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A Systematic Literature Review on Water Access and Governance in Accra, Ghana

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by

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APPROVAL PAGE

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Keziah T. Illidge

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Introduction

The urban world is inhabited by 7.7 billion people and it is estimated that 663 million people lack access to an improved drinking water source; the majority of whom live in African and Asian countries (United Nations, 2015). The United Nations' Millennium Development Goal 7 target 7.C, was to "Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation" (United Nations, 2015). Between 1990 and 2015, the goal of halving the proportion of people without access to improved drinking water sources was achieved, and 2.6 billion people gained access to clean water (United Nations 2015). Although tremendous progress has been made in the provision of clean water to those in need, too many people still lack access. Water is essential to human health and the United Nations is dedicated to placing priority on providing access for all. Following the United Nations' Millennium Development goals were its Sustainable Development Goals which set a target to "achieve universal and equitable access to safe and affordable drinking water for all by 2030" (United Nations, 2016).

Water is not only needed for drinking but also needed for domestic purposes such as bathing, handwashing, cooking and cleaning as well. Access to clean, safe drinking water is extremely important to public health; with a lack of it, millions of lives are at risk of suffering and dying from numerous diseases linked to contaminated water and poor sanitation. At least 2 billion people use a drinking water source contaminated with feces resulting in 842,000 diarrheal deaths each year (WHO, 2019). In 2015, it was estimated, that 71% of the global population had access to a safely managed water source, which includes water available on the premises,

or household water, from an improved water source, free from fecal and chemical contamination and readily available (JMP, 2017). While 89% of the population had access to a basic water source, including water which is not available on the premises with a round trip collection time of 30 minutes or less (JMP, 2017). In Ghana, 60% of households received drinking water from an improved source, while 30% used bottled or sachet water and 10% use unimproved sources (Ghana Demographic and Health Survey, 2014). In the rapidly growing urban areas such as Ghana's capital city, Accra, as the population increases, access to piped water has decreased by 22% (World Bank, 2015). This leaves 43% of the urban population to rely on sachet water as their main source of drinking water, followed by public tap or standpipe at 23% (Ghana Demographic and Health Survey 2014).

The United Nations Development Program has proposed water governance as one solution to the world's water access problems. "Water governance refers to the political, social, economic and administrative systems in place that influence water's use and management. Essentially, who gets what water, when and how, and who has the right to water and related services, and their benefits" (UNDP, Water Governance Facility, 2019). "This includes formulating, establishing and implementing water policies, legislation, institutions, and clarification of the roles and responsibilities of the government, civil society, and the private sector in relation to water resources and services" (UNDP, Water Governance Facility, 2019).

The lives of billions and the sustainability of water resources are dependent on effective governance. All around the world, corruption, inappropriate institutional arrangements,

bureaucratic inaction, insufficient human capacity and low investment due to lack of finances, poor resource management, hinders the effective governance of water resources leading to societies lacking access to clean drinking water (UNDP, Water Governance Facility, 2019). Improved water governance will lead to the achievement of water security to the world's nations and fulfillment of the United Nations Sustainable Development goal of, providing safe and affordable drinking water for all and making it attainable (UNDP, Water Governance Facility, 2019). According to the United Nations Development Program, improving governance will lower the cost of transactions and strengthen investment in water infrastructure; this will, in turn, ensure that investments are effectively used (UNDP, Water Governance Facility, 2019).

1.1 Purpose of study

The purpose of this systematic literature review on water governance in Accra, Ghana is to document water governance challenges in Accra. Although, there is an abundance of water resources in Accra, for many low-income residents, government institutions are deficient in their ability to provide access to clean piped water to the households of all its residents. Ghana was one of the few African countries to meet the Millennium Development Goal 7.C of halving the proportion of people with access to an improved drinking water source and as such shows the country has an unique potential to further the development of its water governance systems in the country making it capable of achieving the SDG target goal of achieving access to all. Improvements in water governance in Ghana's capital city Accra will set the foundation for the provision of access to clean drinking water to all. The literature will outline the issues on why water governance in the city has been unsuccessful, using stakeholder and community

