



## ACCESS TO SAFE WATER IN AKURE: A PARADOX IN NIGERIAN URBANIZED REGIONS

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**Abstract:** One of the fundamental problems affecting millions of Nigerians is lack of access to safe sources of water. This study assesses the level of access to safe water by the inhabitants of Akure. Two thousand eight hundred and eighty one (2881) residential buildings in four residential neighbourhoods of Akure represent the research population. Using systematic random sampling technique, questionnaires were administered on a married woman in a household at every 10th building interval' thus, giving a sample size of two hundred and eighty eight (288) respondents. Data was analyzed using simple descriptive statistics such as frequency counts and percentages. Analysis of data revealed that; private well was the major source of water supply in Akure, most of which were not protected and treated, Government at the state and local levels could not satisfy the safe water needs of their citizenry and the relatively few water supply facilities provided by government were in a state of disrepair. Some practicable recommendations were made based on research findings.

**Key words:** Safe drinking water, residential neighbourhoods, urban area, region, Akure

### 1. Introduction

Access to safe drinking water is a pre-condition for health and for success in the fight against poverty, hunger, child death and gender inequality, and is also central to the human rights and personal dignity of every human-being (Jong-Wook and Bellamy, 2004). Safe drinking-water does not represent any significant risk to health over a lifetime of consumption, including different sensitivities that may occur between life stages. It is suitable for all usual domestic purposes, including personal hygiene (WHO, 2006). Generally, access to water is measured by the number of people who have reasonable means of getting an adequate amount of water that is safe for drinking, washing and essential household activities expressed as a percentage of the total population (Ishaku et.al 2011).

Water is important for agricultural, household, industrial, tourism, cultural purposes and sustenance of ecosystem (Mark et al., 2002). Access to safe drinking water is an indispensable human right as much as clean air, but, majority of the world's population lacks access to it. Demand for clean and safe water has become more acute in the context of growing global population, particularly in less-developed countries (Cohen, 2006). Of the 6 billion people on Earth, over 1 billion lack access to safe drinking water (Amoo and Akinbode, 2007). Approximately three out of every five persons in developing countries lack access to safe drinking water (Garg et.al, 2005). Among the 152 million who reside in Nigeria, less than 30 percent have access to adequate drinking water (Krebs, 2010).

Recent survey by Majuru et al., (2011) estimated that 65 million Nigerians had no access to safe water. Increasing population, rising demands for food and cash crops, increasing urbanization and rising standards of living are the major factors leading to shortage in supply of fresh waters (Muta'aHellandendu, 2012). One of the fundamental problems affecting millions of Nigerians is lack of access to safe sources of water supply. Nigeria as a nation has been experiencing an accelerated shift of her populations from rural to urban areas. This rapid rate of urbanization has engendered several challenges and problems similar to situations in other parts of the world (Muta'aHellandendu, 2012). However, it is the responsibility of government of any nation to provide adequate quality of portable water for its citizenry (Ajibade et.al, 2012).

In Akure, several attempts have been made to improve access to safe drinking water and ensure water security by successive government. These efforts include construction of dams, provision of water networks in major cities of the state, construction of boreholes by several organizations and individuals, as well as the release of constituency allowance to legislators to construct boreholes in their localities. Recent efforts embrace the construction of solar-powered boreholes by the Ondo state government, among several others. Despite these attempts, access to safe drinking water is still a mirage to the considerable proportions of the inhabitants of Akure (Aribigbola, 2010). The objectives of the study, therefore, are to: (i) identify the sources of water supply in

the area; (ii) examine the role of government in safe water provision; (iii) assess the quality and level of safe water provision relative to the satisfaction of residents; and (iv) identify the current challenges plaguing safe water provision to proffer practicable solutions.

