide” meaning of “access to water”, there are also “deep” meanings of access (Satterthwaite, 2003: 186), which are often glossed over. This study elucidates some of the deeper meanings which concerns; quality, reliability, affordability, equitability, and acceptability. By focusing on only access to water, there is a tendency to ignore the social consequences that have resulted from the privatisation of water services in Ghana.

In other words, cost of water, for instance, is closely related to reliability because interruption in the supply of water increases the cost of accessing water. Officially, piped water is said to be cheap, inclusive, or pro-poor, if it is supplied at or below the official rate (PURC, 2005: 9). Pricing affects the quality of drinking water especially when alternative sources, such as bore holes, wells, and rivers, are resorted to. Overall, while access to potable water has increased, its distribution is skewed towards rich neighbourhoods. For instance, the World Bank (2010: 80) reports that, in Accra only 57% of households with income below GH¢100 have formal piped water connection. Yet, over 70% of households with monthly incomes of GH¢501–1,000 have connection, while 83% of households with monthly incomes between GH¢1,001–2,000 have a piped water connection.

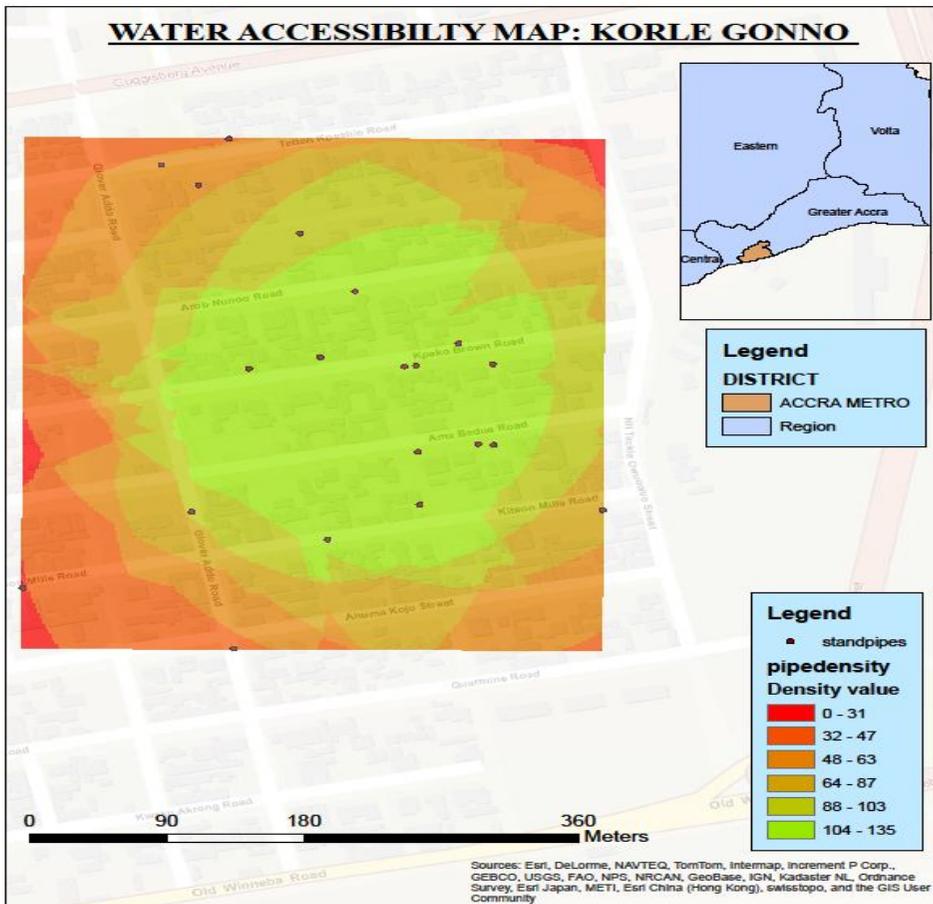
4. Looking Beyond Water Access in Korle Gonno

The study holistically examines availability (coverage), accessibility (proximity), quality, affordability (ability to pay), and usability (number of users) of water supply. Some studies have provided design guidelines for standpipes in urban water supply systems in developing countries (DWAF, 2004; Haarhoff & Rietveld, 2009), which includes;

- Standpipes should be a maximum walking distance of 200 m from the home.
- A maximum of 25 households or 100 people should be served by a standpipe.
- The flow rate should not be less than 10 liters/minute.
- The tap should preferably be a pushbutton or self-closing type.
- The tap should be high enough for a container to fit underneath.
- A concrete plinth should be provided to drain the water into a soak-away sump with crushed stone.