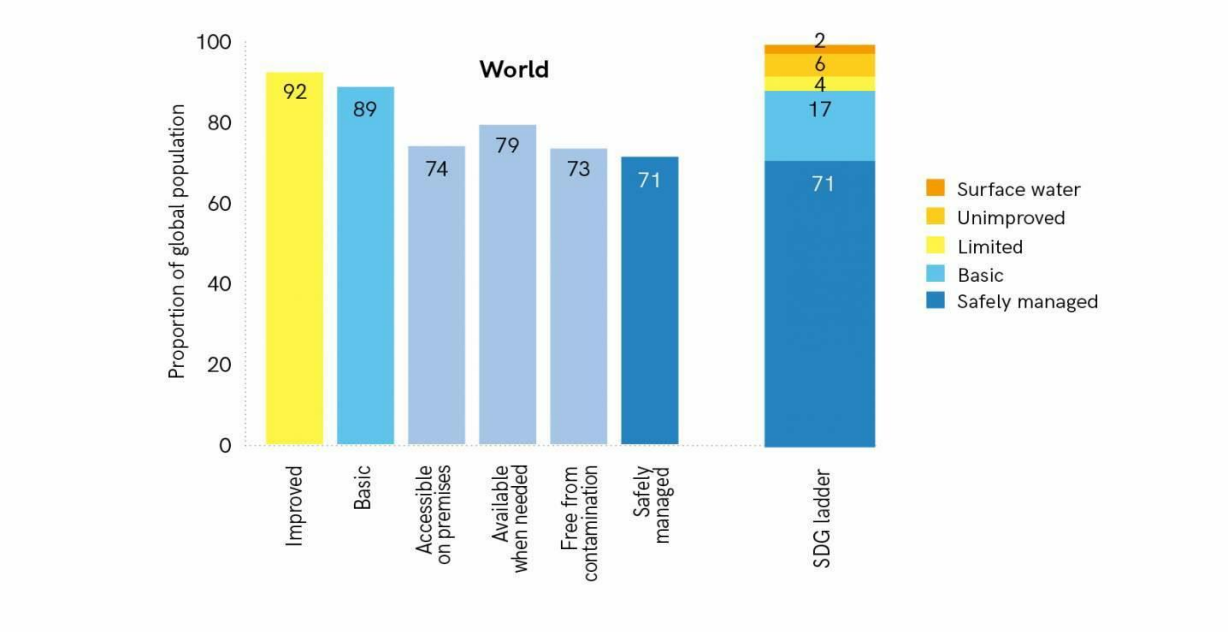
involvement as a base to explore exactly what is missing in regard to providing clean piped water to the city's residents.

Literature Review

2.1 Global Access to Safe Water

Although, the Millennium Development goal of halving the proportion of people without access to improved drinking water sources was achieved, only 1.9 billion of the 2.6 billion people who gained access to an improved water source had it available on the premises; Figure 1 outlines the proportion of the global population and access (JMP, 2017). As a result, it is estimated that 200 million hours are spent every day collecting water, mostly by women and girls (UNICEF, 2016). Eight out of ten households rely on women and girls to retrieve water for the household (WHO/UNICEF, 2012). This leads to hours of valuable time being wasted colleting water and less time engaging in socioeconomic activities and being invested in the education of girls (UNICEF, 2014). Girls' school attendance increased significantly with every hour of reduction in water collection. In Nepal, attendance improved by over 30% due to gained access to piped water in households (UNICEF, 2014). The education of girls is essential to the growth of an economy, eliminating poverty, and building more stable communities. Research has shown that for every 10% increase in women's literacy, a country's whole economy can grow by up to 0.3% (UNICEF 2010).

Figure 1: Global Population and Water Access



2.2 Global Burden of Disease from Unsafe Water

Half of the hospitals in developing countries are full of people suffering from diseases linked to poor water and sanitation and 443 million days of school are lost, as a result of water related diseases (United Nations Development Programme, 2006). A lack of access to clean water, proper sanitation and poor hygiene is responsible for approximately 88% of diarrheal deaths worldwide, killing more children than AIDS, measles and malaria combined and the second leading cause of death among children under 5 (Liu et al. 2012). Moreover, 38% percent of health care facilities lack an improved water source, while 19% lack improved sanitation, and 35% lack water and soap for handwashing (WHO/UNICEF, 2018). Moreover, access to piped water on the premises is essential to the health of women and girls. The Sustainable Development Goal 5.6 target states, “Ensure universal access to sexual and reproductive health and reproductive rights.” Included in this is also access to sexual and reproductive health is

menstrual hygiene management and sanitary childbirth, requiring safely managed water and sanitation for health (UN Women, 2018). Without access to a clean water source on the premises, women are unable to practice proper hygiene, leaving them at risk of illness. Also, carrying water daily from a young age can lead to wear and tear to the neck, back, spine and knees (UN Women, 2018). Improving access to a clean water source will essentially lower the rate of disease and as a result lead to less sick days and more work and school days.

2.3 Access in Africa

Unquestionably, Africa is rich in natural resources but many countries in Africa fall short in the provision of improved water sources to all its residents. Although, Sub-Saharan Africa had a 20% increase in providing improved drinking resources to citizens, the region fell short in meeting the Millennium Development Goal going from 48% in 1990 and climbing to 68% in 2015 with improved drinking water sources (UN, 2015). Sub-Saharan Africa is among the regions with the greatest need for drinking water (WHO, 2006).Three hundred- and nineteen million people lack access to an improved drinking water source causing the deaths of 115 people a day as a result of lack of access to clean water and sanitation (UN, 2015) . Moreover, it is estimated In Sub-Saharan Africa alone, that approximately 40 billion hours per year are lost to collecting water, which is equivalent to an entire year's labor in France (UN Women, 2018).

2.4 Ghana

Ghana is a country located on the coast of West Africa and is among the least water resource stressed countries in Africa. Seventy percent of the country's area is covered by the Volta River system basin, consisting of the Oti, Daka, Pru, Sene, and Afram rivers along with the White and Black Volta rivers. The southwestern river system watershed which consists of the Bia, Tano, Ankobra, and Pra rivers cover another 22% of Ghana. The remaining 8% of the country is covered by the coastal river system watershed, consisting of the Ochi-Nawuka, Ochi Amissah, Ayensu, Densu, and Tordzie rivers (FAO, 2005). The most recent estimate from the Joint Monitoring Programme suggests that 27% of Ghana's population has access to safely managed drinking water and 51% have access to basic water services (JMP website, 2019). The Accra region has the highest proportion of access to basic water services with almost 95% of the population covered in 2015 (JMP website, 2019).

