

Analysis of Accessibility to Water Supply and Sanitation Services in the Awutu-Senya East Municipality, Ghana

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Abstract

Despite the essence of water supply and decent sanitation services to mankind, access to these basic services is a challenge in the Awutu-Senya East Municipality. The paper examined accessibility to water supply and sanitation services in the Awutu Senya East Municipality and the accompanying consequences. In the analysis of water provision responsibility, it was established that the contribution of private individuals constituted 64.2% of daily water production while public water provision effort constituted 35.8%. In spite of the enviable contributions of private individuals in water provision efforts in the Municipality, however, about 45% of the water sources are salty while 28% are impure and contaminated. Aside the inability of the Ghana Water Company Limited to supply desirable water quantities in the Municipality, the Assembly has also not been able to regulate the prices charged on water by private water operators, or make meaningful effort to augment water provision in the Municipality. Management of sanitation in the Municipality has proven to be daunting for authorities. The factors that lead to poor sanitation in the Municipality are diverse, ranging from weak institutional capacity to wrong attitudes. Consequently, the inefficiency of waste collection companies encourages indiscriminate disposal of wastes in the Municipality. For this reason, the Municipal Assembly should issue a minimum water quality requirement to all identified private water operators in order to ameliorate the quality problems associated water supply in the Municipality. Additionally, the Assembly should devise a better monitoring tool for ensuring that tasks assigned to waste collection companies in the Municipality are efficiently executed.

Keywords: Ghana, Awutu-Senya East Municipality, accessibility, water supply, sanitation services

1. Introduction

Since 1990, the number of people without access to safe water sources has remained constant at approximately 1.1 billion, of whom about 2.2 million die of waterborne diseases every year. In developing countries, population growth and migrations strain existing water and sanitary infrastructure and complicate planning and construction of new infrastructure (McAllister, Green, Ann, Herman & Mulvey, 2003). However, despite strong evidence of the effectiveness and cost-support for the intervention at the highest international levels, coverage still lags behind the MDG targets, especially for sanitation (Clasen & Cairncross, 2004). Globally, access to water supply and sanitation services is a big problem. While in Sub-Saharan Africa, 64% of the population lack access to sanitation, 58%, and 60% of citizens in Eastern Asia and South Asia respectively are saddled with sanitation problems (Clasen, 2006). Additionally, in Africa, about 40% of the population do not have access to improved water supply, and in Asia 19% are without access to an improved water supply system (Hutton and Haller, 2004).

In an effort to bring global attention and resources to the problem, international organizations have created several water and sanitation initiatives to deal with the problem. Poor management of existing water and sanitation infrastructure has even aggravated the problem of accessibility in most urban communities. The challenges facing today's major cities are daunting, and water management is one of the most serious concerns (Bahri, 2012). Regardless of the enormous efforts made towards the provision of adequate water and sanitation infrastructure to offset the growing demand at the global level, accessibility still falls short of demand (Allen, et al., 2006). WHO and UNICEF (2008) estimate that, about 1.1 billion people lack access to improved water supplies while 2.6 billion people lack adequate sanitation and that providing safe water and basic sanitation to meet the MDGs will require substantial economic resources, sustainable technological solutions and courageous political will. Research evidence however proves that, there are sharp regional disparities in water supply and

sanitation services with substantial number of people in Africa and Asia having precarious problems especially in the area of sanitation infrastructure (Howard & Bartram, 2003)

Water and sanitation remains an important necessity of human development, and that lack of access does not only pose serious health complications but also seriously impede economic progress (Hutton & Haller, 2004). Diseases such as diarrhea, cholera, inter alia, culminating from water and sanitation have been identified as dangerous and humiliating since such diseases are among the leading causes of deaths, both in children and adults. Globally, diarrhea is ranked the third largest cause of morbidity and the sixth largest cause of mortality (WHO, 2004). Lack of safe drinking water and basic sanitation impose a heavy health burden, especially on young children and the poor while it also aggravates poverty, poor school attendance, and overall development. Safe water supply and its infrastructure serve as a powerful preventative health measure (Kurian, 2010). Investments in water and sanitation yield high economic dividends through the resultant significant reduction in disease, averted health-related costs, time savings in removing the need to collect water far from homes, which usually transform into higher productivity and better attendance at school. These benefits accrue mostly to poor people including women and children, who are generally more vulnerable (Hutton & Haller, 2004).

Despite the relevance of water supply and sanitation services to the survival of mankind, access to these basic necessities is still a problem. It is against this backdrop but among other compelling reasons that the Millennium Development Goal (MDG) 7 addresses environmental sustainability, with a target to “halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation (Hutton and Bartram, 2007). Issues concerning Water and Sanitation have received serious discussions at all levels of international discourse due to its importance since the urban poor are normally identified as the most affected people when access is inadequate. Survey evidence indicates that the poor are considerably more burdened than the rich for items such as Water and Sanitation Programmes (Allen, Dávila & Hofmann, 2006).

The problem of accessibility to water supply and sanitation services in most literature is attributed to rapid pace of urbanization and population growth (WHO & UNICEF, 2006; Norstrom, 2007; UN-Habitat, 2006). In many parts of the world, urbanisation and population growth are increasing the pressures on expanding cities, resulting in more people living without adequate provision of drinking water (Norstrom, Mcconville & Kain, 2009). The Ghana Statistical Service (2010) reveals that Ghana has become urbanized, suggesting a wakeup call for city authorities to initiate proactive measures to deal with the concomitant effects associated with it, especially water and sanitation issues. This is because invariably, all urbanized countries in the world face fierce development challenges with some of the prominent ones bothering on water and sanitation infrastructural provision. However, national and international initiatives and commitments to improve access to water and sanitation in the developing world tend to be low (Allen, et al., 2006). This paper thus, seeks to analyse the water supply and sanitation accessibility problems and its consequences on the Municipal residents.

The Study Municipality

The Awutu Senya East Municipal Assembly (ASEMA) is one of the newly created Municipalities in the Central Region. The Municipality was carved out of the former –Awutu Senya District in 2012 and established as a Municipality by Legislative Instrument (LI) 2025. The Awutu Senya East Municipal is located in the Eastern part of the Central Region within Latitudes 5°45° south and 6°00° north and from Longitude 0°20° west to 0°35°East (see Figure 1). It shares common boundaries with Ga South Municipal Assembly (in the Greater Accra Region) in the East, Awutu Senya West District in the North and Gomaa East District in the West and South respectively. The Municipality covers a total land area of about 180 sq. km, about 1.8% of the total area of the Central Region. Kasoa the Municipal Capital is located at the south-easting part, about 31km off the Accra-Capital (see figures 1 and 2). Other major settlements are Opeikuma, Adam Nana, Kpormertey, Ofankor, Akweley, Walantu and Zongo.

