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Assessment of Government Efforts in Provision of Potable Water in Ogun and Neighbouring States: A Review

Adewoye Alade Olanipekun[1*], Quadri Opeyemi Saka[2], Daniel Uwumarogie Idusuyi[3], Oluwatobi Oluwaseun Aiyelokun[4], Femi Alao[5], Opeyemi Bayode[6], Adewale Samson Adeyi[7]

[1,3,5,6]Department of Civil and Environmental Engineering, College of Engineering, Bells University of Technology, Ota, Nigeria

[2,7]Department of Building Technology, College of Environmental Sciences, Bells University of Technology, Ota, Ogun State, Nigeria

[4]Department of Civil Engineering, Faculty of Technology, University of Ibadan, Nigeria

ABSTRACT

Access to safe drinking water is a basic human right, yet substantial challenges persist in the provision of extensive, sustainable and potable water supply across Nigerian communities. If these challenges remain unresolved, residents are at risk of contracting preventable and deadly water-borne diseases. This is particularly important in light of the recent cholera outbreak experienced in some parts of Ogun and Lagos States, Nigeria. Therefore, this study investigated the effectiveness of government's policies, programmes, budget commitments and institutional frameworks regarding the provision of potable water to the public. A systematic review of recent literatures published between 2015 and 2023, which contained empirical studies about Ogun and neighbouring Southwestern States was conducted to determine potable water access rates, supply infrastructure, quality assurance and government policies. Results of analysis of potable water access revealed that less than 50% of households currently have public pipe-borne water connections, while access in rural centres is less than 19%. Results of analysis of supply infrastructure revealed that State water agencies face severe underfunding preventing capital investments into distribution networks and treatment plants. Results of analysis of quality assurance revealed that over 50% of residents consume untreated surface and groundwater sources which could cause communicable and fatal water-borne diseases. Results of analysis of government policies revealed that corruption, inadequate technical know-how, monitoring gaps, insufficient data collection and sustainability challenges inhibit thorough policy formulation and implementation. This study therefore concludes that increased long-term investments, infrastructural upgrades, standard treatment plants, operational decentralization and robust data collection will improve potable water provision so as to meet the sixth recommendation of Sustainable Development Goals (SDGs). This work is applicable in potable water provision for improvement of public living standards, thereby preventing the outbreak of waterborne disease.

Keywords: Water-borne diseases, Supply infrastructure, Quality assurance, Government policies, Sustainable development goals, Potable water

INTRODUCTION

Access to safe drinking water is considered a fundamental human right, affirmed by the United Nations General Assembly and recognized as critical to other rights such as health, housing, food, dignity and education (United nations Department for Economic and Social Affairs) (UNDESA, 2005). Also, the United Nations Sustainable Development Goals

* Corresponding Author: aaolanipekun@bellsuniversity.edu.ng

(SDGs), adopted by world leaders in 2015, included a dedicated goal to "ensure availability and sustainable management of water and sanitation for all" by 2030 (UNDP, 2022; UN Water, 2023). Yet, the World Economic Forum (2023), reported that more than one billion people still lack access to clean water, with Sub-Saharan Africa having the lowest coverage and recording the slowest progress globally.

Similarly, according to the National Outcome Routine Mapping of Water, Sanitation and Hygiene Service Levels (WASH-NORM) (2019), approximately 30% of Nigeria's population (equivalent to 60 million people) lack access to clean water. Furthermore, 84% (167 million people) do not have hand-washing facilities equipped with soap, while 56% (about 112 million individuals) lack adequate sanitary facilities. Alarmingly, 23% (46 million people) of the Nigerian population engage in open defecation and other unhygienic practices (WaterAid, 2018; World Economic Forum, 2023). According to WaterAid (2018), Nigeria's National Water Supply and Sanitation Policy which was first formulated in the early twentieth century, has often emphasized the provision of potable water for prevention of water-borne diseases (cholera, hepatitis and dysentery), improved quality of life and enhanced economic productivity.

