

Water Supply and Sanitation Challenges in Dala Local Government Area of Kano State, Nigeria

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Abstract

This research primarily assesses the water supply and sanitation situations in Dala Local Government Area of Kano State. This is one of the most densely populated areas in Nigeria. As such, there is a considerable amount of pressure on its natural resources, especially land and water. The provision of water supply and sanitation were examined qualitatively. The main aim was to explore the prevailing situation with a view of making contributions towards developing lasting and sustainable solutions. This was achieved by employing the use of an electronically designed questionnaire. A total number of 100 questionnaires were administered using stratified random sampling technique across the 10 administrative wards in the study location. The result revealed that untreated ground water is the major source of water supply in the study area and a considerable number of people lack access to proper sanitation facilities to the extent that about one eighth of the population use the open defecation method. It was then recommended that further research be undertaken, proper health education, effective sanitary laws and government intervention amongst other measures could improve the water supply and sanitation situation in the area.

Keywords: Water Supply, Sanitation, Open defecation, Dala Local Government Area, Kano

1.0 Introduction

The adequate provision of clean water supply and good sanitation are essential ingredients to the sustenance and development of human life (WHO, 2006). This is recognized globally, as reflected in the recently adopted sustainable development goals in which 'goal six' is to ensure clean water and sanitation for all. In spite of that, however, adequate access to clean water and proper sanitation remains a big challenge facing the ever-increasing human population, especially those living in less-developed countries (Tushaar, 2014). In fact, lack of proper water supply and sanitation conditions results in an annual diarrheal death rate of almost 1 million people globally. Also, it hinders efforts towards the effective prevention and management of other diseases, including malnutrition and cholera (WHO, 2018).

Water provision encompasses the supply of an adequate quantity while ensuring the good quality of vital resource for various uses that include drinking and the municipal, the industrial, the agricultural and that of the ecosystem, among others. Hence, its importance to supporting is very profound. Of all the sources of water, majority of the world's population rely mostly on the ground water type because of its vast availability and affordability when compared to other sources (Ali & Young, 2013).

As a measure that is undertaken to protect the environment and public health, sanitation encompasses solid and liquid wastes management as well as other vector control

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undertakings. Therefore, progress in sanitation and hygiene greatly improves public health. It is well documented that many people still lack access to adequate means of disposing wastes (UNICEF/WHO, 2014). This is a call for concern, especially in many populated areas of less developed regions, such as Dala, by increasing the risks of infectious diseases and other public health hazards to the most vulnerable groups like children, the elderly and people with low immune systems (Franceys et al, 2015).

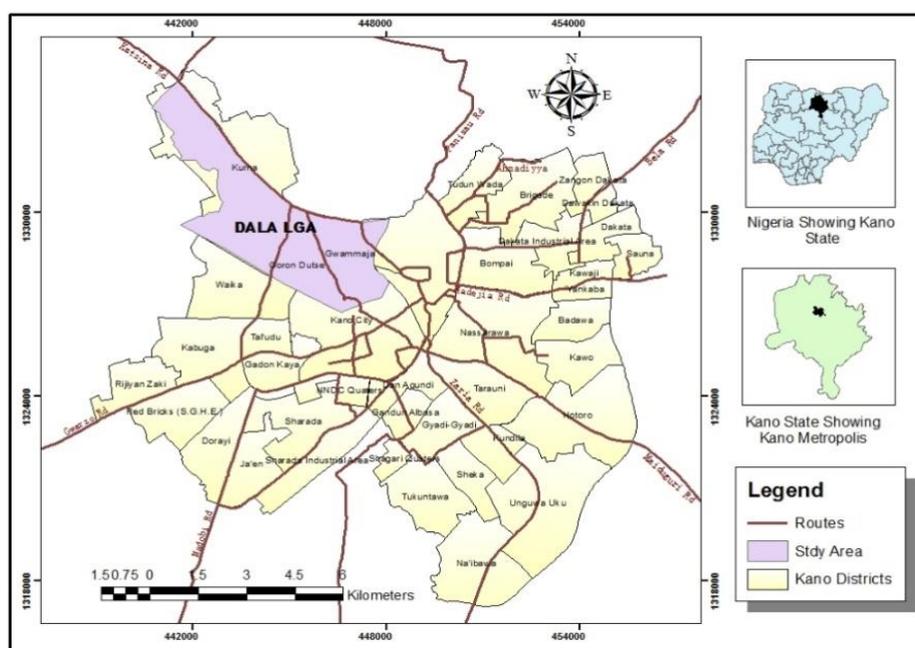
Improving access to clean water and adequate sanitation requires good understanding of the situations in the affected areas, which could be challenging in some areas due to lack of reliable information. This is the basis upon which this research was conceived. It focuses on exploring the situations of drinking water supply and sanitation provisions in Dala Local Government Area of Kano State with a view to making contributions towards sustainable development.

