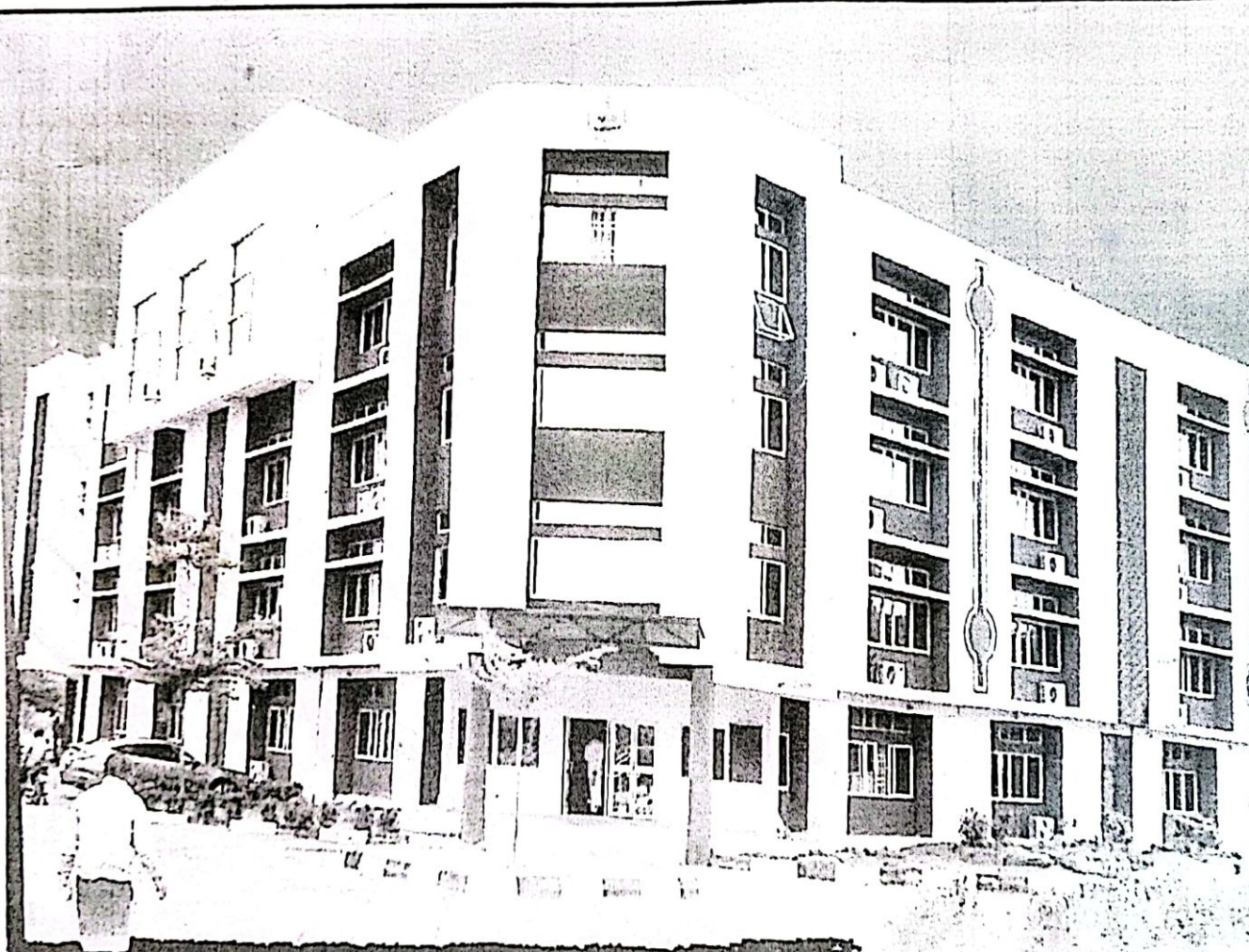




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SOCIO-ECONOMIC CHARACTERISTICS AND ACCESS TO DRINKING WATER AMONG RESIDENTS IN ILORIN METROPOLIS NIGERIA

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ABSTRACT

Potable drinking water is a necessity for human existence. The availability and access to this vital commodity remains a problem in developing countries like Nigeria. The objective of this paper is to examine the socio-economic characteristics and access to safe drinking water in Ilorin metropolis. The data for this study was sourced through structured questionnaire administered to 100 household in Ilorin metropolis. Descriptive statistics was used as tool for data analysis. Statistics showed that the average household size of the respondents stand at 5 while the average age of the respondents was computed at 32. The results revealed that 27.78 percent, 33.33 percent, 12.96 percent and 25.93 percent of the male respondents use tap water, borehole, open well and sachet/bottled water respectively. Looking at female response about 90 percent of them use tap water, borehole and sachet/bottled water while the remaining percentage use open well. The results indicate further that 54.55 percent of the respondents spend longer time to access tap water. The study concludes that drinking water is a scarce commodity in Ilorin metropolis. The paper thereby recommends that Kwara State Government should take the provision of potable water most especially tap water seriously to ease the suffering of the masses.

