

**ECONOMIC AND POLITICAL BARRIERS
TO WATER, SANITATION AND HYGIENE
SUSTAINABILITY IN NIGERIA:
ADOPTING THE PERSON-CENTERED
SOCIAL WORK INTEGRATED SUPPORT
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Abstract

The operation of the Water, Sanitation and Hygiene (WASH) programme in Nigeria notwithstanding, water and sanitation crises take serious tolls on the population, particularly the children, who have the universal inalienable right to clean water and hygiene for proper development and growth. Besides WASH program, the Sustainable Development Goals (SDGs) is an international Legal Instrument ratified by Nigeria and domesticated in the country since 2015. The SDG 6 – Clean Water and Sanitation – aims to ensure a world in which everyone has access to clean water, basic sanitation and hygiene between 2015 and 2030. Nigeria and other African countries are reportedly not on course for the achievement of this goal. This case study ascertained the significant barriers to WASH provision and adoption and interrogated the level of their co-relationship in Nigeria. Factorization of the literature submissions and expert suggestions was used to determine the significant barriers. Co-relational analysis was used to ascertain the relationship among the significant barriers. Results showed that population growth, climate change, increased water scarcity, lack of political will, unequal distribution of resources, and

insufficient funding were significant socio-institutional barriers. COVID-19, policy inadequacy, policy inconsistency, policy poor implementation, and policy summersault were significant socio-political barriers. The barriers were significantly co-related. Co-joint handling of the barriers and frequent interrogation for update of WASH barriers and appraisal of progress towards achieving SDG 6 by 2030 were recommended.

Keywords: WASH provision and adoption; socio-institutional barriers; socio-political barriers; social-work-support

Introduction

Water is one of the three components of the environment – others are air and soil. Water is rightly described as life because it forms about 60% of man’s body. It is indispensable for sanitation and hygiene, which are means of keeping away diseases that claim life (Eneh, 2023).

Hygiene and sanitation are both aimed at creating a disease-free world. Hygiene differs from sanitation in that it focuses on health and diseases, while sanitation focuses on safe disposal of human waste, including human urine and faeces. Sanitation types include solid waste management system, excreta management system, waste-water management system, and drainage system (UNICEF, 2023).

Personal hygiene demands keeping the hands, nails, face, foot, hair and scalp clean. It requires covering the mouth when coughing and the nose when sneezing. It also requires keeping the body clean by regular bathe and during the menstrual cycle. Maintaining personal hygiene is important for personal, social, health and psychological reasons, as a way of life, and to prevent the development and spread of infections, illnesses and bad odour. Good personal hygiene keeps germs and body parasites (such as lice), infections and sickness at bay. Sanitation and hygiene help to protect the family from illnesses and diseases, in maintaining mental health, to improve self-image and self-confidence, to improve social status, to

increase focus and productivity, and to provide a better quality of life (BH, 2024).

Hygiene standards are covering the mouth and nose with a tissue when coughing and sneezing respectively or using the inside of the elbow. Used tissues ought to be thrown into a lined or no-touch trash can. The hands need to be washed or hand-sanitized after coughing, sneezing, or blowing the nose. Types of sanitation are basic sanitation, container-based sanitation, community-led total sanitation, dry sanitation, ecological sanitation, emergency sanitation, environmental sanitation, onsite sanitation. Sanitation principles are supply of water treatment of waste collection and conveyance, prevention of dampness, orientation of building space planning. Common diseases caused by poor environmental sanitation are diarrheal diseases such as cholera and dysentery, as well as typhoid, intestinal worm infections and polio (CDC, 2024).

The components of sanitation are addressing drinking water, disposal of human excreta, disposal of waste water, disposal of garbage and cattle dung, home sanitation and food hygiene, personal hygiene, and village sanitation. Pilot WASH projects, such as community toilets, hand-washing stations, and hygiene education, improve sanitation in rural areas. Good community practices, include cleaning; dishes and utensils, toilet use to separate faeces from people; preventing environmental contamination by cleaning the home and keeping rubbish off, and keeping livestock away from home (UNICEF, 2008).

Improving sanitation demands provision of facilities such as toilets and latrines, promotion of good hygiene habits, and proper hand-washing with soap and water. To prevent diseases caused by poor sanitation calls for practicing safe sanitation and cleaning/disinfecting surfaces with appropriate products to reduce the number of germs on surfaces that increase risk of infection from surfaces (Hutton & Chase, 2017).

Water, Sanitation and Hygiene (WASH) is a global programme predicated on the universal right of every child to grow in a clean and safe

environment with safe water, sanitation and hygiene. There is the need to ensure a healthy start and thriving life for children. Achieving health benefits requires improvements in sanitation and hygiene, which must go with access to clean water, because water access, sanitation and hygiene are crucial for elimination of water-borne diseases. WASH projects provide and rehabilitate infrastructure for drinking water supply schemes, irrigation and drainage channels, water reserves, flood protection walls and debris clearance (UNICEF, 2023).

