

Analysis of Domestic Water Supply in Urban Area of Akinyele Local Government of Oyo State, Nigeria

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ABSTRACT

Water supply is paramount to human life because it prevents communicable and non-communicable diseases as well as contributes to socio-economic development and sustenance of cultural values (SDGs, 2016). This chapter highlights sources of domestic water supply in Akinyele LGA, Oyo State, Nigeria. The survey method was adopted by the administration of 399 copies of the questionnaire on households randomly selected in the urban areas of the LGA. The findings show that domestic water supply is more problematic during the dry season with 40% of the respondents not adequately getting potable water, accounting for 77% of the households experiencing typhoid, 11.4% contracting cholera, 8.6% having skin rashes, and 2.9% suffering from diarrhea in the past one year. Further analysis of the association between sources of water and socioeconomic variables indicates no significant association on whether improved or not improved sources with all values > 0.005 . Education through public enlightenment on the use of improved water, provision of water facilities and involvement of private water providers, and willingness to pay for their services by households among others are advocated to remedy water problems in Akinyele LGA and, by extension, Ibadan metropolis as well as, other cities in Nigeria.

Keywords: Water Supply, Urban Area, Facilities, Education, Providers.

1. INTRODUCTION

The well-being and general quality of life of households in human settlements depend largely on the availability and quality achieved in provision of water for drinking and sanitation (Okpala, 1986). This is also central to human growth and development. Water is essential for man's physical survival, basic personal hygiene and other household uses. Literature reveals that an individual needs at least 100 litres daily for drinking and preparation of food (Water Aid, 2012). Adequate water supply and good sanitation practices are considered most important factors in ensuring good health in a community. Improved water supply and sanitation systems are major elements of public health measures that reduce death rates especially in densely-populated urban communities. These factors, though not generally appreciated by many people, are considered by health professionals as more important than curative medicine in contributing to good health, long life-expectancy and reduction in infant mortality. The availability of safe water is critical for health reasons and economic development (WHO and UNICEF, 2006). The importance of domestic water supply in different homes cannot be overstressed. Its uses range from drinking, cooking, bathing, general cleaning to clearing of drains and washing. Lack of, or inadequate access to, potable water may hinder smooth livelihood in homes including sanitation.

It has been observed that proliferation of slums and unplanned expansion of the city into high-risk areas since 1970 has resulted in increased health hazards arising from poor sanitation, inadequate water supply and ineffective solid and wastewater management (Adelekan et al., 2014; World Bank, 2014). Against this background, this paper was conceived to examine the problem of sourcing potable water in Akinyele Local Government Area, one of the low-income urban residential areas of Ibadan city. Over the past four decades, ever-growing demands for and misuse of water resources have increased the risks of pollution and severe water stress in many parts of the world. The frequency and intensity of local water crises have been increasing with serious implications for public health, environmental sustainability, food and energy security, and economic development. Demographics continue changing and unsustainable economic practices are affecting the quantity and quality of available water, making water an increasingly scarce and expensive resource especially for the poor, the marginalised and the vulnerable.

In Nigeria, 70 million people lacked access to safe drinking water and about 110 million people lack access to improved sanitation in 2013 (Akanwa & Okwonkwo, 2019). This poses serious threat to public health especially in a densely-populated city like Ibadan. According to Water Aid, Nigeria will only be able to deliver a community source of clean water within a 30-minute round trip to everyone by 2039. At current rate, it is estimated that Nigeria will never reach the point where everyone has basic sanitation services (Vanguard, 23 Oct. 2018). It is also believed that 10 per cent of the world's population consumes food that has been smeared with waste water. According to Amnesty International, millions of women and girls should not walk more than 500 metres from their homes to meet water needs. In recent past, water supply system experts have shown considerable concern for two of the most important aspects of utilisation of water for domestic purposes. The first concern has been on the quality of water supplied for domestic consumption, while the second is on the problem of quantity of water supplied (WHO /UNICEF, 2017), both being noticeable in the developing countries especially Nigeria. It was earlier observed that inadequate safe water for drinking and washing is responsible for the prevalence of diarrhoea which is one of the most common diseases affecting urban residents in developing countries of which Nigeria is included (Akpabio, 2012).

The Nigerian government has long considered the provision of water supply and sanitation services the domain of the federal, state and local governments. However, the public sector has not been successful in meeting more than a small proportion of the water demand of the residential and commercial users. Services are in critically short supply. According to United Nations report (2017), "despite huge technological, science and industrial advances available, about 108 million peoples living in urban and semi-urban areas of Nigeria lack proper toilet facilities, while less than half have reasonable access to reliable water supply. Many households, often the poorest, end up purchasing water from private vendors much more expensively than from the public supply" (United Nations, 2017). Water supply services, where they exist, are unreliable and of low quality and are not sustainable because of difficulties in management, operation, pricing and failure to recover costs. Many water supply systems show extensive deterioration and poor utilisation of existing capacities, due to under-maintenance and lack of funds for operation.

