INEQUALITY IN ACCESS TO IMPROVED WATER AND SANITATION IN PUBLIC PRIMARY SCHOOLS IN IBESIKPO ASUTAN LGA, AKWA IBOM STATE, NIGERIA

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A b s t r a c t

Access to water and sanitation is a fundamental right of the citizen and is essential for sustainable and healthy learning environment. Despite this universal recognition, inequality exist in access to water and sanitation in public primary schools in Ibesikpo, Asutan Local Government Area, therefore negating the fundamental right to basic necessity for school pupils. The study aims to examine the level of inequality in access to improved water and sanitation in public schools in Ibesikpo Asutan, Nigeria. A cross-sectional survey method was adopted which utilized both primary and secondary sources of information, while stratified and systematic random sampling techniques were employed to select 16 schools out of 52 schools using 30% for field observation. Findings revealed four sources of water for public schools, with boreholes being the most widely used (70.3%), in all special grade 1 schools, while only few of grade 1 and 2 schools had borehole, and as such most schools in these categories made use of nearby public tap and streams as major sources of water. Four types of toilets were identified in which 55.8% used pit latrine with cover, while less than 10% used water closet. Inequality in access to water and sanitation among various primary schools was observed to be statistically significant at a p-value of less than 0.05. It was concluded that despite several efforts to improve access to water and sanitation in public primary schools, still it is characterized by significant level of inequality. It is recommended that a long-term comprehensive plan for school water and sanitation be undertaken that will incorporate other major issues that affect inequality in access to water and sanitation.

Keywords: Inequality, access, water and sanitation, public school, Ibesikpo Asutan, Nigeria

Introduction

The importance of water to human existence cannot be undermined. This is why access to improved water and sanitation is a vital component stipulated for achieving the Sustainable Development Goals (SDGs) in good health, education, poverty and gender equality (Hutton and Varughese, 2016). It is considered, as a human right deemed essential to live a healthy life, be engaged in productive activities, and fulfil one's potential. To this end, the goal 6 of the 2030 Agenda for Sustainable Development aims at 'ensuring availability and sustainable management of water and sanitation with targets for universal access to safe drinking water, sanitation and hygiene for all (UNICEF, 2020).

Apart from the evident gains of leading a healthy life, proper access to improved water supply and sanitation in schools are necessary for the right to basic education for school children (Mooijman, 2012). According to UNICEF (2018), the provision of water at schools is one of the 'highly effective practices in increasing access and learning outcomes. This is why it is ascertained that in addition to the necessity of water to maintain personal and environmental hygiene, reducing student dehydration in schools has been associated with improved cognitive abilities. As a prerequisite of effective education, without adequate water and sanitation facilities, the quality of education will not only suffer, but some students, especially girls will be

discouraged from attending school at all levels (UNICEF 2019). Based on its importance, it can be said that access to water supply and sanitation facilities is, therefore, one of the necessities of any modern human community and thus, a major compliment to a strong, dynamic, and progressive educational system.

It is on this recognition that in Nigeria, much concern has been focused on providing basic needs of the people as a strategy to reduce the level of inequality in the society. However, these gains have not been equally distributed. Many people have been "left behind" and continue to live in vulnerable situations, without adequate access to basic services, same as to improved water and sanitation. Nigeria for instance is one of the countries whose records on general access to water supply and sanitation facilities by the citizens remain very poor (Akpabio, 2012). It has been established that poor access to improved water and sanitation in Nigeria remains a major contributing factor to high morbidity and mortality rates among children under five (UNICEF, 2021). Accordingly, the use of contaminated drinking water and poor sanitary conditions result in increased vulnerability to water-borne diseases, including diarrhoea which leads to deaths of more than 70,000 children under five annually. Only 26.5 per cent of the population use improved drinking water sources and sanitation facilities (UNICEF, 2021).

In the past, several studies aimed at determining access to WASH in Nigeria usually concentrate on the behavioral, political, socioeconomic, and development parameters. Despite a growing focus on facility planning, little attention has been given to the issue of disparities in access of school water and sanitation in Akwa Ibom State. To this regard, the study aims to examine the level of inequality in access to improved water and sanitation in public schools in Ibesikpo Asutan, Nigeria.