The pillars of WASH converge at development of integrated WASH sector, and are establishing a functioning market, strengthening the public sector, and empowering and organizing citizens. WASH's goals and objectives are at the centre of the Sustainable Development Goals (SDGs), particularly the SDG 6, which targets universal, sustainable and equitable access to safe drinking water, sanitation and hygiene, and elimination of open defaecation between 2015 and 2030. SDG Targets 6.1 and 6.2 – Drinking water, sanitation and related official development assistance – appear in Water, sanitation and hygiene (WASH) Environment and health. The benefits of WASH include, but are not limited to, reduced health burdens and costs with more time dedicated to productive activities (RUAF, 2022).

The World Vision (WV) aspires to increase project focus, effectiveness and impact by creating project models, including the WASH Project Model – evidence-based practices to sustain provision of safe water, dignified good hygiene and sanitation practices. The model targets the achievement of child well-being (CWB) objectives and aspirations. It is a framework for WASH implementation in targeted households and communities, healthcare facilities, schools and emergencies. It describes the theory of change, integration of faith and evidence base on, gender and enabling environment. It also describes the development of WASH Business Plan and the planning of WASH field operations, as well as their design and implementation (World Vision, 2022).

WASH: issues and concerns

Constant provision of WASH infrastructure and WASH practices are critical to COVID-19 prevention and mitigation measures. In low- and middle-income countries in Africa, the Caribbean and Latin America, gaps were observed in access to materials for hand hygiene materials, despite access to improved water supplies. Healthcare providers adhere to hand hygiene about double as high after patient contact as compared with before patient contact. Where hand-washing stations and alcohol-based hand rub (ABHR) existed, they were poorly managed if at all, in community institutions. More WASH standards were needed in borders and markets, and congregation spaces (Berendes et al., 2022).

The average WASH-Nigerian household breakdown are characterized by size of about five persons, with 12% under-five children, and 10% of the households having at least one person living with disabilities, while 5.2% of household members live with disabilities. This translates to about 10 million Nigerians living with disabilities. About 20% households are female-headed and 29.8% households are headed by individuals with no education (National Bureau of Statistics, NBS, 2018). However, about 73.4% households use improved source of drinking water. About 87.0% households in South-west zone use improved main source of drinking water while in South-east and South-south zones, it is 82.9% and 77.0% respectively with a lower 62.8% in the North-west (NBS, 2018).

About 57.4% households enjoy access to improved sanitation facility. The South-east had 70.8% households with improved sanitation facility, followed by South-west with 67.6%, and North-west had the least with 39.4%. About 24.4% of household members in Nigeria practiced open defaecation, with North-central topping with 53.9%, followed by South-west with 28.0%, and North-west had the least of 10.3% (NBS, 2018).

About 91.4% of Nigerian household heads had knowledge of at least two critical times for hand-washing, with South-east and South-west

recording 98.8% and 94.5% respectively, and North-east the least of 82.4%. About 22.1% of Nigerian households had fixed place for hand washing with water and soap under running water (hand-washing station, HWS). South-east was top with 32.1%, followed by North-east. North-west was least with 18.4% (NBS, 2018).

Survey report on access to WASH services in households and institutions showed that Nigeria WASH sector made modest progress in the last couple of years, with the presidential declaration of a state of emergency in the WASH sector and the national flag-off of the clean Nigeria campaign towards achieving an open defaecation free (ODF) Nigeria by 2025. However, the 2021 WASHNORM report had revealed that about 48 million Nigerians still defaecated in the open, while only 8% of the population practiced safe hand-washing. About 23% of Nigerians did not have access to basic water supply services and only 10% of the population had access to basic water, sanitation and hygiene services combined (UNICEF. 2022).

Consequently, on these WASH-sector modest progress, life expectancy at birth increased globally from 48 years in 1955 to 66 years in 2000, and projected to rise to 75 years in 2025. In low-income countries, in the past decade also, average life expectancy at birth increased from 55 to 57 years (3.6% increase), while increasing from 78 to 80 years (2.6% increase) in high-income countries (Centre for Disease Control and Prevention, 2011).

Also, child mortality – a major indicator of a nation’s health and development measured via number of deaths in children aged under-five years progressed. Currently, about 8.1 million under-five children die each year – an improvement on about 10.1 million under-five child deaths recorded on, the average during the past decade. It was 77 deaths per 1,000 live births in 2000, but improved to 62 per 1,000 in 2009. The annual rate of the improvement in child mortality rating increased from 1.3% per year in the 1990s to 2.2% since 2000. However, and invariably due to relative WASH-implementation about, 99% of the 8.1 million childhood deaths are

in low-income and middle-income countries, with almost half (49%) occurring in Nigeria and other sub-Saharan Africa countries and, 33% in southern Asia (Centre for Disease Control and Prevention, 2011).