The water supply situation in Ibadan is worsened by urban expansion and population growth (Adelekan, 2006). Since the 1970s, the proliferation of slums and unplanned expansion of the city into high-risk areas has resulted in increased health hazards arising from poor sanitation, inadequate water supply and ineffective waste water management (Adelekan et al., 2014; World Bank, 2014). In an attempt to rectify this problem and reduce the cost of treatment of illness arising from waterborne diseases, the Federal Government selected Oyo and Taraba states as beneficiaries of the Urban Water Supply and Sanitation Project (UWSSP) in the year 2009 and it was one of the priority projects then. The two states, and in particular their capitals; namely, Ibadan and Jalingo for Oyo and Taraba states respectively were selected based on the very low water coverage (approximately 30%) and the commitment to improve on the provision of water and sanitation services to the residents of the two cities (African Development Bank, 2009) but little success has so far been recorded in this regard.

Arising from the foregoing, this paper examined problems associated with domestic sources of water supply sources in urban area of Akinyele Local Government with recommendations on how the incessant water problems could be solved. The aim of this paper is, therefore, to evaluate accessibility to domestic water supply in the urban area of Akinyele Local Government of Oyo State. The specific objectives are to assess water supply sources, reported incidence of water-borne diseases, and the amount a household could afford to pay for the sustenance potable water supply in the study area.

2. LITERATURE

Akinyele Local Government Area (LGA) of Oyo State was created in 1976 and it is one of the 11 local governments constituting Ibadan metropolis. It is situated between latitude $7^{\circ} 29'$ to $7^{\circ} 40'$ of the equator and longitude $3^{\circ} 45'$ to $4^{\circ} 40'$ of the prime meridian. It shares boundaries with local governments such as Afijio to the north, Lagelu to the east, Ido to the west and Ibadan North to the south (Figure 1). It occupies a land area of 464.892km^2 with projected population of 297,600 people (Npop and NBS, 2017) and a density of 516 persons per km^2 . Akinyele LGA hosts the world-renowned International Institute for Tropical Agriculture (IITA) and the Nigerian Institute of Social and Economic Research (NISER). The LGA is subdivided into nine districts; namely, Ajibade/Alabata, Akinyele, Arulogun/Igbo Oloyin, Ijaye, Ikereku, Iroko, Moniya, Olode/Onidundu and Olorisa Oko/Mele. Moniya district is the urban area of Akinyele LGA, a fast-growing slum where there is high population of low- and middle-income earners (Figure 1).

Additionally, it is badly-planned like other low-income density residential areas in Ibadan city. The land-use in the district is mostly residential, however, few pieces of land are found scattered within where urban agriculture is carried out as secondary means of livelihood by residents and some land spaces are used for automobile repair services by artisans.

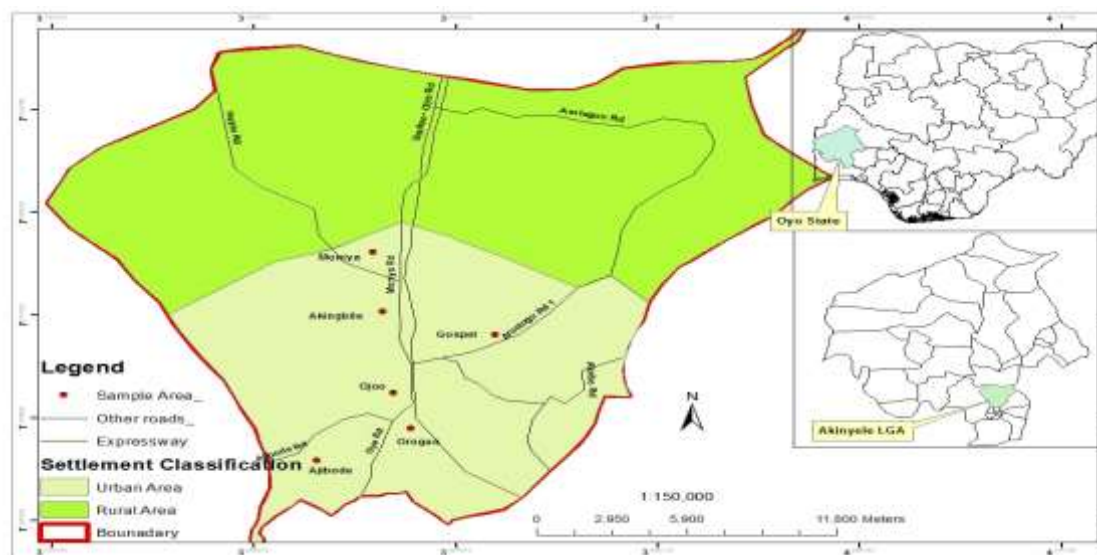


Figure 1: Map of Akinyele Local Government Area, Oyo State.

Source: Extracted from Environmental Systems Research Institute (ESRI) Shape File, 2019

2.1 Conceptual Framework

This paper adopts World Health Organisation/UNICEF and Sphere's framework to simplify the concepts of water source facilities to achieve its purpose. The framework categorises water source as improved and unimproved. The improved water sources are those considered free of contamination and safe for drinking while unimproved sources are the opposite. An improved drinking water source is defined as one that is, by nature of its construction or through active intervention, protected from outside contamination, in particular from contamination with faecal matter (Sphere, 2018, WHO and UNICEF, 2017). Table 1 shows detail categorisation by the World Health Organisation and UNICEF.

