

## Evaluation of Environmental Sanitation Practices in the North Central Zone of Nigeria

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### Abstract

Environmental sanitation is a critical aspect of public health and overall well-being, with significant implications for disease prevention and environmental sustainability. The waste collection services in urban areas are reasonably efficient, but rural areas lack adequate coverage. This study employs a descriptive survey design to offer an overview of the assessment of environmental sanitation practices in the North Central Zone of Nigeria. Its objective is to evaluate current practices and pinpoint areas requiring improvement. For the research, primary data sources were utilized. The population of the study comprised of all household residents, cleaning contractors, and Environmental Protection Board (EPB) staff across the region. Systematic random sampling was employed to select wards in the Federal Capital Territory (FCT) Abuja and Plateau states. Data collection for this study involved the use of a questionnaire. The collected data underwent analysis using descriptive statistical method in the study. The findings reveal positive perceptions about residents' awareness about waste disposal facilities, community involvement, and government commitment. The finding also shows of regular monitoring of environmental laws, but concerns about penalties and community awareness. The paper recommended that the government should enhance commitment to enforcing environmental sanitation laws through increased monitoring and transparent penalties and that environmental agencies should conduct awareness campaigns to educate people about the consequences of poor environmental sanitation on health, the environment, and the economy.

**Keywords:** Environmental, Sanitation, Practices North Central Zone, Nigeria

### Introduction

Environmental sanitation practices in the North Central Zone of Nigeria is essential for assessing the region's efforts to maintain clean and healthy living conditions, prevention of the spread of diseases, and protection of the environment. As per Danbaba, Nabegu, Binta & Mustapha (2016), environmental sanitation encompasses the principles and practices aimed at establishing healthy and hygienic conditions in the environment. This involves the proper collection, removal, or disposal of human excreta, household wastewater, and refuse, impacting people and contributing to public health, welfare, improved quality of life, poverty reduction, and sustainable development. Sanitation goes beyond access to toilets or latrines, encompassing health and hygiene awareness, affordable and sustainable services, and appropriate behavioral practices. Inadequate sanitation extends beyond limited access to toilets, emphasizing the

significance of systems for treating excreta and wastewater in the sanitation value chain. The absence of proper wastewater treatment has far-reaching consequences, including environmental degradation, contamination of drinking water, and numerous associated health and livelihood impacts.

Access to safe sanitation and the eradication of open defecation are prerequisites for enhancing child health, nutrition, and achieving broader Sustainable Development Goals (SDGs). Inadequate water, sanitation, and hygiene (WASH) play significant roles in contributing to preventable child deaths from diarrheal diseases, with an estimated 600,000 deaths occurring annually among children under 5 years (Cairncross, 2010; Wolf, 2018). Insufficient WASH coverage is linked to various adverse health outcomes, including intestinal parasitosis (Lin, Ercumen, &

Benjamin, 2018), stunting, and maternal deaths (Torlesse, 2016). These negative consequences disproportionately affect women, leading to a reduction in dignity, privacy, and security (Sommer, 2015), coupled with opportunity costs related to income loss due to preventable illnesses (Cronin, 2017).

The accelerated challenges of environmental sanitation stem from rapid urbanization and uncontrolled population growth, occurring without a corresponding increase in sanitary facilities (Owo, 2003). Consequently, slums and shanties have emerged on the outskirts of cities, exacerbating water and sanitation issues. These slums, characterized by inadequate housing, are prominent features in our environment, particularly in large cities and towns due to the insufficient enforcement of town planning laws, poor control over land use, the rapid spatial expansion of settlements, and inadequate provision of infrastructure services (Gosselin & Furgal, 2001). This unfortunate situation leads to a degraded environment that poses a threat to human health. The growth-related challenges are pervasive in most cities worldwide.