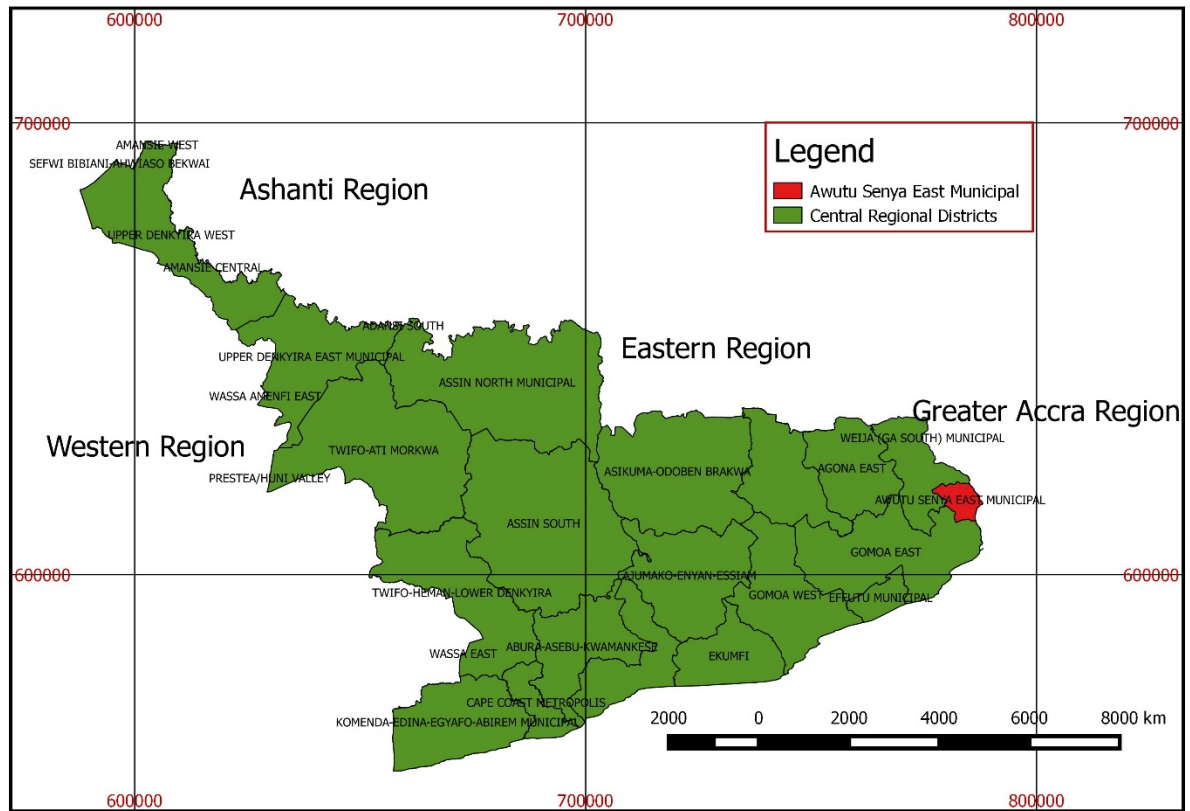


Figure 1. Awutu-Senya East Municipality in regional context



Figure 2. Awutu-Senya East in national context

The Awutu-Senya East Municipality with Kasoa as the Municipal capital is currently one of the most sprawling Municipalities in Ghana giving cognizance of its proximity to the national capital, Accra. A Municipality that had been dormant in the past few years has now become the abode for all manner of people. Due to increasing population and the cost involved in securing land in Accra, most people have resorted to settling in the Municipality to commute to Accra for economic activities without a corresponding increase in water supply and sanitation services (Awutu-Senya East Municipal Assembly [ASEMA], 2013). This has created a number of water and sanitation accessibility issues within the sprawling Municipality. Consequently, the well-being and livelihoods of majority of households and home-based enterprises are seriously impaired by the considerable time and money spent collecting water, buying it from private vendors or fighting diseases arising from deficient

water supplies and poor or non-existent sanitation (Pellow, 2002). This paper thus, seeks to analyse the water supply and sanitation accessibility problems and its consequences on the Municipal residents.

2. The Accessibility and Sanitation Concepts

2.1 Accessibility

Accessibility is a multidimensional concept used in many disciplines including planning, geography, architecture, medicine, building technology, engineering among others (Jones, Parker & Reed, 2002). This has given rise to differing meaning of the concept. Within the boundaries of water and sanitation, therefore, Kaushik (2011) identifies the meaning of accessibility to distance and time involved in obtaining water and sanitation infrastructure. On the other hand, the Office of the High Commissioner for Human Rights [OHCHR], (2007) contends that accessibility refers to the right to equal and non-discriminatory way to an adequate amount of safe drinking water for personal and domestic uses including drinking, personal sanitation, washing of clothes, food preparation and personal and household hygiene with the aim to sustain life and health of the users. According to Simons, B., Kimwaga, R. and Mashauri, (2009) water accessibility involves being able to physically reach the source and afford the charges which should be sustainably accessible, both financially and in terms of the reliability of source yield.

It could be distinguished that accessibility to a facility can be either high, Medium or low. That is, within a particular country, region, or even a community, accessibility to users of a particular facility would differ being either high, medium or low. Cooperative Housing Foundation [CHF] International (2010) explains that, when users of a facility are within reach of that facility or service in question within a given reasonable travel time, accessibility is said to be high; whereas on the other hand, accessibility to a facility is deemed to be low when users are out of reach of the facility or service in question within the given travel time. It is therefore important that these levels of accessibility are given prominence and not the mere availability of presence of the facility in a given area. Accessibility to water and Sanitation involves both physical and economic dimensions.