Table 1. Water Sources and Sanitation Facilities

Improved drinking water source	Unimproved drinking water source
<ul style="list-style-type: none"> Piped water into dwelling, plot or yard Public tap/standpipe Tube well/borehole Protected dug well Protected spring Rainwater collection (treated) 	<ul style="list-style-type: none"> Unprotected dug well Unprotected spring Cart with small tank/drum Tanker-trunk Surface water (river, dam, lake, pond, stream, canal, irrigation channels)

Source: WHO and UNICEF, 2014.

2.2 Water and Sanitation Accessibility

The availability of safe water is very important not only for drinking and cooking but also for sanitation purpose. In this study, the use of access to safe water means physical access in terms of distance to fetching points, the quantity of safe water per person per day (SDGs recommend 100 cubic litres per person per day). The economic aspect means affordability to get improved water and procure storage facility because even the public water system can get contaminated if not properly stored. The Sustainable Development Goal 6 employs countries to reduce the proportion of people without sustainable access to safe drinking water and basic sanitation to the barest minimum by year 2030 (WHO/UNICEF, 2017). It maintains that access to improved sanitation cannot be achieved without safe waste conveyance and good sanitation practices (Carr, 2001; SDGs, 2015).

2.3 Theoretical Perspectives

This paper is hinged on the theory of change which is built upon the premise that change occurs when evidence-based advocacy, political will for sanitation, water and hygiene (WASH) is intensified. According to the theory, increased political will leads to

vigorous sector analysis and review, which can form the basis for the development of clear financing strategies and implementation plans, expected to be led by governments, followed by sector partners and residents of communities. This, in turn, will accelerate the development of strong water and sanitation systems with adequate sector capacity.

2.4 Water Management Policies and Interventions

The importance of water is traced to the 1977 Mar del Plata conference in Argentina which created an Action Plan on “Community Water Supply”, declaring that all peoples have the right to access to drinking water in quantities and quality equal to their basic needs. The importance of water was further raised in the International Drinking Water Supply and Sanitation Decade from 1981 to 1990 and in 1992 at the UN Conference on Environment and Development in Rio de Janeiro, Brazil (Agenda 21, Chapter 18), as well as at the International Conference on Water and the Environment (ICWE) in Dublin. In 1993, the World Water Day was designated on 22 March by the UN General Assembly and in 2013 World Toilet Day on 19 November. Besides this, in year 2000, the Millennium Development Declaration called for the countries of the world to reduce to half the proportion of people without access to safe drinking water and those lacking access to basic sanitation in 2015. In 2003 the International Year of Freshwater was declared by the United Nation General Assembly, followed by the “Water for Life” Decade from 2005 to 2015. In order to coordinate the efforts of UN entities and international organisations working on water and sanitation issues, the Chief Executives Board (CEB) of the United Nations established in 2003, UN-Water inter-agency coordination mechanism for all freshwater and sanitation related issues (United Nation, 2017).

The year 2005 also marked the beginning of the “International Decade for Action: Water for Life” and the renewed effort to achieve the MDGs to reduce by half the proportion of the world’s population without sustainable access to safe drinking water and sanitation by 2015. Currently, UNICEF and WHO estimate that 1.1 billion people lack access to improved water supplies and 2.6 billion people lack adequate sanitation. Providing safe water and basic sanitation to meet the SDGs will require substantial economic resources, sustainable technological solutions and courageous political will. The focus was on five major challenges to providing safe water and sanitation on a global basis: (1) elimination of contamination of water in distribution systems, (2) reduced water scarcity and the potential for water reuse and conservation, (3) implementing innovative low-cost sanitation systems, (4) providing sustainable water supplies and sanitation for megacities, and (5) reducing global and regional disparities in access to water and sanitation and developing financially-sustainable water and sanitation services (Christine and Richard, 2006; SDGs, 2017).

Various stakeholders are involved in domestic water supply and waste management- government institutions, NGOs and individuals. When water supplies and sanitary condition are inadequate, health problems become imminent. It has been proved that there is strong association between improved sanitation and good health (Bateman et al., 1998). However, inadequate and poor water supply, coupled with unsanitary conditions and practices at household level such as absence of good toilets, unsafe waste disposal, overcrowding and so on, can create a susceptible environment with health risk to many households. Unwholesome practice of packing-and-dumping refuse on the streets or indiscriminately on open ground is not only inimical to good environmental sanitation practices but also constitutes a nuisance to decent urban residents and governments at all levels.

In the study conducted by Joint Monitoring Programme, and World Health Organisation/UNICEF, the population of sub-Saharan Africa that have access to improved drinking water source between 1995 and 2008 was 185 million out of 822 million (about 23%). Based on this data, Nigeria was rated as one of the poorest-performing countries in sub-Saharan countries with 21 per cent accessibility. Additionally, the study reveals Nigeria among countries not on track in achieving improved urban water and sanitation. In fact, Nigeria was rated along Gabon that achieved less than 30 per cent urban sanitation coverage (WHO/UNICEF, Joint Monitoring Programme, 2010).

