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Water Consumption Capacity and the Level of Accessibility among the Residents of Agege-Lagos

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Abstract:- Adequate provision of water facilities is very import towards ensuring uninterrupted water supply to satisfy the need of the residents of the affected community. The purpose of this study is to assess the influence of the level of water accessibility on the level of consumption among the residents of the study area. In order to conduct the study, AgegeLocal Government of Lagos Metropolis was used as a case study. From the local government, a sample of fourwards wastaken for data collection. Bothquestionnaire and water facilities surveys were adopted for data collection. From the selected wards, 528 residential buildings were sampled, where a household adult member was sampled from each of the sampled residential buildings for the two adopted surveys. Data were collected to measure the level of accessibility to water and the quantity of water used per household. The study found that the quantity of water used is below what has been prescribed by the authorities, due to some accessibility challenges. Hence, there is relationship between the quantity of water used by the households and the level of accessibility to water in the study area.

Keywords:- *accessibility, water facilities, households, low-income, potable water.*

I. INTRODUCTION

Potable water is central to human activities within the residential building. However, water availability in adequate quantity and qualitative manners is very critical to good living and sustenance of life. It was on this note the WHO (2011) recommended 50 litres per capita per day, as the required quantity for domestic use and sustenance of life, such as for drinking, washing, bathing, toiletry and environmental sanitation (Reed, 2011). Lagos State Policy on water of 2013 recommended 60 litres for peri-urban dwellers and 100-120 for urban dwellers (Lagos, 2013). Thus, water consumption capacity varies from one region to another and among the households, based on such factors as income, education, sanitation awareness, climatic condition and the level of water accessibility (Morgenroth, 2014).

Water accessibility can be measured, using different variables, such as types of water facilities available and their location, distance, time required to access water, quality and quantity of water as well as frequencies of availability and sharing level of water facility (Fita, 2004; Fagbohun, 2018). Distance and time required to access water facilities are important factors in determining the quantity of water that can be made available for a households use at a particular period of time. WHO (2011) has used time spent and distance covered to access water in order todetermine the extent of household's water accessibility. In addition to these, Fagbohun (2018)used quantity, quality, location and cost to measure the level of accessibility to water in Lagos Metropolis.

The measured of water consumption capacity against the level of accessibility is very important in order to establish if there is any relationship between the quantity of water use by individual members of a community and the level of accessibility they have to the available water facility. The study will help in no small measure to know whether it is only the level of accessibility to water that influence the quantity of water used and the type of accessibility challenge facing the community and the individual community members.

The purpose of this study is to assess the relationship between the level of water accessibility and quantity of water consumption among the households living in Agege Local Government area of Lagos Metropolis. The study made an attempt to determine the extent the level of accessibility to water facilities has affected the quantity of water used by the households, with a view to suggesting policy measures to address water availability challenges facing the residents of the study area.

II. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Domestic use of water is very broad and dynamic. The use includes drinking, cooking, washing, bathing, toiletry and other environmental sanitation uses. Government from time to time has been formulating policy measures to improve on households' access to potable water (Nigeria, 2004; Lagos, 2013). Lagos State Water Sector Policy of 2013 identified three types of water consumptions, which include rural, peri-urban, and urban (Lagos State Government, 2013). However, rural water supply was a service provided to communities of below 5,000 people with a minimum level of service of 30 litres per capita per day within 250 meters span serving about 250-500 persons. This may be a single hand pump water point or a motorised or solar powered borehole. Peri-urban water supply represents water supply service to settlements with a population of between 5,000-20,000 with a fair measure of social infrastructure and some level of economic activity with a minimum supply standard of 60 litres per capita per day with limited reticulation and some level of house connections. Urban water supply was expected to provide 100-120 litres per capita per day for all the urban areas within Lagos metropolis to be served by full reticulation and consumer premises connection.However, the essence of this was to ensure good living standard and adequate sanitation, both within and outside residential buildings.