However, implementation has faltered across institutional, financial and infrastructural lines. The policy's long-term goal was to achieve 100% coverage by 2025, which now seems unattainable given that less than 70% of Nigerians currently have access to basic water services (Balogun and Redina, 2019). In addition, the country in recent years has experienced a regression in its advancements regarding access to piped water and enhanced sanitation. As reported by WaterAid (2018), data from the UNICEF-WHO Joint Monitoring Programme (JMP) reveals that although there has been increase in access to improved water sources nationwide, still, access to piped water directly into individual homes in urban areas have dwindled.

Specifically, the percentage of urban areas with access to piped water on-site decreased from 32 percent in 1990 to below 10 percent by 2015, indicating a significant decline in utility coverage. In Southwestern Nigeria, Ogun State faces comparable challenges in meeting citizens' potable water needs, despite its proximity to Lagos which is Nigeria's strongest economic base. In Ogun State, less than 50% of the population currently have access to drinkable water, indicating substantial problems in water infrastructure and highlighting government's inadequate commitments (Adesogan, 2014; Coster and Otufale, 2016). Furthermore, water quality testing across Ogun communities has frequently detected levels of pathogenic bacteria, organic matter, heavy metals and other toxins exceeding World Health Organization (WHO) guidelines on turbidity and nutrients that directly threaten human health (Oke *et al.,* 2017).

Similarly, spot testing shows extensive biological and chemical contamination from sewage lines, industrial effluents, agrochemical leaching and other anthropogenic activities, which have all contributed significantly to contamination exceeding acceptable limits. Despite these alarming developments (contamination risks from farm runoff, sewage and industrial pollution), surface water sources such as ponds, streams and shallow wells still remain primary water collection sources across villages, small towns and even peri-urban neighbourhoods in Ogun State (Coster and Otufale, 2016).

Institutional Framework, Policies and Commitments for Potable Water Provision

The institutional structure for provision of drinking water in Nigeria operates at Federal, State and Local government levels. The Federal Ministry of Water Resources, through agencies like Nigeria Hydrological Services Agency, River Basin Development Authorities and WASH units, formulates nationwide policies, regulations and programs, monitors water resources and coordinates with State water agencies to deliver potable water

to the people (Balogun and Redina, 2019). Similarly, Nigeria's 36 States, through Water Ministries/Corporations and Rural Water Supply and Sanitation Agencies (RUWASSA), oversee State-wide investments into potable water and sanitation access programmes meant for smaller towns and rural communities. Also, at the lowest tier, Nigeria's 774 Local Government Areas (LGAs) implement community-based projects aimed at improving water supply and sanitation through their Departments of Water, Health and Environment.

These agencies receive federal allocations, retain revenue for infrastructural projects and also respond to local needs. However, coordination complexities between these agencies frequently stall progress. Additionally, limited data collection by State monitoring agencies constrains evidence-based allocation of resources to worst-affected areas. According to Ngene *et al.* (2021), some of the efforts of the Nigerian government from the mid-1970s to date regarding the provision of adequate water supply for Nigerians included the establishment of Federal Ministry of Water Resources (FMWR) and the River Basin Development Authority (RBDA) under separate decrees. Among the offshoots of these interventions were the Water Supply and Sanitation Sector Reform Programme established in 2006 for the integration of institutional, financial, technical, and environmental initiatives to provide equitable and sustainable access to water and sanitation across rural communities (WaterAid, 2018).

It also ambitiously targeted the provision of potable water and eradication of open defecation across rural communities nationally by 2030. However, the lack of continuity in the implementation of water management and supply policies has been a serious issue for several States of the federation. Currently, only 58% of Nigerians have access to basic water services, while open defecation remains above 20%, indicating major gaps. In addition, only 3.5% of Nigeria's annual federal budgets fund the entire water, sanitation and hygiene sector, trailing the 5% African Union recommended benchmark (Egbide *et al.,* 2022). However, the quest to meet the SDGs target of providing and supplying clean water for mankind should be a collective effort of all government agencies (Ogun State inclusive), private sector and institutions. As such, Coster and Otufale (2016) reported on the Ogun State government's intention of creating water kiosks in some parts of the State.