The study area is a densely populated part of the Kano metropolis that lacks adequate water supply and sanitation infrastructure. While a considerable number of works have been documented on the problems of water supply and sanitation in many parts of the world, not a great deal is known and documented about the prevailing situation in the study area. This is what draws the interest of the researchers to contribute towards better understanding of the situation with a view to developing sustainable solutions to the problem.

2.0 Methodology

2.1 The Study Area

The study was conducted in Dala Local Government of Kano state, Nigeria. It is one of the eight (8) local government areas within the Kano metropolis situated between latitude 12° 00' 00''N to 12° 03' 21'' N and Longitude 8° 27' 30'' E to 8° 31' 40'' E with a population of about 420,000 (Ahmad, 2017). Figure 1 shows the administrative map of Dala L.G.A. within Kano state. Dala covers a total land area of about 19km².



Source: Department of Geography Bayero University, Kano (2018)

Figure 1: Map showing Kano and Dala LGA

2.2 Sampling

A sample of 100 respondents was selected within the 10 wards of the area using stratified random sampling technique for data collection. The heads of households were prioritized during the assessment. An electronically designed questionnaire was used in collecting information and Microsoft Excel for the analysis. The questions were read to the participants and their responses recorded accordingly. The responses were analyzed using descriptive statistical methods and the results presented in form of charts.

3.0 Results and Discussion

3.1 Demographic Characteristics

Males constitute 59% of the population and females the remaining 41%. Also, most of the respondents (constituting 43%) are youth aged 26-35 years, 30% are between 36-45 years and 21% and 7% 18-25 and 46-60 respectively, as presented in Figure 2. Educationally, the result shows (see Figure 3) that 18% have obtained primary school qualification, 22% secondary school qualification and the remaining 60% tertiary level qualification. This is an indication that the residents of Dala have attained some level of formal education.

