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# **A study of People's perception and Awareness on the impact of Water Pollution in Sabon Birni Local Government Area, Sokoto State**

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## **ABSTRACT**

Water pollution is a global problem. It has a global impact on drinking water, rivers, lakes, and seas. This negatively impacts both human health and the environment. Water pollution poses significant risks to health and the environment, making public awareness a critical factor in mitigating its effects. This paper investigates the level of awareness of water pollution among residents of Sabon Birni Local Government Area (LGA), Sokoto State. The study uses a survey-based approach to assess knowledge of the causes, consequences, and preventive measures related to water pollution. Results indicated that, there is moderate level of awareness, with gaps in understanding the link between sanitation practices and water quality. The findings underscore the need for targeted educational programs to enhance public awareness and encourage better water management practices. The study recommended educational interventions, enhanced community engagement, and better policy enforcement in Environmental sanitation.

**Keywords:** Assessing, People's Awareness, Impact, Water Pollution, Sabon Birni LGA

## **INTRODUCTION**

Water is one of the most easily managed natural resources because it can be diverted, transported, stored, and recycled. It is a renewable resource essential to all kinds of life, food production, economic development, and overall well-being. It is difficult to depollute, expensive to transport, and cannot be replaced for the majority of its applications. The country's surface and groundwater resources are essential for agriculture, hydropower generation, livestock production, industrial operations, forestry, fishing, navigation, recreational activities, and so on. The world's freshwater ecosystems cover only around 0.5% of the earth's surface and have a volume of 2.84x10<sup>5</sup> km<sup>3</sup>. Rivers account for only 0.1% of the total land surface. River channels contain only 0.01% of the earth's water. Despite these little quantities, rushing waters are quite important (Wetzel, 2001). Water pollution is a serious global issue that affects ecosystem health, wildlife, and human well-being. Cancer, respiratory conditions, and digestive issues are just a few of the health issues that can arise from drinking contaminated water (Ogunyemi et al 2023). According to Bashir (2020), pollutants in the water can damage aquatic life, which lowers biodiversity and disturbs

fragile ecosystems. One of the main causes of water pollution is industrial waste. Hazardous chemicals and pollutants are frequently released into nearby water bodies by factories and manufacturing sectors, causing contamination that makes the water unsafe for both people and wildlife (Siddiqua et al. 2022). Because pesticides, fertilizers, and animal manure can contaminate rivers and lakes, resulting in algal blooms and oxygen deprivation, agriculture is a major source of water pollution (Burkholder 2007).

A vital resource for human survival is water. The usage of freshwater has grown by roughly 1% year since the 1980s and has multiplied sixfold in the last century, according to UNESCO's 2021 World Water Development Report. Water quality is suffering greatly as a result of rising water demand. Urbanization, agriculture, and industrialization have all contributed to environmental pollution and degradation, which has a negative impact on the rivers and oceans that are essential to life and, ultimately, human health and sustainable social development (Xu et al., 2022a).

Water pollution primarily arises from industrial activities, agricultural practices, natural causes, and inadequate water supply and sewage treatment systems (Adeyemi et al, 2022). To begin with, industries are the leading contributors to water pollution; these include sectors such as distillation, tanning, pulp and paper production, textiles, food processing, iron and steel manufacturing, and nuclear operations. A variety of harmful chemicals, both organic and inorganic, as well as toxic solvents and volatile organic compounds, may be discharged during industrial production. When these pollutants are released into water bodies without proper treatment, they lead to water pollution (Chowdhary et al., 2020). Activities related to agriculture can introduce nitrates, phosphorus, pesticides, soil sediments, salts, and pathogens into water sources (Parris, 2011). Additionally, agriculture has caused extensive harm to all untouched freshwater ecosystems (Moss, 2008).

Water pollution is a global issue, particularly in developing countries where inadequate sanitation and waste disposal practices contribute significantly to the contamination of water sources. In Nigeria, water pollution is a leading cause of public health challenges, especially in rural areas like Sabon Birni Local Government Area. Groundwater, is the primary source of drinking water in Sabon Birni, is susceptible to contamination from pit latrines, agricultural runoff, and improperly managed waste (Adebayo et al., 2021). The contamination of water sources due to inadequate sanitation, agricultural runoff, and improper waste disposal has severe implications for health, agriculture, and the environment (Abdullahi et al., 2023). While efforts to improve water quality are underway, public awareness of water pollution remains critical in ensuring the success of these initiatives (Bello et al 2021). This study aims to assess the knowledge and awareness of water pollution among the residents of Sabon Birni LGA, analyzing their perceptions of causes, consequences, and preventive measures. By identifying knowledge gaps, the study seeks to propose solutions that enhance awareness and promote sustainable water resource management.