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From the above background, it implies that policy makers also recognise the fact that the quantity of water used by households varies from one area to another, based on some factors. Liangxin, *et al* (2014) has demonstrated that a household with limited or intermittent water supply will use less quantity of water, unlike a household with continuous and uninterrupted water supply. Hence, a household with intermittent water supply faces injustice in term of water accessibility (Berthe, 2014). Due to the variation in the quantity of water used, households at different geographical location face different water related challenge, such inadequate quantity and poor quality of water, poor health and environmental sanitation, among others. There is a strong relationship between the distance of water facilities and the quantity of water used (WHO, 2011). Similarly, the type of water facilities in use in a particular community will dictate the quality of water available for human consumption (Fagbohun, 2018). However, WHO (2004, 2011) has come up with 50 litres of water per capita per day as a minimum quantity to satisfy human need for drinking, cleaning and general environmental sanitation.

Despite the fact that water is central to all human activities, Nigeria households are facing a number of challenges in ensuring that their citizens have adequate access to water services. Fita (2011) has itemised these challenges to associate with capacity of nations, in the area of technological and institutional development, good governance, finance, rapid urbanization, and declining of global water resource. This problem, according to Berthe (2014) has created inequality in accessibility to public water facilities. This scenario has created a wide gap in water need and supply and inequality in the accessibility to good quality of water, because only few households have access to piped borne water (Fagbohun, 2018).

However, accessibility as noted by Adeyemo (1988) is a slippery notion; a common term that everyone uses until faced with the problem of defining and measuring it. It is a key concept for characterising a fundamental principle of human activity. Hence, accessibility describes the quality of being accessible, in term of type, distance, time, quantity, quality and any other variables (Ayeni, 1987). Hence, improved access to essential services has become an accepted measurement for determining the level of development and standard of living (Alaci&Alehegn 2009). Accessibility is a part of transport studies.

According to Fita (2011), accessibility is the balance between the demand for and the supply of consumer services over a geographic space. The concept has been employed in a large number of studies. It may be described as the physical proximity of two or more places, the opportunities available in a geographical region and the freedom of individuals to decide what quantity and quality of a service or product to use (Adeyemo, 1988; Akpabio, 2012). It is an instrument for measuring adequate and efficient distribution of public goods (Department of Economic and Social Affairs (DESA), 2013).

The WHO (2011) categorised the level of accessibility to water into four, which include optimal access, intermediate access, basic access and no access. A household who have access to water supply through multiple taps, run continuously has optimal access; a household who travels less than 100 metres, within 5 minutes to access water, has intermediate access. A household who travel not more than 200 metres, within 30 minutes has basic access type 1, while a household who travel not more than 500 metres distance, within 30 minutes has basic access type 2; but if spends between 30 minutes and 2 hours and cover a distance of up 1 km is on no access type 1. If a household travels between 501 metres and 1 km and spends between 2 and 4 hours is on no access type 2. On the other hand, a household who makes a travel distance of between 1 and 2 km and spends more than 4 hours is on no access type 3. The first category of access, in term of distance is a household that has water tap within its premises, between 3-36 metres (3 metres for a room, 36 metres for a standard plot) (Fagbohun, 2018). The second access was defined as 37-100 metres, instead of less than 100 metres, as propounded by the WHO (2011). Fita (2011) used this approach to measure the level of accessibility to water in their different studies.

According to UN-HABITAT(2003), access to safe water is the share of the population with reasonable access to an adequate amount of safe water. Safe water includes treated surface water and untreated but uncontaminated water such as from springs, sanitary wells and boreholes (Fita, 2011;Akpabio, 2012; The Nature Conservancy, 2016). Hence, accessibility must be seen within the context of the ease with which people can obtain the services of the facility for water. Just like the law of supply and demand in economics, accessibility increases with decreasing constraint, both physical and social. This has been a great challenge in Lagos State. Jideonwo (2014) discovered that only 10% of the population in Lagos State was served by the public water utility. This has made it difficult to reduce constraint in accessing potable water.