Ghana was successful in meeting the 2015 Millennium goal by halving the proportion of its population who lack access to clean drinking water in advance. Between 1990 and 2012, Ghana was among the leading countries among the 19 African countries surveyed to have access to safe drinking water sources with 87.2% of its population having access in 2012 (United Nations in Ghana website, 2019). Although, Ghana has achieved major advances in providing access to basic water services, the distribution of these services may not be without inequality. It is estimated that less than two in five impoverished Ghanaians drink safe water and lack the funds to pay upfront for piped water services (United Nations, 2019). This fact leads them to

pay up to ten times more to purchase from private vendors than middle class residents connected to piped water services (Nti, 2016).

2.4.1 Drinking water management in Ghana

In 1999, the Ghana Water Company Limited (GWCL) was established and given the responsibility of providing clean water to urban residents. The GWCL is currently “responsible for the planning, financing, construction, rehabilitation, and management of some 82 urban water systems in the country and is working on extending services to low income communities” (Amexo, 2014). Later in June 2007, Ghana’s National Water Policy was formed with a goal to "achieve sustainable development, management, and use of Ghana's water resources to improve health and livelihoods, reduce vulnerability while ensuring good governance for present and future generations" (GoG, 2007). Ghana's government institutions have achieved great success in exceeding the Millennium Development goal 7 target 7.c; but while few lack access to clean water in Accra, many lack access to piped water in their households. As a result, many must travel farther and pay more to access clean drinking water.

In 2006, a five-year management contract funded by the World Bank, the Nordic Development Plan, and the Republic of Ghana was signed between the Ghana Water Company Limited and Aqua Vitens Rand Limited (Quartey, 2014). The purpose of this contract was to improve Ghana's urban water sector. The main objectives of the project included:

- The extension of reliable water supply
- Providing affordable potable water to low income consumers

- The increase of cost recovery
- Ensuring investments based on low-cost and concession financing
- Supporting further involvement of the private sector
- Reducing non-revenue water
- Increasing water treatment

Aqua Vitens Rands Limited (AVRL) was unsuccessful in meeting its target and ultimately failed. In 2011, Ghana discontinued its contract with the AVRL. Today, the urban water sector is owned by the state and managed by the Ghana Water Company Limited (Quartey, 2014).

2.4.2 Water Management in Accra

Ghana's capital city, Accra, struggles to meet residents' demands for water because of Accra's rapid population growth. The Greater Accra Metropolitan currently has a steadily growing population of 3.5 million as of 2010, and is expected to double by 2030 (Harris and Morinville, 2013). Currently, with almost 95% of the city's residents having access to basic drinking water source while only one-third have access to piped drinking water in their homes (JMP 2019; The World Bank, 2011). Most residents rely on private tankers and vendors for water (The World Bank,2011). Moreover, many residents must leave their homes to collect water for bathing, cooking, cleaning, and consumption which is not only time consuming but also expensive. As previously stated, poor residents pay up to ten times more for water from private vendors than those using piped water in their homes (Nti, 2016). Piped water would save residents time and money. Although Ghana is far from lacking in water resources, the country does, however, lack the financial means needed to provide the infrastructure needed to install piped water services

to the homes that lack it but, has plans on transforming its water sector in the next decade. It is estimated that a $1.6 billion investment is needed each year for the next 10 years to provide citizens with potable piped water services (The World Bank, 2011). Ghana's government plans to improve water access include: doubling the capacity of the Kpong dam intake, having the water treatment plant to deliver 40 million gallons of water a day to the Accra metropolitan area, and partnering with the World Bank to implement a 75 million dollar water and sanitation project that would help distribute water, with a special focus on the city's most vulnerable residents (The World Bank, 2011).

Methodology

Search selection criteria

The following databases were used to complete the search: PubMed, Google Scholar, the World Bank and EBSCO using the search terms, [“water management Accra”, “water governance Accra”, “water access Accra”, “potable water Accra”, “water policy Accra”]. The inclusion criteria included peer-reviewed literature, theses and published reports. Excluded were articles which were not in English, articles that were not available online, articles that were not dated between 2000-2019 and articles that do not include reference to urban water access, Ghana, Accra and water governance, defined as “the political, social, economic and administrative systems in place that influence water’s use and management. Essentially, who gets what water, when and how, and who has the right to water and related services, and their benefits” (Water Governance Facility, 2019). Articles that were based on theses were used if both studies were located during the search. This was done to avoid the use of duplicate information.

Study Selection

Two reviewers screened the articles by title for articles which met the search criteria and would be included in the abstract review. Any duplicates found were excluded. After the titles were screened and duplicates excluded, the abstracts were then reviewed by one person. The articles were then placed into one of two categories: 1) abstracts which did not meet the inclusion criteria and were excluded 2) abstracts which seemingly met the inclusion criteria and then the entire article would then be read to determine if they met the inclusion or exclusion criteria. After the abstracts selected for further review, more articles were excluded which did

not meet the search criteria. Any articles which were not available initially via university's journal access or online for free were obtained via an interlibrary loan.

