ASSESSMENT OF ACCESS TO TOILET FACILITIES AND ITS HEALTH IMPLICATIONS IN TORO LOCAL GOVERNMENT AREA, BAUCHI STATE, NIGERIA

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ABSTRACT

Nigeria occupies the second position in global open defecation rating and poor access to toilets in the country has been attributed to economic, cultural and social norms as many people still defecate in the open space, bushes and rivers. The objectives of this study were to assess the level of accessibility to improved toilet facilities, examine the health impacts of poor toilets and to find out the respondents' perception on the benefits of improved toilet facilities. The descriptive survey method normally employed for public opinion surveys, fact finding surveys and status studies among others was used for this study. Systematic sampling technique was employed for the selection of the study settlements and the respondents. Descriptive statistics which provides a concise numerical summary of the characteristics of a variable was used in the analysis of the data collected for this study. The findings of this study reveal that 52.66% of the respondents earned less than NGN220 per day out of which 23.11% have daily income of less than NGN110. Whereas only 2.95%had access to improved toilets, 61.57% use pit latrine which is not safe. The noble perception of the respondents that improved toilet facilities prevent diseases is hijacked by poverty and ignorance. Access to improved toilet facilities could be achieved through vigorous public enlightenment programmes by stakeholders and economic empowerment to heads of household by Government, NGOs and philanthropies.

Keywords: Access, Assessment, Health, Toilet, Toro

INTRODUCTION

Access to sanitation is a basic right to humans, yet almost a third of the world's population suffer on a daily basis from a lack of access to improved toilet facilities which can impact a whole community, affecting many aspects of daily life and ultimately posing a serious risk to health (Roma, et.al. 2013). Whereas inadequate sanitation is estimated to cause 280,000 diarrhoeal deaths annually across the globe, about 2800 people die daily from illnesses related to inadequate sanitation, poor hygiene and unsafe water in Africa (Anon, 2017).

People and communities in developing countries need to be aware of the implications of their actions on the environment, most especially as it affects their health because problem of sewage disposal occurs worldwide but are worse in developing countries (Thapar, et.al. 2004). Sadly, the burden of inadequate sanitation often falls disproportionately on the most vulnerable people living in developing countries, such as children and people with disabilities (Humphrey, 2009).Access to improved water, sanitation and hygiene in Nigeria is deteriorating according to studies and official records, for instance, access to improved sanitation decreased from 38% in 1990 to 29% in 2015 while access to piped water services which was 32% in 1990 declined to 7% in 2015 (Rimi, 2017).

This study is based on the assertion that lack of improved toilet infrastructures can force humans to use alternative options such as open defecation and unimproved facilities that represent a greater risk to health, especially, that a single access of sewage from feacal matter that enters water can rubbish efforts at water resources management(Aliboh, 2018).Due to lack of access to improved water sources, sanitation and good hygiene practice worldwide, 4 billion cases of diarrhoea are reported each year with 1.4 million children dying from preventable sanitation and hygiene cases (Segupta, et.al. 2018). Poverty often leads to unhygienic living conditions which promote contraction of diarrhoeal diseases, as a result of poor sanitation and hygiene (Black, et.al. 2013). The lack of access to toilet facilities have been attributed to either poverty that makes it a challenge to build latrines or lack of government support in providing such facilities or subsidies (Barnett, 2018). In cases where the toilets are available but people still end up preferring open defecation, the reason can extend to cultural, for instance, sharing toilet among family members, an example is a case where it is forbidden for a man to share the same toilet with his daughter-in-law and in some cases, due to the freedom that open space gives users opposed to using a small dark structure or the displeasure in using toilets that are filthy or not clean (Akwasi, et.al. 2013).

A platform that needs to be addressed is the negative cultural association that people have with toilets, by informing and giving civic education to enable them break away from their cultural beliefs on issues such as the fact that toilets are not supposed to be shared (Poluyi, 2018).Without toilet, untreated human waste can impact a whole community, affecting many aspects of daily life and ultimately posing a serious risk to health, the issue that runs deeper into societal consequences, such as teenage girls often leaving school at the onset of menstruation due to lack of privacy and the risk of attack or rape associated with being forced to defecate in the open during nightfall (Roma, et al, 2013).