III. THE STUDY AREA

Agege Local Government Area is one of the local governments within the Lagos Metropolis. It is located in the northwest of Lagos State. See Fig 1. It stretches generally on low lands, with about 17,500 hectares of built up area. It shares boundaries with Ifako-Ijaiye in the north, Alimosho in the southwest and Ikeja Local Government in the east.

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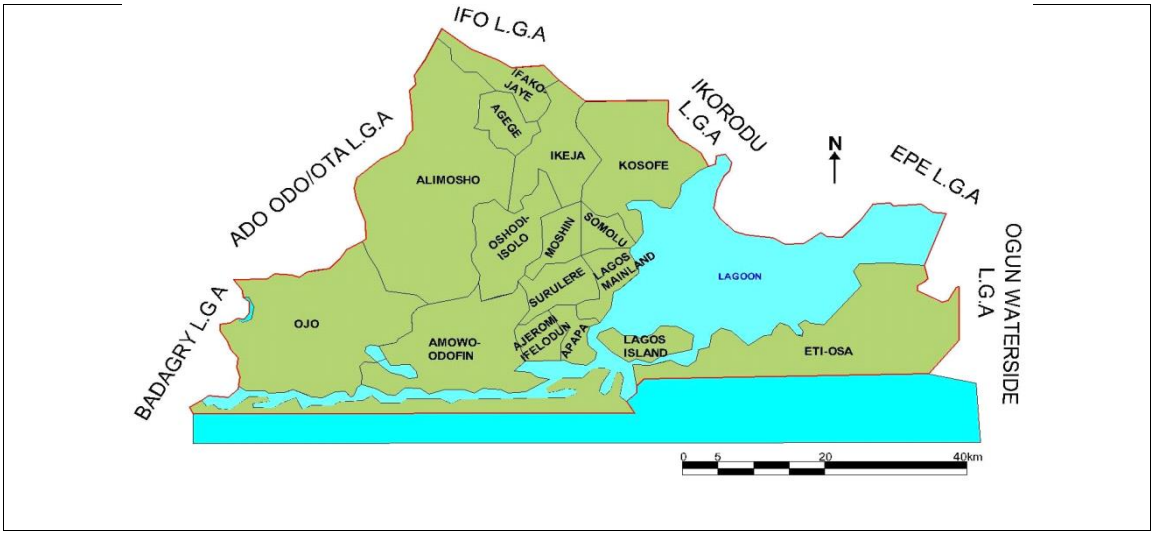

Fig. 1: Map of Lagos Metropolitan Area

Source: Fagbohun (2018)

Agege Local Government, the case study area, was initially part of Ikeja Local Government in 1967, when Lagos State was created. Prior to that time, it was made a local government in 1954, under the old Western Region. When more local governments were created in 1990s, Ifako-Ijaiye was carved out of the study area, as a separate local government area. As shown in Fig 2, Agege Local Government shares boundaries with Ifako-Ijaiye in the north, Alimosho in the west and Ikeja in the east and south. According to National Population Commission (2006), about 70% of the population of the study area was between the age group of 0-4 and 25-29, where about 47% were married, with an average household size of 6 members. Hence, 85% of this population were literates, where about 61% of them are gainfully employed. Hence, these demographic attributes will have a significant impact on the quantity of water used for domestic purposes.