Of these deaths, infectious diseases, notably diarrhoea, malaria, pneumonia, and acquired immunodeficiency syndrome (AIDS) are responsible for 68% of under-five deaths. Undernutrition accounts for about one-third of all childhood deaths. Despite this, access to safe water is partly responsible for the gains in child survival. Yet, the 2.5 billion annual diarrhoea cases are the second leading cause of childhood mortality worldwide. Almost 90% of diarrhoea is related to inadequate water, sanitation, and hygiene (WASH) and kills 1.5 million under-five children annually – killing more children than AIDS, malaria, and measles combined. The gains made through WASH initiatives (specifically, increased world's population access to improved drinking water sources from 83% in 2000 to 87% in 2008, and increased proportion with access to improved sanitation from 58% in 2000 to 61% in 2008) increased the world's population from 6.1 billion in 2000 to 6.7 billion in 2008. On the other hand, the neglect of WASH infrastructure contributed to water-borne disease outbreaks (Centre for Disease Control and Prevention, 2011) and aided Ebola and COVID-19 outbreaks (Traoré et al., 2023; Renzaho, 2021).

For instance, healthcare facilities (HCF) in developing countries mostly lacked access to reliable hand-washing stations (HWS) and safe drinking water pre-COVID-19. This WASH infrastructure neglect for selected adverse health outcomes contributed to the burden of disease from inadequate water, sanitation and hygiene in low- and middle-income countries ultimately COVID-19 (Prüss-Ustün et al., 2019; Renzaho, 2021; Traoré et al., 2023). Thus, drinking water stations (DWS) in response to new exposure and exposure-response to the burden of diarrhoea, respiratory infections, malnutrition, schistosomiasis, malaria, soil-transmitted helminth infections and trachoma are needed and important. This is as essential and important as training healthcare workers (HCW) on; hand hygiene, safe

drinking water, and patient education techniques (Bennett, Otieno, Ayers, Odhiambo, Faith and Quick, 2015).

Other impacts from overall WASH infrastructure neglect and exposure to inadequate drinking-water, sanitation and hygiene behaviours (WASH) abound as analytical frameworks. In one such; for each of the analysed diseases, exposure levels with both sufficient global exposure data for 2016 and a matching exposure-response relationship were combined into population-attributable fractions. Attributable deaths and disability-adjusted life years (DALYs) were estimated for each disease and, for most of the diseases, by country, age and sex group separately for inadequate water, sanitation and hygiene behaviours and for the cluster of risk factors. Uncertainty estimates were computed on the basis of uncertainty surrounding exposure estimates and relative risks. Findings showed that an estimated 829,000 WASH-attributable deaths and 49.8 million DALYs occurred from diarrhoeal diseases in 2016, equivalent to 60% of all diarrhoeal deaths. In under-five children, 297,000 WASH-attributable diarrhoea deaths occurred, representing 5.3% of all deaths in this age group. If the global disease burden from different diseases and several counterfactual exposure distributions was combined it would amount to 1.6 million deaths, representing 2.8% of all deaths, and 104.6 million DALYs in 2016. Despite recent declines in attributable mortality, inadequate WASH remains an important determinant of global disease burden, especially among young children. These estimates contribute to global monitoring for the Sustainable Development Goals-indicator on mortality from inadequate WASH (Prüss-Ustün, Wolf, Bartram, Clasen, Cumming, Freeman, Gordon, Hunter, Medlicoo and Johnston, 2019). Judging by the progress on drinking water, sanitation and hygiene 2017 update and SDGs baseline report, a number of critical data gaps need to be addressed to enable systematic monitoring of SDG targets and to realize the commitment to “leave no one behind” (UNICEF and WHO, 2020; WHO and UNICEF, 2017). Thus, the need for this study.

WASH infrastructure neglect: Economic and political issues

Achieving universal access to basic drinking water services in schools by 2030 will require a seven-fold increase in the current rate of progress (Derso, Addis and Mengistie, 2023). This call for ‘ensuring availability and sustainable management of water and sanitation for all’ also contained under SDG 6 recognize ambitious indicators for WASH services under targets 6.1 and 6.2. Five years into the SDGs, the world is not on track to achieve targets 6.1 and 6.2 of SDG complicated by economic and political issues.

Further, otherwise current progress rates of achieving universal coverage by 2030 in safely managed drinking water services, safely managed sanitation services, and basic hygiene services are quadrupled; persistent health and disturbing livelihood-burdens may remain. While, least developed countries (LDCs) are required to quadruple WASH infrastructure furthest more countries including Nigeria facing challenges in extending services to rural areas and to poor and vulnerable populations are most at risk of being left behind. Unfortunately, as of May 2021, in lieu of accelerating progress using economic means, there were 57 fragile states, including 13 classified as extremely fragile (UNICEF and WHO, 2020).

Worrisome too, findings show that no single healthcare facility had basic access to overall water, sanitation and hygiene services due low and poor economic intervention causing WASH infrastructure neglect in sub-Saharan Africa. Thus, independent WASH analysis showed that 86% of healthcare facilities had basic water access, 100% had limited sanitation access, and 88.4% had limited hygiene service in Ethiopia. Also, infrastructure, resource availability and management were lacking/inadequate despite, lack of governance and collaborative work, lack of capacity and awareness building, and the absence of monitoring and evaluation framework. Whilst these interrupt service provision on the one hand, inadequate WASH services and multiple challenges across healthcare

facilities had negative implications for healthcare-acquired infection prevention control (Derso, Addis and Mengistie, 2023).