"Waterkiosking" refers to a mini community-based water supply scheme for water storage. The report also included the government's intention to improve water supply by upgrading existing water infrastructures, while also enhancing production and distribution capacity. This effort is in addition to other intervention efforts such as drilling of boreholes and digging of wells. According to Solanke (2015), Ogun State has a Rural Water Supply and Sanitation Policy (RWSSP) that adopts global SDG targets, thereby affirming water as a human right. Furthermore, the Ogun State Water Corporation augments its LGA efforts by investing in water supply infrastructures such as dams and reticulation systems for expansion of household connections. However, sufficient funding and implementation gaps still remain. Some of these gaps were caused by the ceasing of the foreign funding which sustained previous Ogun water projects, after Nigeria attained middle-income status in the global ranking.

According to the report, only 39% of residents pay for piped water connections, thereby reducing cost recovery and infrastructure maintenance funds. Till date, no real efforts have been made to improve the situation. Furthermore, the rapid rural-urban migration and industrialization efforts have also significantly expanded water demand and treatment burdens, thereby necessitating increased investments which the government is yet to fulfil (Balogun and Redina, 2019). In the other neighbouring States of the Southwest, residents also rely extensively on boreholes, wells, rivers, streams, rainwater harvesting and pipe-borne water for their water needs. Although, State governments in the Southwestern part of Nigeria have been making efforts to provide pipe-borne water through their respective water

corporations since the late 19th century (Gbadegesin and Olorunfemi, 2007; Balogun *et al.*, 2017; Olawade *et al.*, 2020; Eludoyin and Olanrewaju, 2021).

However, paucity of funds and poor maintenance practices has led to the failure of these corporations to sustainably provide potable water to meet household demands. Hence, citizens, State governments and even non-government organizations (NGOs) have resorted to drilling boreholes for needy communities as shown in Figures 1 and 2. The borehole approach helps to pump water into storage tanks so that people can fetch when needed. The boreholes are more appreciated in the rural communities with severe cases of potable water lack. However, corruption and poor maintenance culture have affected the sustainability and effectiveness of the initiative. Rural communities that do not have access to boreholes consequently turned to wells, rivers and streams as shown in Figure 3. Suffice to mention that the integrity and quality of water obtained from these sources remain questionable (Oke *et al.*, 2017; Eludoyin and Olanrewaju, 2021).

Figure 1: Provision of motorized borehole with overhead tanks in Lagos State

Figure 2: Children collecting water from a manual borehole in Ondo State

Figure 3: A woman collecting stream water in Ogun State

The background provided therefore builds a strong rationale for an objective assessment of State government efforts spanning policies, budgets, programmes and interventions aimed at providing potable piped water for citizens to enhance public health and economic outcomes. While laudable investments have been made over the years, the continuing water insecurity calls for a systematic inquiry into why States in the Southwestern part of Nigeria continue to underperform in this vital SDG parameter, despite the significant governance capabilities and infrastructural advantages they possess over other Nigerian States facing similar challenges. To achieve this, this study adopted a comprehensive mixed methodology combining analysis of time-series secondary data on household piped water access, capital budgets and expenditures, with water quality testing results for contamination prevalence across Southwest, Nigeria. Ogun State was used as the primary study area, while the neighbouring States were also assessed as secondary data sources for data robustness and improved understanding of the subject. The specific objectives included; measuring the effectiveness of existing policies; assessing institutional coordination; determining budget utilization by State agencies against water access targets; and identification of factors impeding optimal outcomes for citizens despite growing financial allocations.