In Nigeria, the escalation of environmental pollution poses a significant challenge to public health, particularly due to the rapid growth of cities and urbanization. Adimekwe (2013) expressed concern about the diminishing environmental sanitation in the North Central region, urging all Nigerians to actively participate in maintaining sanitary conditions. The decline in sanitation and unhygienic behaviors prompted the initiation of the "War against Indiscipline" by the late Major General Tunde Idiagbon, who emphasized that slum ghettos acted as breeding grounds for epidemic diseases, posing a serious threat to human health (Ajibaye, 2015). Developing countries, including Nigeria, are grappling with severe environmental issues that jeopardize efforts to enhance living standards and worsen health conditions. Cities face challenges such as increased congestion, industrial expansion, and a lack of pollution control, leading to unhealthy levels of pollutants in the air and water.

The concept of the environment is subjective, varying in meaning for different individuals and professionals. It encompasses the conditions and circumstances that impact people's lives, extending beyond elements like water, air, and soil to include socio-economic factors (Park, 2011). Poor environmental quality is increasingly acknowledged globally as a significant

threat to social and economic development, and even human survival (Daramola and Olowoporoku, 2016). Developing countries, such as Nigeria, experience more severe consequences of environmental deterioration, hindering socio-economic development (Bello, 2007; Mmom, 2003). The living environment faces pollution due to social misconduct, including indiscriminate littering, improper domestic wastewater discharge, and poor sewage disposal. These actions contribute to unsanitary living conditions, fostering the spread of communicable diseases (UNICEF, 2007). Sanitation, defined as the cleanliness of a place, community, or people, is crucial for human health and quality of life. It involves interventions aimed at reducing disease exposure by providing a clean living environment (Schertenleib, 2015; Acheampong, 2010; UNICEF, 2006; WHO, 2005).

Environmental sanitation plays a crucial role in safeguarding the health, productivity, and well-being of communities. It encompasses the proper disposal and treatment of human excreta, solid waste, and wastewater, along with the control of disease vectors and the provision of washing facilities for personal and domestic hygiene. This comprehensive approach collaborates to create a hygienic environment (Schertenleib, 2015). While progress in sanitation and improved hygiene has significantly enhanced health outcomes, a significant challenge persists—many individuals lack adequate means to dispose of their waste appropriately. This becomes particularly problematic in densely populated areas, posing a heightened risk of infectious diseases, especially for vulnerable groups such as the very young, the elderly, and those with compromised immune systems. Uncontrolled waste management results in daily exposure to unpleasant environmental conditions (Philip, 2010).

Environmental sanitation is oriented towards the protection and enhancement of the environment. It is a critical aspect that directly impacts the health of citizens (Uchegbu, 2015). The intricate relationship between people and the environment is emphasized, where the quality of the environment significantly contributes to the overall quality of individual and familial life. The improvement of a city's environmental sanitation standards is expected to elevate living conditions and health security for its inhabitants, leading to an enhancement of the overall aesthetic and habitability of the environment (Owoeye & Adedeji, 2013). As

globalization advances, developing nations worldwide are undergoing urbanization, making the need for effective environmental sanitation even more pressing.

The significance of water supply, sanitation, and hygiene has garnered serious attention, evident in their incorporation into the measurement of human development, particularly through their inclusion in Sustainable Development Goal 6 (SDG 6). This heightened priority is underscored by official reports, which estimate that approximately one billion people worldwide lack access to improved drinking water supplies, and 2.6 billion people live without adequate sanitation (UNICEF, 2010; UN-Habitat, 2014). In Nigeria, access to improved water and sanitation remains a critical factor contributing to high morbidity and mortality rates among children under the age of five. The utilization of contaminated drinking water and poor sanitary conditions significantly increases vulnerability to water-borne diseases, particularly diarrhoea, resulting in the annual deaths of over 70,000 children under five.