Literature Review

Studies on WASH with focus on the inequality and access to water and sanitation facilities have received widespread investigation. The issue of inequality in access to water supply and sanitation has already been the subject of several studies and discussions (WHO/UNCEF, 2000; Cumming, O. and Slaymaker, T. 2018). Following the recognition of assess to water and sanitation as universal human rights by the UN in 2010, the issue of inequality was put on the center of the debates in the sector (Luh, J. et al., 2013; Pullan, R. et al., 2014; He, W.-J et al., 2019). Disparities exist in access to water and sanitation services especially amongst the poor in developing countries, the rural dwellers, the ethnic and religious minorities and the women respectively (WHO/UNICEF, 2014; Aleixo et al., 2016).According to UNICEF (2020), National data show that schools use a variety of improved drinking water sources and that many schools around the world do not have access to water.

Globally, about 2.2 billion people still lack access to safe water while 3.5 billion people do not have access to basic sanitation (UNICEF, 2023). In sub-Saharan Africa, the situation is more worrisome due to the high inequalities observed among the low-income groups, the rural and peri-urban dwellers (WHO and UNICEF, 2014). A Study by Yang, H. et.al (2012) established that in Ethiopia, Nicaragua and Nigeria, many poor households' access non-piped

improved sources, which may provide unsafe water, resulting in greater inequality of access to 'safe' water compared to 'improved' water sources. In Nigeria, around 69 million people do not have access to safe water. Many children spend hours every day walking to collect water, sometimes missing out on a chance to go to school (UNICEF, 2018).

According to Irianti et al., (2016), access to improved water source and sanitation is best explained by disparities in geographical location, gender, and economic status in Indonesia. Also, Mulenga et al., (2017) established that access to improve d water and s anitation i s concentrated among the wealthier households in Zambia. Similarly, Checkleyet al., (2004) noted that lack of access to improved water and sanitation for children from poor families with unimproved water and sanitation services result in a high rate of morbidity and mortality due to water- related diseases such as diarrhea.

Despite these studies, there is scanty literature on inequality on access to improved water and sanitation in schools in the study area. Therefore, this study seeks to fill this gap in knowledge by examining inequality in access to improved water and sanitation in public primary schools in Ibesipo Autan LGA, Akwa Ibom State, Nigeria. The study is of immense significance due to its implications for socio- environmental sustainability. The study provides necessary information on schools that require greater intervention in terms of WASH for prioritization by stakeholders and relevant agencies in their support towards achieving the Sustainable Development Goals (SDGs) no 6.

Research Methodology

A cross-sectional survey method was adopted which utilized both primary and secondary sources of information. A stratified random sampling technique was used to categorize the schools into three groups based on government classification of public primary school: special grade one (n = 9), grade one (n = 9), and grade two (n = 34), while random sampling technique was employed in the selection of 30% of schools per stratum for the study. Selection of children in each school was carried out after stratification by their class grade from Primary 1 to 6, and the students were systematically selected among the primary six pupils only since they could read and write. Descriptive statistics and one-way analysis of variance (ANOVA) were employed for data analysis.