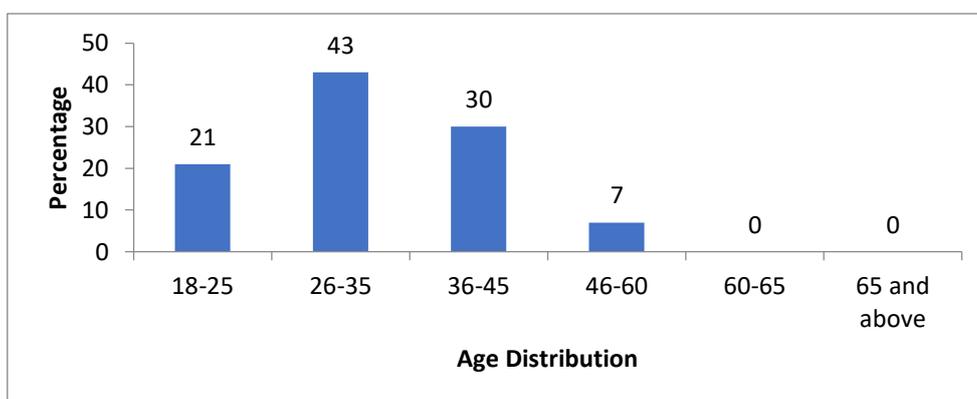


Figure 2 Age Distribution

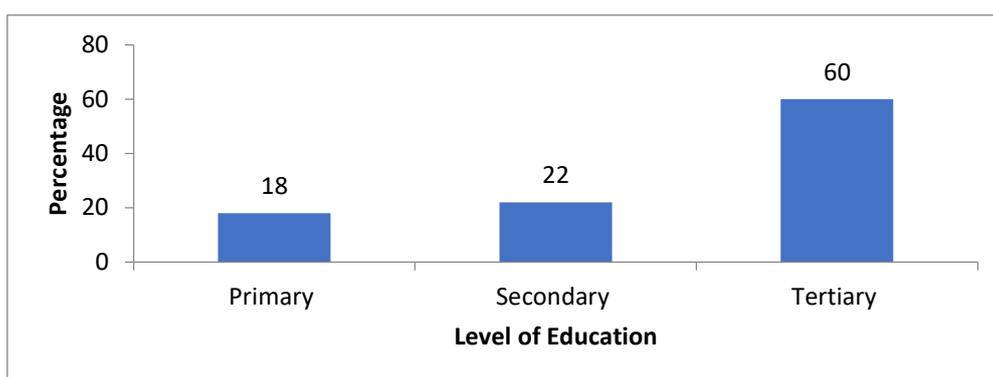


Figure 3 Educational Status

In terms of family size, 19% of the respondents have between 1-5 persons; 38%, 5-10 persons; 12%, 11-15 persons and the remaining 31% 15-20 persons, as presented in Figure 4. This shows a wide variation in family size across the study area and, therefore, reflects in the amount of water required for consumption and the generation of a widely varied amount of solid wastes and sewage.

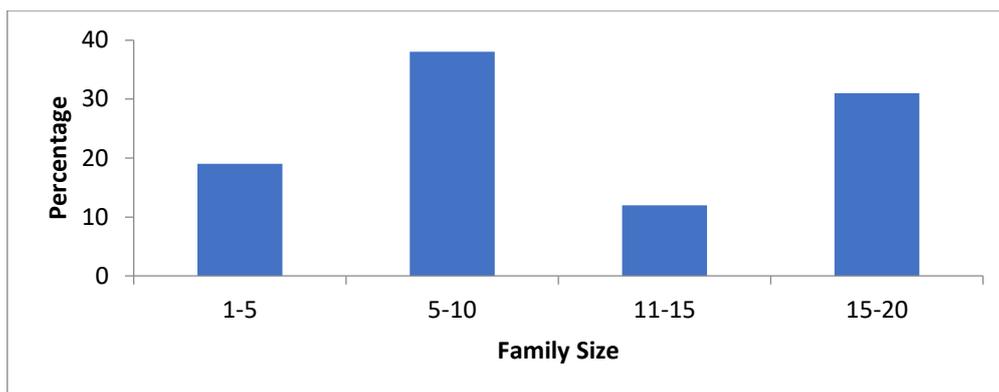


Figure 4 Family Size

3.2 Water Supply Provisions

Water supply in the study area is dominated by groundwater sources, as presented in Figure 5. The figure revealed that only 13% of the respondents use tap water, 52% use hand dug wells and the remaining 35% boreholes, as the source of potable water supplies. These show that most (87%) use groundwater sources for drinking and other domestic uses. This revelation is thus a cause for concern, as a number of studies conducted across Nigeria (Waziri & Ogugbuaja, 2010; Akan et al., 2010; Muazu et al., 2012) revealed varying scales of contamination associated with various sources of potable water.