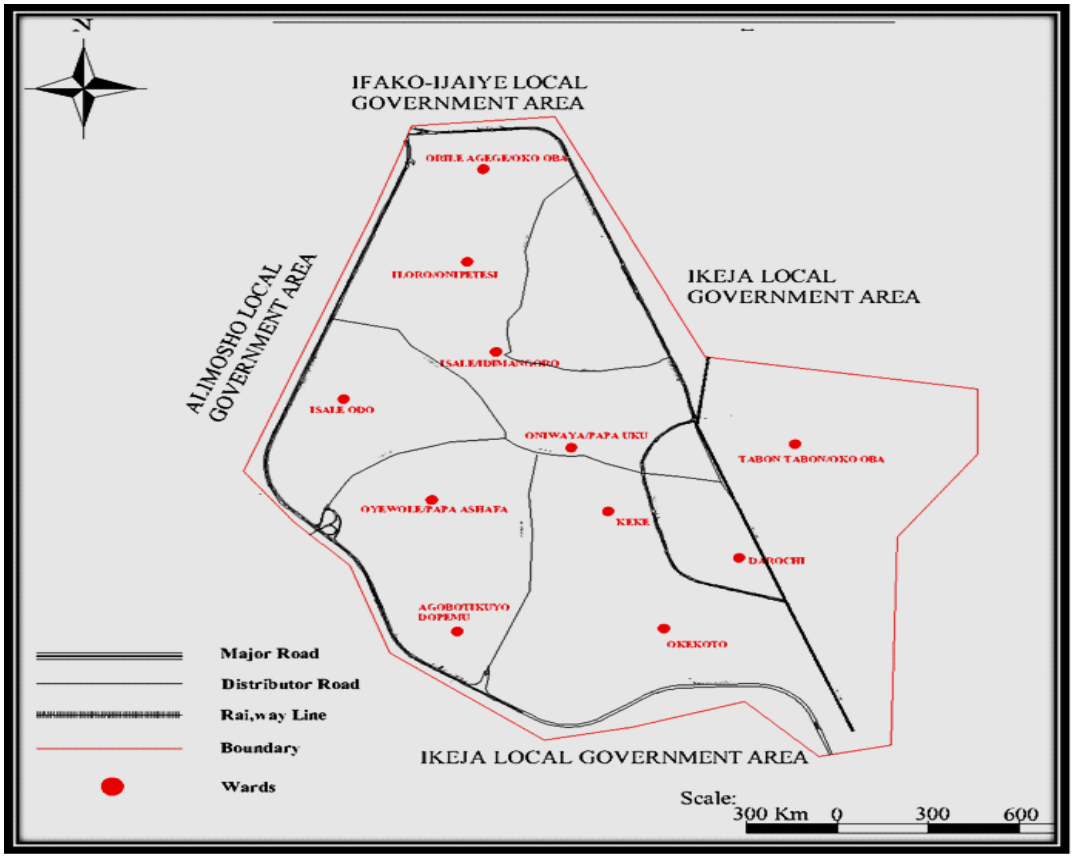

Fig. 2

Source: Fagbohun (2018)

Agege and its surrounding areas, which merged together to become a local government are traditional settlements. The area was developed informally, without adequate planning, apart from a few areas. The common types of residential buildings in the area were Brazilian: face-me-face-you rooming house. This constituted about 66% of the residential buildings. The remaining 34% were self-contained small apartments, flats and duplexes (Fagbohun, 2018).

IV. RESEARCH METHOD

For convenience purpose, the study made use of political wards created by Independent Electoral Commission in 1998. However, the low-income areas were the focus of study because they were the areas hit more by water challenge (Fagbohun, 2018). The population of study for this research is homogenous, because they were low-income households. Multistage sampling method of 6 layers was adopted. Samples were taken at the following levels: political wards, streets, residential buildings, households and the respondents from the households. The study local government contained 9 political wards, where 7 were low-income; out of these, 4 were selected using simple random sampling method. The sampled wards include Oniwaya, Ashafa, Okekoto and Orile Agege. The wards contained 111 major streets with an estimated 3,153 residential buildings. Hence, 528 residential buildings were eventually sampled, which accounted for 16.75% of the buildings identified. From each of the sampled residential buildings, an adult member of a household was sampled for questionnaire survey, through convenience sampling method. In total, 528 adult members from households selected from each of the sampled buildings were successfully sampled for questionnaire survey, while water facilities inspection survey was conducted on the residential buildings on which the questionnaire survey was conducted. The data collected were analysed with use of tables. Statistical tools were adopted to test some hypothetical statements. Chi-square analysis was carried out to examine the association between distance of the available water facilities and consumption capacity of the households. One-way ANOVA was conducted to compare the effect of the location of the political ward on the factors influencing water availability.

