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A SURVEY OF RURAL WATER DEMAND IN YAKURR LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

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Abstract

The growing demand for quality water consumption in rural villages of Cross River State, Nigeria has reached a critical dimension arising from the inability of government agencies charged with these responsibilities to fulfil their mandate in meeting public water demands of citizens. Nevertheless, presently, there seems to be reliable information on rural water demand of Yakurr communities. Therefore, this study was to evaluate the factors that determine the water demand needs of Yakurr communities. Yakurr Local Government Area was stratified into three density existing communities, low. Medium and high. Twenty-three villages were stratified and randomly selected for sampling. One thousand nine hundred questionnaires were administered to households in the selected communities in the study area. Descriptive and inferential statistics was used for the analysis. The results showed that water demand within the three densities of villages varies according to socio-economic and demo-cultural attributes of households in the study area; besides four research variables – household size, literacy level, festivities and income were significant determinants of rural water demand (R-square = 0.97 significant at $p<.05$ level). The standard error of the analysis was 0.02. The study recommends that the four significant determinants as identified in the study should be adopted by agencies of government in charge of water resource planning to aid policy formulation and implementation regarding rural water planning in Cross River State and Nigeria in general.

Keywords: Rural, Water, Demand, Determinants, Households

1.0 INTRODUCTION

Water is an indispensable resource which is fundamental to human survival. Water is ranked alongside the five most essential physiological needs of man, after air, food, light and heat, (Eteng and Bassey, 2024). Hence, water is vital for domestic consumption, industrial processes, and various socio-economic activities in both urban and rural environments. Water demand as many studies have shown revolves round an inter play of natural and manmade factors such as weather and climatic conditions, human industrial activities and socio-cultural activities.

Globally, harnessing clean and safe water remains a persistent and formidable challenge, in which the World Health Organization (WHO) and the United Nations Children's Emergency Fund (UNICEF) have posited that as of (2020), more than 1.1 billion people representing 17% of the global population lack access to improved and potable water sources. This estimate was based on the criterion that an individual human being consumes at least 20 liters of portable water per day and is accessed within a kilometer radius. These statistics starkly highlights the trending severe difficulties associated with global water accessibility. Developing nations are the worst hit with these acute shortages. Thus, the governments of these developing nations are forced to initiate

developmental policies to grapple with acute water deprivation. Nigeria as a developing country, is not left out of the water scarcity phenomena and this has continued to pose socio-economic challenges, especially in rural areas.

Many researchers on rural water supply such as (Okoro and Uzuokwu, 2014; Atser and Udoh, 2015) have in their studies identified the severe inadequacy of water supply in Nigeria's rural communities and attributed the endemic crisis largely to weak regulatory frameworks and poor budgetary provisions implementation by the government. The impact of poor accessibility of rural settlers to meet their water needs are enormous, ranging from poor sanitation and public hygiene, high risk of disease outbreaks, to increasing mortality rates which poses dire consequences on communal well-being.

In Cross River State, the water scarcity syndrome is not different but that disparity in supply exists between urban and rural areas. While the urban population water supply is abridged by the Cross River State Water Board Limited (CRWBL) and the complementary roles of water supply by private boreholes owners, the rural areas lack such alternative to such valuable provision. In an attempt for the rural communities to meet up with their water demand utilization, the communities are compelled to resort to unclean and unsafe water sources which stir sanitation problems and exacerbates public health challenges.