Physical accessibility to water and sanitation infrastructure refers to the ease at which safe and adequate water and sanitation facilities are within the physical reach of all segments of the population at their immediate or within the vicinity in terms of distance and time (Kaushik, 2011). As identified by Jones, et al., (2002) physical accessibility to water and sanitation infrastructure implies the use of less time spent in identifying the infrastructure leading to the saving of time for every household to spend on other productive activities such as cooking and cleaning. In defining accessibility to water infrastructure, Woodhouse (2004) argues that accessibility to water infrastructure could be looked at both the community level and individual level: physical accessibility to water infrastructure at the community level is the capacity of the water facilities to provide sufficient, safe and regular water; have a sufficient number of water outlets to avoid prohibitive waiting times; reasonable distance from the household; and there is equitable distribution of all available water facilities and services. On the other hand, at the individual level, physical access to water infrastructure refers to the ease at which individuals have access to the minimum essential amount of water that is sufficient and safe for personal and domestic uses to prevent disease and avoidance of personal insecurity. Sufficiency, quality, physical security during access, regularity are thus, important indicators of physical accessibility to water.

The concept of economic accessibility to water infrastructure relates to the ease at which water facilities are affordable to all persons including the poor in a way which does not limit their ability to afford other essential basic services such as food, housing and health care (Frone and Frone, 2013). Consequently, when the fees charged on water is so exorbitant that the household must sacrifice other equally basic human needs such as education, housing, health care, food, clothing, among others, then there is economic inaccessibility to water infrastructure. In the light of this, water is deemed economic accessible if a family's or household's monthly income spent on it does not exceed 5%. (Allen, et al., 2006a; WaterAid, 2011). The authors however, failed to provide any clue to what economic accessibility to sanitation means. This is primarily because sanitation is thought to be very complex and difficult concept that authorities are grappling with.

2.2 Sanitation

Sanitation is a concept that is thought to defy a single definition as a result of its complex nature. Though there are different definitions of sanitation, solid and liquid wastes are at the centre of all the definitions since they have been major problems confronting not only sprawling communities but towns of the world in general (Ayee & Crook, 2003). In explaining the meaning of sanitation, World Health Organisation [WHO], (2004) argues that sanitation is a big idea which involves safe collection, storage, treatment and disposal of solid wastes. It also implies the disposal of household wastewater; drainage of storm water; and the collection and management of industrial waste products. Sanitation is any system that promotes proper disposal of human and animal wastes,

proper use of toilet and avoiding open space defecation. However, in its broadest sense UNICEF, (2008) contends that sanitation is the collection, transport, treatment and disposal or reuse of human excreta, domestic wastewater and solid waste, and associated hygiene promotion. Sanitation has been identified as the most single challenge to most countries in the world. A key challenge facing many countries in the developing world undergoing rapid urbanization is the issue of sanitation and waste management (Chaplin, 1999). This could be explained from the fact that in many of the developing countries, rapid urban growth has far outpaced metropolitan and municipal authorities' capacity to provide basic services including adequate sanitation. Though sanitation is a broad concept, for the purpose of this study solid and liquid wastes are the two cardinal elements. According to the UN-Habitat, (2006) wastes are materials that are not prime products for which the initial user has no further use in terms of his/her own purposes of production, transformation or consumption, and of which he/she wants to dispose. Wastes may be generated during the extraction of raw materials, the processing of raw materials into intermediate and final products, the consumption of final products, and other human activities.

3. Methodology

The methodology adopted comprises a combination of qualitative and quantitative techniques of data gathering and analysis. As maintained by Medina (1998), combining both the quantitative and qualitative techniques of data analysis concurrently helps to balance the strengths and weaknesses of the two, while it aids in achieving a greater degree of validity and reliability. The study employed a simple random sampling to select 394 respondents within the Municipality based on the household population. The residential areas surveyed during the study were zoned into four- Kasoa, Akweley, Ofankor, and Opeikuma, and households selected systematically with probability proportional to the household population of each zoned area based on the 2010 Population and Housing Census figures of Ghana. Additionally, a purposive sampling was used to solicit information from key institutions such as the Ghana Water Company, and some Departments of the Municipal Assembly deemed relevant for the attainment of the purpose of the study. Structured questionnaires and interview guides were used by the researchers to interview household heads or representatives, as well as to solicit information from key institutions involved in water supply and sanitation services in the Municipality. Secondary data were obtained from the field, reports, articles and key institutions deemed relevant for the purpose of the study within the Municipality. Among the data obtained include the status of water supply and sanitation services in the Municipality; challenges associated with the provision and supply of water; effects of inadequate access to water supply and sanitation services in the Municipality; distance and time traveled to access water; average waiting time spent at water sources, among others.

The analysis of the quantitative data began with a rationalization using the Statistical Programme for Social Sciences (SPSS), version 18, and Microsoft Excel. The rationalized data were used to generate measures of central tendencies for the analysis. The policy implications of the statistics generated by SPSS and the Microsoft Excel were made by the researchers after carefully studying the data. The analysis of the qualitative data involved making comprehensive statements and analytical descriptions about the statements made by the respondents during the data collection exercise. Accessibility to water in the Municipality was measured by using but not limited to: adequacy, regularity, reliability, affordability, and distance. Additionally, modes of liquid and solid wastes disposal, drainage systems, and access to decent human excreta facilities were used to measure accessibility to sanitation in the Municipality.

4. Analysis and Discussions

4.1 Physical Accessibility to Water

Physical accessibility to water in the Municipality greatly affirms the fact that one of the most serious concerns of rapid urbanization in Ghana and the world over is water supply. Prominent among the physical accessibility to water issues revealed in literature include water conditions, water collection time at source, the distance covered, regularity of water access, and adequacy of water supply.

4.1.1 Regularity of Water Flow in the Municipality

Due to the difficulty in accessing water partly as a result of increasing population, most residents (55% of sampled households) access water from unhygienic sources such as rivers and unprotected wells. Despite residents' reliance on multiple water sources such as rivers, wells, and pipe borne water in the Municipality, regular flow of water from the available sources is also problematic. However, the importance of water to human lives requires every day access in desirable quantities (Human Right Council, 2007). Due to irregular flow of pipe borne water supply in the Municipality, between 80% and 90% of the sampled households engage in long queues on daily basis in order to access water for, especially, domestic purposes. The study revealed that only 11% of the sampled households had daily access to water supply in the Municipality primarily because of their

reliance on rivers and unprotected wells as alternative sources of water. Additionally, about 31% and 32% of the sampled population had access to water supply thrice a week and four times a week respectively (see figure 3). This situation puts households in serious desperations, and thus move from one private-public water point to another due to lack of private access to water supply infrastructure at various homes.