## **METHODOLOGY**

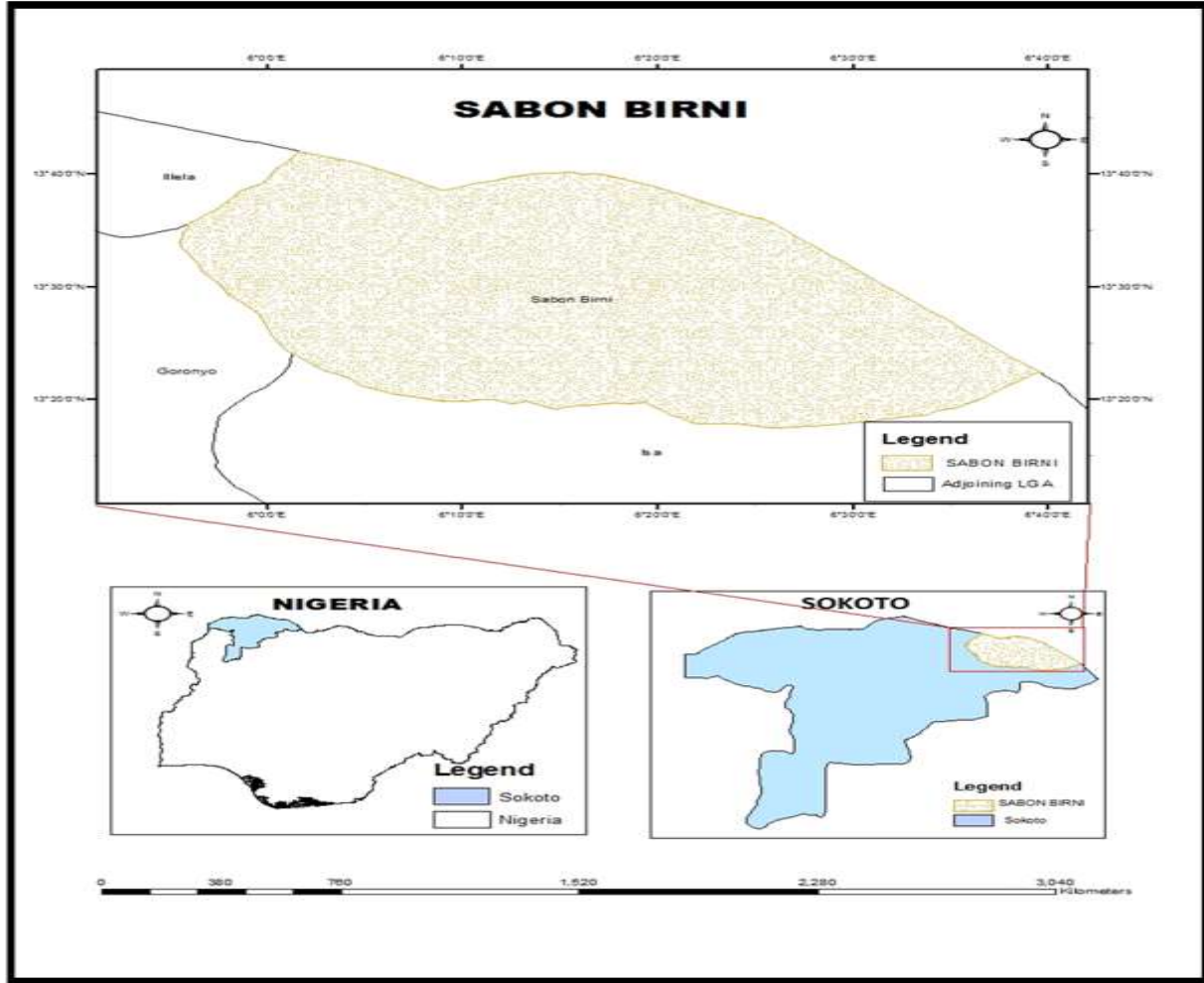
The study employed a cross-sectional survey design, targeting residents across the Sabon Birni LGA. A total of 150 respondents from the five wards out of eleven, including individuals from various age groups, education levels, and occupations participated in the survey. Structured questionnaires, including both closed and open-ended questions, were administered to collect data on the respondents' knowledge of water pollution causes, awareness of its consequences, and understanding of preventive measures. The data were analyzed using descriptive statistics, including frequency distribution and percentages.

### **Study Area**

#### **Location and extent**

Sabon Birni Local Government stands out geographically located at Latitude: 13.248°, 5.8694°N and longitude 13.7561°, 6.6722°E with altitude 310 m (1,017 ft). Sabon birni Local Government area of Sokoto state, North-west Geographical zone of Nigeria and has headquarters in the town of Sabon Birni and is bordered by parts of Niger republic, Isa and Goronyo respectively. LGA made of several town and villages such as Makuwana, Lajinge, Unguwar lalle, Tsamaye, Kurawa, Tara, Gatawa, Kalgo , Gangara Ward, Sabon Birni West, and Sabon Birni East. Sabon Birni LGA occupies a total area of 2354 square

kilometers and has an average temperature of 34 degrees centigrade. The LGA has average wind speed of 10 km/h while the total precipitation in the area is put at an estimated 1150mm of rainfall per annum.