The PubMed database searches were conducted using a basic search with the search dates 2000 to 2019 with February 22, 2019 being the last day of the search. The selected articles were in English only. The search resulted in a total of 194 articles.

The Google Scholar database search was conducted using the advanced search option. Under "find articles", "with **all** the words", was selected using the search terms (e.g. water access accra"). In the title of the article, was selected for "where my words occur." Articles dated from 2000-2019 were selected for "return articles dated between option". There were no restrictions used for the author (i.e. "return articles **authored** by" in Google Scholar) and where the article was published (i.e "return articles **published** in" in Google Scholar).

The EBSCO search was conducted using a basic searched which was refined to include the most relevant search results. I refined the search selecting the subject "Africa," "water," "ghana." The dates ranged from 2000-2019, the language "English," the geography "Ghana."

The World Bank search was conducted using also using the advanced search option. Next to "Key words," I listed the search terms (e.g. "water governance accra"), and used the selection "All Words." "Author," and "Document Title," were left blank, along with "Disclosure Date," "Disclosure Type," "Disclosure Status," "Series Name," "Document Type," "Lending Instrument," "Product Line," "Environmental Category," and "Numbers." For "Region", Africa, was selected, Ghana was selected for "Country," Water resources was selected for "Topic,"

English for “Language,” and for “Search results by group,” document date and descending are selected. Documents dated from 2000-2019 were used.

RESULTS

4.1 Systematic Search Results

During the search which started on February 22, 2019, and was completed on May 12, 2019, a total of 373 articles were identified for inclusion. A brief summary of the search results is provided in Table 1. The specific databases are as follows: PubMed resulted in a total of 194 studies, Google Scholar resulted in a total of 36 studies, a total of 21 from EBSCO, and a total of 122 from the World Bank.

Out of the 373 studies, 109 duplicates were found along with 142 studies which did not meet the search criteria based on title and were excluded. One hundred and twenty-two abstracts were screened. Out of the stated number, 84 studies which did not meet the search criteria were excluded. Excluded were articles not written in English, articles that were not dated between 2000-2019, and articles that did not include reference to urban water access, and Accra, Ghana, and water governance. As mentioned, numerous theses were located but when available the peer-reviewed published work was used instead. Thirty-eight studies were read, and 22 studies were excluded leaving 16 studies which met the search criteria. To summarize the total included, Figure 2 is provided as a flow chart of the article selection process for the articles.