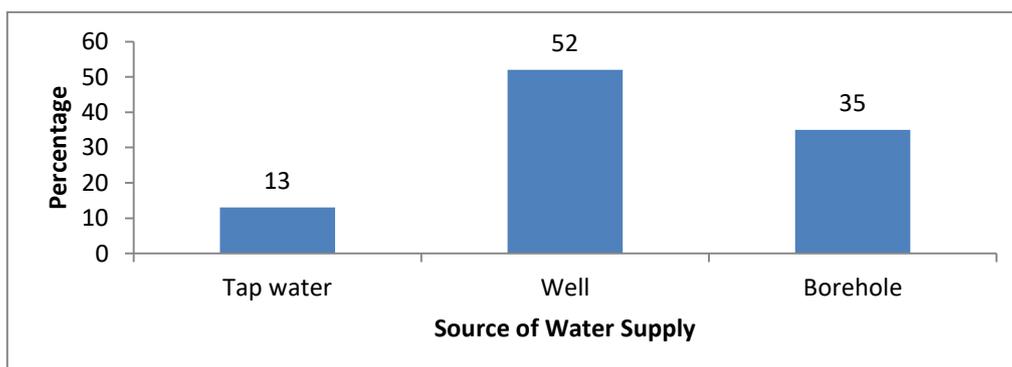


Figure 5: Sources of Water Supply

Out of those that use groundwater sources, 78% use the untreated water directly from source for drinking, about 19% use sachet water for drinking and the untreated groundwater for other domestic uses, while the remaining 2% drink bottled water and the untreated groundwater for other uses, as shown in Figure 6. These findings suggest that many people in the study area use untreated groundwater for drinking purposes. The implication of a lack of safe drinking water is considered a major cause of numerous communicable diseases. According to Alhassan & Ujoh (2012), the provision of clean water and basic sanitation would lessen the incidence of diarrhea, sleeping sickness and guineaworm infestation by a significant proportion. This is a significant finding of this research that warrants further investigation to assess and monitor the quality of the potable water used in the study location. The high percentage of respondents using untreated groundwater sources could be associated with lack of infrastructures, management and the maintenance of water provision services. Likewise, sachet water is produced and supplied by private sector individuals, hence the reasons for its popularity around the study area.

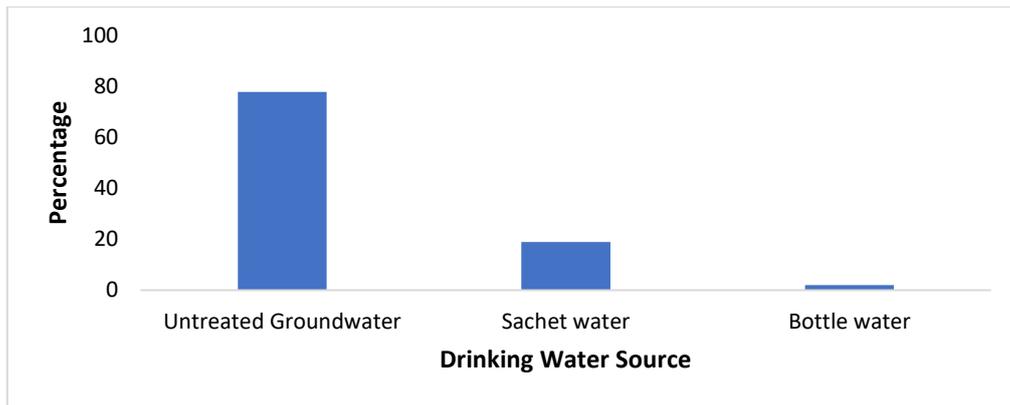


Figure 6: Types of Drinking Water Sources

3.3 The Sanitation Situation

In terms of sanitation provisions, this research considers human wastewater separate from domestic (non-human) wastewater. Figure 7 shows that 53% of the respondents dispose their domestic wastewater onsite while the remaining 47% dispose theirs in gutters that flow along the streets. This is a clear indication of lack of proper system of sewage disposal and management in the area.