1.0 Introduction

Water is an essential need in human existence. Potable drinking water particularly is important if good health or healthy living is anything to go by. In developing countries, access to drinking water remains a problem as it portends day to day struggle (See: Herischen, Ruwaida, 2002; Luck & fondo, 2012). Rauf et. al, (2015) contend that water resources development contributes positively to the social well being of the people and economic productivity in any nation.

The theory of public goods which Samuelson (1954) called "collective consumption goods" postulated that goods that are collectively consumed are non-rival and non-excludable. The theory also highlights the issue of free riders--those who pretend to have less than they do in order to participate in the collective consumption without contributing to its maintenance. The study will therefore rest

on the theory of public good because water is presumed to be a public good.

The availability and access to potable drinking water in Nigeria still remains a mirage due to the nonfunctional or nonexistence of modern water works department in so many states and local governments across the federation. For example, only 3.7 percent of households in Nigeria drink water from improved water source, located on premises, free of E.coli and available when needed (Chikezie, 2018). However drinking water could be obtained from heterogeneous sources such as taps; borehole; open well; sachet/bottled water among others.

Previous studies such as Arouna & Dabbert, (2009); Apar & Agbehi, (2011); Hati, Dimari & Ngueadoun, (2011) and Odafivwotu & Abel, (2014) examined the sources of drinking water in different parts of the country. These studies paid little or no attentions to socio-economic

characteristics and access to drinking water. The objective of this paper therefore, is to examine the socio-economic characteristics and access to drinking water among households in Ilorin metropolis. The paper is divided into five sections. Following the introductory part is

2.0 Literature Review

Accessibility to water in this study connotes the time required to access potable drinking water. According to the World Health Organisation, a basic drinking water service is an improved drinking-water source within a round trip of not more than 30 minutes to collect water. If water collection from an improved source exceeds 30 minutes it will be categorised as a limited service.

Arouna and Dabbert (2009), conducted a study on the determinants of water use in rural areas in Benin using a Seemingly Unrelated Tobit approach. They focused on households without access to private improved water sources. Their findings indicate that purchased water demand is perfectly price inelastic in the rainy and dry season due to water scarcity and realized that determinants of water use are household size and composition, access to water sources, wealth and time required to fetch water.

A study on socio-economic determinants of sources of drinking water in Ghana was conducted by Nketiah – Amponsah, Aidam, & Senadza (2009). The study was done in three different districts with a cross-section of 531 households using a stratified random sampling technique. The data collection targets households stricken with poverty and under-five mortality as well as the ecological zones of Ghana. The multinomial logistic (MNL) regression model was utilized, given the different options households face in terms of access to drinking water: borehole (base outcome), piped into residence, public

section two which contains literature review; section three presents the methodology; section four is the discussion of results while the last section is made up of conclusion and recommendations.

outdoor tap, protected well and unprotected well and several explanatory variables. Their findings suggested that income is a significant determinant of the use of piped water in residence. They also found that households with access to clean toilet facility and high level of education would not use unprotected water for drinking purposes but access to electricity is invariant with water sources.

The examination of the physical and socio-economic factors that influence the water supply in Ugbokolo community, Benue state, Nigeria was put forth by Aper, & Agbehi, (2011). Data were collected from 17 settlements in the community from among 1784 households. The results of the dry and wet season patterns of water supply show that streams/rivers contribute 27.89% and 24.16% and rainwater as 0.00% and 27.22% respectively.

Hati, Dimari & Ngeadoun (2011) investigated the quality status of sources of drinking water supply in Gombe metropolis and were found to have generally improved within the last decade. The study revealed that the metropolis depends on groundwater (boreholes, hand pump well), tap water (municipal water supply), and sachet water (packaged water). But the largest source of drinking water was groundwater and only about 36 percent of the metropolis has direct access to treated drinking water (tap and sachet water).

Armand & Fondo (2012) conducted a study on determinants of the household's choice of drinking water source in Cameroon. The multinomial logistic regression model was used in order to analyse the different choices which are

private tap, collective tap, resellers of piped water, public drinking fountain/borehole, improved dug well, rain water, mineral water and unimproved sources such as stream, lake, backwater etc. A cross-section of 11391 households were interviewed and their findings shows that distance to water (proxy of time cost), household size, household expenditure (proxy of household welfare) have strong impact on the choice of drinking water source in Cameroon.