## **2. Literature Review**

Virtually all urban areas in Nigeria suffer water supply shortages relative to demand. The public water supply is erratic, intermittently unreliable, and, in some cases, inaccessible, thus resulting in high dependency on supplementary sources (Aribigbola, 2010). Problems of mortality, morbidity and poverty have been reported in literature as consequences of lack of safe drinking water supplies as well as poor sanitation coverage (Nwankwoala, 2011 and WHO, 2010). The high prevalence of diarrhoea diseases among children and infants can be traced to the use of unsafe water and unhygienic practices (Admassu et al., 2004). Inadequate access to safe drinking water or shortage in the supply of fresh waters and improper sanitation cause an estimated 4 billion cases of diarrhoea and 1.9 million deaths in developing countries, mostly among young children. In addition, waterborne diarrhoea diseases lead to decreased food intake and nutrient absorption, malnutrition, reduced resistance to infection, and impaired physical growth and cognitive development (Lantagne and Gallo, 2008).

Drinking contaminated water can reduce personal productive time, with widespread economic effects, especially affecting vulnerable groups such as women, children, poor people in rural areas, and slum dwellers (Hutton et al. 2007). UN in 2002 asserted that with adequate supplies of safe drinking water, the incidence of some illnesses and death could drop by as much as 75%. Living standard is not only determined by income and consumption, but non-economic aspects such as life expectancy, mortality, access to clean drinking water, education, health, sanitation, electricity and security are also important determinants of wellbeing (Saidatulakmal and Riaz, 2012). In a bid to realize sustainable access to safe water supply and enhance well being, United Nations as part of its Millennium Development Goals (MDGs) stipulates that by 2015 the population of people without sustainable access to safe water will be reduced by half (Linda-stalker, 2005). The primary objective of this development is to improve the quality of drinking water and reduce the debilitating effect of water-borne diseases on the population.

Statistics between 1990 (the benchmark year for the World Health Organization/UNICEF Joint Monitoring Programme) and 2004 show aggregate improvements in the percentage of those with safer sources of water and sanitation. According to Water Aids International, only 45 percent of Nigeria's population have access to safe drinking water (World Bank Group, 2011), this increased to 58% in 2012 (UNICEF & WHO, 2012). Figures estimated by WHO/UNICEF and the National Bureau of Statistics (2007), indicate that 72% of urban dwellers and 47% of the rural population have access to improved water sources. Despite this improvement, an international agency, (Water Aid Nigeria) has revealed that around 63 million Nigerians (nearly 40 per cent of the total estimated population of 160 million persons) lack access to potable water. Remarkably, ten per cent (10%) of 783 million people who lack access to potable water are Nigerians (Akinsuyi, 2014).

## **3. Materials and Method**

### **3.1 Research Locale**

Akure is a traditional Nigeria city in Yoruba region of the country that had existed long before the advent of British colonial rule (Afolabi, 2008). The city is located within Ondo State in the South Western part of Nigeria. Akure is a medium-sized urban centre which became the provincial headquarters of Ondo province in 1939 but doubled as the capital city of Ondo State and Akure Local Government headquarters in 1976. These dual political roles of Akure have since acted as impetus to the influx of people into the city (Olujimi & Olamiju 2011). Akure is located approximately 700 kilometers South West of Abuja, the Federal Capital of Nigeria and about 350 kilometers to Lagos (the former capital of Nigeria). It lies on latitude  $7^{\circ} 15'$  North of the Equator and on longitude  $5^{\circ} 15'$  East of the Greenwich meridian. It stands on the altitude of about 370 meters above the sea level (Ondo State Government Agro-climatological and Ecological Monitoring Unit, 2007). It shares geographical boundary with Owo Local Government Area in the east, Akure North and Ifedore Local Government Areas in the north, Ile-Oluji/Okeigbo Local Government Area in the west and Idanre Local Government Area in the South.

### **3.2 Method**

In view of the extended geographical coverage of the city, this study was limited to four (two public and two private) residential neighbourhoods in Akure. It employed the use of a well-structured questionnaire to assess the level of safe water supply in the selected residential neighbourhoods. With the aid of satellite imagery of Akure obtained via Google Earth coupled with reconnaissance survey, the numbers of buildings in the four selected residential neighbourhoods (Ijapo Estate, Shagari village, Apatapiti and Oke-Ogba) were determined to represent the research population.