Using point density analysis, the study employed the natural breaks classification method, and six classes were used. The study area spanned 175,837 m² representing the total area of zone 1. In all twenty (20) standpipes were mapped. The highest density class had a class range of 104 to 135 and covered an area of 57,950.4 m². This is represented by light green colour on the water accessibility map (see figure 3). The lowest density class covered an area of 2076.9 m² and had a class range of 0 to 31. This is represented by the red colour on the water accessibility map. Eleven (11) stand pipes fell within the highest density area and had an average distance of 49m from each other. The remaining 9 were distributed across the remaining class fields but the lowest density class had 1 stand pipe in its areal field.

Figure 3: Water Accessibility Map of Korle Gonno



Source: Author's construct, 2013

The results show that, per the standpipe specification guidelines outlined above residents living in zone 1 (field site) have connection to piped water within the 200 m specified range, with an average walking distance of 49 m from the home to access water. During the field work, it was discovered that the residents living in the uphill, particularly around Tetteh Kpeshie road and Arde Nunoo road, where there is regular flow of water for about 5 times a week served averagely 15 houses or about 80 households, though this figure may double under extreme situations. It was observed that, the small-scale water vendors complemented their standpipes/public taps with a plastic poly-tank as back up reservoir.

This finding exceeds the standard requirement that each standpipe should serve about 25 households or 100 people. However, this is not unexpected because of the high concentration of people in poor communities. In Korle Gonno, the Earth Institute (2012) reports a mean number of households per house of 6.4, which is far higher than the national rate of 5.1. It has a high population density range of 20,000-30,000 people/km², and a mean person-per-room (PPR) estimate of 5.1, within a range of 1-26 people (CHF International, 2010). Korle Gonno is one of the most overcrowded communities in Accra, and Zone 1 has the highest percentage of houses with more than 50 inhabitants (see Earth Institute, 2012).

The field work further revealed that, beyond coverage, the water challenge in Korle Gonno has more to do with interruptions and reliability of supply. During the interviews, it was unanimously agreed among residents that although they had standpipes in their houses they had to access water from other neighbours (uphill) within the community because of interruptions in flow. One resident passionately noted;

As for this area [zone], unlike the others, even though you can see standpipes in majority of the houses, the taps rarely flow. In my house, you either wake up at night at 1:00 am and fill your barrels till 4:00 am because the taps flow in drops, or you enjoy your sleep and wake up in the morning to queue for water in the next three houses. As if that is not enough you have to pay GH¢0.20 for each Kuffuor gallon or GH¢0.10 for a small bucket of water you purchase, and for my household of 6 people each morning we spend about GH¢1.50. The annoying part is that at the end of the month all the households contribute GH¢25.00 to the landlord to be paid to GWCL for the connection charges and the water supply we get only twice a week.

It is a common practice some people to store up water in barrels for the "off times", though that came with extra cost of purchasing big barrels and creating space for storage. It was recorded that storing water for longer periods resulted in water surface changes, which raises quality concerns and attendant health risks.

The site inspection of visited houses showed that the strategies adopted in the face of water shortage and poverty had socio-economic and environmental-health implications. Economically, it was realised that most residents tend to access water at a higher cost. For instance, an average household of 6 people who spends GH¢1.50 on water in the mornings and GH¢0.50 in the evenings during weekdays, and GH¢5.00 on weekends (probably due to clothes washing and house cleaning) is likely to expend GH¢60.00 monthly (GH¢15.00 weekly). This pricing is out of range for a number of households, and therefore limits the access of many to potable water in terms of quality and quantity.