3.1 METHODOLOGY

3.1.1 Data Source

This paper benefitted from primary and secondary data sources. The primary data was sourced through household survey using one-time questionnaire administration. The secondary data was sourced from the library, journals and previous research reports inform of literature and the map of Akinyele LGA was extracted from Environmental Systems Research Institute (ESRI) Shape File, 2019.

3.1.2 Data Collection

The primary data was collected through structured questionnaire which was administered on sampled member of households in Akinyele LGA. The in-depth interviews (IDIs) were conducted with environmental officers at local government secretariat and senior officials of the Water Corporation of Oyo State (WCOS) at the state secretariat in Ibadan.

Sampling Technique: Since the target of this work was households, Yamane's sample size formula was used to determine the representative sample of households in the LGA. Thus: $n = N / (1 + N(e^2))$; where 'n' is the sample size, 'N' is the projected total population of Akinyele -297,600 (NPop and NBS, 2017), and 'e' is the level of confidence. The rationale for the choice of this sampling technique is that it is appropriate for determining the population size which the variability is not known at 95% confidence level of precision. Moniya and the urban district of Akinyele LGA comprising Ajibode, Orogun, Ojoo, Moniya, Akingbile and Gospel communities were sampled for the study. Also, the total number of buildings randomly selected were 399 and a household was contacted in each building for questionnaire administration. The IDIs were conducted with the purposively-selected officials of the local government, particularly environmental inspectors, the sanitation supervisors and the Director of Environment in Akinyele Local Government Area Secretariat.

3.1.3 Data Analysis Technique

Statistical Packages for Social Scientists (SPSS) was used to process and generate tables and charts from the questionnaire. The variables captured in the questionnaire include: water supply accessibility, sanitary facility accessibility, method of treatment of water used by the households all in relation to distance. Also, type of toilet system used by households, method of disposing waste, accessibility to sanitation facilities provided by public or private individuals were variables depicting sanitation.

4. DISCUSSIONS OF FINDINGS

4.1 Demographic and Socioeconomic Characteristics of Respondents

Table 2 depicts the demographic and socioeconomic characteristics of 399 respondent households. The table shows over two-fifths (44.1%) of respondents were young adults; that is, between the ages of 18 and 38 years, while over half (55.9%) of the sampled population were full adults (39 years and above). This implies that water utilisation and sanitation of the environment are engaged by adults and these should be of major concern among the selected respondents. On marital status, the table depicts that majority (63%) of respondents were married, 28.4 per cent were singles, while the remaining few were either widowed, divorced or separated. In other words, it implies that water consumption would be high and waste generation rate not only high but also of great significance in the study area (reference to Table 2). The educational attainment of respondents indicates that virtually all of them were learned and enlightened except for very few (0.9%) with no formal education.

Table 2: Demographic and Socioeconomic Characteristics of Respondents

	Items	No.	% Share
Age of Respondents	18-28	105	26.3
	29-38	71	17.8
	39-48	51	12.8
	49-58	81	20.3
	59-68	70	17.5
	69 above	21	5.3
Total		399	100.0
Marital Status	Married	240	63.2
	Single	108	28.4
	Widowed/Divorced	26	6.8
	Separated	6	1.6
Total		380	100.0
Occupational Status	Student	39	12.0
	Artisan	82	25.2
	Trader	115	35.3
	Civil Servant	18	5.5
	Retiree	15	4.6
	Teacher	22	6.7
	Others	35	10.7
Total		326	100.0
Educational Status	No formal Education	3	.9
	Primary	37	11.6
	Secondary	138	43.1

	NCE/ND	66	20.6
	HND/BSC	52	16.3
	Post Graduate	24	7.5
Total		320	100.0
Average income per month (in Naira)	below 10,000	48	19.2
	10,000-20,000	69	27.6
	20,000-30,000	33	13.2
	30,000-40,000	29	11.6
	40,000-50,000	13	5.2
	above 50,000	58	23.2
Total		250	100.0

Source: Fieldwork, 2019.

Again, this corroborates their occupational statuses. Aside the students and retirees (16.6%) that could be dependent on others, majority (72.3%) of respondents were either engaged as artisans, traders, civil servants or teachers. The implication is that water consumption and waste generation would be high while affordability of the cost of water utilisation could be attained by the sampled population.

The income patterns of the studied population indicate that three-fifth (60.0%) earned less than 30,000 naira per month while the remaining two-fifths (40.0%) of them earned above. This reveals that majority earned less than Nigeria's minimum wage which could result in inability of most of them pay for public water rates. Presently, Water Corporation of Oyo State (WCOS) charges 2,000 naira flat rate where there is no meter. However, with the remaining percentage of respondents earning above new minimum wage of N30, 000, there is tendency that they are likely to afford water charges if public water provision is considered.