**Table 1: Selection of Respondents Across the Selected Neighbourhood**

S/N	NEIGHBOURHOOD	RESEARCH POPULATION	SAMPLE SIZE (10%)
PUBLIC RESIDENTIAL NEIGHBOURHOOD			
1.	Ijapo	688	69
2.	Shagari village	861	86
<i>Sub-Total</i>		1549	155
PRIVATE RESIDENTIAL NEIGHBOURHOOD			
3.	Oke-Ogba	579	58
4.	Apatapiti	753	75
<i>SUB-TOTAL</i>		1332	133
<b>GRAND TOTAL</b>		<b>2881</b>	<b>288</b>

There are two thousand eight hundred and eighty one (2881) residential buildings in the study area. Using a systematic random sampling technique, 10% (288) buildings were systematically selected for resident's interview at every 10<sup>th</sup> building interval across the study area. In each selected building, questionnaire was administered on a respondent who is a married woman in the household and preferably above age 18.

This sample size is justifiable considering the homogeneity of population and similarity in the pattern of demand for water by the research population. Data obtained from the research were collated and analyzed using the computer Statistical Package for Social Science (SPSS) Version 16.

#### 4. Results and Discussions

This paper was specifically designed to assess the level of access to safe water by the inhabitants of Akure. The sources of water supply to the teeming inhabitants of the city were investigated and the role of Government in safe water provision in the area was examined relative to residents' satisfaction with the quantity and quality of water supply in the city.

##### 4.1 Sources of water supply in Akure

Analysis of data obtained from the field revealed that 2.4% of the inhabitants of Akure obtained water from stream/river, 58.7% from private well, 30.6% through borehole and 8.3% pipe-borne water. Well appears to be the predominant source of water supply to the teeming Akure residents. The 2011 report of the Ondo State Ministry of Economic Planning and Budget had declared that the source of water for domestic purpose for majority of households in the state is well. The predominance of well in the study area may not be unconnected to the fact that it is cheaper and easier to construct than borehole and pipe-borne water



*Fig. 1 Resident fetching water from a private well in Apatapiti neighbourhood, Akure*

##### 4.2 Level of satisfaction with the quality of water

Water is vital for life, development and the environment (Niyi and Felix, 2007). As a necessity of life, the quality is also important. Greater percentage (29.2%) of the respondents claimed to be satisfied with the quality of water used, closely followed by very satisfied (27.4%), fairly satisfied (25.3%) and unsatisfied (18.1%). Evidently, a sizeable number (58.7%) of the residents make use of water from wells. This is considered unhygienic because WHO/UNICEF (2011) classifies borehole and pipe-borne as the improved water sources that are more hygienic and safe for consumption than unprotected wells. Field observation revealed that most of the wells in the study area are not protected and treated; an indication that water from this source might contain pathogens which are harmful to human health. Despite the ironical level of satisfaction, majority of the respondents (51.7%) still agreed that the quality of water used is low.

##### 4.3 Agents of water provision

Agbaeze (2003) and John-Dewole (2012) asserted that the supply of potable water in adequate quantity and quality is a vital factor in the determination of good health, welfare and productivity of the human population. Across the residential neighbourhoods, self-effort (78.5%) is the predominant means of obtaining water; 6.3% through private institution, 13.2%

through government water provision mechanism and 1.0% through public and private institution collaboration. Already, literature maintains that majority of Nigerians depends on self-efforts in meeting their daily water and sanitation needs (Akpabio, 2012).

About 76.0% of the respondents did not realize government intervention in the provision of safe water, besides the 18.8% and 5.2% that had access to the public boreholes and pipe-borne water respectively. Obviously, government at the state and local levels could not satisfy the safe water needs of their citizenry. Water supply facilities provided by government in the area were in a state of disrepair, perhaps due to lack of maintenance (Fig. 2 and 3). As earlier note, public facilities do not last long due to lack of maintenance (Adedokun, 2011).