**Figure 1** Map of Sabon Birni Local Government Showing Study Area  
**Source:** GIS LAB Department of Geography SSCO, Sokoto (2025)

**RESULTS AND DISCUSSION**

**Awareness of the Causes of Water Pollution:**

Respondents were asked about their awareness of the common causes of water pollution in their community. The results indicate that 70% of respondents were aware that improper waste disposal contributes to water pollution, while only 45% recognized agricultural runoff as a source of contamination (see Table 1). Notably, 35% of respondents linked water pollution to poor sanitation practices, such as the use of pit latrines.

**Table 1: Awareness of Causes of Water Pollution**

Cause of Water Pollution	Percentage of Respondents Aware (%)
Improper Waste Disposal	70
Agricultural Runoff	45
Poor Sanitation (Pit Latrines)	35
<b>Total</b>	<b>150%</b>

Source field survey 2025

### Awareness of the Consequences of Water Pollution

When asked about the consequences of water pollution, 80% of respondents identified health risks, such as waterborne diseases (e.g., cholera, dysentery), as a major concern. However, awareness of environmental degradation (e.g., reduced aquatic biodiversity, soil contamination) was lower, with only 40% of respondents acknowledging these impacts and only 30% of respondents were aware of the economic consequences, such as reduced agricultural productivity due to polluted irrigation water.

**Table 2: Awareness of Consequences of Water Pollution**

Consequences of Water Pollution	Percentage of Respondents Aware (%)
Health Risks (Waterborne Diseases)	80
Environmental Degradation	40
Economic Loss (Agriculture)	30
<b>Total</b>	<b>150%</b>

Source field survey 2025

### 3. Understanding of Preventive Measures

Despite a moderate level of awareness of the causes and consequences of water pollution, the study found significant gaps in the respondents' understanding of preventive measures. While 65% of respondents knew the importance of proper waste disposal, only 40% were aware of the need to maintain a safe distance between pit latrines and water sources. Furthermore, only 30% were familiar with sustainable agricultural practices that can reduce the impact of chemical runoff on water sources.

**Table 3: Awareness of Preventive Measures**

Preventive Measure	Percentage of Respondents Aware (%)
Proper Waste Disposal	65
Safe Distance Between Latrines and Water Wells	40
Sustainable Agricultural Practices	30
Community-Based Water Quality Monitoring	15
<b>Total</b>	<b>150%</b>

Source field survey 2025

### 4. Influence of Socio-Demographic Factors on Awareness:

The study also explored how socio-demographic factors, such as age, education level, and occupation, influenced awareness of water pollution. The analysis revealed that respondents with higher education levels had a greater understanding of water pollution causes and preventive measures. For example, 70% of the respondents with Tertiary Education higher aware compared to 50% of respondents with secondary education were aware of water pollution's health risks, and 30% of those with only primary education. Similarly, farmers demonstrated greater awareness of agricultural runoff as a pollution source compared to individuals in non-agricultural sectors.

**Table 4: Influence of Education Level on Awareness**

Education Level	Percentage Aware of Health Risks (%)	Percentage Aware of Agricultural Runoff (%)
Primary Education	30	30
Secondary Education	50	50
Tertiary Education	70	70
<b>Total</b>	<b>150%</b>	<b>150%</b>

Source field survey 2025

## **DISCUSSION**

The findings of this study reveal that while residents of Sabon Birni LGA are generally aware of water pollution and its health risks, there are significant knowledge gaps concerning the causes, preventive measures, and broader environmental and economic consequences. The low awareness of the role of agricultural runoff and poor sanitation practices in water pollution underscores the need for educational interventions that target both rural farmers and household-level sanitation practices. Community-based initiatives, such as public health campaigns and environmental education programs, could help address these gaps and promote better water management practices.

## **CONCLUSION**

The findings of this study reveal that while there is a moderate level of awareness of water pollution among the people of Sabon Birni LGA, significant gaps remain in their understanding of specific causes, preventive measures, and long-term consequences. Public awareness campaigns should focus on bridging these gaps by targeting both individual households and the wider community. Educational programs that emphasize the link between sanitation practices, agricultural activities, and water quality are essential to prevent further water pollution in the region.

## **RECOMMENDATIONS**

**Public Awareness Campaigns:** Local governments and non-governmental organizations (NGOs) should intensify efforts to educate residents about the causes and consequences of water pollution, with an emphasis on the impacts of sanitation practices and agricultural runoff

**Community Engagement:** Community leaders and local authorities should be involved in organizing workshops and outreach programs that promote sustainable agricultural practices and proper waste management to prevent water contamination.

**Policy Enforcement:** There should be stricter enforcement of environmental and sanitation regulations to ensure that residents adhere to proper waste disposal practices and maintain safe distances between sanitation facilities and water sources.

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