4.2 Sources of Water for the Residents

In the study area, various sources of potable water were identified. Table 3 presents the means by which the sampled population sourced water for drinking and other uses. The analysis shows that tube well/borehole water source dominate as major source of drinking water (39.2%) and this falls within an improved source if treated before use. More so, other sources of drinking water popular in the study area include sachet or packaged water (27.5%) and protected dug well (15.1%). Major sources of water for other uses in the study area include protected dug well (59.4%) and tube well/borehole (22.4%). Additionally, although over half (53.4%) of them reported having water throughout the year, two-fifths (40.0%) of respondents indicated not having water at all during the dry season, while few (6.6%) reported lack of water throughout the year (Figure 2). It also indicates that over three-quarters (77.1%) of respondents shared sources of water with their neighbours while the remaining two-fifth (22.9%) did not (Figure 3). This environmental setting indicates that borehole/dug wells are the common source for such gesture of sharing facility in Akinyele LGA.

Table 3. Major Sources of Water for Drinking and other Domestic uses for the Residents

Major source of water for drinking	Water source	No.	%
	Piped borne water into dwelling	12	3.1
	Piped borne water into yard	9	2.3
	Public tap	18	4.7
	Tube well/Borehole	151	39.2
	Protected dug well	58	15.1
	Unprotected dug well	8	2.1
	Protected spring	4	1.0
	Unprotected spring	1	0.3
	Rain water	1	0.3
	Tanker truck	7	1.8
	Surface water	1	0.3
	Bottled water	9	2.3
	Sachet water	106	27.5

Total		385	100.0
Major source of water for other uses by location in the building	Items	No.	%
	Piped into dwelling	21	5.5
	Piped into yard	3	0.8
	Public tap	10	2.6
	Tube well/Borehole	86	22.4
	Protected dug well	228	59.4
	Unprotected dug well	20	5.2
	Protected spring	2	0.5
	Unprotected spring	1	0.3
	Rain water	5	1.3
	Tanker truck	1	0.3
	Sachet water	6	1.6
	River/Stream/pond	1	0.3
Total		384	100.0

Source: Fieldwork, 2019.

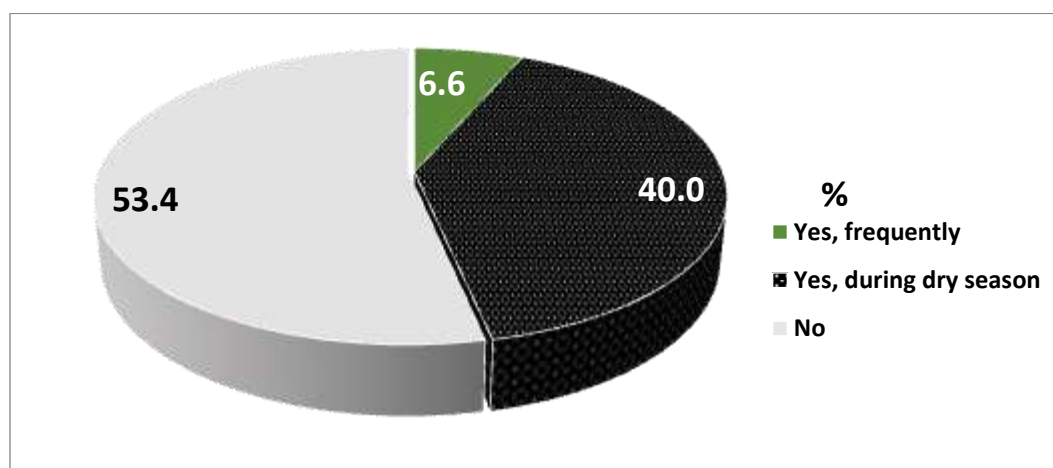


Figure 2: Period of the year of not getting adequate water

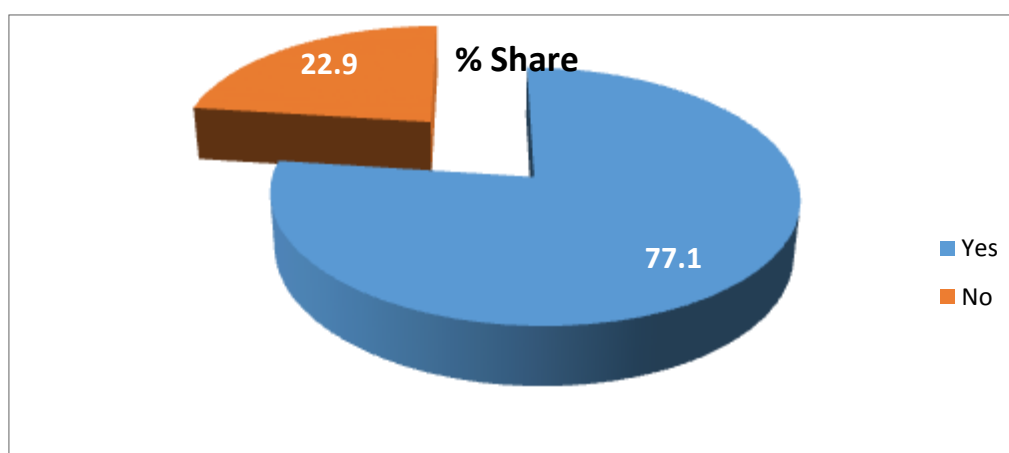


Figure 3: Respondent owners share Water Connection with other Households

4.3 Providers of Water Source Facilities

On the provision of water facilities (Figure 4), the analysis shows that private self-supply constitutes 67.7 per cent while community-provided water facilities recorded 12.9 per cent which is significant for the low-income community sustaining their domestic water needs through communal efforts. It also indicates that federal, state and LGA had not performed well in terms of provision of domestic water supply as expected of them by the water policy.