In Yakurr Local Government Area (YLGA), the spiral surge in population growth over the years do not only exerts considerable pressure on existing infrastructure and public utilities, but also on water supply sources. However, given the increasing population growth within the YLGA and the corresponding rising demand for water to boost socio-economic development, there has been commendable efforts by the State government, international organizations and Non-governmental agencies such as Government of Cross River State, in collaboration with the European Union (EU), the World Health Organization (WHO), and UNICEF, have undertaken several initiatives to ensure the availability of public water supply in rural areas; such efforts include the extension of piped water supply, provision of technical assistance for treatment and installation of bore holes to rural communities, as well as the development of solar-powered and hand-operated boreholes by the Cross River Basin Development Authority (CRBDA) and the Rural Water Supply and Sanitation Agency (RUWATSSA). Despite these interventions, the water supply situation in YLGA seldom improved. Studies have shown that rural water demand, accessibility and quality are complicit problems plaguing rural water availability (Ishaku et al, 2011; Iwara, 2019, Okoi, 2019 and Oka et al,2019). However, it is uncertain to which extent the areas of coverage of the above studies are relevant to the situation of rural water demand in YLGA. Therefore, the objective of this study is to evaluate the factors influencing the rising demand of water in Yakurr communities. It is hoped that the findings of this study will facilitate the enhancement of measures to adequately address water supply requirements of YLGA and other rural communities in Cross River State.

2.0 Literature Review

A plethora of studies have been conducted in many developing countries on the socio-economic, demographic, and cultural factors significantly affecting water demand. Mohammed, (2014) examined the extent to which socio-economic factors affect household water consumption in rural communities in Kano State, Nigeria. The result showed that women tend to consume more water than men. This phenomenon is largely attributable to women predominant engagement in domestic chores. The result of Mohammed's (2014) study further showed the existing correlation between household size and daily water consumption. Abaje et al. (2009) examined factors that control water demand in Jama'a in Kaduna State Nigeria, their study revealed that household size, income, weather variation, especially in dry season and number of rainy days exerts strong influence on residential water consumption. Akeju et al. (2018), studied public perceptions regarding payment for improved water supply in rural communities in Owo Local Government Area in Ondo State, Nigeria. The study found that majority of residents expressed their willingness to pay for enhanced water supply services. The study concludes with policy recommendations advocating for the implementation of public-private partnerships to enhance water supply

infrastructure while ensuring affordability for all socioeconomic groups. Kannayo et al. (2013), tested the correlation between income levels and water consumption, pattern of the residents of Nsukka, in Enugu State Nigeria and affirmed that factors such as educational attainment, income, occupation, and the pricing strategies of water vendors were pivotal in shaping residents' enhanced desire for water consumption.

Similarly, Eton (2016) and Korie (2019), in separate investigations, examined the intricate relationship between socioeconomic attributes and water consumption patterns. Their findings unequivocally demonstrated that education, household size, and income levels play major roles in shaping water usage behaviors. In Jiburum's (2011) study in Enugu, she submits that although there are factors affecting water demand in Enugu Metropolis, variation exist within neighborhoods, while rent and income were very significant for the low-income neighborhoods, they were not significant for the medium and high-income neighborhoods. Ubugha et al. (2017) investigated the relationship between demographic characteristics-household size and population dynamics--and the volume of water consumed. Their study further highlights the influence of consumer income vis-à-vis water costs, demonstrating a direct correlation between financial capacity and access to water resources. Additionally, gender and the nature of household responsibilities were found to significantly impact domestic water consumption.

Jiburum et al, (2014), examined the determinants of residential water demand in Enugu, Nigeria, the result showed that average price of water, income and number of toilets were significant determinants of residential water demand. This implies that price of water and incomes of household were the most significant factors that influence residential water demand. Bulus and Adefila (2014) posits that over 70% of Nigerians reside in rural areas, resulting on increasing demand for social utilities provision, with key indicators in water supply systems. The surge in water demand specifically underscored the necessity of ensuring adequate and consistent supply of water to rural communities. Similarly, Abenu et al. (2016) established that household size is directly proportional to water demand and consumption. Their findings revealed that the increasing number of individuals per household has made it more complex to produce a model that will arrest the water supply challenges encountered by numerous rural communities. Moreover, cultural factors significantly influence the volume of water consumed. Istifanus et al. (2019) investigated the correlation between domestic water usage and socio-cultural factors in Bauchi State, Nigeria, and identified a positive relationship between domestic water consumption and variables such as educational attainment, income level, household size, and marital status. Their study further highlighted a correlation between the price of water and the quantity consumed at the household level. Additionally, factors such as gender, occupation, source of water supply, religion and socio-cultural practices play a pivotal role in determining household water consumption patterns. Thus, the study recommended that socio-cultural factors should be aligned with other economic factors to form integral component factors that should be considered when modelling residential water demand to enhance efficiency in water supply systems. Zhang and Brown (2005) did a comparative residential water consumption study of two cities in China and discovered that socio-economic background, water habit and behavior, water use appliances and usage and water perception influence water use in both Beijing and Tianjin. Their study further revealed that water was both price and income elastic; they affirm that water use was more in Beijing than in Tianjin.