Toilet facilities in Toro L.G.A. of Bauchi State are mostly poorly flushed and open space outside the house, pit latrines without slabs, hanging latrine, shared facilities and open defecation (NPC, 2006), creating breeding grounds for mosquitoes, flies, cockroaches and rodents responsible for the spread of many diseases. This practice necessitated the investigation of the population with access to safe toilet facilities, consequences of using unimproved toiletfacilities and the level of awareness of the inhabitants on the benefits of improved toilet infrastructures.

MATERIALS AND METHODS

Study Area

Toro L.G.A. was created in August 1976 and is currently the largest Local Government Area in Bauchi State with a projected population of 562,036 at the rate of 3.2 % per annum from the 2006 census figure of 350,404 and a land area of 7,389,690sqkm. Toro L.G.A. lies within latitudes $9^{o}37'$ and $10^{o}\ 44'$ N and longitudes $8^{o}\ 45'$ and $9^{o}\ 32'$ E and bordered to the north by Ningi L.G.A., to the east by Ganjuwa and Bauchi L.G.As, to the south by Dass and Tafawa – Balewa L.G.As and to the south west and west by Plateau and Kaduna States (Figure 1).Temperatures are usually high, between 28^{0}c and 33^{0}c. However, the mountainous nature of the Jos Plateau has a moderating influence on the temperature of the study area to about 22^{0}c during winter. Rainfall set in from April/May and terminates in October/ November.

Famous tourist centres in Toro L.G.A. include the first mining beacon in Nigeria at Tilden Fulani in 1905, the Kwandon Kaya stone heaps at Panshanu, the Geji rock painting at Gaje Village, Shadawanka warm spring water, round huts of the famous Teachers' College Toro built in 1928 and Lame Burra Game Reserve at Yuga.

The descriptive survey method was used for this study. This is the method in which a group of items are studied by collecting, analyzing and interpreting data from a few people considered to be representative of the study population. The method is often employed to describe systematically, a situation or area of interest factually and accurately. Data were obtained from Primary and secondary sources. The data collected directly from the field were through questionnaire administration, observation and oral interviews while secondary data were from documentaries, journals, and internet and published reports of government agencies and non–governmental organizations.

The study population comprised of all the household heads of the nine systematically selected settlements in Toro L.G.A (Figure 1). The sample size was formed by choosing 30 household heads in each of the nine selected settlements using systematic sampling technique with the aid of Volunteers Community Mobilizers' numbers.

Sampling Techniques

Systematic sampling technique was employed because it gave all the household heads in the nine selected settlements of the L.G.A. the same chance of being included in the sample frame and made it possible for the sample to be evenly spread over the entire reference population. Picking of the first household head (respondent) in each of the studied settlements was random and then proceeds with the selection at an interval of 20 households. At the end, 30 household heads were systematically selected from each of the nine sampled settlements to form the study population of 270 household heads.

The data required which were collected and analyzed for this study included household sizes, income levels, access to toilet infrastructure, survey of toilet related diseases and questions on the respondents' awareness on the benefits of toilet infrastructures to families. The survey of toilet related infections among the study population was made possible by asking the

respondents those members of their households that last visited health facility and the disease diagnosed.

The researcher with the help of two field assistants administered two hundred and seventy copies of the questionnaire. The two field research assistants were indigenes of Toro L.G.A. and can speak Hausa, Fulani and Shammo very well in addition to being experienced field assistants. At the end, 264questionnaires were retrieved and used for this study. This represents 96.67% of the total questionnaire distributed and was found to be adequate for the analysis. Frequency tables, percentages and means were the methods used for this study.