Meanwhile, a similar household size with connection to the GWCL will pay not more than GH¢15.00 monthly. Consequently, many residents use very little water or reuse it, which comes with environmental health cost. Moreover, the media for collecting and storing water are mostly worn-out and without lids. Songsore & McGranahan (1993) have reported that "water shortages contribute to high levels of waterborne disease in many cities", and this obviously increases their poverty burden.

This observation has wider implication for how much residents can spend on other necessities of life. One study of the expenditure pattern of poor households cited in the Ghana human development report 2007 showed that households spend about 9% of their income on water (Manu & Mensah-Abrampa cited in UNDP 2007, p. 95). This picture signals deep burdens for the poor, especially because 60% of them obtain water via tanker, cart operators and neighbours (Norstrom, 2009, p. 25).

Another recurring observation was that, in most households where there is regular flow of water, the landlord tend to own and control the water tap while family members as well as tenants access water through the "pay-as-you-use" system. It was revealed that a Kuffuor gallon of water costs GH¢0.20 and a bucket of water in most houses costs GH¢0.10. The field work also discovered that some house owners operated private bath houses, where bathing directly from the shower attracts GH¢0.30 to 0.40, and GH¢0.50 for bathing hot water.

Under such practice, the landlord who supervises the sale of water or run the facility in turn pays the water bill at the end of the month to GWCL. One resident remarked;

Unlike other houses where all the households contribute to pay water bill at the end of the month, the 'exploitative' landlords own the water tap in the house and all others pay to fetch. In some cases, residents who are well to do can negotiate and buy their own plastic water reservoirs. In my situation, the tenants and other residents who do not belong to the landlord's household and who cannot afford private reservoirs have to pay for every water fetched from the standpipe in the house. The head runs it alone and nobody dares to ask questions. Even if you do he is not under any obligation to take you seriously. For six months now the house has been disconnected from water supply because he failed to pay the bills for four months. Now we have to fetch water from the next two houses in the next street at relatively higher cost in terms of fees, and walking time.

As earlier noted, the mapping process covered Korle Gonno's piped water infrastructure network. It was discovered that the key water mains run through Eduardo Mohlana Road (350mm diameter) and Guggisberg Avenue (225mm diameter). Old Winneba Road, Awetse Kojo Street, and Roger Avenue have water mains with 150mm diameter. However, Glover Addo Road, which serves as the boundary between Zones 1 and 2 does not have a water main. To this end, illegal tapping of water occurs especially in blocks where the water mains runs through one side of the street. Some residents confirmed that pipes are routinely tapped into the mains, with water diverted to the other side of the street for use. Also, some poly-tank owners directly tap into the mains from the other zones to fill their containers for sale. It is obvious that, such practices not only affect the water supply pressure, thereby potentially interrupting access, but they also have implications for water quality (see figure 4).

During the water point mapping (WPM), seepage of groundwater was identified, which according to the informants is being used by some residents for drinking, washing dishes and cooking, especially during periods of interruptions in water supply (see figure 5). Although the informants did not know the actual source of the groundwater seepage, they recounted its historical existence.

Earlier test conducted by Earth Institute (2012) on spring water in Korle Gonno confirmed the presence of e-coli and recommended that the water can be used in its present state for bathing, washing, cooking (boiling) and irrigation.

Figure 4: Illegal Tapping of Water

Figure 5: Water Delivery in Motorized Tanks



Source: Field work 2013

The study revealed that the reliability of water provision is problematic and costly, and therefore poorer households turn to the use of alternative sources of drinking water.

The GIS mapping process identified four main types of drinking water used by residents in the community. These include; in-house standpipe, public tap/standpipe, spring water and borehole. During the transect walks and informant interviews, it was discovered that majority of houses including those with connection (during interruptions) equally accessed water from water kiosks (public taps/standpipes). Very few households depended on spring water and boreholes. Most of the boreholes sighted were prone to contamination with the least flash floods due to their low elevation (Oteng-Ababio and Melara, 2014).