From the foregoing literature, there are numerous types of databases derived over the years from residential water demand, which are grouped into two; the one that relied on single period cross sectional aggregate observations and the other with time series data. Nevertheless, Espey et al (1997) as cited in Jiburum et al (2014) inferred that the result derived from the two types of study were not statistically different. The literature revealed that most of the studies were conducted in urban areas with a focus on model construction to forecast future urban residential water demand. Similarly, Ayanshola et al (2010) based their studies on model development on the prediction of urban residential water demand in Ilorin, Kwara State Nigeria, using

parameters such as occupation, household size, income level, education, years of staying, type of house lived in and sex of water user. Their findings revealed that income, education level and sex of water user were significant factors in explaining individual demand. Of all the literature reviewed, many concentrate their studies on urban water development, the few ones on rural water demand dwelt on perceptions of rural water consumption based on the willingness to pay for such services. Others were on making general effort to improve the water supply situation in rural areas. However, non-of the studies was on addressing the determinants of water demand in rural Yakurr communities of Cross River State, with indicators of economic development. That's the need for this study.

3.0 Methodology

3.1 Study Area

Yakurr Local Government Area (LGA) is geographically positioned between latitudes 5°45′ and 5°55′ North of the Equator and longitudes 8°11′ and 8°20′ East of the Greenwich Meridian. It is situated approximately 120 kilometers Northwest of Calabar. Geographically, Yakurr falls within the equatorial rainforest belt of the tropics, characterized by lush vegetation and a humid climate. It is bounded in the North by Obubra LGA, in the South by Biase LGA, in the East by Akamkpa LGA and to the West by Abi LGA and Ebonyi State (See figure 1). Yakurr LGA has a total landmass of 670.435 square kilometers, and is administratively headquartered in Ugep town. The local government area is subdivided into 13 political council wards and is predominantly rural in nature, with its socio-economic landscape largely shaped by agrarian and subsistence activities (YAKURR LEEDS, 2016). Yakurr LGA boasts an abundant supply of raw water, underscoring its hydrological richness. The region is interspersed with numerous streams, rivers, ponds, lakes, and other natural water bodies, contributing to a robust and dynamic aquatic ecosystem. Notably, the area features a complex multi-aquifer system, with raw water accessible at depths ranging from 30 to 60 meters (Iwara, 2019). Moreover, the groundwater in this locale is characterized by a low concentration of dissolved constituents, enhancing its suitability for various uses.