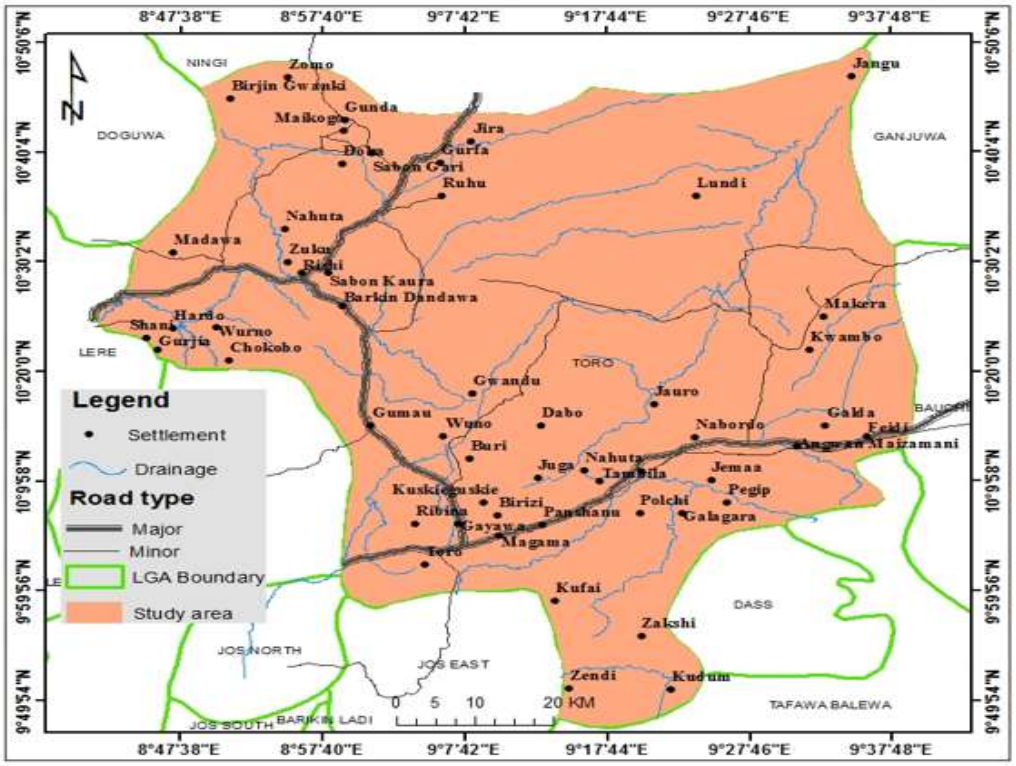

Figure 1: Toro, the Study Area

Source: National Centre for Remote Sensing, Jos

RESULTS

Demographic Characteristics of Respondents

The average household size in Toro L.G.A. according to this study is 10 – 12 persons which formed 95 out of 264 (35.99%) while only 1.14% of the respondents have household sizes of 22 persons and above (Table 1). The large average household size of 10 – 12 persons in a household showed that population; one of the major reasons for resources scarcity and depletion in the world is growing rapidly in Toro L.G.A. due to religious and cultural beliefs. Similarly, the large family sizes imply that for the dominant type of toilet available (pit latrine) to be relatively safe for use, it must be sanitized frequently (Ann, 2014) because the more the number of users the higher the chances of the facility been contaminated.

Table 1: Household sizes of the respondent

Size (People)	Frequency	Percentage
1 – 3	5	1.89
4 – 6	24	9.09
7 – 9	71	26.89
10 – 12	95	35.99
13 – 15	42	15.91
16 – 18	16	6.06
19 – 21	8	3.03
22+	3	1.14
Total	**264**	**100**

Source: Authors' fieldwork, 2020.

Socio-Economic Characteristics of Respondents

An investigation on the income levels of the study participants as shown from Table 2, revealed that poverty is one of the major reasons responsible for lack of improved toilet infrastructures among households because the result showed that 52.66% of the respondents have income levels per annum of less than NGN80,000.00 approximately N219.18k per day out of this number 23.11% have daily income of less than NGN 110. This suggests that from 562,036 people 295,968 will find it difficult to be able to save and build decent accommodation with improved toilet facilities. This agreed with Barnett, 2018 that lack of access to toilet facilities have been attributed to either poverty that makes it a challenge to build latrines or lack of government support in providing such subsidies.

Access to Toilet Facilities in the Study Area

The survey of access to toilet facilities in the study area (Table 3), revealed that only 70 out of 264(2.95%) of the respondents have access to improved toilet facilities (water closet). Sixty two percent of those that have the water closet disclosed during an interview session that water supply is rationed and as a result, they are faced with problem of water to flush the toilets, hence, settle for the only alternative of open defecation since they don't have pit latrines in such accommodations.