Figure 2: Article Selection Flow Chart

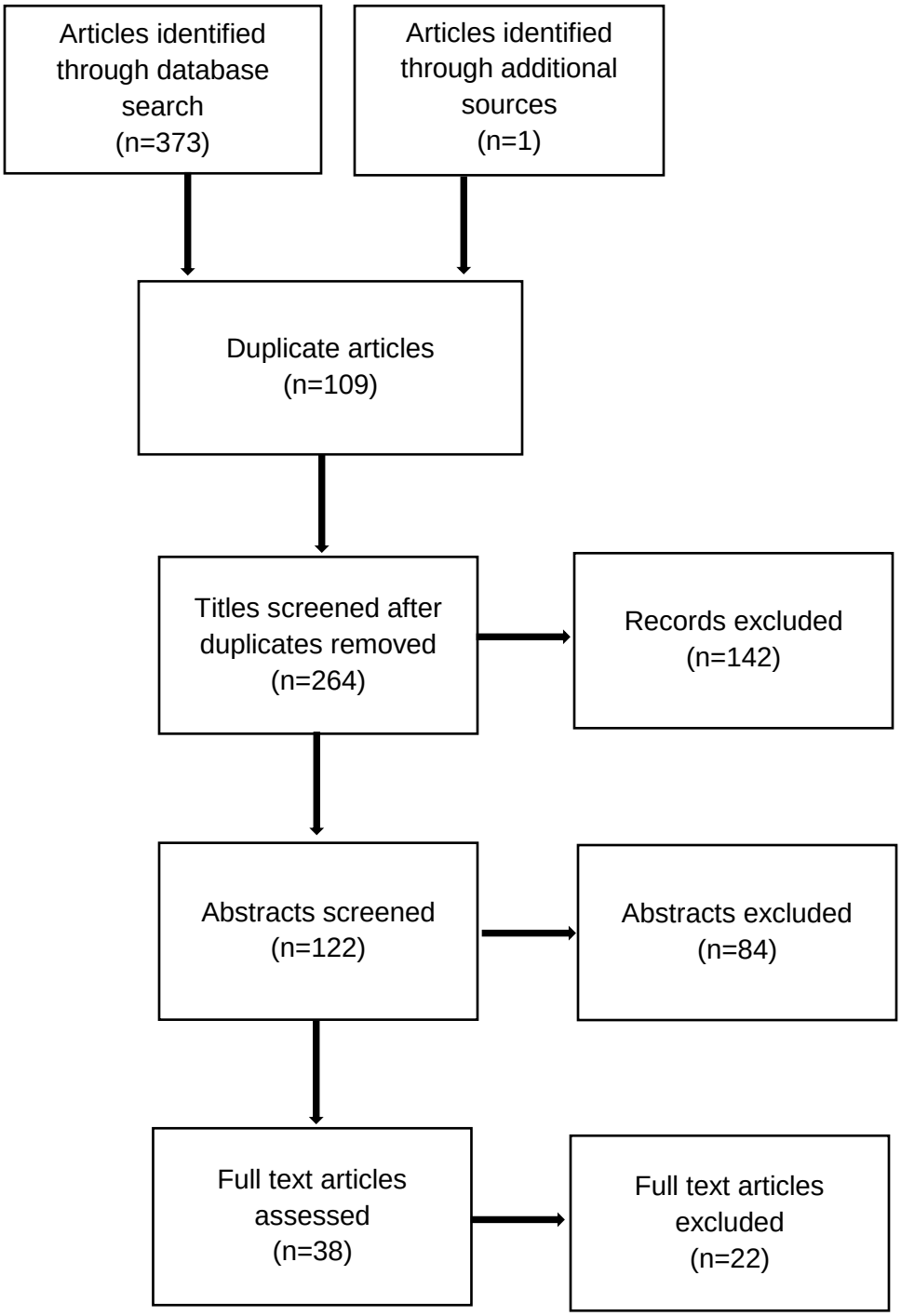


Table 1. Database, Search terms, period and results

DATABASE	SEARCH DATE	YEAR	SEARCH TERMS	RESULTS	TOTAL RESULTS
PubMed	February 22, 2019	2000-2019	"water access accra" "water governance accra" "water policy accra "potable water accra" "water management accra"	24 2 26 52 90	194
EBSCO	March 4, 2019	2000-2019	"water access accra" "water governance accra" "water policy accra "potable water accra" "water management accra"	7 3 2 4 5	21
Google Scholar	March 4, 2019	2000-2019	"water access accra" "water governance accra" "water policy accra "potable water accra" "water management accra"	15 7 2 4 8	36

The results in this section summarize the role that stakeholders and communities have played in the provision of piped water services to Accra's impoverished communities by identifying the challenges in providing piped water services and solutions used to better serve communities.

The articles were first put into two categories, one analyzing the role of stakeholders in water governance and the other the role of the community. One or two themes were then identified for the articles in the "stakeholder" and "community" category based on the main topics of discussion in each article. The results revealed that a number of factors contributed to the lack of piped water access in Accra's communities including but, not limited to socioeconomic status, improper governance, and a lack finances to invest in water related infrastructure.

4.2 Stakeholders Involvement in Governance

Government stakeholders, such as the Ghana Water Company Limited (GWCL), The Public Utilities Regulatory Commission (PURC), the Water Resources Commission (WRC) and the Ministry of Water Resources, Works and Housing (MWRWH), play important roles in water provision, , policy and regulation (Amexo, 2014) as they are usually the primary decision makers in the "what", "when," "how", and "who," in water governance. PURC, is, in charge of overseeing the regulation of water and electricity supply, WRC, is responsible for water resources management and MWRWH, is the lead government institution responsible for water (GoG 2007).

Ghana Water Company Limited (GWCL), has faced numerous challenges in providing clean drinking water to the urban residents of its capital city, Accra, leaving many communities water stressed (Amexo 2014, Nti 2016, Yates & Harris 2018, Oteng-Ababio, 2017). Accra's two main drinking water sources, the Weija and Kpong dams, have a combined installed capacity of

424, 134 m3/day with an average production rate of 363,417 m3/day, producing at only 60-86 percent capacity (Oteng-Ababio, 2017). With the GWCL producing lower than the average optimal demand due to limitations in production and distribution as a result of low investment in water infrastructure (Vasquez & Adams, 2017) , city authorities decided to alleviate capacity through the construction of sixty mechanized boreholes, in order, to expand water supply (Oteng-Ababio et al. 2017)

4.2.1 Government Water Management through Rationing

In an attempt to manage water with the growing demand of the rapidly growing population, the Ghana Water Company Limited implemented a rationing schedule in Accra (Stoler et al. 2013; Harris & Dapaah 2017; Morinville 2017; Vasquez & Adams 2019). The rationing schedule which was first implemented between the 1980s and mid-1990s by Aqua Vitens Rands Limited (AVRL). The rationing schedule allowed the Ghana water company to control the piped water supply going into neighborhoods on certain days (Morinville 2017). Although the rationing system has allowed the Ghana Water Company in managing the water supply, it has come as a major inconvenience to many of the city's residents (Harris & Dapaah 2017, Stoler et.al 2013). While some neighborhoods receive water seven days a week, others are scheduled to receive water one day a week or are not connected to a network (Morinville 2017). In a survey of residents of the indigenous Accra community, Ga Mashie, 94.2%, of the community respondents reported that they receive water interruptions on a weekly basis, partly due to the rationing schedule (Harris and Dapaah 2017). Water rationing has also marginally led to the increase of reliance on sachet water (Stoler et al. 2013 Morinville 2017). On days where water is

not available many residents are able to purchase sachet water individually or in bulk to circumvent the lack of water as a result, of the rationing schedule (Stoler et al. 2013 Morinville 2017).