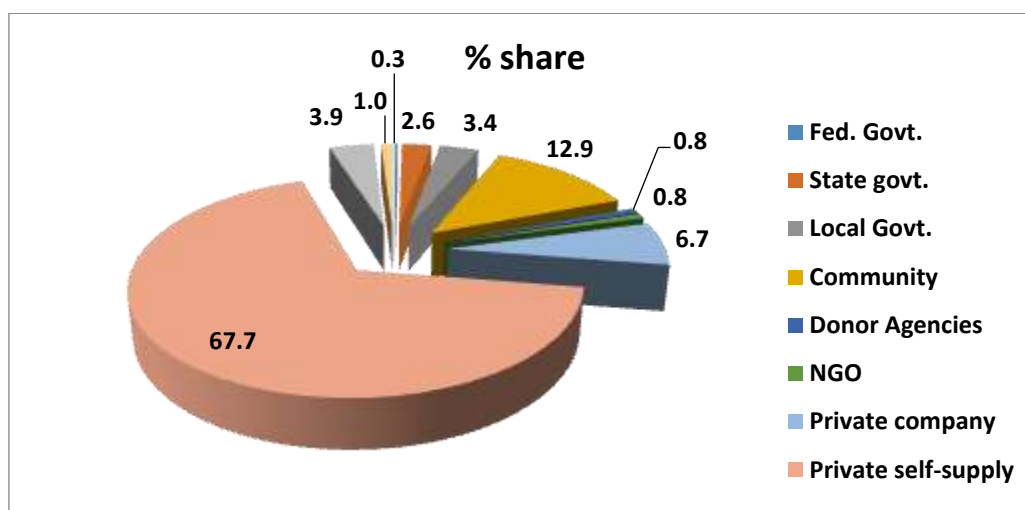


Figure 4: Providers of water source facilities by respondents

Source: Fieldwork, 2019.

4.4 Distance Accessibility to Water Facilities

Table 4 captured the accessibility of sample population to source water as related to time and distance. According to the table, majority (90.3%) of respondents have access to water source within a short period of time (1 - 10 minutes). This is followed by less than one-fifth (9.9%) with an average time of 15 minutes, while the least was an average of 35 minutes. In addition, over four-fifths (84.5%) of respondents do not access water more than average of 2-3 times in a day. The remaining 14.5 per cent access water source between 5 and 10 times a day.

Furthermore, the distance covered by the respondents to water facilities in the study area indicates moving an average of 10 metres per day to get water, while the remaining few covered between 40 metres and above per day. By implication, the sampled population appreciates consumption of water when its source is closer to them and probably would be more appreciative of it, if the source is ubiquitous and the cost is affordable throughout year.

Table 4: Distance Accessibility to Source of Water

Time taken to go to & from to the main water source (Number of minutes per trip)	Items	No.	%
	1-10mins	289	90.3
	11-20mins	16	5.0
	21-30mins	14	4.4
	31-40mins	1	0.3
Total		320	100.0
Time taken to go to and from the main water source (Round trips per day)	1-2times	107	53.5
	3-4times	62	31.0
	5-6times	23	11.5
	7-8times	2	1.0
	9-10times	6	3.0
Total		200	100.0
Distance of the residents to the source of potable water	0m-20m	235	83.3
	21-40m	18	6.4
	41-60m	12	4.3
	61-80m	4	1.4
	81-100m	8	2.8
	Above 100m	5	1.8
Total		282	100.0

Source: Fieldwork, 2019.

4.5 Reported Incidence of Water-borne Disease

The analysis in Figure 5 indicates that typhoid fever was reported by more than two-thirds (77.1%) of the sampled population. This is followed by cholera (11.4%), skin infections (8.6%) and the least is diarrhoea (2.9%). The indication of typhoid fever by majority of the respondents was probably due to drinking untreated water, which is very dangerous for the health and wellbeing of the population.