In Korle Gonno, most residents rely on the services of small-scale water vendors that is very common, relatively reliable but very costly. The cost for water from informal water tankers is between GH¢15 and GH¢20/m³ and the amount is not set by any tariff but depends on factors such as location, season and type/size of tank. Based on the tariff structure of PURC, a bucket of water (35 liters) should be priced at GH¢ 0.0145, for this is the calculation used for residents in other parts of the city with piped water. However, in Korle Gonno, residents paid an average of GH¢ 0.10 for every 35 liters of water consumed. Interacting with stakeholders on how provision of water could reduce poverty, it came out that planning for water is a complex issue involving not only the provision of infrastructure but also financing supply chains, local ownership and capacity, user's acceptance and willingness-to-pay.

5. Implications of Urban Water Supply for Poverty Reduction

According to Ghana's development policy blue-print, the Growth and Poverty Reduction Strategy 2006-2009 (GPRS II), adequate water supply is one of the priorities to reduce poverty in Ghana (GPRS, 2005). This development agenda sets out strategies "to reduce human deprivation, promote human rights and achieve sustainable growth." Despite the emphasis on increasing access to water as part of poverty reduction, GWCL is able to meet the demands of 83% of urban residents (UN-Habitat, 2008), with only 20% in the poor areas and in the worst areas below 5% (Ainuson, 2010). In essence, with 51% of Ghana's total population of 24,658,823 million living in urban centers and growing at an annual rate of 2.5% (GSS, 2012), issues of inadequate water supply are bound to increase if there are no sustained measures to address the situation. According to WaterAid (2010), only 25% of residents in Accra have 24-hour/7-days water supply. For about 30% of residents, water supply averages twelve hours a day for five days a week.

For another 35% of residents, water supply is estimated at two days per week. For the remaining 10% living mainly in poor areas at the urban fringes there is no access to piped water supply.

This paper submits that, a contributory factor underlying the poverty conditions in low-income communities is the private provision of water services. Arguably, private-sector participation has increased access, with more people becoming connected to piped water. However, water has been priced beyond the reach of many urban citizens, creating opportunity for the relatively rich people who are more likely to access water, to sell to poorer areas at a profit. In turn, a significant number of the urban poor, resort to the use of unwholesome sources of water. These dynamics, together with the fact that people from these places are likely to be unemployed or underemployed, contribute to the marginalisation and poverty status among the majority of urban residents. According to GSS (2008) 26.1% of women and 22.1% of men in urban areas are unemployed.

In other words, the processes of circular and cumulative causation tend to operate (Obeng-Odoom, 2011). There is a cycle of poverty in which poor jobs leads to poor wealth which, in turn, lead to poor access to potable water. Empirically, several studies have shown that people in poor areas suffer multiple deprivations which impinge on their ability to be employed. For instance, Amuzu & Leitman (1994, p. 5), found these tendencies in Accra, prompting such people to be labeled "economically depressed". Such an effect can impinge negatively on poverty reduction (Obeng-Odoom, 2011), although this is not automatic.

It can be said therefore that, poverty could intensify the problems of water provision because it determines where one lives, while where one live could contribute to the deprivations one suffers (Obeng-Odoom, 2011). Even though water supplied by private agents is relatively of good quality, non-affordability concerns force the poor to use unhygienic water sources. Ultimately, poor water service delivery to low-income and socially powerless people, and a regulatory system that does not sufficiently cover their needs, combine to impinge negatively on poverty reduction.

How pro-poor is the delivery of piped water in Accra? According to PURC, the public regulator, "pro-poor" would mean that everybody, including people with low incomes, is able to pay the official water tariffs.

Hence, an upward deviation from the approved fees signals that more cost than is deemed affordable is being incurred (Obeng-Odoom, 2011). In the words of PURC (2005, p. 9):

Different customers experience different levels of service including: private connections, yard connections and community standpipe services. In some cases the unit cost of supply to lower levels of service may, in fact, be higher than the unit cost for a higher level of service (largely as a result of low sales) suggesting that the tariff should be higher for a lower level of service. This concept is clearly contrary to the concept of tariffs being 'pro-poor' and cannot be supported.