On the other hand, economic and political issues that aid WASH infrastructure neglect in Nigeria are not non-existent. The 2021 WASH NORM report that nearly a quarter of Nigerians (23%) lacked access to basic water supply services. The vast majority (87% or 179 million people) did not have access to safe drinking water services. In addition, just 10% of the population had access to water, sanitation, and hygiene services. Only 21.67% of the Nigerian population had access to water in 2020. This was a 0.35% increase from 2019 however (NBS, 2022).

Despite slight progress in; Nigeria clean water access for 2019 of 21.32%, 0.36% increase from 2018; Nigeria clean water access for 2018 of 20.96%, 0.36% increase from 2017; Nigeria clean water access for 2017 of 20.60%, 0.37% increase from 2016; inadequate sanitation related diarrhoeal diseases, such as dysentery, cholera and typhoid, as well as polio and intestinal worm infections accentuated stunting and antimicrobial resistance. On the other hand, adequate clean drinking water, sanitation and hygiene reduced childhood malnutrition and the attendant stunting by preventing diarrhoea, and parasitic and intestinal diseases (WHO and UNICEF, 2021).

WASH infrastructure neglect: economic-skewed investments and universal right abuse implications

The global Water, Sanitation and Hygiene (WASH) programme globally is predicated on the universal right of every child to grow in a clean and safe environment with safe water, sanitation and hygiene. This ought to ensure a healthy start and thriving life for children. But, 3,000,000,000 people, including hundreds of millions of children, lack access to hand-washing facilities, even in the era and zones of COVID-19 and climate change impacts. The most vulnerable are dwellers in urban slums, rural areas, low-

income countries and disaster-prone areas (UNICEF, 2023). Nigeria is not an exception in this global situation of poor WASH programme outcomes.

The Sustainable Development Goal (SDG) 6: Clean Water and Sanitation, aims to ensure a world in which everyone has access to clean water, basic sanitation and hygiene between 2015 and 2030. It targets equitable and universal access to affordable safe drinking water for all; equitable adequate sanitation and hygiene for all, especially women, girls and the vulnerable; improvement of water quality through reduction of pollution, increasing recycling and reuse of safe water; increment in water-use efficiency and sustainable supply of freshwater; integrated water resources management; protection and restoration of water-related ecosystems; expansion of co-operation and capacity-building among countries; and to support and strengthen local community participation in water and sanitation management. Though economic-inadequate, midway (2023) of the SDGs lifespan (2015-2030) investments in SDG 6: Clean Water and Sanitation, have led to global increase in access to clean water, sanitation and hygiene; enhanced water resources management and improved water quality. The SDGs legal instrument is a framework that is domesticated in Nigeria (UNICEF, 2023). Hence, WASH related ill-health in children disrupt school.

These skewed investments in WASH-infrastructure limit access to vital WASH services that prevent malnutrition and stunting. Subsequently, and unacceptable only, 26.5% of the population in Nigeria use improved drinking water sources and sanitation facilities whilst 22% defaecate in the open. In the era of COVID-19, adequate water, sanitation and hygiene have become more compelling and the need to provide access to hand-washing facilities, especially for the most vulnerable dwellers in urban slums, rural areas, low-income countries and disaster-prone areas cannot be over-emphasized (UNICEF, 2023).

The challenges of WASH include surface water drainage, lack of clear guidelines and basic drainage solutions, water treatment, unknown field

efficacy of existing water filters, hand-washing, struggle to develop solutions that are both effective and scalable, solid waste management, and emergency sanitation. Global significant barriers to water, sanitation and hygiene provision and adoption include population growth, climate change, increased water scarcity, lack of political will, unequal distribution of resources, and insufficient funding. Consequently, 2.2 billion people across the globe still have no access to safe drinking water, over a half of world population lack access to safe sanitation, 3 billion people in the world lack access to hand-washing water with soap, and 673 million people of the world still practice open defecation (Maji-na-Ufanisi, 2023).

This situation is worse in developing countries in Africa. In Nigeria, where the combustion of petroleum products is the main source of energy for the transport industry and domestic cooking, petroleum exploration and burning of the fossil fuels pollute sources of domestic water and degrade the environment ((Eneh, 2011a, b). Associated gas flaring leads to dwindling ecological integrity in the River Niger delta region of the country (Eneh and Uchegbu, 2023). Thus, requiring both addressing unresolved issues and policy challenges in protection and management of Nigeria's environment (Eneh, 2011c; Eneh and Agbazue, 2011). Notwithstanding water, sanitation crises and policy issues, the operation of water, sanitation and hygiene (WASH) programme in Nigeria have serious consequences on infants and under-five children, including methaemoglobinemia, malnutrition, dehydration, low life expectancy that results in high child mortality rate and morbidity, loss of parents to high maternal mortality rate and morbidity (Eneh, 2010a; Eneh, 2007).