MATERIALS AND METHODS

Study Area

Ogun State is located in Southwestern Nigeria, bounded on the West by Benin Republic, on the South by Lagos State and the Atlantic Ocean, on the East by Ondo State and the North by Oyo and Osun States. It covers a total land area of 16,762 km^2 divided into 20 LGAs with Abeokuta as the capital (Solanke, 2015). Ogun is home to Nigeria's foremost industrial corridor along the Sagamu-Ijebu Ode axis comprising manufacturing, pharmaceutical, cement, steel and food processing firms. It has a population of approximately 7 million, with 63% in rural areas. Annual economic productivity of over $10 billion in GDP places Ogun among Nigeria's top six States (National Bureau of Statistics, 2022). However, only 42% of households have access to pipe-borne water supply, with rural access lagging at 19%.

Consequently, surface water sources (streams, ponds and shallow wells), helps to meet two-thirds of water needs in the State, thereby increasing the possibility of public health diseases from industrial effluents and sewage contamination (Eludoyin and Olanrewaju, 2021). Therefore, Ogun State presents an apt case for assessing government effectiveness in

providing safe piped water access to citizens amidst the State's strong economic realities. State agencies overseeing water supply in Ogun State include the Ministry of Rural Development, which administers Ogun State Water Corporation (OSWC) and RUWASSA, apart from the water reticulation units within the 20 LGAs (Balogun and Redina, 2019). However, despite the huge institutional structures available in the State, potable water access still remains below expectations.

Research Design

This study assessed the State government's efforts towards securing universal access to potable water by relying on findings from twenty (20) shortlisted relevant peer-reviewed articles published between 2015 and 2023. A systematic search was conducted on scholarly databases to identify articles bordering on drinking water quality analysis, contamination index, access rate measurement and evaluation of government effectiveness about Ogun State and other States in Southwest Nigeria. The following keywords and Boolean operators were deployed: ("water access" OR "water supply" OR "drinking water" AND (Ogun OR Southwest Nigeria OR "sub-Saharan Africa") AND (governance OR policy OR institution OR initiative OR corruption OR spending OR infrastructure). Identified articles were screened for relevance to drinking water issues. Out of the 20 shortlisted articles, the most recent and relevant fourteen (14) articles containing substantial data were selected.

Data Extraction and Analysis

Findings and key information were systematically extracted from the 14 articles capturing information along two key parameters as shown in Table 1:

i) Government policies, budget, expenditures and execution which were evaluated through specific policies, budget announcements and utilization figures from State agencies and local bodies responsible for maintaining drinking water infrastructures. Execution was gauged through project completion rates.

ii) Institutional mechanisms designed for providing drinking water and supply management were evaluated using the strengths, weaknesses and gaps in existing structures for planning, implementation, quality monitoring and sustainability. Additionally, notable challenges and recommendations highlighted in previous studies were captured as well.

Table 1: Research articles used for analysis

	Research articles and reports	Author(s)
1	Water Management in Nigeria: An insight and lessons from Budgetary Instrument	Nzeh (2019)
2	National Water Resources Policy	National Water Resources Policy (2016)
3	Water supply regulation in Nigeria: problems, challenges, solutions and benefits	Balogun and Redina (2019)
4	An empirical analysis of the implications of insufficient portable water supply on productivity: A case study of South-Western Nigeria	Ehinomen and Chigozie (2018)
5	Water resource management in Nigeria: Acceptability of treated municipal wastewater reuse in federal capital city, Abuja	Iheukwumere *et al.* (2021)
6	Public water supply in Lagos State, Nigeria: Review of importance and challenges, status, concerns and pragmatic solutions.	Balogun *et al.* (2017)
7	Sustainable water supply methods for residential estates in Lagos metropolis	Alabi *et al.* (2014)
8	Water, sanitation and hygiene practices in Ogun State: Impacts and	Olukanni *et al.* (2021)

	implications for post-COVID-19 era	
9	Nigeria: Effective financing of local governments to provide water and sanitation services	WaterAid (2018)
10	Assessment of water resources development and exploitation in Nigeria: A review of integrated water resources management approach	Ngene *et al.* (2021)
11	Water policy reform in the Nigeria water governance system: assessment of water resources management based on OECD principles on water governance	Ukpai (2022)
12	Review of drinking water quality in Nigeria: Towards attaining the sustainable development goal	Nwinyi *et al.* (2020)
13	The trend in access to safe water supply in Nigeria	Egbinola (2017)
14	2023 appropriation bill for the ministry of water resources	Federal Ministry of Water Resources (2023)