V. DATA ANALYSIS AND DISCUSSION

A. SOCIO-ECONOMIC CHARACTERISTICS

The study found that 47.73% of the respondents for this study were males, while 52.27% were females. In term of age structure, 14.77% of the respondents were below the age of 20, 34.09% were in the age bracket of 21-30, while 25.95% and 12.12% were in the age range of 31-40 and 41-50 respectively. It was discovered further that 10.23% of the respondents were in the age range of 51-60, 1.33% were in the age range of 61-70, while 1.52% were in the age range of 70 years and above.

The inhabitants of the study area were commonly engaged in 6 major occupations. Hence, 25.59% of them were into teaching and other office works, 27.73% were artesian, while 15.91% were into trading in food stuff. However, 9.09% and 2.65% were into trading in finished goods, and sanitary and laundry works respectively. Also, 3.03% were into catering services, while 18.94% were into other types of economic activities, such as security and sales of petrochemical products.

The study on households' monthly income shows that 27.84% of the respondents were from the households earned ₦10, 000-17,000, while 42.05% earned₦18, 000-50,000. However, 12.31% of the respondents earned₦51, 000-100,000 monthly, while 5.49% of the sampled households earned ₦101, 000-150,000 per month. It was discovered further that 7.58% of sampled households earned ₦151, 000-200, 000 monthly. It was only 2.84% and 1.89% of the sampled households that earned ₦201, 000-250,000 and ₦251, 000-300, 000 per month respectively.

B. LEVEL OF WATER ACCESSIBILITY

a) Types of the Available Water Facilities

The study discovered 3 main types of water facility, which include public piped borne water, other public water (boreholes, deep well) and alternative to public water facilities (wells and boreholes provided by individual property owners). The study found that 18.8% of the households have access to public piped water facility, 28.03% have access to other public water facility, provided by the government agencies, the philanthropists, the NGOs, political officeholders and the religious organization for public use: boreholes (12.31%) pump well with machine (6.49%), manual pump well (5.30%) and unprotected wells (3.41%). However, all the sampled households have access to the alternative water facilities to certain degree of variation.

b) Location of Water Facilities

As shown in Table 1, the available water facilities in the study area could be found in the 3 major places, which include within households' compound, nearby household place of abode and outside the households' neighbourhood. For those who have access to piped water facility, 33.33% have it within their compound, 48.49% have it nearby their house, while 18.18% have the facility outside their neighbourhood area. Among the households that have access to the other public water facility, 27.34% have it within their compound, 37.50% have it nearby their house, while 35.16% have the facility outside their neighbourhood area. Among the households that have access to alternative to public water facility, 28.60% have it within their compound, 45.64% have their own nearby their house, while 25.76% have the facility outside their neighbourhood are.

In overall assessment, it can be observed that those who have their water facilities nearby their house formed the majority for all the available water facilities-piped 48.49%, other public 48.49%,

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alternative 45.64%. Although, those households who have their water facilities within their compound will find it convenient, spend short time and cover short distance journey to access water than those who have their own water facilities nearby house and outside their neighbourhoods. This implies that the location of water facilities to the users will have influence on the level of water stress they may be encountering.

Location		Public Piped	Other Public	Alternative
In compound	Freq	33	35	151
	%	33.33	27.34	28.60
Nearby house	Freq	48	48	241
	%	48.49	37.50	45.64
Outside Neighbourhood	Freq	18	45	136
	%	18.18	35.16	25.76
Total	Freq	99	128	528
	%	100.00	100.00	100

Table 1: Location of Water Facilities at Ward Level

c) Distance of the Available Water Facilities from Households

At the political wards level, there is a spatial variation in the distance covered among the sampled households before water could be successfully fetched from this facility. As shown in Table 2, while the households in Oniwaya ward covered an average distance of 197metres to access water from the piped water facility, the households in Papa Ashafa and Okekoto covered a journey distance of 273 metres and 236 metres respectively, while those in Orile Agege made a journey of 256 metres before they could successfully fetch water. The minimum average distance to cover in order to access water from piped water facility in the study area was 241 metres.