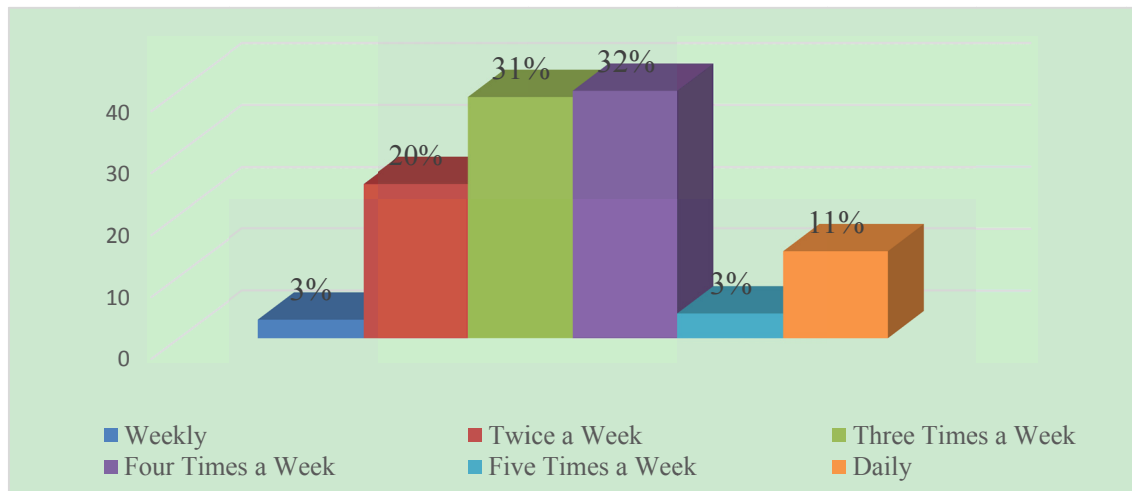


Figure 3. Water accessibility frequency in the municipality

Source: Authors' Construct, February 2014.

The negative effects of water accessibility irregularities in the Municipality take diverse forms including negative effects on economic activities (23% of respondents), and poor school attendance and performance of children of affected households in the Municipality (16% of sampled households). The situation clearly suggests that when access to water is impaired, not only does it affect economic activities but more significantly the school attendance of pupils (Hutton and Haller, 2004; Kurian, 2010; and Pellow, 2002).

4.1.2 Time and Distance Covered to Access Water in the Municipality

The time spent in collecting water is very important in determining the physical dimension of water accessibility. Consequently, the United Nations, (2010) contend that for ease of physical accessibility to water supply, collection time should not exceed thirty (30) minutes. However, time spent in collecting water in the Awutu-Senya East Municipality exceed the established standards. While 47% of the sampled households fell within the average waiting time of thirty (30) minutes, 29% spent between thirty and fifty-five minutes to collect water. Additionally, 24% of respondents spent between 1 and 3 hours to access water as shown in. Figure 4.

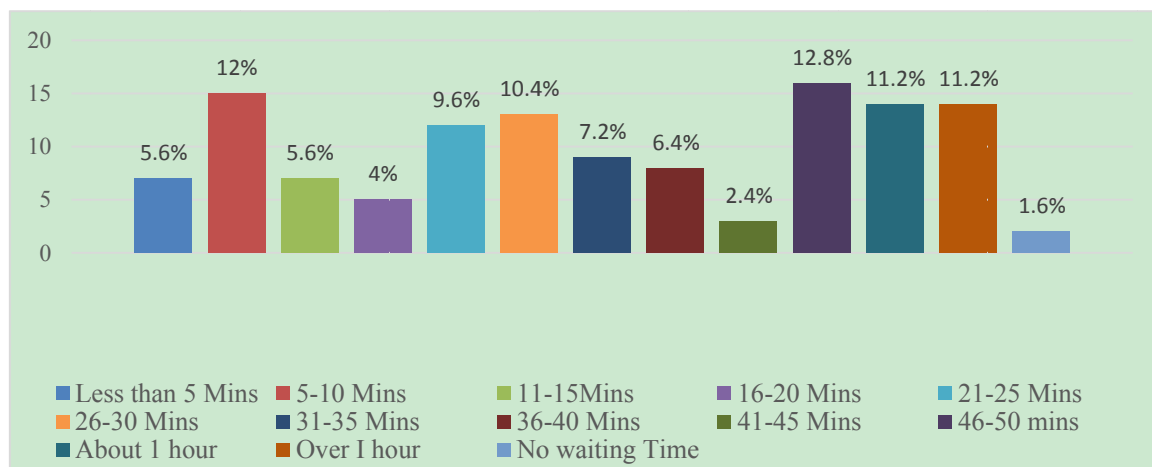


Figure 4. Average waiting time for accessing water in the municipality

Source: Authors' Construct, February 2014

According to Howard, Ince & Smith, (2003) access to water is said to be seriously impaired when travel distance and average waiting time at the water source exceed more than 1000 metres and 30 minutes respectively. Additionally, the Ghana Water Company Limited [GWCL], (2009) asserts that in the case of Ghana, if the ideal situation of targeting yard connections for all households is not met, the maximum distance a person is to cover should not exceed 200 meters to a source of water supply in unplanned settlement patterns. However, the prevailing situation in the Awutu-Senya East Municipality revealed that only 15% of the sampled households met the minimum travel distance of 200 metres as well as the average waiting time of within 30 minutes requirements to access water in the Municipality. About 42% of the sampled households spent more than 30 minutes at the water source to access water in the Municipality but fell within a minimum distance of 200 metres. Moreover, 33% of the sampled households covered a distance of more than 200 metres and spent more than thirty minutes to access water. The study however revealed that, the effects of the time spent as well as the distance covered to access water in the Municipality were normally felt by children and women chiefly because water collection responsibility in the Municipality is deemed the sole responsibility of children and women. This revelation thus supports the fact that children and women are the most affected persons when accessibility to water is impaired (WHO, 2004). For instance, in outlining the causes of lateness of children to school in the Municipality, it was established that about 54% of all documented excuses were related to water collection time. Pathetically, about 31% of affected children were thought to have their academic performance affected.