In 2007, in spite of the WASH programme running in Nigeria, poor access to potable water was a common problem. Many lives were lost annually to water-borne diseases due to unabated poor access to safe drinking water. About 36% of urban dwellers and 61% of rural dwellers totally lacked safe water. Public stand-post was accessible to only 21% of urban dwellers and 8% of rural masses. Protected dug well was available to

only 7% of urban dwellers, while 17% of rural dwellers had access to it. Borehole water pump was available to 7% of urban dwellers and 11% of rural inhabitants. A state in Nigeria was heavily infested with 2,647 cases of guinea worm, and yet another state with 1,843 cases. Access to potable water was seen as the greatest problem by 28% of households and 24% of communities. Protection of water sources, control of water treatment, management and processes of distribution and handling, monitoring of water quality, and occasional impact assessment of potability level of water with miscellaneous sources of domestic water supply would be helpful. So far, studies on WASH in Nigeria have not interrogated the barriers to WASH provision and adoption and their relationship.

The present study was aimed at filling this gap, in order to proffer the way-forward towards achieving the SDG 6 on Clean Water and Sanitation by 2030. The study set out to provide answers to the questions of what the significant barriers to WASH provision and adoption are and the level of their relationship. Its objectives were to ascertain the barriers to WASH provision and adoption, the significant barriers and their level of relationship, in order to arrive at the way-forward. Null hypotheses guided the study and were statistically tested.

The study was cross-sectional, with Nigeria as the geographical scope and the population of the country as the targets. The population of Nigeria is the practical beneficiaries of the study, as the advocated way-forward, which was based on the ascertained significant barriers to WASH provision and adoption and the level of their relationship, are applied in the implementation of the WASH programme in the country. The theoretical beneficiaries of the study are the literature enriched by the study report and the researchers and policy makers that use the literature.

Materials and methods

Study area

Figure 1 is map of Nigeria showing 36 States and Abuja Federal Capital Territory (FCT).

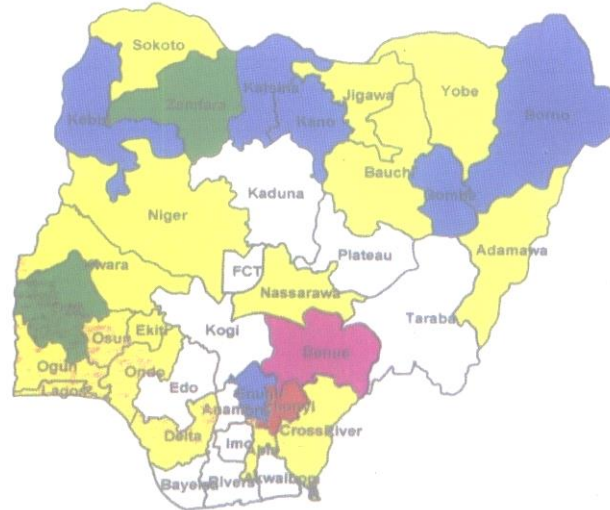


Figure 1: Map of Nigeria showing 36 States and Abuja Federal Capital Territory (FCT).

Source: BBC Monitoring (2023).

Nigeria has the largest population among all African countries, with 20% of the population of the continent of the blacks. Britain colonized and ruled it till 1960 when it gained independence on October 1. There was a Nigeria-Biafran civil war between mid-1967 and the early 1970, with abortive Biafran attempt to secede. Military juntas held sway from 1966 till 1999, except Shehu Aliyu Shagari civilian administration of 1979-1983. Nigeria houses over 250 ethnic groups who speak over 500 mother tongues. The major ethnic groups are Igbo found in the east, Hausa in the north and Yoruba in the west. Nigeria is under the tension of separatist agitations that press for the division of the country along ethnic lines. Nigeria is a resource-rich country and a major exporter of crude oil. Understandably, it is

bedeviled with resource curse. Nigeria's life expectancy is 63 years (women) and 59 years (men). Nigeria is among the fastest growing economies in Africa. Figure 1 is map of Nigeria showing 36 States and Abuja Federal Capital Territory (FCT) (BBC Monitoring, 2023).

A descriptive survey research design was adopted to collect, present and analyze data to describe the opinions of experts on the applicability of literature claims to a Nigerian situation for a WASH case study. Descriptive survey is a proper fit method for situation survey research (Voxco, 2021).

Primary and secondary data were used. The primary data were generated using Google Questionnaire administered to experts on WASH related subjects. Secondary data were sourced from text books, the Internet, journals and other publications on WASH related subjects.

One hundred (100) academics and technocrats, who had published research articles (sole- or co-authored) on provision (supply side of the market) of WASH in Nigeria, were identified on the internet and purposively selected as competent experts to handle the research questions based on cognate experiences and relevant research outputs. Also, 100 respondents were selected for the adoption (demand side of the market) of WASH.

Google questionnaire copy was electronically made available. The questions bordered on significant barriers to WASH provision and adoption in Nigeria.

Model specification

Factor analysis

Factor analysis and factor scores analysis is a classification tool used to determine barriers of significance. Principal Component Analysis was used to determine the major barriers of significance. Extraction Method analysis was used to determine the total variance. Co-relational analysis was carried out to determine the level of relationship among the significant factors. Specifically, Pearson Correlation Matrix was used to determine the level of

co-relationship and the significance. The Statistical Package for Social Sciences (SPSS, version 28) was used.

Result

Barriers to WASH provision and adoption

Table 1 shows the principal component scores for the barriers to WASH adoption in Nigeria.