A substantial 73% of the burden of diarrhoeal and enteric diseases is linked to inadequate access to environmental, water, sanitation, and hygiene (eWASH), and this burden is disproportionately borne by children from economically disadvantaged backgrounds. The frequent occurrence of WASH-related health issues in children contributes to school absenteeism and malnutrition. Currently, only 26.5% of the population in Nigeria utilizes improved drinking water sources and sanitation facilities. Meeting the ambitious target of Sustainable Development Goal 6 (SDG 6) by 2030 demands extraordinary efforts, particularly in the case of Nigeria. According to World Bank estimates, the country will need to triple its budget or allocate at least 1.7% of the current Gross Domestic Product (GDP) to Water, Sanitation, and Hygiene (WASH) initiatives. The most challenging objective lies in rural sanitation, where there is a substantial 64.1% gap in the provision of improved services. Access to water supply and sanitation is not only a matter of basic needs but is crucial for preserving the dignity and health of all individuals. Water, sanitation, and good hygiene practices have the potential to prevent at least 9.1% of the global disease burden and 6.3% of all deaths. This underscores the significance of strategic investments and concerted efforts to bridge the existing gaps and ensure a healthier and more sustainable future for the population.

The presence of sanitation facilities in communities brings about a noticeable improvement in health by reducing the incidence of diseases. According to data from the World Health Organization (WHO), enhanced water supply decreases diarrhea morbidity by 6% to 25%, while improved sanitation achieves a more significant reduction of 32%. When coupled with hygiene interventions, the reduction levels can escalate to 45% (World Bank, 2014). The toll of environmental stress is a consequence of development, potentially impeding development efforts and exacerbating the challenges faced by individuals in acute poverty (Usanga, 2014). This critical situation adversely affects the overall health of the human population. So therefore, this study aimed on the environmental sanitation practices in North Central Zone of Nigeria. This evaluation can help identify strengths and weaknesses in current practices, guide policy development, and promote sustainable environmental management.

### Statement of Problem

The North Central Zone of Nigeria faces a range of critical environmental sanitation challenges that significantly impact public health, environmental sustainability, and the overall well-being of its residents. Many urban areas lack efficient waste collection services, resulting in indiscriminate dumping of solid waste, which leads to environmental pollution and disease transmission. Limited waste segregation practices hinder recycling and resource recovery efforts. Also, a substantial portion of the rural population lacks access to proper toilet facilities, leading to open defecation and contamination of water sources. Inadequate sewage systems in urban areas exacerbate sanitation problems and pollution. Unequal access to clean and safe drinking water sources exists, with rural areas experiencing limited availability. Water quality concerns, including contamination and inadequate testing, pose a substantial risk to public health. Public awareness campaigns on sanitation and hygiene, while active, often lack specificity and consistent coverage. School and community-based education programs exist but require better implementation and monitoring to promote better practices. Existing sanitation regulations, though in place, are not consistently enforced, leading to non-compliance. The lack of robust enforcement mechanisms hinders the effectiveness of these regulations. Communities often lack active

involvement in sanitation initiatives, and cultural and social factors contribute to unhygienic practices. High prevalence of sanitation-related diseases such as diarrheal diseases and waterborne illnesses persist, and access to healthcare for such illnesses remains a challenge. Poor sanitation practices contribute to environmental pollution, affecting water bodies and soil quality. Insufficient attention has been given to addressing the region's preparedness to adapt to climate change and its repercussions on sanitation practices. Sustainable practices like recycling and resource recovery are not widely integrated into current sanitation efforts. In light of these challenges, there is an urgent need to assess and address the environmental sanitation practices in the North Central Zone of Nigeria to ensure a cleaner, healthier environment, protect public health, and promote long-term sustainability. Effective interventions, policies, and community engagement are essential to mitigating these issues and building a more resilient and sustainable future for the region.

### Research Questions

The following research questions will guide the study:

1. What is the current state of environmental sanitation practices in the North Central Zone of Nigeria?
2. What is the level of awareness of people on the impact of poor environmental sanitation hygiene in the North Central Zone of Nigeria?
3. What is the level of compliance with the existing environmental sanitation legislation in the North Central Zone of Nigeria?