Totouom (2013) conducted a study on awareness and the demand for improved drinking water source in Cameroon in order to examine the impact of Cameroonian households; awareness about health effects of using contaminated water on their choice of adopting improved water sources. The study proxied awareness by schooling and exposure to mass media. The study considered two types of water source: drinking water source and water source for other domestic usages (washing, cooking etc.). The bivariate probit model was used for the analysis and the study found that awareness positively affects the decision of adopting improved water source as compared to illiterate headed households.

Koskei, Koskei, Koske & Koech (2013) conducted a study on the effect of socio-economic factors on access to improved water sources and basic sanitation in order to determine the relationship between socioeconomic factors and access to improved water and basic sanitation. A multi-stage random sampling method was used for their data collection and employed the Chi-square test in their analysis. They found that household characteristics such as occupation and education level of the household head have a strong impact on the type of water source used by household and also confirms that the type of toilet facility used by household is significantly influenced by the marital status of household head.

The determinants of variation in households' level of access to improved water sources and basic sanitation was investigated by Koskei, Ondimu, obwoyere & Mironga (2013). They used the multi stage random sampling method to obtain a sample of 151. Their analysis was conducted using descriptive statistics, service level and chi-square at 5% significance level. A good number of variables were used in the study and the variables with significant relation with types of source includes, quantity of water used per capita per day, household size, education level and access to improved water.

Odafivwotu & Abel (2014) examined access to potable water supply in Yenagoa metropolis in terms of quality and quantity. In their study, 15 borehole water samples were collected from 15 neighborhoods where 375 questionnaires were randomly administered using systematic sampling technique. The result of their analysis suggested that both the quality and quantity of water supply in Yenagoa were inadequate.

Rauf, Bakhsh, Hassan, and Nadeem & Kamran (2015) conducted a study designed to identify the determinants of drinking water supply by households in Punjab province of Pakistan. They used the multinomial logit model to analyse the choice of water source using the household integrated economic survey for 2010-11. The study considered five different sources of drinking water which includes motor pumps (as the base outcome), inside taps, outdoor taps, hand pump and other sources with seven explanatory variables. Their findings suggest that family size and number of rooms in a dwelling have a strong effect on choice of drinking water source. They also found that location of the respondents is highly significant and have a positive effect on the choice of drinking water source whereas mode of transportation which is as well significant

but has a negative relationship with ownership of hand and motor pumps.

3.0 Methodology

The data for this study was basically primary generated through a structured questionnaire administered to some elected households in Ilorin metropolis. The variables were measured both in nominal and categorical form. The study used random sampling technique in order to give each household the chance of being selected. This study used descriptive statistics to analyse the data.

4.0 Discussion of Results

Table 1 shows that 27.78%, 33.33%, 12.96% and 25.93% of male respondents use tap water, borehole, open well and sachet/bottled water respectively as their source of drinking water. For female respondents, 32.56%, 30.23%, 6.98%, and 30.23% source their drinking water from tap water, borehole, open well and sachet/bottled water respectively. This indicates that few people rely on well water as a source of drinking water. Male majority relies on borehole while the female majority relies on tap water. This implies that men as compared to women would not bother much on sourcing for a tap water if a borehole is readily available

Considering the distribution of source of drinking water across marital status, it is seen that 22.41%, 39.66%, 8.62%, 29.31% of married people get their drinking water from tap water, borehole, open well and sachet/bottled water respectively. On the other hand, 42.11%, 21.05%, 10.53%, 26.32% of unmarried people rely on tap water, borehole, open well and sachet/bottled water respectively. This follow the same trend as that of the distribution of source of drinking water across gender, in that, the majority rely on tap water and borehole. As for married people, borehole is most preferred while

for unmarried people, tap water is most preferred.

For the distribution of source of drinking water across occupation, the table 1 shows that 30.77%, 30.77%, 7.79%, and 30.77% of those that are into trading source their drinking water from tap water, borehole, open well and sachet/bottled water respectively. All of those that are into farming source their drinking water from borehole. For artisans, 18.18%, 40.91%, 22.73% and 18.18% get their drinking water from tap water, borehole, open well and sachet/bottled water respectively. 37.5%, 43.75%, 6.25% and 12.5% of public servants get their drinking water from tap water, borehole, open well and sachet/bottled water respectively, while none of those working in the private sector source water from tap water, about 40%, 20% and 40% of them get their drinking water from borehole, open well and sachet/bottled water respectively.