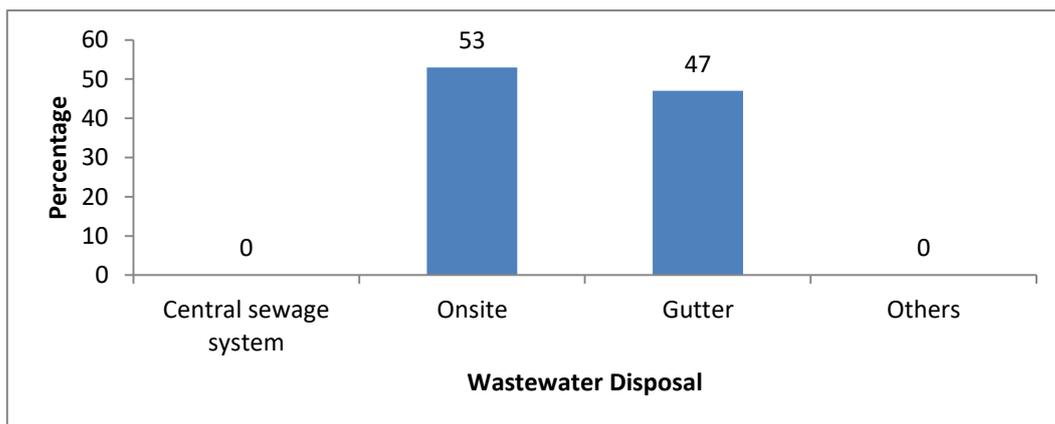


Figure 7: Domestic Wastewater Disposal

Furthermore, the management of human waste was also observed to be grossly unsustainable in the area. Figure 8 shows that 48% of the respondents use pit latrines; 38%, cesspool and the remaining 12% open defecation. This corroborates with a study by Abubakar (2018) that found 25.1% or 46 million Nigerians practicing open defecation in 2015. This highlights a very serious situation of improper methods of human body waste management in the study area. Improper pit latrines and open defecation pose significant threats to public health and environmental sustainability.

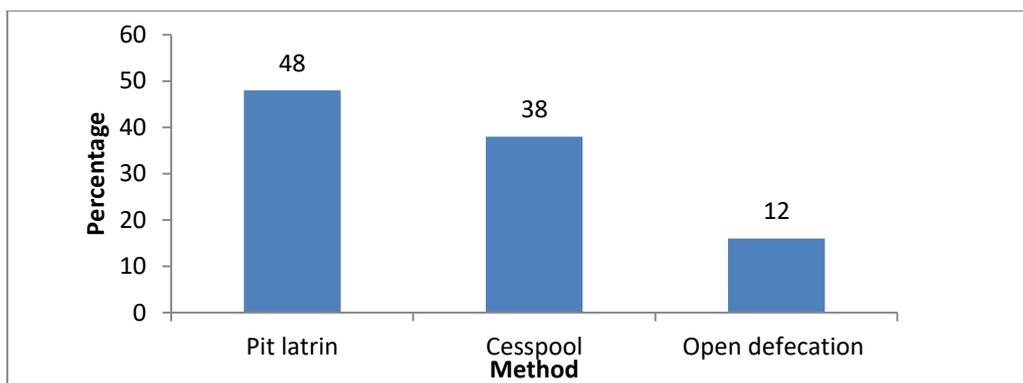


Figure 8: The Method of Human Body Waste Management

When asked further, 51% of the respondents said government has provided laws governing sewage disposal; 39% saw the effort of government in laying pipes to drain sewage and by community members, such as cleaning gutters, among others, constitute 10% of the total responses (Figure 9). This shows that the community recognises some efforts made by government and the community to mitigate sewage problems, though the efforts are not enough.