Table 2: Income levels of the respondents

Income per Annum (₦)	Frequency	Percentage
<40,000	61	23.11
41,000 – 80,000	78	29.55
81,000 – 120,000	32	12.12
121,000 – 160,000	21	7.95
161,000 – 200,000	13	4.92
201,000 – 240,000	16	6.06
241,000 – 280,000	19	7.20
281,000 +	24	9.09
Total	**264**	**100**

Source: Authors' fieldwork, 2020.

According to the data on Table 3, the various means through which people defecate include pit latrine (61.57%), bush/without access (25.71%), in another person's dwelling (5.81%), public toilet (3.96%) and water closet (2.95%). Thus,1,463 out of 2,376 (61.57%) use pit latrine in line with the study of Roma, et. al. 2013, that majority of people in developing countries live in filthy, cockroaches, rats, and mosquitoes-infested environment with unimproved toilet facilities which predisposes them to life threatening diseases. Also, the result on Table 3, showed that those that practice open defecation or are without access constituted 25.71%of the respondents which is in line with the findings of Segupta, et. al.2018, that Nigeria occupied second position in the global open defecation rating with 25% of the population in Nigeria practicing open defecation.

Sadly, without toilet, untreated human waste can impact a whole community affecting many aspects of daily life and ultimately posing a serious risk to health, an issue that goes deeper into societal consequences, such as teenage girls often leaving school at the onset of menstruation due to lack of privacy and the risk of attack or rape associated with being forced to defecate in the open during nightfall as observed by Roma, et. al. 2013. Equally, the environment also suffers as a result of open defecation because it introduces toxins and bacteria into the ecosystem in amounts that it cannot handle or break down at a time, thereby leading to build up of filth and as well, the load of microbes can become so great that at the end, they end up in aquatic systems, resulting in harm to both humans and aquatic life.

According to the data on survey of access to toilets facilities (Table 3), 5.81% of the respondents use another dwelling which are often unclean, poorly managed and represent a greater risk to health. Despite the fact that this study revealed that only 3.96% of the respondents uses public toilet, site observations suggested that fewer than the 3.96% actually use public toilet because they are often filthy, unclean, dirty and alarmingly unsafe for use, especially in schools, thereby forcing potential users to practice open defecation. In Summary, based on this study, only 70 out of 2,376 (2.95%) of the respondents have access to improved toilet facilities (water closet), the remaining 2,306 out of 2,376 (97.05%) do not, indicating that there is a very big task for Toro L.G.A. to install the right sanitation system. This study agrees with the position of Rimi (2017) that access to improved sanitation and hygiene infrastructures in Nigeria is deteriorating, especially among the rural poor and urban slums.

Table 3: Summary of access to types of toilet infrastructures in Toro L.G.A

Types of Toilet	Rinji	T/Fulani	Kayauri	Gumau	Rahama	Rishi	Nabordo	Jama'a	Zull	Total	%
Bush/Without access	71	30	90	51	81	48	77	79	84	611	25.71
In another dwelling	24	26	5	12	21	5	16	13	16	138	5.81
Pit Latrine	158	174	166	162	151	174	158	164	156	1463	61.57
Public Toilet	8	13	3	18	8	26	5	8	5	94	3.96
Water Closet	3	21	0	21	3	11	8	0	3	70	2.95
Total	**264**	**264**	**264**	**264**	**264**	**264**	**264**	**264**	**264**	**2376**	**100**

Source: Authors' fieldwork, 2020.

Health Impacts of Unimproved Toilet Facilities

The data collected through the questionnaire administered to heads of household or their representatives on health impacts of unimproved toilet facilities (Table 4), also agreed with the findings of the related literatures reviewed that typhoid fever was the major cause of ill-health in the study area after malaria, contributing 31.82%, followed by sexually transmitted infections (23.11%), diarrhoea (18.94%), hepatitis A (12.12%), dysentery (9.09%), and cholera (4.92%) respectively.

The high incidences of toilet related infections in the area is a typical reflection of the huge population with insufficient access to improved toilet infrastructures due largely to poverty (Table 2) and lack of

awareness on the benefits of toilet facilities as revealed by the respondents that were interviewed during this study.