The water needs of poor communities cannot continue to be unserved, as they form part of the larger urban society, and their needs are tied to the overall water targets of the country. It stands to reason that, diseases and health burdens that confront residents in these communities reverberate through the entire urban areas as health care cost increases and productivity decreases because of lost job hours. The inability of utility providers to cater for all residents in the city breeds certain unintended consequences for the wider society.

6. Concluding Remarks

Using GIS mapping and qualitative methods, this paper sought to examine the dynamics of water delivery in terms of accessibility, reliability, quality, and affordability in Korle Gonno, and how this further exacerbates their poverty status. The analysis in this paper reveals important lessons for the Ghanaian authorities, with some policy implications for other developing countries. The assertion that "access to water" has increased can grossly misrepresent people's experiences in accessing water. It is possible to have a significant improvement in access to safe, potable water but that says nothing about how reliable the service is, how affordable it is to the majority of people, or how equitably it is distributed. Moving beyond "access" also implies moving beyond thinking about water as an economic good, to considering it a right (water for life) (Obeng-Odoom, 2012).

The paper concludes that, with absent affordable, reliable and sustained public or private formal service delivery options, the urban poor access water services at scale through multiple hybrid combinations.

It submits that, water user associations, technical water fora and local water committees will allow poor urban dwellers to "co-produce services" with local governments. Co-production implies participation of users and communities in various stages of public services production (Ostrom, 1996). While the benefits of "service co-production" apply to the urban poor, two hypotheses by Joshi and Moore (2004) are pertinent to address the challenges in low-income communities. First, co-production seems the most effective way to reach many beneficiaries, addressing their different needs and circumstances and making the most of existing local networks. Second, great diversity exists in the standards, costs, technologies and other operational situations of service delivery and rapidly changing conditions, difficult to address under standardised solutions or responses.

Several additional arguments highlight the relevance of "service co-production" in the poor urban context. It allows users and communities to supplement government provision where a particular service is not reaching certain groups or individuals. It can aid development of an effective interface between public/professional service providers and users/communities by creating a mechanism for interaction and feedback that allows reformulation of policy design and implementation to meet the needs and expectations of beneficiaries. It can empower citizens to exercise their rights. Obviously, it is also important to stress "co-responsibility", "service co-production" could otherwise be understood as only a fancy name for the more widely advocated public/community partnerships, where the poor are perceived as individuals, groups and even communities defined as clients with potential to proffer various resources and assets in the service delivery process.

Would the government of Ghana consider this option? Whichever choice the country makes to ensure going beyond access to making water a right for all requires further political economic analysis. Our proposal reinforces Obeng-Odoom's (2012) assertion that there is a need for a radical re-interpretation and change in public-private partnership to "public-people partnership". This model calls for the replacement of the private sector with the "people sector" in a continuum. For instance, service or management contract could be implemented such that governments provide the infrastructure for people to manage their own water access. A state-provided infrastructure and people-managed process could demolish the internal logic of the current system and its variants in order to correct the hierarchies in water provision.

Whether people have the skill to manage these services and how the government of Ghana can fund the necessary infrastructure are key to determining success – success in moving beyond access to water to considering dimensions of reliability, sufficiency, affordability, acceptability, and egalitarian water supply.

In sum, this paper has identified a range of multiple arrangements and informal providers with potential to support supply of water in low-income areas, in ways that ensure equity, quality and social control. The crucial task ahead for policymakers and planners lies in rethinking the water challenge. Shifting from the usual route of policy-based evidence, to evidence-based policymaking, in which the latter acknowledges that the conventional distinction between "urban rich" and "urban poor" not only fails to capture the reality of a significant portion of the poor but also increases the gap between current efforts and any meaningful chance to meet the MDG. Any strategy to provide service delivery that works for the urban poor depends on the participation of the poor themselves in the definition of priorities and in political decision-making, as a central component in fighting the urbanisation of injustice that underlies water poverty in low-income areas.

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