4.1.3 Water Quality in the Municipality

In spite of the need to have access to water supply in human existence, compromising on quality poses serious dangers to human lives due to the concomitant health implications. WaterAid, (2011); Frone and Frone, (2013); Allen, et al., (2006); and De Albuquerque, (2010) maintain that water is said to be quality and safe if it does not pose threat to the health of a person. However, addition to the irregularity of water supply in the Municipality, the quality and safety of the available water sources were problematic. For instance, about 73% of all water sources available to the sampled respondents in the Municipality including piped-borne (in some cases) have serious quality and safety problems as shown in Figure 5.

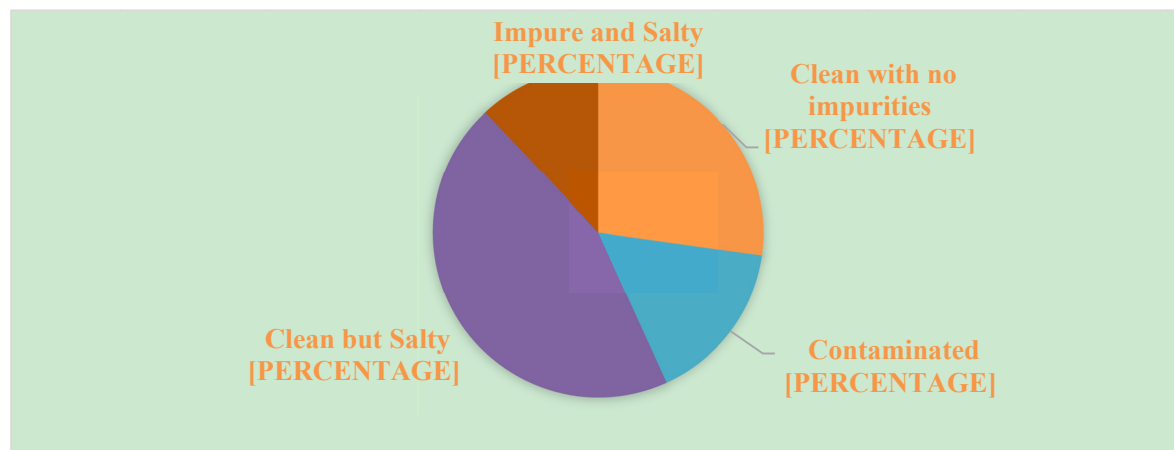


Figure 5. Conditions of water sources in the municipality

Source: Authors' Construct, February, 2014.

The quality and safety constraints regarding water in the Municipality have precipitated a heavy reliance on "Pure Water" (sachet water), as commonly called in Ghana for consumption due to their inability to treat the water they access before use. The paper however revealed that, water condition problems in the Municipality were much intense in some of the demarcated zones than others due to the types of water sources accessed. In discussing the issue of poor water condition in the Municipality, therefore, the same could not be said of all the communities that fall under the Municipality. The study revealed that, apart from the Kasoa Zone, where the main source of water was pipe, between 89% and 96% of the sampled population in the remaining zones accessed water from wells and rivers, a situation that posed serious health implications. Though wells were operated by private individual for commercial purposes in the Municipality, about 78% were unprotected. According to WaterAid (2011) and Kaushik (2011), potable water supply should be accessible to all classes of people irrespective of their social, political, economic and religious conditions or status. However, the prevailing water accessibility situation in the Municipality implied that access to pipe-born water (even though has some

quality constraint in some cases) in the Municipality was skewed towards the Municipal residents of Kasoa, the Municipal capital. Hence, the non-discriminating, and equal access dimension of water accessibility was compromised.

4.1.4 Adequacy of Water Supply in the Municipality

Having access to water supply with adequate quantities is very important in determining physical accessibility to water. Though what constitutes a minimum water quantity is fraught with difficulties, it has been argued against the back drop of some compelling factors that certain quantities of litres of water are needed for the enhancement of healthy living. For instance, issue such as gender and other daily activities like domestic water use, namely consumption (drinking and cooking), and hygiene (personal) are to be established before the desirable quantities needed by a person per day could be determined (Hutton and Bartram, 2003). While WHO (2003) asserts that, consuming less than 50 litres of water per person a day has high health consequences, and thus the ideal minimum quantities of water should range between 50 litres and over 100 litres per person a day; Gleick, (1996) argues that 50 litres per capita per day is the basic water requirement for domestic water supply. Within the context of Ghana, the Ghana Water Company Limited [GWCL] (2009) cited in the Ministry of Water Resource, Works and Housing, (2012) asserts that a daily per capita water demand of 40 liters is sufficient for drinking, domestic use and maintenance of basic hygiene. Consequently, the minimum water requirement of 40 litres per person a day proposed by the GWCL was used to assess the adequacy of water supply in the Municipality so as to make informed judgments.

The number of buckets of water available to households were measured in litres based on a research work by Nyarko, Oduro-Kwarteng & Adusei, (2007) postulating that, one bucket of water has the capacity to contain 18 litres of water. The paper revealed that 69% of individual members within the sampled households consumed about 29 litres of water per day from the various sources of water available to them. Additionally, 26% consumed between 30 and 36 litres of water while the remaining 5% of household members consumed between 36 litres and 42 litres of water. The paper established that approximately 5% of the households barely met the 40 litres minimum water requirements while the remaining 95% fell short of the daily average water requirements. However, none of the 5% of the sampled households found within the daily water average requirements of the 40 liters deemed the water quantity consumed sufficient for drinking, domestic use and maintenance of basic hygiene. The statistics given shows that, the average daily water requirement of 40 litres per person per day proposed by the Ghana Water Company, in the case of Ghana, was not met in the Municipality. Consequently, basic personal hygiene and domestic activities such as cooking and washing were likely to be impaired in the Municipality since the minimum quantity of water needed for the realisation of such activities was below the established standards.

4.2 Economic Accessibility to Water

Economic accessibility within the context of this paper is understood to mean the proportion of household's monthly income spent on water. Though economic accessibility (affordability) to water is dependent on the individual household in question, WaterAid (2011) maintains that for water to be economically accessible, a household's monthly expenditure on water should not exceed 5% of its monthly income. In examining economic accessibility to/affordability of water in the Municipality, the income levels of households were used in the light of the amount spent on water on monthly basis. The paper established that all the sampled households in the Municipality spent more than 5% of their incomes on water every month. For instance, households with monthly incomes of less than GH¢ 300.00 spent between 20% and 30% of their monthly incomes on water. Additionally, while households with average monthly incomes between GH¢700.00 and GH¢ 900.00 spent between 16.7% and 21.4% respectively on water, households with incomes of more than GH¢ 1,000.00 spent not more than 16% of their income monthly on water.