Table 1: Principal component scores of barriers to WASH adoption in Nigeria

S/N	Item	Factor scores	
		1	2
1.	Population growth	.083	.242
2.	Climate change	.223	.103
3.	Increased water scarcity	.076	.082
4.	Lack of political will	.141	.005
5.	Unequal distribution of resources	.351	.303
6.	Insufficient funding	.037	.126
Others			
7.	COVID-19	.178	.041
8.	Policy inadequacy	.028	.198
9.	Policy inconsistency	.291	.438
10.	Policy poor implementation	.138	.003
11.	Policy summersault	.043	.121

Source: SPSS

Grouping barriers to WASH provision and adoption in Nigeria

Tables 2 shows the principal component scores for the barriers to WASH provision and adoption in Nigeria.

Table 2: Principal component scores and grouping of barriers to WASH provision and adoption in Nigeria

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S/ N	Barriers	Provision (supply) side		Adoption (demand) side		Provision (supply) side	Adoption (demand) side
		Factor score 1	Factor score 2	Factor score 1	Factor score 2	Barrier group	Barrier group
1.	Population growth	.937	.843	.082	.242	1	2
2.	Climate change	.916	.342	.223	.103	1	1
3.	Increased water scarcity	.885	.461	.076	.082	1	2
4.	Lack of political will	.836	.542	.141	.005	1	1
5.	Unequal distribution of resources	.797	.497	.351	.303	1	1
6.	Insufficient funding	.742	.662	.037	.126	1	2
Others							
7.	COVID-19	.768	.978	.178	.041	2	1
8.	Policy inadequacy	.408	.822	.028	.198	2	2
9.	Policy inconsistency	.567	.817	.291	.438	2	2
10.	Policy poor implementation	.683	.722	.138	.003	2	1
11.	Policy summersault	.686	.711	.043	.121	2	2

Source: SPSS

From Table 2, using the principal component scores 1 and 2, barriers grouping shows that, on the provision side, barriers 1-6 (population growth, climate change, increased water scarcity, lack of political will, unequal distribution of resources, and insufficient funding) can be grouped as socio-institutional barriers to the provision (supply) of WASH. Barriers 7-11

(COVID-19, policy inadequacy, policy inconsistency, policy poor implementation, policy summersault) can be grouped as socio-political barriers to the provision (supply) of WASH. On the demand (adoption) side, barriers 1, 3, 6, 8, 9 and 11 (population growth, increased water scarcity, insufficient funding, policy inadequacy, policy inconsistency and policy summersault) can be grouped as socio-institutional barriers to the adoption (demand) of WASH. Barriers 2, 4, 5, 7 and 10 (climate change, lack of political will, unequal distribution of resources, COVID-19 and policy poor implementation) can be grouped as socio-political barriers to the adoption (demand) of WASH.

Major significant barriers to WASH provision and adoption and total variance

Table 3 shows the Extraction Method analysis used to explain total variance of Principal Component Analysis scores and to determine the major significant barriers.

Table 3: Major significant barriers and total variance

S/N	Barrier	Total	Initial Eigenvalues % of Variance	Cumulative %
1	Population growth	8.954	81.396	81.396
2	Climate change	1.505	13.678	95.073
3	Increased water scarcity	.536	4.872	99.945
4	Lack of political will	.006	.055	100.000
5	Unequal distribution of resources	1.038E-15	9.434E-15	100.000
6	Insufficient funding	4.337E-16	3.942E-15	100.000
7	COVID-19	2.641E-16	2.401E-15	100.000
8	Policy inadequacy	3.969E-17	3.608E-16	100.000
9	Policy inconsistency	-1.379E-16	-1.253E-15	100.000
10	Policy poor implementation	-2.464E-16	-2.240E-15	100.000
11	Policy summersault	-3.163E-16	-2.875E-15	100.000

Source: SPSS

From Table 3, population growth, climate change, increased water scarcity, and lack of political are major factors explaining overall variation among the barriers. That is, population growth, climate change, increased water scarcity and lack of political impinge strongly on WASH provision and adoption (achievement) in Nigeria.

Correlation and significance of barriers to WASH provision and adoption in Nigeria

Table 4 shows the correlation (relationship) and significance of barriers to WASH provision and adoption in Nigeria.

Table 4: Correlation and significance of barriers to WASH provision and adoption in Nigeria

Item	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
B1											
Pearson correlation matrix	1.000	-.741	-.798	-.761	.427	-.823	-.744	-.862	-.857	-.603	-.800
Sig.		.152	.994	.757	.474	.270	.149	.737	.265	.679	.912
B2											
Pearson correlation matrix	-.741	1.000	.877*	.936*	-.893	.844**	.970**	.776	.318	.828*	.834*
Sig.	.152		.015	.014	.062	.001	.000	.175	.880	.028	.023
B3											
Pearson correlation matrix	-.798	.877*	1.000	.987**	-.585	.996**	.962	.971**	.573*	.959**	.996**

tion matrix											
Sig.	.994	.015		.000	.117	.000	.130	.000	.040	.000	.000
B4											
Pearson correlation matrix	-.761	.936*	.987**	1.000	-.704*	.970**	.993	.924**	.462*	.959**	.970**
Sig.	.757	.014	.000		.023	.000	.198	.000	.048	.000	.000
B5											
Pearson correlation matrix	.427	-.893	-.585	-.704*	1.000	-.523	-.783	-.412	.098	-.586	-.513
Sig.	.474	.062	.117	.023		.150	.458	.539	.674	.163	.220
B6											
Pearson correlation matrix	-.823	.844**	.996**	.970**	-.523	1.000	.938*	.988**	.637	.944**	.999**
Sig.	.270	.001	.000	.000	.150		.013	.000	.445	.000	.000
B7											
Pearson correlation matrix	-.744	.970**	.962	.993	-.783	.938*	1.000	.880	.396	.936	.935
Sig.	.149	.000	.130	.198	.458	.013		.201	.529	.137	.127