For other public water facility, while those households in Oniwaya and Papa Ashafa made a journey distance of 149 metres and 262 metres respectively before they could access water, those households in Okekoto and Orile Agege covered a distance journey of 164 metres and 230 metres respectively. For the study area, the minimum journey distance was 201 metres before water could be fetched from other public water facility.

In the case of alternative to public water facility, in a situation where the households in Oniwaya and Papa Ashafa spent 159 metres and 239 metres respectively before they could access water, the households in Okekoto and Orile Agege spent 171 metres and 221 metres respectively. The households in the study area spent a minimum average distance of 198 metres before they could access water from the alternative to public water facility.

Similarly, there was a variation in the minimum average distance covered before the households could access water in their respective wards. While households in Oniwaya and Okekoto covered a minimum average distance of 168 metres and 258 metres respectively, those in Okekoto and Orile Agege covered a minimum average distance journey of 190 metres and 236 metres respectively before they could access water. The minimum average distance for the study area is 213 metres. Hence, households in Oniwaya have the least minimum average distance to cover before fetching water among the sampled wards, while Papa Ashafa households have the highest minimum distance to cover.

Ward	Piped	Other Public	Alternative	Minimum AD
Oniwaya	197	149	159	168
Papa Ashafa	273	262	239	258
Okekoto	236	164	171	190
Orile Agege	256	230	221	236
Study Area	241	201	198	213

Table 2: Average Distance (AD) of the Available Water Facilities from Households

d) Relationship between the Distance of the Available Water Facilities and the Households Consumption Capacity

A chi-square analysis was carried out to examine the association between the distance of piped water facility from households and their consumption capacity of pipe-borne water. The result of the chi-square analysis showed that there is a significant association between distance of piped water facility from the households and their piped borne water consumption level in the study area; (35, N = 308) = 115.40), $P < 0.001$. In other words, distance of the piped water facility from the households in the sampled wards influence their consumption capacity of pipe-borne water.

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A chi-square analysis was carried out to examine the association between distance of the other public water facility from the households and consumption capacity of water from the facility, such as boreholes and deep wells provided for the general public use. The result of the chi-square analysis showed that there is a significant association between distance of the other public water facility from households and their water consumption capacity; (35, N = 487) = 169.41), P < 0.001. In other words, distance of the other public water facility from households in the study area influence their consumption capacity of water from this facility.

A chi-square analysis was carried out to examine the association between distance of the alternative to public water facility from households and their water consumption capacity. The result of the analysis showed that there is a significant association between the distance of the alternative to public water facility from the households and their water consumption capacity in the study area; (30, N = 1462) = 298.31), P < 0.001. In other words, distance of the alternative to public water facility from the households has influence on their water consumption capacity. It can be concluded that the distance of the available water facilities in the study area have influence on the capacity of the households to consume adequate quantity of water.

e) Time Taken in Minute to Assess the Available Water Facilities

The study enquired into time spent by the sampled households to access water from the available water facilities. As shown in Table 3, the study found that the households from the sampled wards spent different average time to access water from the available water facilities. In Oniwaya ward, the sampled households spent an average time of 16 minutes to access water from piped water facilities, while Papa Ashafa and Okekoto spent an average time of 46 and 37 minutes respectively. The households in Orile Agege on the other hand spent an average of 57 minutes and spent longest time to access water from piped water facility in the study area, while those in Oniwaya spent shortest time of 16 minutes in average.

In the case of other public water facility, while households in Oniwaya ward spent an average time of 39 minutes to access water, Papa Ashafa and Okekoto spent an average time of 91 and 43 minutes respectively. Households in Orile Agege spent an average time of 35 minutes. Hence, the households in Orile Agege ward spent shortest time, those in Papa Ashafa ward spent longest time. In overall, the average time spent to access water from the other public water facilities in the study area is 46 minutes.