RESULTS AND DISCUSSION

Effectiveness of Existing Policies, Institutional Coordination and Budget Utilization

According to Balogun and Redina (2019), there are three principal levels of government agencies responsible for the water supply across Nigeria. They include the federal, state and local government agencies through their respective water corporation schemes, including pipe-borne water, boreholes and wells. As shown in Figure 4, there was a consistent decline in the level of water supply in certain States of the country between 2014 and 2016. Notable States in this category were Kano, Lagos, Ogun, Rivers and Jigawa. Furthermore, States (Ondo and Sokoto) that experienced regime changes or reshuffling of cabinet members in charge of water supply agencies experienced a positive change in water supply during the period. Data also revealed that water supply levels of Oyo, Ogun, Osun, Katsina, Imo, Edo, Ekiti, Ebonyi, Delta, Cross River, Bayelsa, Borno, Benue, Akwa Ibom and Anambra States were significantly below 50% as opposed to that of Abuja which was more than 200%.

These results indicate that water supply across states in the Southwest has been significantly low and fails to meet the ever-increasing demand. As a result, residents turned to individually digging boreholes and wells, while many in the rural areas obtain water from nearby rivers and streams. While the study emphasized the need for government intervention to meet the sixth SDG agenda for 2030, which is the provision of safe and clean water for all, it also recognized the need for collaboration with private individuals and NGOs. These results also agree with the findings of Egbinola (2017) which reported that households with access to piped water in Nigeria consistently declined from 61.9% in 1995 to 9.5% in 2010, thereby pushing the masses to unsafe alternatives. Furthermore, Egbinola (2017) attributed the consistent decline to deficiencies in government policies during the award of water contracts, as many of these projects are often abandoned because of corruption or regime change.

According to Ehinomen and Chigozie (2018) which examined water supply sources in Ekiti State as shown in Table 2, the study found that about 197 (16.8%) out of a total of 1174 respondents have access to pipe-borne water, while 19.2% and 4% depend on wells and rivers/streams respectively for their water needs. Furthermore, nearly 59% of the respondents rely on either government-assisted or individually dug boreholes, indicating a low government intervention regarding water supply infrastructure. While data reveals water supply insufficiency across Ekiti State, the study also ascribed the insufficiency to poor policies and inadequate allocation of funds to the State water corporation. Similarly, an examination of the federal government's 2023 appropriation bill reveals that the sum of ₦131billion was allocated to the Ministry of Water Resources to construct dams, water

schemes, boreholes, bridges and irrigation systems. This also includes overheads, recurrent expenses, personnel salaries/wages and other miscellaneous expenses (Federal Ministry of Water Resources Appropriation Bill, 2023).

However, only eleven water projects were planned for the 2024 fiscal year with majority allocated to the Northern part of the country. This signifies the low level of commitment by the federal government in providing clean and potable piped water for people in the country, especially the Southwestern States. It is also important to emphasize that this low commitment from the federal government is similar to the one displayed by Southwestern State governments too.