In light of established standards by WaterAid, (2011), it could be established that while households with higher income earnings spend less percentage of their monthly incomes to access water, low income earning households spend substantial proportions of their monthly incomes on water. This again affirms the work of WHO, (2004) that low income groups are the most burdened when access to water is impaired. However, in spite of the fact that higher income earning households spend relatively lesser percentages of their incomes on water in the Municipality, they were significantly affected. For instance, spending about GH¢120 on water is undoubtedly substantial for average income earning households with an average monthly income of not more than GH¢ 600. 00. This implies that not only are issues of physical accessibility to water such as regularity, adequacy and quality impaired, but also economic accessibility.

4.3 Water Provision Responsibility and Problems faced with Water Supply

The development of water and sanitation infrastructure have become the focus of a vibrant debate that combines the established understanding of urban history with emerging perspectives drawn from other fields of study (Gandy, 2006). Unfortunately, in spite of governments' expressions of commitments to alleviating the low level of access to potable water supply in Ghana, coverage rates among the urban population in the Awutu-Senya East Municipality is still low. Interestingly, the complimentary role of the private sector has rather become the main avenue for water provision in the Awutu-Senya East Municipality. The paper revealed that, public water provision constituted 35.8% of the water supply efforts in the Municipality, leaving the remaining 64.2% of the water provision responsibility to private individuals. For example, whereas water production capacity of the Municipality was estimated at 6 664 000 litres daily, the GWCL was estimated to supply only 2 386 650 litres of the Municipal water demand on daily basis, giving an average of 12 litres per person. This implies that, but for the enviable contributions of private individuals in water provision in the Municipality, the minimum water requirements of 40 litres deemed adequate for daily consumption proposed by the GWCL would have been adversely impaired. The situation, however, suggests that the private sector's involvement in the development of water infrastructure is necessary for meeting the Millennium Development Goals on water supply by all countries. In spite of the enviable contributions of private individuals in water provision efforts in the Municipality, about 45% of the water sources were salty while 28% were impure and contaminated, leading to a high number of water related diseases including Typhoid in the Municipality.

Problems faced with water supply in the Awutu-Senya East Municipality take diverse forms including quality, irregularity, shortage, and cost/affordability. The paper revealed that, at least every sampled household experienced more than one of the water problems stated: while 41% of the sampled households experienced problems with all the four problems outlined in accessing water in the Municipality, 25% expressed concerns about the cost, regularity and adequacy of water supply. Additionally, 15% maintained that irregularity and shortage were the major water problems in the Municipality, while 10% of the respondents vehemently bemoaned the quality, cost and irregularity of water supply as shown in figure 6. For instance, while a bucket of public pipe-born water was priced at GH¢0.2, respondents had to spend between GH¢ 0.4 and GH¢0.5 to access a bucket of water provided by private individuals in the Municipality.

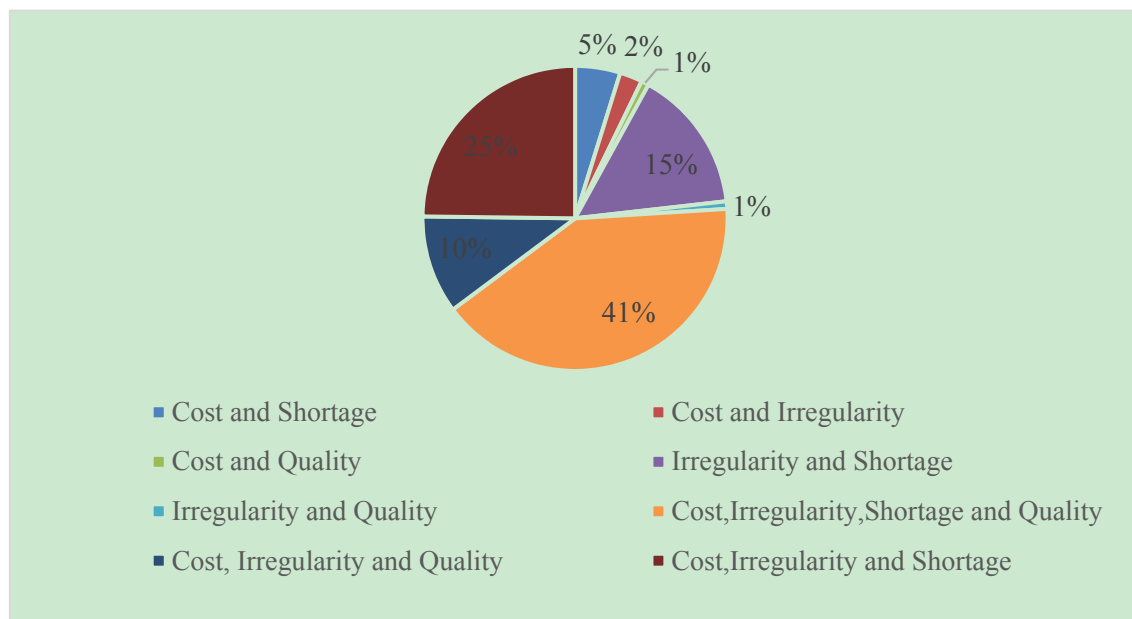


Figure 6. Nature of water problems in the municipality

Source: Authors' Construct, February 2014

The responses established that, not only was the quality of water sources accessed in the Municipality problematic, but also reliability of the water sources was a major problem. The implication drawn is that providing water to meet accessibility requirements by service providers in the Municipality is a challenge, coupled with unsatisfactory performance of mandated public authorities, and thus suggests a more proactive measures to deal with accessibility problems.

4.4 Access to Sanitation in the Municipality

Sprawling urban settlements are normally characterised by sanitation problems due to the density of people and industries located in the settlements. In Ghana, investment in sanitation is particularly low due to lack of prioritization. There is therefore calls on urban authorities to devise interventions and policies to accommodate the huge wastes generated by the populace. However, managing sanitation in urban centres has been a major problem to urban authorities. Sanitation is a concept that demands a broad understanding due to its complexity. In the context of Ghana, sanitation is understood as “developing and maintaining a clean, safe and pleasant physical and natural environment in all human settlements, to promote the socio-cultural, economic and physical well-being of all sections of the population which requires activities including the provision and maintenance of sanitary facilities, the provision of services; public education, community and individual action; regulation and legislation supported by clearly mandated institutions” (Ministry of Local Government and Rural Development [MLGRD], 2010).