From the alternative to public water facilities, the study discovered that the households in Oniwaya ward spent an average time of 33 minutes, while those in Papa Ashafa and Okekoto wards spent an average time of 42 minutes and 30 minutes respectively to access water and returned home. Households in Orile Agege spent an average time of 35 minutes, while those in Okekoto ward spent fewest time, Papa Ashafa ward on the other hand spent the longest time. The average time spent to access water from the alternative to public water facilities in the study area is 35 minutes.

Wards	Piped	Other Public	Alternative	Minimum TS
Oniwaya	16	39	33	29
Papa Ashafa	46	91	42	60
Okekoto	37	43	30	37
Orile Agege	57	11	35	38
Study Area	39	46	35	40

Table 3: Average Time Spent (TS) in Minute by the Households to Access Water Facilities

When the minimum average time spent was calculated, it was discovered that the households in Oniwaya ward spent shortest time of 29 minutes, while those in Papa Ashafa ward spent longest time of 60 minutes before accessing water from the available water facilities. The minimum average time spent to access water in the study area is 40 minutes.

f) Average Quantity of Water Used Per Day

Table 4 shows the average quantity of water used per day by the sampled households and per capita per day. These were calculated by using the average household size to divide the average quantity of water used. As shown in the table, Oniwaya ward used an average quantity of 153 litres of water per household per day, while Papa Ashafa, Okekoto, and Orile Agege used 156, 140 and 160 litres per household per day respectively. The households in Orile Agege ward on the other hand used the highest average quantity, while those in Okekoto used the least quantity. The study area has an average quantity of water of 154 litres per household per day.

ISSN No:-2456-2165

Wards	Average Household Size	Per Household per Day	Per Capita per Day
Oniwaya	6	153	25.5
Papa Ashafa	6	156	26.0
Okekoto	6	140	23.3
Orile Agege	6	160	26.7
Study Area	6	154	25.7

Table 4: Average Quantity of Water Used in Litre

As shown in Table 4, the study estimated the quantity of water used per capita per day. It was discovered that Orile Agege (26.0 litres) has the highest quantity of water used per capita per day, while Okekoto (23.3 litres) has the lowest among the sampled wards. In overall, the study area has 25.7 litres as an average quantity of water used per capita per day. Hence, none of the 4 sampled wards met the 50 litres minimum quantity of water usage per capita per day, as prescribed by the WHO (2011). Also, the average quantity of 25.7 litres for the study area is far below the minimum of 100-120 litres prescribed by Lagos (2013). It can be concluded that the level of accessibility to water in the study area is inadequate to give the residents the opportunity to consumed adequate quantity of water.

g) Relationship between Water Accessibility Level and the Water Consumption Capacity

The study investigated to establish whether there is no significant relationship between the level of water accessibility and the consumption capacity in the study area. This was done through chi-square analysis on each of the type of water facilities found in the study area.

On the public piped water facilities, a chi-square analysis was carried out to examine the association between water accessibility level and consumption capacity of pipe-borne water. The result of the chi-square analysis showed that there is a significant association between water accessibility level and consumption capacity of households that used public pipe-borne water facilities in the study area; $X^2(35, N = 308) = 196.65)$, $P < 0.001$. In other words, water accessibility level in the study area influences the consumption capacity among the households that used pipe-borne water facilities.

On other public water facilities, a chi-square analysis was carried out to examine the association between water accessibility level and consumption capacity of the households in the study area. The result of the chi-square analysis showed that there is a significant association between water accessibility level and consumption capacity of households that used other public water facilities in the study area; $X^2(21, N = 487) = 123.02)$, $P < 0.001$. Hence, water accessibility level in the study area influences the consumption capacity of households that have access to the other public water facilities.

On the alternative to public water facilities, a chi-square analysis was carried out to examine the association between water accessibility level and consumption capacity of those who used the facilities. The result of the chi-square analysis showed that there is a significant association between water accessibility level and consumption capacity of the households that used alternative to public water facilities in the study area; $X^2(30, N = 1462) = 264.35)$, $P < 0.001$. In other words, water accessibility level in the study area has a significant influence in the consumption capacity of the households that have access to alternative to public water facilities. It can be concluded that the level of accessibility from all the available water facilities has influence in the quantity of water used by the household in the study area. Hence, the influence varied among the households.