4.2.2 Reliance on Private Vendors

As the population in urban areas continue to grow, so does the reliance on sachet water and bottled water as a drinking water source jumping from almost 0% in 2000 to 9.4% nationwide in 2010 and 8.6% in 2005 to 70.9% in 2012 in Accra (Oteng-Ababio et al. 2017, Mahama et al 2014). Sachet consumption was suspected to have increased, due to the fact, that most of Accra's migrants developed informal settlements in the city, who are also least connected to official water services (Oteng-Ababio et al. 2017). Although, GWCL has a legal obligation to provide Accra's residents with drinking water (Vasquez & Adams 2019, Oteng-Ababio 2017), over forty-six percent of Accra's poor residents live in informal settlements (Oteng-Ababio et al. 2017), lacking formal property titles and building permits, excluding them at the policy level and preventing the GWCL from extending services to these communities (Vasquez & Adams 2019). As a result, many residents are without access to affordable piped water in their households and must rely on access via the more costly private water vendors (Mahama et al. 2014, Harris and Morinville 2013, Ababio 2017, Vasquez & Adams 2019, Harris & Dapaah 2017, Amakwaa 2016).

4.2.3 The Burden of Poverty

Poor residents were found to pay on average five to seven and in some cases ten to twenty times more for water coming from sachet and private vendors, than those connected to piped water services through GWCL (Vasquez & Adams 2019, Oteng-Ababio et al. 2017). In informal settlements such as Nima Maamobi, residents were found to spend more than 129 GHC ($32.25 USD) a month on water and with an average income of 587 GHC ($146.75 USD), which is more than 22% of their monthly income alone on water from private vendors. Additionally, poor communities in both urban and peri-urban communities in Ghana were built further away from the Ghana Water Company's piped water delivery networks while, upper income communities were built closer (Mahama et al. 2014). This influenced access and pricing of water supply. Low income rural and urban communities received water provided by the government through the Community Water and Sanitation Boards, which charge low income communities much higher delivery rates than upper income communities serviced by the Ghana Water Company (Mahama et al. 2014). For example, residents in a low-income suburb in Accra, known as AyiMensah, residents paid 2.75 ghc per kilolitre of water accessed from the Kweiman-Danfa Community Water Board and middle class consumers paid 0.85 ghc per kiloliter through the Ghana Water Company in the Adenta Municipality, which is a distance of 5 km from AyiMensah (Mahama et al,2014). Nti 2016, also noted a comparison in the high cost of water for low income communities in his study on sustainable water supply stating that the poor pay five to ten times more than the rich. Moreover, the study found that only 22.3% of households in Greater Accra, have piped water while the majority depend on water vendors which shortens

the distance traveled and waiting time for clean water but, at a higher cost to consumers (Nti, 2016).

4.2.4 Ghana Water Company Limited Pro-Poor Policy

The GWCL formulated National Water Policy, acknowledges the importance of pro-poor water supply with its key objective to "ensure improved and sustainable access to water by the poor for their basic needs (GOG 2007)." In order to meet this objective, the government formulated the following policy measures:

"(i) adopt a tariff structure that provides an optimal benefit to consumers including low income consumers;

(ii) encourage cooperation between private operators and small-scale independent providers, rather than grant exclusivity to either party, to facilitate adequate and affordable provision of safe drinking water to unserved and underserved areas;

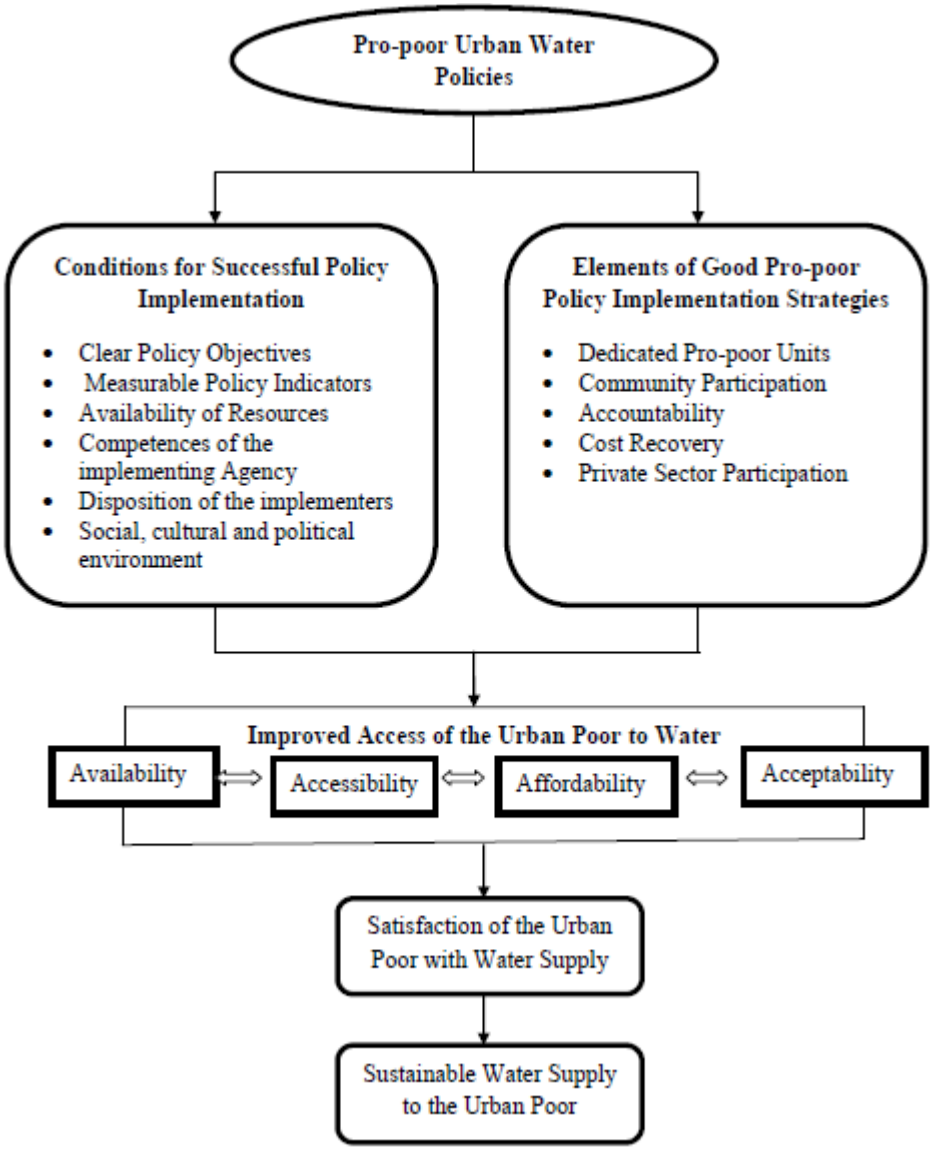
(iii) establish a programme such as a Social Connection Fund to support the connection of low-income consumers to the network;