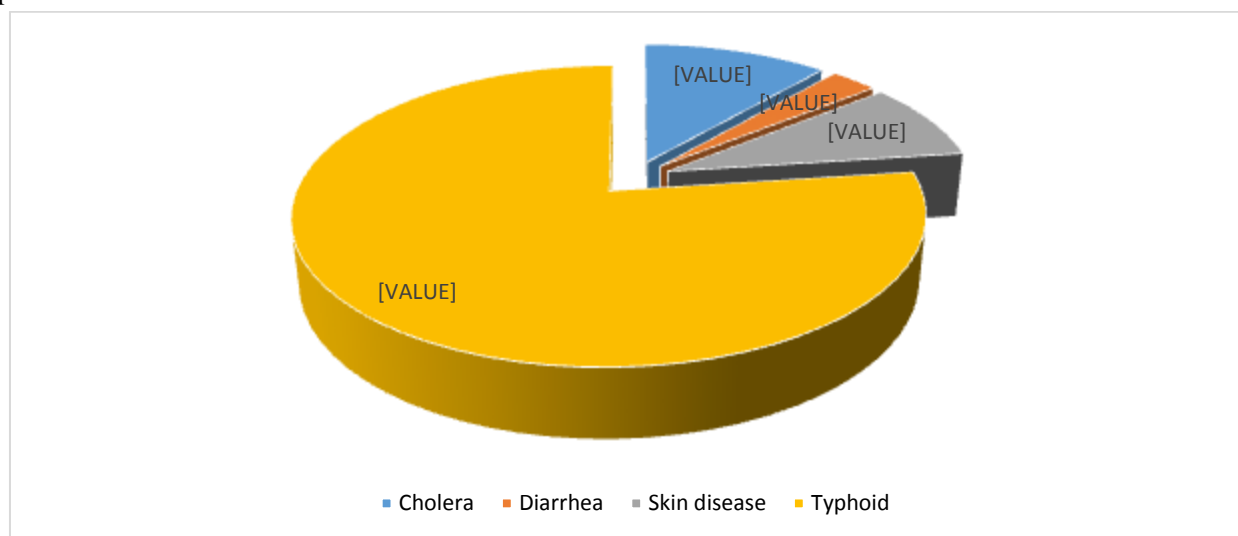


Figure 5: Water-borne Diseases Contacted by Respondents.

Source: Fieldwork, 2019.

4.6 Estimated Monthly Cost of Water Consumption

The study revealed further that over half (59.1%) of the respondents paid above ₦2,000 for water consumption in a month while the remaining two-fifths were paying lesser. This shows that respondents were paying outrageously higher for water consumption compared with what the public water provider (WCOS) is charging when the supply is metered, and relatively higher if the supply is not metered. This implies that the populace in the study area would be willing to pay for water supply by government if provided within their area (Figure 6). On the willingness to pay for public water supply, the respondents who are willing constitute 90 per cent while 10 per cent are not willing to pay (Figure 7). The major reason for not willing to pay is that provision of potable water is considered the responsibility of governments. Besides this, few of those not willing to pay claimed that they pay tax regularly while government abdicated their responsibility to provide potable water.