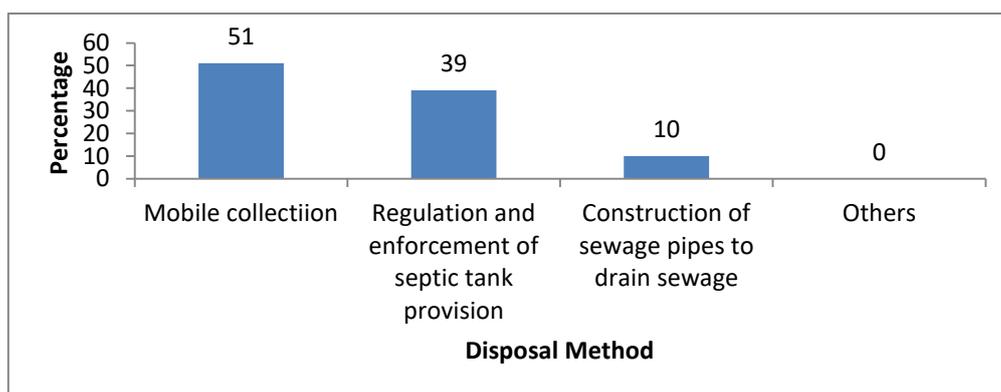


Figure 9: The Existing Methods of Sewage Disposal

On control measures, 9% of the respondents see the proper washing of hands and use of sanitizers as improving sanitation, 31%, cleaning the environment as a major contributor in improving sanitation, 23%, adequate sanitary measures to be put in place while the remaining 37% consider improving toilet facilities as a major factor in improving sanitation (Figure 10). This shows that a wide range of activities need to be done in order to improve the sanitary situation of the study area.

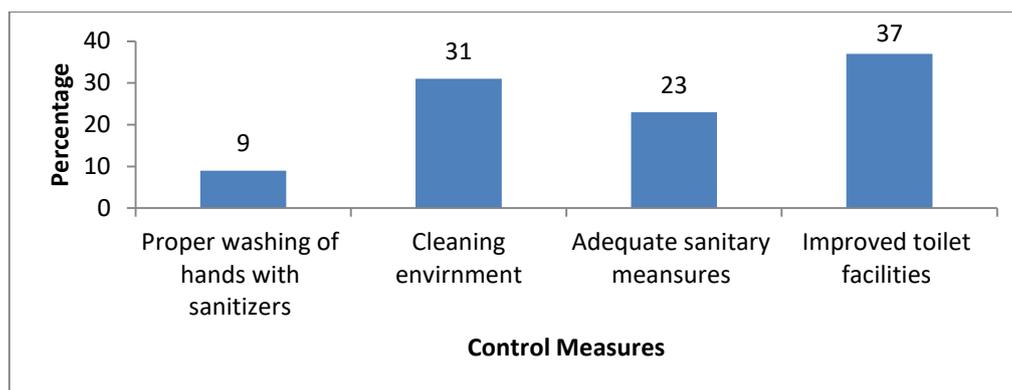


Figure 10: Measures to Control the Problems of Poor Sanitation

4.0 Conclusion and Recommendations

This paper examines the challenges of water supply and sanitation in Dala Local Government, one of the most densely populated areas in Nigeria. The study found that the main source of potable water supply in the study location were underground water sources mainly from hand dug wells and boreholes. In addition, most of the respondents use the water directly and untreated from source with sachet and bottled water being the only treated alternatives of drinking water. Moreover, the study found that domestic wastewater is mostly disposed on-site or via gutters that flow along the street. This is an indication of the lack of proper sewage management and disposal system.

Another interesting finding of the study is that, despite the number of respondents indicating having toilet facilities, a significant number of them is using open defecation in addition to pit latrines and cesspools. These pose a threat to human health and the environment. This situation becomes more problematic, especially coupled with the findings that a great number of the respondents lack awareness on sewage and its management.

There is the need for proper health and environmental education in the study area, as most of the respondents are not aware of their negative actions on their health and that of the environment, in addition to the enactment of sanitary laws and proper enforcement. Also, roadside public toilets (conveniences) should be provided, especially at locations where open defecation is widespread.

Future research could explore the quality of the groundwater sources around the study area to ascertain if they are fit for human consumption. Similarly, since the management of wastewater has long-term sustainability inferences for source-water quality, future researches should investigate the environmental and health implications of the sewerage system, especially with the open gutters in use.

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