Fig 2: Overhead water storage



Fig 3: Solar-powered borehole

*Non-functional overhead water storage and moribund solar-powered bore hole provided by Ondo State Government in public and private residential neighbourhoods of Akure*

#### 4.4 Major factors of inadequate water supply

Most residents (75.2%) in the area attributed the inadequate water supply to poor funding by government, 19.8% to rapid population growth, and 5.6% to long distance to source of water supply. As observed by Oluwa (2012), the near collapse of public infrastructure in Nigeria is occasioned by many years of neglect by the government, lack of maintenance culture and effective planning. The implication of this is that when provision of clean water is inadequate, people are compelled to use contaminated water that results to outbreak of water related diseases (Adeoye *et al*, 2013). Idogho and Yahaya's estimates of Water-Stress Ratio in Western Nigeria, particularly on functional safe drinking water in Ondo-State in 2012, revealed that there were ten (10) solar powered boreholes, thirty (30) hand pump boreholes and forty (40) modern grouted wells in Akure. Current data obtained from the Water Board revealed that Ijapo Estate has 1 solar-powered borehole, Shagari Village, 2; Oke-Ogba, 1; and Apatapiti/Alaba layout 1. Of these four locations, Ijapo estate has been provided with water reticulation networks while the rest have none. These facilities, no doubt, were inadequate to cater for the teeming inhabitants of the rapidly growing city.

#### 4.5 The role of the State Water Corporation

Data were obtained from the Group Managing Director as well as the Monitoring and Evaluation Officer of the State Water Corporation. At inception, Ondo State Water Corporation and Water and Sanitation Agency (WATSAN) supplied water to the city. This was sourced from the old Owena Water Scheme Dam that has been in operation since 1965 with fifty years lifespan and a design capacity of 9,900 cubic metres per day. This is augmented by the River Ala- Alagbaka estate Water Scheme of design capacity of about 1,350 cubic meters per day. The old Owena Water Dam was essentially designed to provide water for the inhabitants of Akure, Ondo and Ile-Oluji. Currently, this dam has collapsed and can no longer serve these locations optimally. Complimentarily, the New Owena Multipurpose Water Dam of 60,000 cubic metres capacity was constructed with automated plan but has as well failed to function for lack of reticulation and distribution networks. The needed assistance by government (15billion dollars) to put these facilities in place is not forthcoming. The agency has been soliciting for funds from World Bank and other International Agencies/Donors to rescue the situation. The first rig in the state was donated by United Nations Childrens Fund (UNICEF) in 1992. Continous usage of this rig coupled with rising population and urbanization subsequently made it dysfunctional. Consequently, the agency embarked on rehabilitation and upgrading of various water schemes in Akure to meet the currents needs of the residents. In a collaborative effort to improve supply of potable water in Ondo State generally (Akure inclusive), the state government in 2011 procured two sets of deep rock (D.R 150) drilling rigs for WATSAN. In spite of these efforts, factors such as rapid population growth, increase in the areal extent of the city, poor maintenance culture by successive government, inconsistency of government policies, shortage of skilled man power, poor funding and management, inadequate reticulation network, lack of information and education, land issues and arificial water scarcity have crippled the activities of the agency in Akure.

## 5. Policy Recommendations

Water as a unique natural resource plays vital role in human welfare and survival. Access to safe drinking water is as important as health and development issues at national, regional and local level. Adequate supply of safe, clean, reliable and piped water to every household is the most important precondition for sustaining human life. This paper has discovered that access to safe water by the inhabitants of Akure is grossly inadequate. This was largely attributed to the failure of government and rapid population growth.

Access to safe drinking water is an indispensable human right. As such, provision of additional borehole and pipe-borne water at strategic locations in the study area by the state government is advocated with water reticulation pipes. This represents a service system that will enable residents connect water to their homes. With rapid population growth, government cannot sustainably provide safe water for all; hence the need for a synergy between government and private sectors. Public-Private Partnership (PPP) in water provision should be encouraged particularly by various stakeholders towards providing safe water to those segments of the population that are financially incapacitated.

It is equally necessary for the state government through WATSAN to establish Monitoring and Maintenance Board (MMB) to upgrade and improve the quality and quantity of existing water provision facilities. Through MMB, the public can be educated on modern maintenance, collect information on consumption, analyze and advise government regularly on efficient management of safe water supply. In the process, the moribund facilities will be put into productive use and sub-urban region in dire need of safe water will be identified for necessary actions and better performance.

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