(iv) facilitate defining unserved zones and identity cost-effective alternatives for progressively extending services to these areas; and

(v) recognise the current roles of small-scale providers (secondary and tertiary) in the water supply chain and provide support where appropriate."

Outlined in figure 3 is an illustration of the conceptual framework featured in Nti, 2016 study.

Figure 3: Pro-poor policy framework



Source: Adapted and modified from Van Meter and Van Horn (1975); Elmore (1978); Penchansky and Thomas (1981); Adjakloe (2011).

Nti 2016, study analyzed the implementation of the country's National Water Policy's pro-poor policy measures and found that only three out of five of the urban poor policy measures have

been implemented, which are the adoption of a tariff structure, defining unserved zones and identity cost-effective alternatives for progressively extending services, and the recognition of small scale providers. The implementation challenges in the policy were due to, “inadequate investment; over aged distribution lines; high level of unaccounted for water; and poor corporate governance (Nti 2016).” Although, Accra has had it’s share of challenges in the implementation of it’s National Water Policy, according to the World Bank’s GAMA Sanitation and Water project implementation and results report, tremendous progress has been made as well. The purpose of component 2, is to “improve and expand the water distribution network in GAMA to provide piped water to an estimated 250,000 people living in low income communities” (Lutalo & Senkatuka, 2018). According to the report, GWCL was to provide 3,500 new connections by constructing about 150 km of distribution network and is currently on track with its goal and likely to exceed its target (Lutalo & Senkatuka, 2018). So far, total of 130 km of distribution pipeline have been laid with 2012 service connections effected (Lutalo & Senkatuka, 2018). This has led to improvements in water supply to about 29,000 household consisting of 142,860 residents (Lutalo & Senkatuka, 2018).

4.3 Community Involvement in Governance

Ghana’s National Water Policy states that community contribution in water governance includes “the amount of valued resources in cash, in-kind and labour, as well as time and local knowledge, committed by community members toward planning, implementing and managing interventions for improving water and sanitation services. The level of community contribution reflects both initial investment costs and recurrent costs” (GoG, 2007).

Community involvement in water governance is extremely important in the promotion of sustainable and equitable water governance when executed with sensitivity to the concerns of local communities (Harris & Morinville, 2013). Community participation in water governance is beneficial because it allows community residents to express their concerns and give knowledge on water access needs which are community specific (Harris & Morinville, 2013). Moreover, Participatory governance is especially important in poor communities and informal settlements because these communities are impacted by a lack of water access the most (Harris & Morinville, 2013, Harris and Dapaah 2017). Local Water Boards (LWBs) give impoverished communities a voice in decision making, in regard, to water access and affordability (Harris & Morinville 2013, Kilasi 2016,). Concerns regarding exorbitant prices and accessibility are frequently expressed by lower income communities within Accra (Harris & Morinville, 2013). Therefore, allowing community members to become involved in the process is vitally important. Local participation, is capable of, enhancing sustainability, improving efficiency and effectiveness, reducing poverty with the ability to make development more inclusive and participatory, empower poor communities, build social capital, strengthen good governance, and to complement market and public sector activities (Kilasi, 2016).

Despite the importance of community participation in water governance, it was found that participation in water governance in Accra's communities was low (Harris et al. 2017, Kilasi 2016). A study on two underserved communities in Accra, Ashaiman and Teshie, found that community participation was as low as 21% (12% among women and 30% among men) (Harris et al. 2017) as illustrated in table 2. Knowledge of water governance structures and policies

were also low with studies finding that 26% of the men surveyed and 10% of women had knowledge of the Aqua Vitens Rands Limited (AVRL), the private water consortium that was operating in the country from 2006 to 2011 (Harris et al. 2017). The study also found that 14% of men and 6% of women were aware of meetings about water related issues in their communities (Harris et al, 2017).

Table 2: Community participation in water governance among men and women.