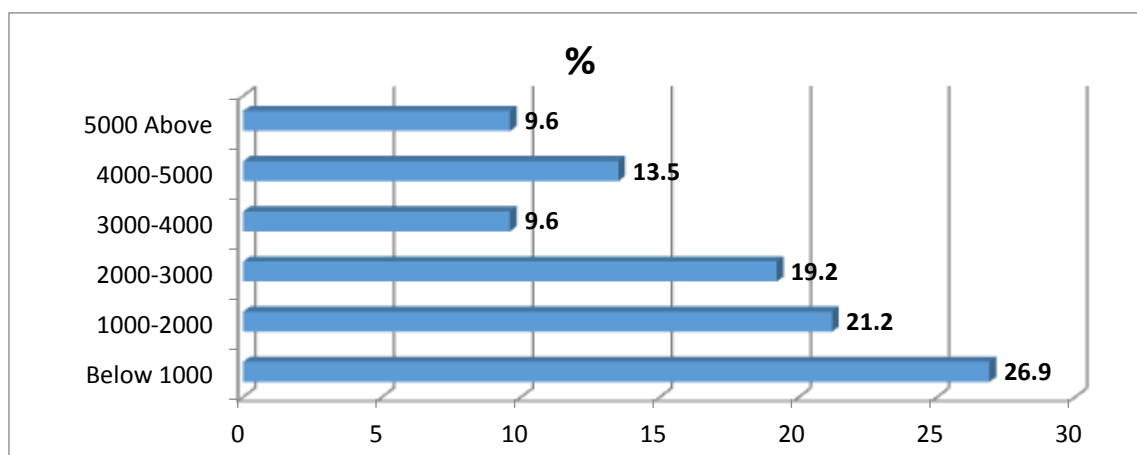


Figure 6: Estimated monthly cost of water consumption (in Naira) by respondents

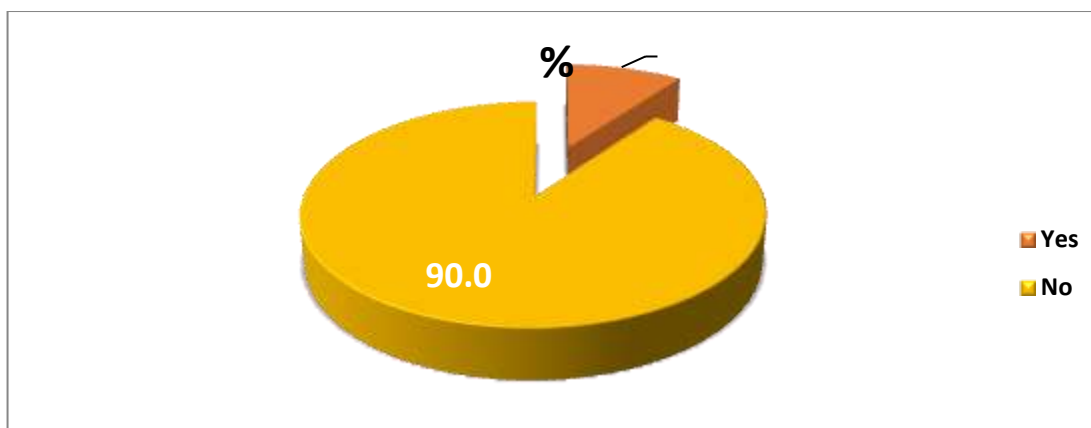


Figure 7: Respondents willingness to pay for public water supply

Further analysis result shows that there is no significant association between sources of water for drinking whether improved or not improved, with all the values > 0.005 (Table 5). This means education, income level, time and distance are not critical problem to get access to the sources of drinking water in the study area. The same is applicable to source of water for other uses except the reported incidence of diseases indicator (typhoid, cholera, skin rashes and diarrhoea) that is significant (Table 6) with p-value 0.002. This means there are other factors contributing to the outbreak of water-borne diseases in the study area perhaps caused by those who fetch water from unimproved source.

Table 5. Logistic Regression showing Association between Socioeconomic Indicators and Sources of Water for Drinking

drnk_impnot	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
Educ	0.828	0.384	-0.41	0.683	0.333	2.056
income2	1.000	0.000	-1.64	0.100	1.000	1.000
Time	1.115	0.048	2.56	0.011	1.026	1.213
Dist	1.018	0.021	0.84	0.400	0.977	1.060
Reported incidences of diseases	5.263	4.871	1.79	0.073	0.858	32.283
Constant	0.281	0.635	-0.56	0.575	0.003	23.666
Mean dependent var		0.923	SD dependent var			0.268
Pseudo r-squared		0.191	Number of obs			168.000
Chi-square		17.452	Prob > chi2			0.004
Akaike crit. (AIC)		86.049	Bayesian crit. (BIC)			104.793

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Fieldwork, 2019.

Table 6. Logistic Regression Showing the Association between Socioeconomic Indicators and Sources of Water for other Uses

Other Uses	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
Educ	0.951	0.343	-0.14	0.889	0.469	1.926
income2	1.000	0.000	-1.05	0.292	1.000	1.000
time	1.034	0.025	1.41	0.158	0.987	1.084
dist	0.997	0.009	-0.34	0.736	0.980	1.014
Reported cases of diseases	6.971	4.330	3.13	0.002	2.063	23.551
water_treat	2.536	1.668	1.42	0.157	0.699	9.204
Constant	0.084	0.166	-1.25	0.209	0.002	4.022
Mean dependent var		0.910	SD dependent var			0.287
Pseudo r-squared		0.115	Number of obs			222.000
Chi-square		15.412	Prob > chi2			0.017
Akaike crit. (AIC)		133.008	Bayesian crit. (BIC)			156.826

Source: Fieldwork, 2019

5.0 CONCLUSION

The study of domestic sources of water supply in Akinyele LGA revealed the intensity, causes and consequences of lack of publicly-provided water facilities in the area. The concerns of the populace studied not having access to quality and quantity of water needed for their well-being have also been captured in the study. Equally, the aggravated outcomes caused by the sourcing of water from unimproved facilities is the manifestation of water-borne diseases such as diarrhoea, and typhoid which are rampant in the area. It is therefore concluded that the populace, government and well-meaning partners have different roles to play to make life better for the urban residents of Akinyele LGA of Oyo State and, by extension, Nigeria, in the water sector, and less spending on the menace of avoidable epidemic diseases. The implementation of all these in all parts of Ibadan city and other towns and cities in Nigeria would fast-track the success of Economic Recovery Growth Plan Economic Recovery Growth Plan (ERGP) and help achieve Sustainable Development Goal (SDG) 6 in Nigeria.

5.1 Recommendations

The recommendations based on the results from this research study area, highlighted for actionable implementation by the federal, state and local governments as well as local and international partners (NGOs, CBOs and philanthropists), are as follows:

- That government at state and local levels should prioritise the provisions of public utility such as pipe-borne water that would serve the immediate needs of drinking, cooking and other household uses in the urban communities as the majority of respondents are willing to pay for the services of water supply when provided.
- There should be effective and regular services of potable water supply. The communities would be ready to comply and cooperate with the providers of water if their services are efficient, adequate and prompt. However, anything short of these would make the populace rebellious, shirk payment and use unimproved means to meet their water needs.
- Pipe-borne water with public taps should be provided in areas where residents could not afford connection fees (such fee that are exorbitant due to high cost of water-connecting materials and distance from the main pipe). In that, households utilising the stand pipe could be charged considerable fee.
- Finally, constant education is recommended on the need to embrace improved water sources for domestic consumption to improve the quality of life of the residents of Akinyele LGA and, by extension, Ibadan Metropolis.

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