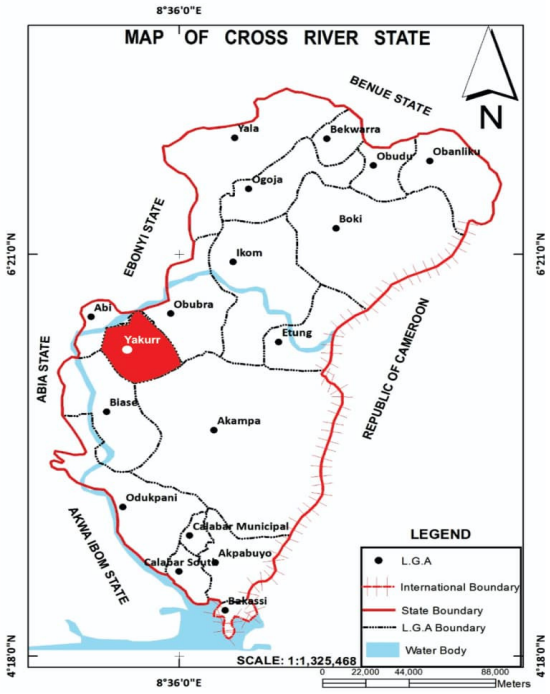

Figure 1: Map of Cross River State showing insert location of Yakurr LGA

The data for this study were collected from primary and secondary sources. Primary data were collected through direct field observations and questionnaire survey. From the projected total population of YLGA, three Agencies of Government in charge of rural water provision in the State and private water vendors, the sample size was determined by applying William's (1978) formula as in Kerlinger and Lee (2000) with the formula given as:

$$S = \frac{n}{1+n/N}$$

Where S= sample size; n= the proportion of households that will be sampled which is 1.1 percent
N= the total number of households in YLGA.

Through random sampling and stratified sampling process the questionnaires were administered to 1900 households (1.1% of the sampling frame of 175,345 houses) Yakurr LGA comprises of 33 villages. The local government was stratified into three densities such as high, medium and low consisting of 9, 11 and 13 villages respectively. However, 23 villages were randomly selected and sample in the ratio 7:7:9 according to densities. The distribution of the sample size showed that according the densities of the villages, the sample size was 518, 633 and 749 households respectively. As 1900 copies of the questionnaires were printed and administered, 1,625 questionnaires (86%) of the total were collected (table 1 below).

Table 1: Questionnaire Distribution in the study area

Density of villages	No. of villages in YLGA	No. of villages sampled	Population of household	No. distributed	No. filled and collected	Percentage
Low	9	7	47805	518	443	85.5
Medium	11	7	58418	633	510	80.5
High	13	9	69122	749	672	89.7

Source: field work, 2024

The multiple linear regression technique was adopted for this study. The technique was used to test the hypothesis that water demand (dependent variable) is not significantly related to socio-economic and demo-cultural attributes of households (predictor variables---Cultural festivities, Literacy level, Age, Sex, Household size and Income) in YLGA. The equation of this model is stated as

WD = b+x1CF+x2LL+x3A+x4S+x5HHS+x6IN+….e

Where WD= quantity of water demanded

b= a constant; x=regression coefficient; CF= cultural festivities; LL= literacy level

A= age; S=sex; HHS=household size; IN=monthly income of households; e=standard error.

Findings

3.1.1 Socio-Demographic Attributes of the Rural Households

Table 2 presents the socio-demographic attributes of rural households in Yakurr LGA. These attributes include gender, age distribution, literacy level, household size and monthly income. Amongst the sampled respondents in the survey, gender distribution depicts males' domination as household heads across the 23 out of the 33 surveyed communities. The study examined the age distribution of household heads, with the mean age across the communities recorded. The data in Table 2 indicate that most household heads in Yakurr LGA fall within the mean age range of 42 to 67 years. Those within the mean age of 42 to 49 years ranked first with 52% this is followed by those from 50 to 59 years with 39% and those with 60 years and above had 9%. The table also

display the literacy level of household heads in the study area. While communities whose literacy level falls between primary and secondary levels scored 70%, the remaining communities whose level of education was above secondary level had 30%. This educational disparity in Yakurr communities corroborates with the work of Bulus and Adefila (2014) who highlighted the disparity in educational inequalities between rural and urban areas in Nigeria, with rural communities often facing significant inadequacies in access to quality education. This systemic deficiency accounts for the limited representation of tertiary education among household heads in the study area.