Considering the distribution of source of drinking water across type of house, of the population of single room users, 28%, 24%, 16%, and 32% get their drinking water from tap water, borehole, open well and sachet/bottled water respectively. 29.63%, 37.04%, 7.41%, and 25.93% of Room and Parlour users get their drinking water from tap water, borehole, open well and sachet/bottled water respectively. For the population who live in two rooms and Parlour, 54.55%, 27.27%, and 18.18% get their drinking water from tap water, borehole and sachet/bottled water respectively while none of them make use of well water. For three bedroom apartment users, 21.74%, 26.09%, 17.39%, and 34.78% of the population rely on tap water, borehole, open well, and sachet/bottled water respectively. The same trend also surfaced here as open well water is the least preferred out of the major sources of drinking water. This implies that only those who are rich can demand for better water source.

As regards minutes spent in getting drinking water, the table shows that sachet/bottled water is easier to access than other sources of water. It shows that 32.2% have access to sachet/bottled water within 5 minutes. The table also shows that

borehole water can be accessed within 10 - 15 minutes than other sources of drinking water, while tap water can only be accessed by the majority after about 20 minutes.

Table 1: Factors that explains choice of drinking water among residents

		Source of Drinking Water			
		Tap water (%)	Borehole (%)	Open well (%)	Sachet/Bottled (%)
Gender	Male	27.78	33.33	12.96	25.93
	Female	32.56	30.23	6.98	30.23
Marital status	Married	22.41	39.66	8.62	29.31
	Unmarried	42.11	21.05	10.53	26.32
Occupation	Trading	30.77	30.77	7.79	30.77
	Farming	-	100	-	-
	Artisan	18.18	40.91	22.73	18.18
	Govt. Work	37.5	43.75	6.25	12.5
	Priv. Sector	-	40	20	40
Type of House	Single room	28	24	16	32
	A Room & Parlour	29.63	37.04	7.41	25.93
	Two Rooms & Parlour	54.55	27.27	-	18.18
	Three Bedroom Apartment	21.74	26.09	17.39	34.78
Minutes to drinking water	5 mins.	27.12	27.12	13.56	32.2
	10 mins.	23.53	41.18	11.76	23.53
	15 mins	25	75	-	-
	20 mins.	54.55	27.27	-	18.18

Source: Authors computation, 2018

Table 2: Socio-economic characteristics of respondents

	Mean	Std. Dev.	Maximum	Minimum
Age	32.66	12.48	67	14
Household Size	5.43	3.57	14	1
Number of Dependants	2.92	2.54	13	1
Earnings	23,161.89	21,254.04	115000	800
Cost of Transport to water source	1210.61	1345.55	8400	300

Source: Authors computation, 2018

Table 2 shows that average age of the sampled population is about 33 years, with standard deviation of about 12 years. The minimum and maximum age is 14 and 67 years respectively. Household size in the sample averaged about 5 individuals and standard deviation of about 4 people. The largest household has 30 individuals while the smallest household has 1 person. Households in this sample have an average of about 3 dependants with a household having the most dependants of 30 people while the household with the least number of dependants has 1. Average monthly earning is about 23,162 Naira. Individual with the highest earning earns 115000 Naira monthly while the least monthly earner earns 800 Naira. Average cost of transportation to water source in this environment is about 1,210.61 Naira with standard deviation of about 1,345.55 Naira. The maximum cost spent on transportation to water source is 8,400 Naira per month while minimum cost is 300 Naira.

5.0 Conclusion and Recommendations

This study examined the socio-economic characteristics and access to drinking water among residents in Ilorin metropolis, Nigeria.

The findings show that drinking water is a scarce commodity in Ilorin metropolis and this is in line with the work of of Hati, Dimari and Ngeadoun (2011), where only 36% of the Gombe metropolis has direct access to treated drinking water. The study also reveals that residents spend longer time before getting access to tap water which has contributed to the choice of water, and this finding is similar to that of Armand and Fondo (2012), which revealed that distance to water have strong impact on the choice of drinking water source in Cameroon. The study also reveals that none of those in private sector source water from tap, as against the public sector where 37.5% of public servants get their drinking water from tap. The study further discovered that the level of income is a strong determinant in this respect. Tap and sachet/bottled are the most sourced by those having high living standards while borehole and open well are most sourced by those of the lower standard of living.

Recommendation

- i. Based on these findings, the study recommends that Kwara state government should take the provision of potable water

- very serious in order to reduce the time spent to access it.
- ii. The government should also partner with the private sector in order to make sure that tap and sachet/bottled water are made easily available as farmers only have access to

borehole which is an untreated source.

- iii. Provision should be made for those in private sector to have easy access to tap water and at reasonable cost.

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