Question	Gender (GHANA)				
	Female	Male	X^2	p-value	n
F.1 I participate in civic groups	**12%**	**30%**	**10.20**	**0.001**	250
F.1.4 I participate in water committees	2%	4%	0.19	0.66	204

Harris et.al 2017

Although, actual community participation is water governance was quite low in some of Accra's urban communities, the interest to participate in meetings on water governance was

moderately high. In a survey on an underserved settlement in Accra, researchers found that 50% of respondents were interested in participating in meetings on water governance in their communities (Harris et.al 2017). Moreover, many communities lack trust in government organizations due to bad experiences in water delivery and service and, have a preference, for community-based committees or nongovernmental organizations (Kilasi 2016, Vasquez & Adams 2019, Harris & Dapaah 2017). The preference for community-based management on water services is dependent upon trust in their existing utility servicers (Vasquez & Adams 2019). In communities where citizens shared the same concerns as local leaders, in cases where local leaders acknowledged the challenges of citizens, citizens were able to build trust in their leaders, resulting in the ability for citizens and leaders to collaborate on water related issues concerning their communities (Harris & Dapaah 2017, Kilasi 2016). Local water boards in Accra's communities, has allowed citizens a platform to express concerns when water related issues arise. This platform could, as a result, allow trust to build among citizens and accountability regarding their concerns, within both the community and between stakeholders (Harris & Morinville 2013). Trust between communities and stakeholders can increase the probability of participation in community water management by 0.021 (Kilasi 2016).

Table 3: Studies selected for inclusion in the systematic review by title, author and year.

Title	Author(s)	Year
The presence of the past: a retrospective view of the politics of urban water management in Accra, Ghana	A Bohman	2012
Drinking in Transition: A MultilevelCross-sectional Analysis of Sachet Water Consumption in Accra	Stoler J, Weeks JR, Appiah Otoo R	2013
Evaluating access to potable water and basic sanitation in Ghana's largest urban slum community: Old Fadama, Accra	I Monney, R Buamah, SN Odai, E Awuah et al.	2013
Stakeholders' perspectives on urban water management in Ghana: a case study of Greater Accra Area and Kumasi Metropolitan Area	GK Amexo	2014
Willingness-to-pay for potable water in the Accra-Tema Metropolitan Area of Ghana	DK Twerefou, KA Tutu, E Botchway et al.	2015
Local Participation and Sustainable Community Water Management in Peri-Urban Areas of the Greater Accra Region, Ghana	SJ Kilasim	2016
Poverty penalty: strategies for coping with water access problems among urban poor in Abuja, Accra	EF Amankwaa	2016
Sustainable water supply to the urban poor in Accra: from policy to reality	Kwame Obeng Nti	2016
Poverty politics and governance of potable water services: The	M Oteng-Ababio, I Smout, PWK Yankson	2017

core–Periphery syntax in Metropolitan Accra, Ghana		
Intersections of gender and water: comparative approaches to everyday gendered negotiations of water access in underserved areas of Accra, Ghana and Cape Town South Africa	L Harris, D Kleiber, J Goldin, A Darkwah, C.Morinville	2017
Sachet water: regulation and implications for access and equity in Accra, Ghana	C Morinville	2017
Framing a Community's Entitlement to Water access in Accra, Ghana: A complex reality	EK Dapaah, L Harris	2017
Hybrid regulatory landscapes: The human right to water, variegated neoliberal water governance, and policy transfer in Cape Town, South Africa, and Accra, Ghana	JS Yates, LM Harris	2018
Disclosable Version of the ISR - GH-GAMA Sanitation and Water Project - P119063 - Sequence No : 11 (English)	Lutalo, Sanyu Sarah Senkatuka	2018
Climbing the water ladder in poor urban areas: Preferences for 'limited' and 'basic' water services in Accra, Ghana.	William F. Vasquez,Ellis A. Adams	2019

Discussion/Conclusion

Water governance in the city of Accra has seen its share of challenges over the years, but despite the numerous challenges it is noteworthy to acknowledge the accomplishments the city has made in transforming its water sector, and, as a result, transforming the health and wellbeing of its urban low income communities. The rapidly growing metropolis has experienced numerous transformations in its economy since its independence in 1957, by becoming successful in reaching middle income status. Ghana Water Company Limited has made great progress exceeding its targeted objectives and meeting its 2015 Millennium Goal target of halving the proportion of people without access to clean water. Now almost 95% of the citizens of Accra have access to an improved water source. Still, many citizens are without piped water in their homes with socio-economic status being the primary determinant. Community engagement was identified as important in the promotion of sustainable and equitable water policies, but studies found that often there was low participation from community members in meetings concerning water related issues in their communities. In order to further improvement in water governance, community involvement is a necessity in Accra. Along with community involvement, stakeholders must become more committed to ensuring the voices of low-income communities are heard, and that more time and money are invested into these communities to provide the infrastructure needed for residents to access piped water on the premises. The government and the community must work hand in hand in order to execute proper water governance in Accra. When communities participate in and become a part of community water committees, the voices of local communities are heard, leading to a more sustainable system of governance. In order for citizens to become more

involved by working with government officials, participation in community water meetings must increase. There must be a sufficient amount of community involvement, and in order, for community involvement to increase, there must also be an increase in trust between the government and the community. Communities must be able to trust that local government is fully capable of properly managing water in a manner that will ensure every citizen in the city of Accra, to have access to potable water in their communities.

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