Table 2: Socio-demographic attributes of rural households in the study area

Low density villages	**Gender**		**Mean Age**	**Literacy level**	**Monthly income (N)**
	Female	Male			
Iyima	62	26	52	2	133000
Lokpoi Elige	75	19	51	1	133000
Efem	81	33	51	1	127000
Ebilebit	76	19	48	1	133000
Okom Idomi	126	84	42	2	134000
Ekom Agoi	359	154	46	1	132000
Kepeti	159	119	49	2	144000
Medium density villages					
Epenti	342	114	47	2	142000
Assiga old town	73	69	52	1	139000
Lebang	53	27	44	1	131000
Agoi Ibami	127	93	45	1	135000
Egbizum Idomi	344	86	48	3	141000
Afrekpe Ekori	468	187	49	2	147000
Ketabebe	648	453	55	3	150000
High density villages					
Ijom	6759	4868	56	3	150000
Ekori	3947	2244	43	3	125000
Mkpani	2786	2289	53	2	105000

Idomi	59	59	48	3	110000
Biko-Biko	5547	3778	51	3	200000
Nko	2767	1823	67	2	190000
Ijiman	5986	3992	60	3	182000
Agoi Ekpo	1527	628	48	2	85000
Ajere Beach	191	82	51	2	100000

*Literacy Level: 1= Primary Education, 2= Secondary Education; 3= Tertiary Education
Source: Field survey, 2024

Furthermore, an analysis of the mean monthly income of household heads revealed earnings ranging between N40,000-N100,000 for the low income to between N101000-N200,000 for the medium income and between N201,000 plus for the high income across the surveyed communities. The mean monthly income from the table revealed the subsistence nature of the economy of rural Yakurr communities with 85% of the household's income falling below N200,000. Thus, with majority of the population income earnings being low, this cannot sustain mechanized water supply needs of the rural communities. Hence there is need to advocate for means of water supply in these communities that are in tandem with moderate technology that attracts low financial costs for maintenance, aligns with rural development goals and is hinged on environmental sustainability.

3.1.2 Demo-Cultural Attributes of Rural Households

In Table 3, it was observed that household sizes within the study area vary accordingly. Specifically, the table indicates that the mean household size in nine communities is seven persons, whereas in twenty-one communities, it is six persons. Household size may play a significant role in determining the volume of water consumption. Furthermore, from a cultural perspective, the table highlights that the quantity of water consumed during festivals varies across the different communities.

Table 3: Demographic and Cultural Characteristics of Rural Households

S/N	Communities	Mean HHS	Normal water Use	Water Demand in Festive Period
	Low Density Villages			
1	Iyima	6	184	195.5
2	Lokpoi Elige	7	191	203
3	Efem	6	237	251
4	Ebilebit	6	220.3	211
5	Okom Idomi	6	198	235
6	Ekom Agoi	6	260	258
7	Kepeti	7	217	275.2
	Medium Density Villages			
8	Epenti	6	281.3	301.6
9	Asiga old town	6	203	332
10	Lebang	6	190.7	180.5
11	Agoi Ibami	6	187.2	209.5

12	Egbizum Idomi	6	230	194.7
13	Afrekpe Ekori	7	187.2	241.1
14	Ketabebe Ugep	7	235	352.5
	High Density Villages			
15	Ijom	8	209.5	360.2
16	Ekori	7	180.5	277.7
17	Mkpani	7	241.1	211
18	Idomi	6	209.9	230
19	Biko-Biko	8	300.8	355.7
20	Nko	6	211	185.2
21	Ijiman	8	309.5	340.4
22	Agoi Ekpo	6	251	209.3
23	Ajere Beach	6	194.7	301.6