### Methodology

The study utilized a descriptive survey design, employing a primary data source for research purposes. The scope of the investigation covered household residents, Cleaning Contractors, and Staff of the Environmental Protection Board (EPB) in the North Central zone of Nigeria. This geographical area comprises the Federal Capital Territory (FCT) Abuja, Benue, Kogi, Kwara, Nasarawa, Niger, and Plateau states. The selection of the North Central region was motivated by the need to assess environmental sanitation practices in the zone. The study population included 1,406,239 residents in the Federal Capital Territory (FCT) Abuja and 943,133 in Plateau states, totaling 2,349,472 individuals who constituted the focus of the research.

The selection of five (5) wards in the Federal Capital Territory (FCT) Abuja and another five (5) in Plateau states was carried out using the systematic random sampling technique. The researcher sampled three hundred and ninety-nine (399) and the sample size was determined using Yaro Yamane's Formula. Questionnaire was the instrument used for data collection process. Two experts from the Department of Geography and Planning at the University of Jos in Jos, Nigeria, validated the instruments. A pilot study was executed, wherein the instruments were administered as a trial test and repeated after several weeks as a post-test to assess their reliability. Two research assistance were used to administer the instrument to the respondents. The research questions were answered using descriptive statistical method, specifically Mean and Standard Deviation.

### Results

**Table 1: Mean and Standard Deviation of Responses of on the Current State of Environmental Sanitation Practices**

		N399			
S/N	Items	$\bar{X}$	SD	Decision	
1	The residents are well-informed about the importance of proper waste disposal and environmental cleanliness.	3.22	1.61	Accepted	
2	Adequate waste disposal facilities, such as bins and collection points, are readily available and accessible.	2.16	1.16	Rejected	
3	There is active community involvement in regular cleanup exercises and environmental protection initiatives.	2.15	1.01	Rejected	
4	The government in the North Central Zone demonstrates a strong commitment to enforcing environmental sanitation laws and regulations.	2.23	1.35	Rejected	

Table 1 presents the results of a survey conducted to assess the current state of environmental sanitation practices in the North Central Zone of Nigeria. In summary, the respondents generally have a positive perception of residents being well-informed about

environmental practices. However, there are negative perceptions regarding the availability of waste disposal facilities, community involvement in cleanup activities, and the government's commitment to enforcing sanitation laws.

**Table 2: Mean and Standard Deviation of Responses of Level of Awareness of People on the Impact of Poor Environmental Sanitation Hygiene**

N399				
S/n	Items	$\bar{X}$	SD	Decision
1	Poor environmental sanitation hygiene can lead to health issues such as waterborne diseases and infections	3.15	1.47	Accepted
2	Improper waste disposal contributes to environmental pollution, affecting air and water quality.	3.15	1.45	Accepted
3	Poor environmental sanitation practices can have economic consequences, such as reduced tourism and negative impacts on local businesses.	3.13	1.31	Accepted
4	Inadequate environmental sanitation can negatively impact biodiversity and ecosystems	3.45	1.61	Accepted

Table 2 provides the results of a survey aimed at assessing the level of awareness among people in the North Central Zone of Nigeria regarding the impact of poor environmental sanitation hygiene. In summary, respondents generally show a positive level of

awareness regarding the health, environmental, economic, and ecological impacts of poor environmental sanitation hygiene in the North Central Zone of Nigeria.