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B8											
Pearson correlation matrix	-.862	.776	.971**	.924**	-.412	.988**	.880	1.000	.741	.896**	.984**
Sig.	.737	.175	.000	.000	.539	.000	.201		.879	.000	.000
B9											
Pearson correlation matrix	-.857	.318	.573*	.462*	.098	.637	.396	.741	1.000	.369*	.617*
Sig.	.265	.880	.040	.048	.674	.445	.529	.879		.016	.040
B10											
Pearson correlation matrix	-.603	.828*	.959**	.959**	-.586	.944**	.936	.896**	.369*	1.000	.953**
Sig.	.679	.028	.000	.000	.163	.000	.137	.000	.016		.000
B11											
Pearson correlation matrix	-.800	.834*	.996**	.970**	-.513	.999**	.935	.984**	.617*	.953**	1.000
Sig.	.912	.023	.000	.000	.220	.000	.127	.000	.040	.000	

Source: SPSS

B = Barrier

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows that barriers to WASH are significantly correlated at both 0.05 level (2-tailed) and 0.01 level (2-tailed). This further explains and emphasises the compounding effects of relationship among barrier variables the relevance of barrier grouping and total variance, buttressing that barriers to WASH provision and adoption are joint factors and are better addressed co-jointly.

Discussion

With increase in population and population growth rate comes the increased likelihood of lack or inadequate access to water (Peluso, 2022). Nigeria's population in 2023 was 223,804,632, an increase of 2.41% from 218,541,212 of 2022, and an increase of 2.41% from 2021 population. On the other hand, water scarcity is a reality even in urban areas (Macrotrends, 2023). In lieu, Boretti and Rosa (2019) insist that water scarcity co-relate with increasing demand for socio-economic and essential amenities from a growing population.

Climate change causes uncertainty in water availability through disruptive rain patterns. Global warming melts water-providing glaciers faster than anticipated (Okello, Nicolas, Nina and Marco, 2015). The finding that climate change is a barrier to WASH provision and adoption is in tandem with this previous submission of Okello et al., 2015. Wasting potable water contributes to water scarcity. Overuse of water is obtained even in areas with limited water in Nigeria. Poor, aging and inadequate infrastructure lead to leaking pipes that waste large amounts of water. Consequently, communities hardly have water for the population. The finding that increased water scarcity is a barrier to WASH provision and adoption confirms these earlier reports (Bensen, 2022; Boretti and Rosa, 2019).

A lack of political will, unequal distribution of resources, insufficient funding, policy inadequacy, policy inconsistency, policy poor implementation, and policy summersault are factors of failure of

development-visions in Nigeria. Consequently, there is widening, crippling poverty in the midst of corporate social actions further aggravated by COVID-19. In addition, ineptitude in public service and abandonment of development programmes and projects are issues in Nigeria. Besides, the government sometimes rely on inappropriate non-performing and unsustainable choices, designs and teleguiding of development programmes and projects (including CSAs) for communities resulting in poverty elongation and perpetuation (Eneh, 2011d; Amao, 2009; Barkemeyer, 2009; Jhingan, 2007; Amaeshi, Adi, Ogbegie and Amao, 2006; Todaro and Smith, 2006; Miles, Munilla and Darroch, 2006). The situation calls for an interplay of moral and economic considerations (Bensen, 2022).

Consequently, there is widening, crippling poverty in the midst of corporate social actions. These barriers are products of institutional failure by corrupt politicians in executive and legislative offices and inefficient workforce in the ministries, departments and agencies (MDAs) who collude to ensure a sad underdevelopment trajectory and a failed natural and human resource-rich Nigerian state (Bensen, 2022).

Poverty, WASH and reforms-agenda: implications for development

Poverty, denial and lack, illiteracy, unemployment and under-employment – evident in Nigeria and many developing countries – that is compounded by, water and sanitation crises, poor medical services, poor child development and welfare, and gender issues is rife in most Nigerian households. Community corporate involvement (CCI) peripheral does not always address poverty of the citizens, nor help tackle the development challenges in host communities. CCI practices for poverty panacea are in the form of unsustainable donation or philanthropy. Hence, crippling poverty persists in the midst of these corporate social actions (CSAs). Indices of poverty are worse paradoxically in, oil-rich communities where many-profiled CSAs has been embarked than in others. Hence, attendant restiveness in the oil-rich zones (Akintunde, 2008; Nwosu, 2008; Sobowale,

2006; Gyamfi, 2006; Famakinwa, 2006), further swindling the much needed sustainable-WASH-health-advantage. Invariably, despite reforms-agenda, implementation-programmes articulated by Nigerian leaders are hoax and may have kept majority of Nigerians in chronic poverty and WASH-health-risks. This in reference is a case of weaponizing poverty and “misery-go-round” for most Nigerians (Eneh, 2011e; Onyekakeyah, 2008; Ebigbo, 2008; Okonjo-Iweala and Osafo-Kwaako, 2007; Onah, 2006).