Source: Field Survey, 2024

Table 3 presents the demo-cultural attributes of households in the study area divided into three density communities viz: low density, medium density and high density. As displayed in the table, a meticulous water demand measurement was carried out in the sampled villages to ascertain peak periods of water consumption. The measurement was carried out in two phases, during daily normal activities and during festive periods. Thus, in daily normal chores, water consumption for each household was measured for the sampled villages daily for a week by taking into consideration the containers households use to harvest water from their sources including the number of times such harvest was done. Then the daily water consumption was gotten by determining the liter capacities of each container multiplied with the number of times water is collected from the source and divided by the household size. The average daily per capita water consumption was determined by adding one week water consumptions from each household divided by the number of persons in the household. Water consumption recorded showed that in the seven low density villages, 44 households consumed 1507.3 liters of water daily, averaging 34.3 liters per person per day and each village having a mean water consumption of 215.3 liters per day per household. In the medium density villages, 44 households consumed 1514.4 liters of water per day, with an average of 34.42liters per person per day and a village mean consumption of 216.3 liters per household per day. While in High density villages, a mean consumption of 2232 liters was recorded, with an average of 36 liters per person per day and a village average of 248 liters per household per day.

The water consumption pattern recorded during festive periods in low density villages was 1628.7liters for the seven villages, with an average of 37liters per person per day and a village average of 232.67 liters per household per day. The medium density with a total of 1811.9 liters, a mean of 41.2 liters per person per day and a village average of 258.8 liters per household per day while high density has 2471.1 daily liters of water consumed in the nine villages, with 39.86liters of water per person per day and an average village consumption of 274.6 liters per household per day. The trend significantly showed that water demand increases during festivities in the villages.

To further substantiate the analysis of the study, a standard multiple regression analysis was employed to test the hypothesis, assessing the predictive capacity of socioeconomic, demographic, and cultural factors in determining water demand within Yakurr LGA. This analysis incorporated key predictor variables, including the mean quantity of water demand, gender (male and female), age, monthly income, literacy level, household size, and the quantity of water consumed during cultural festivities.

The four most outstanding attributes in the model accounted for 96.9% of the variance in water demand (R^2 = 0.939), with an F-statistic of F (7,20) = 950.832, p < 0.000. This finding suggests that the combined influence of four predictor variables explains 93.9% of the variance in water demand, a result that is statistically significant as evidenced by the Sig. F change value of 0.000 (p < 0.05). Furthermore, the ANOVA results (Table 5) confirm the model's overall significance, as reported in Table 4

Table 4: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df 2	Sig. F Change
1	.969[a]	.939	.938	16829.883	.968	950.832	7	20	.000

a. Predictors: (Constant), Festivities, Literacy level, Age, Male, Female, Household size, Monthly income,

b. Dependent Variable: water demand

Source: Statistical Computations, 2024

Table 5: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1885228633831.347	7	269318376261.621	950.832	.000[b]
	Residual	5664898972.281	20	283244948.614		
	Total	1890893532803.628	27			

a. Dependent Variable: water demand

b. Predictors: (Constant), Festivities, Literacy level, Age, Male, Female, Household size, Income

Source: Statistical Computations, 2024

To determine the extent to which each variable within the model influenced the prediction of the dependent variable, the Coefficients table (Table 5) was analyzed, specifically focusing on the Beta values under Standardized Coefficients. Notably, the highest Beta coefficient was recorded for household size at .666, followed by literacy level at .332, and cultural festivities at .38. Additionally, income exhibited a Beta coefficient of .009, male registered at -.008, female was measured at -.002, and age demonstrated a coefficient of .006.