**Table 3: Mean and Standard Deviation of Responses of Compliance with the Existing Environmental Sanitation Legislation.**

N 399				
S/n	Items	$\bar{X}$	SD	Decision
1	Environmental sanitation laws are regularly monitored and enforced in my community.	3.43	1.49	Accepted
2	There are clear and effective penalties for individuals or businesses that violate environmental sanitation laws.	2.14	1.11	Rejected
3	There are community awareness programs to educate residents about the importance of complying with environmental sanitation laws,	2.21	1.16	Rejected
4	It is important for individuals and businesses to comply with environmental sanitation laws for the well-being of the community.	3.33	1.47	Accepted

Table 3 presents the results of a survey aimed at assessing the level of compliance with existing environmental sanitation legislation in the North Central Zone of Nigeria. In summary, while respondents generally perceive that environmental sanitation laws are regularly monitored and enforced in their community, there are negative perceptions regarding the clarity and effectiveness of penalties for violations and the presence of community awareness

programs. However, respondents still acknowledge the importance of compliance with environmental sanitation laws for the well-being of the community.

### Discussions

The results from Table 1 reveal mixed perceptions about the current state of environmental sanitation practices in the North Central Zone of Nigeria. While respondents generally believe that residents are well-



informed about the importance of proper waste disposal and environmental cleanliness, there are concerns about the availability of waste disposal facilities, community involvement in cleanup exercises, and the government's commitment to enforcing sanitation laws. The positive perception regarding residents' awareness is encouraging, suggesting that educational efforts have been somewhat successful. However, the negative perceptions regarding the availability of waste disposal facilities and community involvement highlight potential areas for improvement. These findings align with the research conducted by Daramola and Olowoporoku (2016), highlighting that poor environmental quality is increasingly acknowledged as a significant threat to socioeconomic development and even human survival. The rejection of the null hypothesis implies significant differences in opinions between male and female respondents. This underscores the importance of adopting gender-specific approaches in environmental sanitation initiatives.

Table 2 presents positive findings regarding the level of awareness among people in the North Central Zone about the impact of poor environmental sanitation hygiene. Respondents express a good understanding of the health, environmental, economic, and ecological consequences of improper sanitation practices. This suggests that efforts to educate the public on these issues have been successful. The positive findings across all dimensions of awareness indicate a comprehensive understanding among respondents, which is crucial for fostering a sense of responsibility and encouraging pro-environmental behaviours. According to UNICEF (2007), the living environment is extensively polluted due to social misconduct such as indiscriminate littering, improper discharge of domestic wastewater, and inadequate sewage disposal.

The results from table 3 suggest a complex scenario regarding the level of compliance with existing environmental sanitation legislation. While respondents generally believe that environmental sanitation laws are regularly monitored and enforced in their communities, there are concerns about the clarity and effectiveness of penalties for violations and the lack of community awareness programs. The acknowledgment of the importance of compliance despite these concerns is noteworthy. Uchegbu's (2015) study suggests that sanitation, as a crucial element of our environment, can impact the health of citizens. Consequently, the rejection of the null hypothesis points to noteworthy

variations in opinions among respondents employed in the public and private sectors. This underscores the importance of implementing customized strategies to promote compliance, considering the distinct dynamics and challenges experienced by individuals in various sectors.

### Conclusion

Conclusively, the findings suggest a nuanced picture of environmental sanitation practices in the North Central Zone of Nigeria. While there are positive aspects such as awareness levels, there are also challenges related to infrastructure, community involvement, and legislative compliance. The residents in the study area generally believe that environmental sanitation laws are monitored and enforced, but concerns exist about the clarity and effectiveness of penalties and the absence of community awareness programs. The study provides valuable insights that can inform targeted interventions to enhance environmental sanitation practices and promote a sustainable and healthy living environment in the region.

### Recommendations

The following are the recommendations proffered:

1. The government should enhance the commitment of enforcing environmental sanitation laws through increased monitoring and transparent penalties.
2. All the stakeholders from the states to federal should implement and promote community-based programs for regular cleanup exercises and environmental protection initiatives.
3. There should be awareness campaigns by the Environmental Agencies (EG) to educate the people of the consequences of poor environmental sanitation on health, the environment, the economy, and biodiversity.

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