Even Abuja, the federal capital territory, is fast becoming a show of the characteristic poverty and misery of ghettos, as slums and their dwellers, have taken over 30 slum neighbourhoods. The slums are characterized by poor sanitary conditions, environmental degradation and pollution, various infections and disease outbreaks (Ezeh *et al.*, 2017; Aduge-Ani, 2013). Since Nigeria’s population is one-fifth of Africa’s; misery, malnutrition and attendant health issues exposures that may abound with such increasing slum dwellings/dwellers and their children (Amoadu *et al.*, 2024; Lilford *et al.*, 2017; Karim, 2012; Firdaus, 2012; Yardley, 2011) has serious implications for the continent.

This development quagmire has to stop. Responsive governance needs to evolve otherwise; power and authority that is acquired or seized and maintained by corruption may persist. Also, vis-à-vis growth-oriented economic policies impunity, lawlessness and under-development may continue. Consequently, damaging internal brain-drain via economic diversification neglect for the more lucrative resource extraction. Again, lagged human rights with rise in; conflicts and, emerging separatist groups provoking eroding-economic performance (Eneh, 2011f; Bräutigam, 2008; Philippe, 2006).

Adopting the person-centered social work integrated support: towards achieving the sustainable-WASH-health-advantage

WASH is not just a global programme but a life-long habit, custom, practice and routine that impinges on the lives of all demographics of society.

Globally, its implementation has been clouded with religious, superstitious and geo-ethnic/tribal belief – a significant barrier that deserves serious attention. In place, four (4) categories of people have been identified, way-forward to, chart overall global adoption and speedy the global sustainable-WASH-health-advantage. These people categories are recognized as; innovators, early adopters, late adopters and laggards. From; experimentalist innovators, sophisticated early adopters, pragmatist early majority adopters, late majority adopters who are skeptical to; antagonists (laggards) who, may never adopt WASH (HEE, 2024; NHS, 2024; Shragai et al., 2022; Eneh, 2021; Ndubuisi, 2019; Okoye, 2019; Emami, Almassi, Bakhoda and Kalantari, 2018; Altieri, 2016; Eneh, 2010b).

However, being person-centred – a focused support on WASH-individual needs ensures that people's partialities, needs and values guide better WASH-health and wellbeing outcomes faster. Clinical decisions, with evidence from such person-centred-WASH support further, providing care that is respectful, functionally-responsive to overall healthier goal of society. Thus, utilising social workers, this person-centered-WASH support-advantage ensures better patient outcomes, less health costs, less disruptions to assessing fundamental health and WASH-systems. Also, social work-individuals and members of the medical social workforce must work in partnership with necessary stakeholders while receiving core skills education and training framework that articulates what it means to be person-centred such to develop person-centred-WASH support that is functionally-responsive to healthier society

Conclusion and recommendation

The SDG 6 targets equitable and universal access to affordable safe drinking water for all; equitable adequate sanitation and hygiene for all, especially women, girls and the vulnerable; improvement of water quality through reduction of pollution, increasing recycling and reuse of safe water; increment in water-use efficiency and sustainable supply of freshwater;

integrated water resources management; protection and restoration of water-related ecosystems; expansion of co-operation and capacity-building among countries; and to support and strengthen local community participation in water and sanitation management. These ought to be realized between 2015 and 2030. But, midterm (2023) reports show that African countries are not on course to achieving the Goal. Against this backdrop, the present study embarked on ascertaining the significant barriers to WASH provision and adoption and the level of their interrelatedness in Nigeria.

On the provision side, population growth, climate change, increased water scarcity, lack of political will, unequal distribution of resources, and insufficient funding can be grouped as socio-institutional barriers, whereas COVID-19, policy inadequacy, policy inconsistency, policy poor implementation, policy summersault can be grouped as socio-political barrier to the provision (supply) of WASH. Still, barriers-population growth, increased water scarcity, insufficient funding, policy inadequacy, policy inconsistency and policy summersault can be grouped as socio-institutional barriers to the adoption (demand) of WASH whereas, climate change, lack of political will, unequal distribution of resources, COVID-19 and policy poor implementation can be grouped as socio-political barriers to the adoption (demand) of WASH. The barriers to WASH provision and adoption in Nigeria are significantly co-related as joint factors. This suggests co-joint handling of the barriers. This needs to be taken with frequent interrogation for update of WASH barriers and appraisal of progress for imperative march towards achieving SDG 6 by 2030.

In view, often appraisal and update on projects and programmes that are not regular is recommended. Frequent interrogation for update of WASH barriers and appraisal of progress for imperative march towards achieving SDG 6 by 2030 is also recommended.

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