4.4.1 Liquid Wastes Disposal

Issues of sanitation cannot be discussed without recourse to access to decent toilet facilities. Due to the sensitive nature of toilet facilities to mankind, discussions are that provision of human excreta disposal facility should be given prominence in any building endeavour geared towards accommodating people (MLGRD, 2010). As a result of lack of sanitation, particularly in the area of human excreta disposal, residents normally resort to open defecation, hand-dug pit latrines and informal dumping in the Awutu-Senya East Municipality, as revealed by the study. Lack of private human excreta disposal facilities at individual homes in the Municipality had precipitated a heavy reliance on public toilet facilities. While about 52% of the sampled households accessed public KVIP, 37% used Water Closet, and 11% access public pit latrines operated for commercial gains. Although it is uncommon to find pit latrines being operated for commercial purposes, owners of such facilities had found it necessary to operate them for financial gains in the Municipality. Respondents who patronized pit latrines at the time of the research had to pay GH¢ 0.2 per visit to the facility. There is a clear indication therefore, that the incorporation of excreta disposal facilities in building regulations as advanced by the country’s sanitation policy is ineffective in the Municipality. While the sanitation policy of the country places much priority on the provision of private human excreta facilities in individual homes, and frowns on the use of pit latrines, the common practice among majority of households (63% of the sampled population) in the Municipality was to access those facilities at public places due to lack of private provision. In effect, about 37% of households had internal toilet facilities in their homes.

Not only is the provision of human excreta facilities a priority, but more importantly the conditions of the facilities due to the health implications they have on users. According to MLGRD (2010), it is essential that human excreta disposal facilities are kept within minimum condition requirements for the avoidance of unwarranted eventualities through their use. In spite of the innumerable positives effects of proper sanitation to mankind, residents of the Municipality are bedeviled with one problem or another as a result of the difficulties in having access to toilet facilities. The paper revealed that about 77% of the sampled human excreta disposal facilities accessed in the Municipality had three main problems- poor maintenance of facilities; dilapidated nature of existing infrastructure; and bad/offensive odour and heat emanating from available facilities. Strong connections were found between the conditions of excreta facilities sampled households used and health complications in the Municipality. In finding the causes of the incessant increase in the contractions of health anomalies such as skin diseases, which had remained the fourth highest reported disease in the Municipality, and virginal discharges pertaining to women strong connections were found between the kinds of excreta disposal facilities used by the affected persons. The crux of the matter is that, due to lack of human excreta disposal facilities in private homes, about 63% of the sampled population continue to patronize the poor public excreta disposal facilities regardless of the health dangers they are exposed to. Additionally, even in homes where excreta disposal facilities were available, the health problems stated above were still eminent. This implies that not only is the health of the people threatened but also the basic need as well as the right of every person to have access to befitting excreta disposal facility is likely to be violated in the Municipality.

4.4.2 Solid Wastes Disposal

Another major component of sanitation is the management of wastes. Generation and management of solid wastes in Ghana is an area that seems daunting to city authorities. The evidence of this is the high incidence of cities being engulfed in filth. However, the degree of the problem differs from one city/town to another. The dangers poor management of wastes pose demand that critical steps are taken to ensure effective and efficient handling of the wastes generated at homes. From the responses collated, 45% of the sampled households resorted

to burning while 47% relied on the services of waste management companies in the Municipality as means of disposing-off their households' solid wastes. Moreover, 8% were found to dispose-off their solid wastes by means of refuse dumpsite. It was established that the sampled households who resorted to burning as a refuse disposal method was either based on the irregularity of waste collection services by service providers in the Municipality, or lack of waste collection services in their areas of residence. About, 31% of respondents maintained that their refuse was burnt due to poor waste collection services within their areas of residence while 14% was as a result of poor service delivery. Additionally, in order to avoid the breeding of insects and the production of leachates from heaps of uncollected households' solid wastes due to poor waste collection services, about 55% of the respondents found it convenient to have their refuse burnt.

Though house-to house mode of refuse collection service was identified as the most ideal and convenient in the Municipality, untimely collection (waste collection usually takes between two and three weeks) of households' wastes posed health threats to households that patronized it. Respondents were however charged between GH¢ 10.00 and GH¢ 20.00 per month. Although house-to-house waste collection services were thought to be both economic and physical accessible, breeding of insects and the production of leachates were the major health threats attributed to the lack of regularity in service delivery in the Municipality. Out of the 45% of respondents who patronized house-to-house waste collection services in the Municipality, 29% argued that the emission of offensive smell resulting from untimely collection of their households' wastes had respiratory problems on them. Moreover, the main problem associated with burning/incineration as a mode of disposing-off refuse in the Municipality is the pollution it poses to the environment. For example, the Municipal Environmental Unit (MEU) of the Assembly noted with worry that, burning of solid wastes by households creates pollution that normally get augmented and eventually become fatal for human habitation. Whereas the ash, gas and other emissions of incineration have negative effects on human health, environmental hygiene or quality is also compromised in the process.

4.4.3 Drainage Facilities

Drainage facilities constitute a major component of sanitation, and as such the discussions on sanitation would be incomplete without recourse to access to drainage in the Municipality. In Ghana, the Sanitation Policy (SP) enjoins all MMDAs to see to the sanitation needs of all communities and households through the provision of conveyance drains/gutters and soakage pits to minimize puddles and use of earth ditches. This, in its broader context is to help limit sanitary nuisances and vector breeding in communities. Due to poor nature of the drainage system in the Municipality coupled with lack of properly constructed conveyance drains/gutters, the main mode of liquid wastes disposal was by 'Open Space' (94% of sampled households) while 6% use soak-away. The few gutters/sullage conveyance drains constructed along the main roads were choked due to indiscriminate dumping of solid wastes into the drains.



Plate 1. The state of the Okrudu Drain/River in the Municipality

Source: Field Survey, March, 2014.