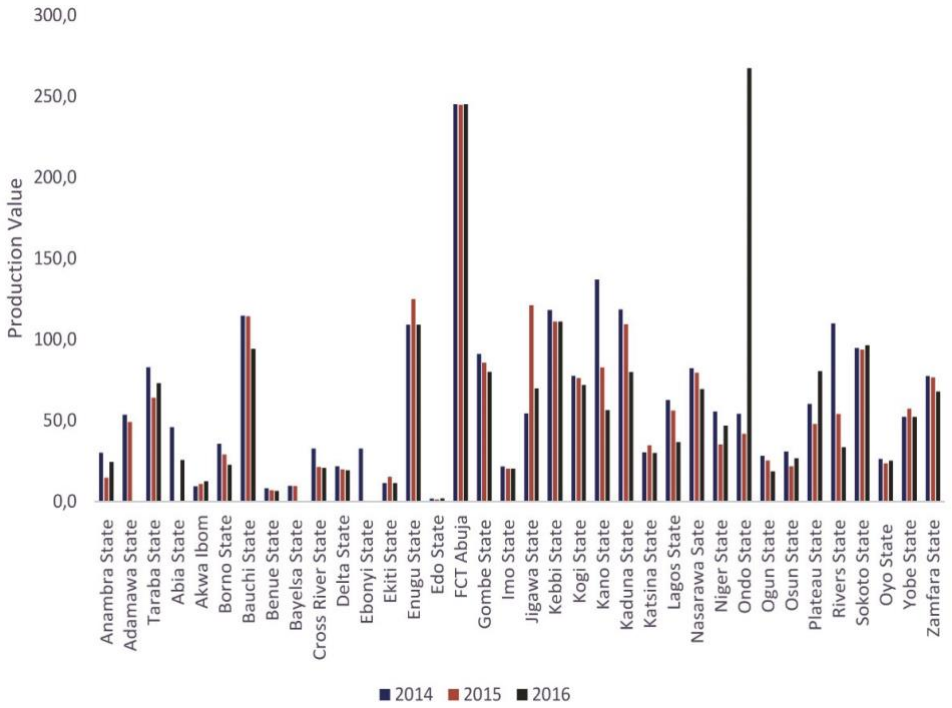

Figure 4: Water supply levels of States between 2014 and 2016
Source: Balogun and Redina (2019)

Table 2: Sources of water supply across Ekiti State

S/N	Source of water	Frequency	Percentage (%)
1	Piped water	197	16.8
2	River, Spring and Stream	51	4.3
3	Well	225	19.2
4	Borehole	696	59.3
5	Others	5	0.4
	Total	1174	100.0

Source: Ehinomen and Chigozie (2018)

Factors Impeding Optimal Outcomes for Citizens Despite Growing Financial Allocations

Every year, the Nigerian government at both the Federal and State levels allocates a notable percentage of their budget for the fiscal year to the Federal Ministry of Water Resources and the relevant Ministries in the States. However, Balogun *et al.* (2017), Nwinyi *et al.* (2020), Olukanni *et al.* (2021) and Ukpai (2022) all reported on the persistent inability of the government to meet the water needs of the people. Some of the factors attributed to the failure included corruption, mismanagement of funds, lack of technical know-how,

insufficient data collection, policy somersault, poor maintenance practices, recurring damage to water supply and distribution channels, deplorable treatment plants, shoddy construction, substandard construction materials, insufficient legislative oversight and declining government revenue. These results clearly indicate the failure of government (Federal and State) to meet up with its responsibilities to the people and possible failure to achieve the sixth goal of the SDGs. Furthermore, the results showed that the failure on the part of the government to meet its responsibilities has negatively affected water supply access rates for the people, impacted supply infrastructures and also reduced the quality of water available to the public. These could be seen in majority of the water quality studies conducted in Ogun State, indicating that the alternative arrangements provided by the people due to insufficient government provision are often unsafe when compared with internationally acceptable standards.

CONCLUSIONS AND RECOMMENDATIONS

This study assessed the efforts of government in providing potable pipe-borne water in Ogun State and the neighbouring States of Southwestern Nigeria. This was accomplished through a systematic review of 14 published works between 2015 and 2023. Based on the findings, it is concluded that;

i) There are substantial gaps between policy commitments by government and on-ground implementation outcomes
ii) Less than half of the population in Ogun State and other Southwestern States have access to reliable piped water supply, with rural areas especially underserved, thereby pushing residents to untreated, often contaminated surface and groundwater sources
iii) Key factors impeding optimal effectiveness included severe underfunding, corruption, technical constraints in extending infrastructure and quality assurance which has altogether affected monitoring and sustainability.

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