Table 4: Survey of toilet related diseases among respondents

Diseases	Frequency	Percentage
Cholera	13	4.92
Diarrhoea	50	18.94
Dysentery	24	9.09
Hepatitis A	32	12.12
Sexually Transmitted Infections (STIs)	61	23.11
Typhoid	84	31.82
Total	**264**	**100**

Source: Authors' fieldwork, 2020.

Respondents' Perception on the Benefits of Improved Toilet Facilities

Assessment of respondents' level of awareness on the benefits of toilet infrastructures in the study area (Table 5) showed that only 86 out of 264 (32.58%) of the respondents agreed that improved toilet facility prevent diseases. However, 20.83% were of the opinion that safe and cleaner toilet facilities helps to maintain good health status while 16.67% believe that improved toilet facilities can lead to improvement in living standard of the population.Table 5 also showed that 14.39% of the respondents believe that access to toilet promotes dignity of persons (users) while only 3.41% were of the view that access to improved toilet infrastructures promotes school enrolment against Sommer (2016) that access to decent toilet facility is a major determinant for female school enrolment.

Table 5: Benefits of toilet facilities

Benefits	Frequency	Percentage
Prevent diseases	86	32.58
Maintains good health status	55	20.83
Promotes school enrolment	9	3.41
Saves money	32	12.12
Improves living standard	44	16.67
Promote dignity of persons	38	14.39
Total	**264**	**100**

Source: Authors' fieldwork, 2020.

DISCUSSION

The area has both public and private toilets that cater for the needs of the inhabitants and passers-by as Toro is a linear settlement that border Jos Plateau State and Bauchi town. According to the data on Table 3, the various means through which people defecate include pit latrine, bush/without access, in another person's dwelling, public toilet and water closet. Thus,1,463 out of 2,376 (61.57%) use pit latrines in line with the study of Roma, et. al. 2013, that majority of people in developing countries live in filthy, cockroaches, rats, and mosquitoes-infested environment with unimproved toilet facilities which predisposes them to life threatening diseases. Untreated human wastes can impact a whole community affecting many aspects of daily life and ultimately posing a serious risk to health, an issue that goes deeper into societal consequences, such as teenage girls often leaving school at the onset of menstruation due to lack of privacy and the risk of attack or rape associated with being forced to defecate in the open during nightfall as observed by Roma, et. al. 2013.

The environment also suffers as a result of open defecation as it introduces toxins and bacteria into the ecosystem in amounts that it cannot handle or break down at a time, thereby leading to build up of filth and as

well, the load of microbes can become so great that at the end, they end up in aquatic systems, resulting in harm to both humans and aquatic life. health impacts of unimproved toilet facilities (Table 4), also agreed with the findings of the related literatures reviewed that typhoid fever was the major cause of ill-health in the study area after malaria, contributing 31.82%, followed by sexually transmitted infections (23.11%), diarrhoea (18.94%), hepatitis A (12.12%), dysentery (9.09%), and cholera (4.92%) respectively. The high incidences of toilet related infections in the area is a typical reflection of the huge population with insufficient access to improved toilet infrastructures due largely to poverty (Table 2) and lack of awareness on the benefits of toilet facilities.

The benefits of toilet infrastructure in Toro (Table 5) showed that only 86 out of 264 (32.58%) of the respondents agreed that improved toilet facility prevent diseases. However, 20.83% were of the opinion that safe and cleaner toilet facilities helps to maintain good health status while 16.67% believe that improved toilet facilities can lead to improvement in living standard of the population. Table 5 also showed that 14.39% of the respondents believe that access to toilet promotes dignity of persons (users) while only 3.41% were of the view that access to improved toilet infrastructures promotes school enrolment against Sommer (2016) that access to decent toilet facility is a major determinant for female school enrolment.

CONCLUSION

Access to sanitation is a basic right to human beings but almost a third of the world's population suffers on a daily basis from a lack of access to improved toilet infrastructures which can impact a whole community, affecting virtually every aspects of human life and above all posing a serious threat to human health. Lack of sanitation is a reliable means of assessing how the poorest in a community are coping with life realities. Despite the fact that it is the poor who overwhelmingly do not have toilets, everyone suffers from the contaminating effects of open defecation; therefore, everybody should have a sense of responsibility with regards to addressing the problem of lack of access to toilet facilities worldwide.

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