The seriousness of the pollution of the Okrudu Drain/River lies in the fact that, it is located in the middle of Kasoa, the Municipal Capital, where a lot of people are engaged in merchandise. Consequently, the offensive smell emanating from the drain has been a major health problem for residents either living, or selling close to the drain. Though problems associated with poor drainage system are high in magnitude, the problems associated with the nature of drainage in the Municipality were eminent in three main areas namely: flooding, high amount of stagnant water, and excessive filth in unorganized drains.

The health implications associated with the poor state of drains in the Municipality could not be underestimated. Malaria, which had been the most commonly reported disease affecting people in the Municipality was principally attributed to the poor drainage system. It was established that 84% of respondents had once contracted malaria at the time of the research. This was due to the high number of water puddles in the Municipality which served as breeding grounds for mosquitoes which are the main carriers of the malaria parasites. Moreover, 53% of the sampled households contended that they had once contracted diarrhoea due to the poor state of drainage and hygiene in the Municipality. It was further established from the research that informal gutters (gutters constructed by households without any definite destination points of liquid wastes generated) contribute significantly to the breeding of vector insects and adverse impacts on environmental quality in the Municipality. More serious to the problem of drainage in the Municipality as established by the study, was the discharge of human excreta from public toilets into the Okrudu drain.

5. Summary of Major Findings

The paper has revealed that both economic and physical accessibility to water in the Municipality are seriously impaired. The capacity of the main institution (GWCL) charged with the responsibility of supplying pipe-borne water to the Municipal residents lacks the production capacity to meet the water demand, thereby supplying about only 35.8% of the daily water needs. The importance of having access to desirable water quantities of the right quality or required condition to mankind cannot be underestimated. However, the study has revealed that getting access to the right quantities of water, and of right quality is very problematic in the Municipality. While the average daily water requirements of 40 litres were not met, water contamination was also eminent, coupled with high water cost. The study revealed that all the sampled households in the Municipality spent between 16% and 30% of their monthly incomes on water, with low income groups being the hardest hit. Not only does this situation contravenes internationally established indicator, but more seriously make it difficult to meet other equally basic necessities of life. The problem was primarily because aside the inability of the Ghana Water Company Limited to supply desirable water quantities in the Municipality, the Assembly had also not been able to regulate the fees charged on water by profiteering private water operators, or make meaningful effort to augment water provision in the Municipality.

The World Health Organisation (2004) maintains that, wherever people gather, sanitation problems are bound to arise, and therefore requires that they are well-managed. However, management of sanitation in the Awutu-Senya East Municipality has proven to be daunting for authorities. The factors that lead to poor sanitation in the Municipality as revealed by the study are diverse, ranging from weak institutional capacity to attitudinal problems and wrong attitudes. With regard to the attitudinal problems, it was observed that due to lack of regular collection of households' solid wastes by the contracted private refuse collectors in the Municipality, some individuals disposed-off their solid wastes indiscriminately. Additionally, in an attempt to avoid indiscriminate disposal of refuse as a result of lack of refuse collection services in some areas of the Municipality, about 45% of the respondents had their refuse burnt at unauthorized places. This was with the view to avoiding the contraction of diseases that emanated from heap of uncollected refuse. Moreover, apart from the inability of authorities to ensure effective and efficient management of wastes in the Municipality, lack of timely and stringent application of the sanitation policy and bye-laws by responsible institutions and officials were major causes of the poor sanitation practices.

The crux of the matter is that, while authorities asserted that the attitudes of the Municipal residents were the main cause of the poor scale of sanitation situation in the Municipality, the residents on the other hand argued differently. For this reason, less than 5% of the respondents admitted that their actions provided an enviable contribution to the sanitation menace in the Municipality, while 76% believed that the ineptitude of authorities in managing wastes in the Municipality was the principal cause of the poor scale of sanitation. As authorities blamed residents for indiscriminate disposal of wastes and lack of observance of environmental hygiene, respondents on the other hand accused authorities of poor waste management in the Municipality, and also low level of education on the dangers of poor sanitation.

6. Conclusion

Effective and efficient management of wastes has been major problems city authorities are grappling with the world over. Despite the difficulties involved in managing wastes, the situation seem particularly precious in developing countries like Ghana due to poor institutional capacities and wrong attitudes of residents. The development of institutional reforms thus, become imperative in this regard. The study has outlined various pressing water and sanitation accessibility issues in the Awutu-Senya East Municipality. The study set out to examine the accessibility issues to water supply and sanitation services in the Municipality and the effects of inadequate water supply and sanitation Services on the Municipal residents; identify the problems associated with the provision of water supply and sanitation services in the Municipality; and to propose appropriate policy interventions measures. The paper has established that physical and economic accessibility to water in the Awutu-Senya East Municipality are impaired while access to sanitation services is also problematic. The research has thus revealed that access to water and sanitation services in the Municipality is not different from the country's experience, be it infrastructural problems, weak institutional capacity, or wrong attitudes of residents. Based on the outcome of the study a number of recommendations are made.

Firstly, capacity building of water provision institutions to meet demand is of outmost importance. Since the Ghana Water Company Limited is unable to meet water demand in the Municipality as revealed by the study, the Municipal Assembly should endeavour to compliment water production capacity in the Municipality, while the capacity of private water operators are enhanced. To address high cost of water in the Municipality, the Assembly should develop a mechanism that will regulate the operations of all private water operators to charge a reduced and uniform prices so as to avoid exploitation, and to protect the interest of consumers. This could be attained through dialogue, and also by providing the enabling environments by the Assembly for the private water operators to serve as a strong incentive upon which a mutual agreement will be reached. Additionally, the Assembly, through its mandated departments, should strictly enforce the National Sanitation Policy, and sanitation bye-laws in the Municipality to address the issue of poor sanitation. This would be to ensure that all landlords provide decent private toilet facilities in every home for tenants, while indiscriminate disposal of wastes is frowned upon and culprits punished. Moreover, the development of educational awareness campaign to educate residents to avoid accessing water from contaminated sources and, uphold good sanitation practices will help minimize diseases such as typhoid fever, skin diseases, and acute eye and ear infections in the Municipality. Also, a better monitoring tool for ensuring that the task assigned to waste collection companies contracted in the Municipality is efficiently executed is highly recommended to enhance improvement in service delivery. The improvements in service delivery also require that measures are instituted to extend the house-to-house refuse collection services to areas in the Municipality where they are nonexistent to ease the sanitation problems.

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