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-179808.395	73819.894		-2.436	.024	-333793.995	-25822.795					
	Household size	91.304	17.077	.335	5.347	.000	55.682	126.926	.986	.767	.065	.038	26.199
	Literacy level	272.447	25.371	.666	10.739	.000	219.525	325.369	.996	.923	.131	.039	25.667
	Festivities	3102.679	1055.428	.038	2.940	.008	901.095	5304.262	.026	.549	.036	.886	1.129
	Income	4963.385	7692.958	.009	.645	.526	-11083.845	21010.615	.204	.143	.008	.784	1.276
	Male	-4156.456	7231.666	-.008	-.575	.572	-19241.447	10928.536	-.061	-.127	-.007	.843	1.187
	Female	-.058	.524	-.002	-.111	.913	-1.151	1.034	.394	-.025	-.001	.654	1.528
	Age	37.089	89.130	.006	.416	.682	-148.832	223.010	.148	.093	.005	.771	1.297

a. Dependent Variable: water demand

Source: Statistical Computations, 2024

The coefficient table (Table 6) presents data on the part correlation coefficients, which, when squared, indicate the unique contribution of each variable to the total R^2. In essence, this metric reveals the proportion of total variance in the dependent variable that can be exclusively attributed to a given independent variable. In this study, the part correlation coefficient for household size is 0.008, representing 64%. Literacy level exhibits a negative part correlation of -0.007 (49%). Likewise, cultural festivities contribute 0.65 (accounting for 42.3% of the variance), whereas that for the income variable has a part correlation of 0.005 (25%). The other three variables whose contribution are insignificant are male with record coefficient of 0.36 (12.9%), female variable with a correlation of 0.131 (1.7%) and age who records a coefficient of 0.001 (1%).

4.0 Discussions

The findings presented in Table 6 affirm the evidence to reject the null hypothesis, which posits that the quantity of water demand is not significantly dependent on socio-economic and demo-cultural attributes in rural households of Yakurr LGA. Instead, the analysis confirms that the relationship between water demand and these variables is statistically significant. The implications of these findings underscore that water demand is substantially influenced by the variables examined in this study. However, results showed that the hypothesis presented four attributes out of the seven households attributes identified in the study positively influencing household water demand in Yakurr LGA. They include household size, literacy level, cultural festivities and income. This suggest the four significant household attributes are the factors that affects water demand in Yakurr LGA. Table 6 also depicts that household size correlates positively to water demand at 0.05 significant level. Also, the result shows that at 0.05 significant level, there is positive correlation between water demand and literacy level of households. Thirdly, during cultural festivities households responds positively and

significantly to water demand at 0.05 significant level and lastly, the result shows that at less than 0.01 significant level, there is positive relationship between water demand and income of households.
Nevertheless, the study further showed that age and sex was not significantly related to the quantity of water consumed by households in Yakurr LGA. This is in line with the findings of Schleich and Hillenbrand, (2007) that reported insignificant relationship between age and water demand in Germany. The sex (male and female) as attributes of households were not significant to water demand in the study area.

5.0 Conclusion

The study modeled rural water demand in Yakurr Local Government Area. This was done by comparing the water consumption needs of sampled communities in the study area during normal daily living with the time communities indulge in seasonal cultural festivities and discover a significant increase in water consumption capacities and this was aggregated through the process of categorization of the villages into three densities, low, medium and high densities. The result of the study suggests water demand variation between the village densities and that 62 households in high density villages with a population of 434 people consumes an average of 36 liters of water per person per day. While in medium and low densities, 44 households each with a population of 352 and 308 people consume an average of 34.2 liters and 30 .4liters of water per person per day. However, during the festive periods the water consumption increases to an average of 40 liters per person per day, 41.2 liters per person per day and 37 liters per person per day respectively for high, medium and low densities villages in the study area. Forecasting water demand from the study area, an average of the water consumption of the two phases measured in the study area was adopted to model the water demand. Thus, the result of the hypothesis indicate that four of the seven independent variables accounted for 93.9% of water demand. These are household size, literacy level, cultural festivities and income of households. It implies that the four attributes are the factors or determinants of rural water demand in Yakurr LGA. This work recommends for adoption of the four significant variables in forecasting water demand in Yakurr LGA. As its adoption is capable of enhancing policies towards revitalizing effective and efficient rural water supply in similar rural communities in Cross River State and Nigeria in general.

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