VI. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

There are 3 major types of water facilities in the study area, which include public piped, other public and alternative to public water facilities. All the sampled households have access to alternative to public water facilities, 17.05% have access to the public piped water, and while it was only 27.46% have access to other public water facilities. The available water facilities in the study area could be found in 3 main locations, which include households' compound, nearby household place of abode and outside the households' neighbourhood. The majority, 45.40% have their water facilities nearby their house. Alternative to public water facilities have a very good locational advantage to the households than in the other 2 types of water facilities. The study found that more than 74% of the sampled households have these water facilities either within their compound or nearby their house.

Different household made different journey distance before they could access the available water facilities. The distance covered depends on the location of the available water facilities. The majority (46.02%) of the sampled households who have access to the alternative to public water covered a distance 37-100 metres. If this figure is added to those (9.47%) that covered just 3-36 metres, it can be concluded that substantial number (55.69%) of the households covered not more than 100 metres to access water from these facilities. This is not so in the use of the remaining 2 other types of water facilities. Hence, the minimum average distance a household will cover before accessing the available water facilities is 213 metres, while different water facilities have different average distance to be covered before water could be accessed. However, political wards in the study area have different average distance to be covered before water could be accessed from

different water facilities. The minimum average distance to be covered before water could be accessed is 168 metres, while the maximum is 258 metres

Similarly, there is variation in the time spent to access water in the study. The time spent is not a function of distance only. There are other factors, such as access to the location, length of queue, the stress of crossing roads and manoeuvre traffic. The majority (43.37%) of the sampled households spent 6-30 minutes to access water from the alternative to public water facilities, unlike other types of water facilities. Similarly, there was a variation in the time spent to access water facilities in different wards. The minimum average time spent also varied according to the affected ward. Households in Oniwaya ward spent shortest time, 29 minutes, while those in Papa Ashafa ward spent longest time, 60 minutes before they could access water from the available water facilities. The minimum average time spent to access water from the available water facilities in the study area is 40 minutes.

The study discovered that households in the study area consumed different quantity of water, based on variations to water facilities. This quantity also varied among the sampled wards. However, the average quantity of water used per household per day is 154 litres, while the quantity used per capita per day is just 25.7 litres. This is far below 50 litres prescribed by the WHO and 100-120 prescribed by the Lagos State. Therefore, it can be concluded that the level of accessibility from all the available water facilities has influence in the quantity of water used in the study area. Hence, this is being influenced by the level of accessibility to water by the households. The variations in the level of accessibility brought about variation in the quantity of water used by the sampled households, which also varied among the sampled households..

VII. CONCLUSION AND RECOMMENDATIONS

The study has established that households in the study area have limited accessibility to water, as described by the location of water facilities to the households, time spent and distance journey made to access the water. This has the significant effect in the quantity of water used by each household and their household's member consumption per capita per day. Hence, there is a variation in water accessibility level and consumption capacity, based on the level of accessibility level.

From the foregoing, there is need for a drastic increase the accessibility level of water among the residents of the study area. This can be done by investing more on the provision of water facilities. The best water facilities that should be pursued are piped-born water facilities. If this is done public standpipes should be provided for those low-income who cannot afford house connection. These should be provided at neighbourhood and community level. Similarly, large overhead tanks should be provided at different strategic locations, to serve as a water reservoir. These will help to cushion the effect scarcity of water that may arise as a result of broken-down of water facilities and prolonged power failure that has become a common phenomenon in the area.

For sustainable water provision, payment of water charge from pipe-borne water should be made at community level, with subsidy from the local government, the philanthropists and the NGOs, instead of providing well and boreholes, which are not sustainable, with questionable water quality. Addressing water accessibility challenge from pipe-born water provision, apart from making water available in large quantity will help in ensuring that water to the public is of good quality that meets the global standard.

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