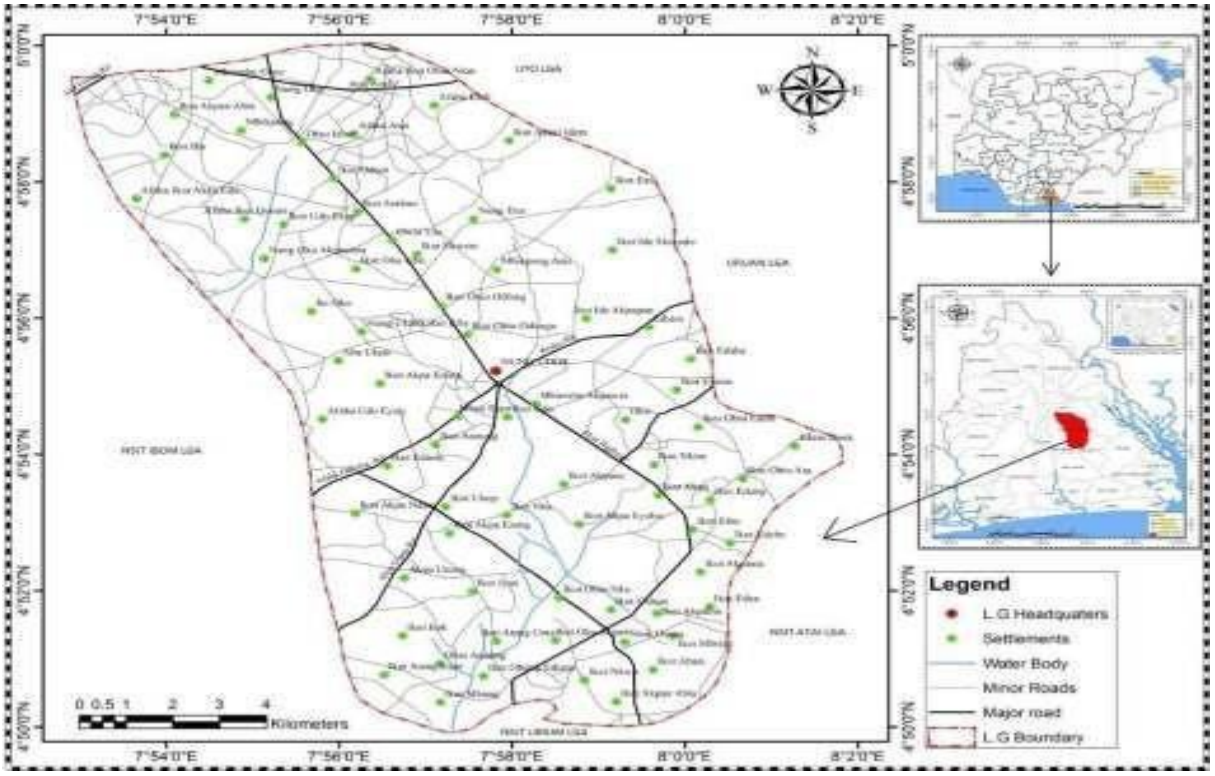


Figure 1: Map of Ibesikpo Asutan Local Government Area Showing Strata for Selection
Source: Office of Surveyor General of Akwa Ibom State (2021)

Results and Discussion

Demographic Characteristics of the Respondents

Findings reveal that 52.2 % of the respondents were female, while 47.8% were male. The age group of the respondents revealed that majority were in the age group of 10-18 years (54%), while the least 19-30 years (1.09%) were the least. The first group involves pupils while the second were teachers. As high as 87.7 % of the respondents were single, while 12.0% were married. Regarding the religion of the respondents, virtually all (98.9%) were Christians, and this could be attributed to the fact that the study area is located in the South- south part of Nigeria where Christianity is a major religion. Similarly, the ethnicity of the respondents reveals that Efik/Ibibio was the dominant tribe among the respondents (88.4%). For the length of stay of respondents in sampled schools, 31.5% had stayed between 3-4 years, while 18.8% had stayed between 5-6 years (Table 1)

Table 2: Grouping of indicators based on deviation around the means of TII and TSI for markets

Item	Gender of respondent			
	Pupils	(%)	Teachers	(%)
Male	121	43.8	12	4.3
Female	115	41.7	28	10.1
Total	236	85.5	40	14.5
Age group				
<10yrs	87	31.5	0	0.0
10 – 18yrs	149	54.0	0	0.0
19 – 30yrs	0	50.0	3	1.1
31 – 40yrs	0	0.0	17	6.2
41 – 50yrs	0	0.0	14	5.1
51 – 60yrs	0	0.0	6	2.2
Total	236	85.5	40	14.5
Marital Status				
Single	236	85.5	6	2.2
Married	0	0.0	33	12.0
Widowed	0	0.0	1	0.4
Total	236	85.5	40	14.5
Educational status				
Primary	236	85.5	0	0.0
Tertiary	0	0.0	40	14.5
Total	236	85.5	40	14.5
Religion				
Christianity	233	84.4	40	14.5
Islam	3	1.1	0.0	0.0
Total	236	85.5	40	14.5
Ethnicity				
Efik/Ibibio	204	73.9	40	14.5
Igbo	24	8.7	0	0.0
Yoruba	8	2.9	0	0.0
Total	236	85.5	40	14.5
Length of stay in school				
<1yrs	9	3.3	14	5.1
1 – 2yrs	42	15.2	17	6.2
3 - 4yrs	79	28.6	8	12.9
5 - 6yrs	55	19.9	1	0.4
>6yrs	51	18.5	0	0.0
Total	236	85.5	40	14.5

Source: Authors' Field Survey, 2021

Sources of Water Supply and Sanitation facilities in the Study Area

Different sources of school water were obtained. These were public tab (pipe-borne), borehole, and stream, with borehole being the dominant source used. The majority of the pupils, (70.3%) sourced their water from a borehole located within the school premises and surrounding compounds. The use of borehole as the major source of water in primary schools, is similar to the findings of Kotingo, et al., (2014) on the source of water in the primary schools in Delta State which established that 4% of the primary schools had piped water to the school premises, while 88.00% of the primary schools had borehole with an electric pump. The study revealed that special grade 1 schools were provided with borehole facility, while only few of grade 1 and 2 schools had the opportunity to be provided with borehole, and as such some schools in these categories made use of nearby public tap and streams as their major sources of water.

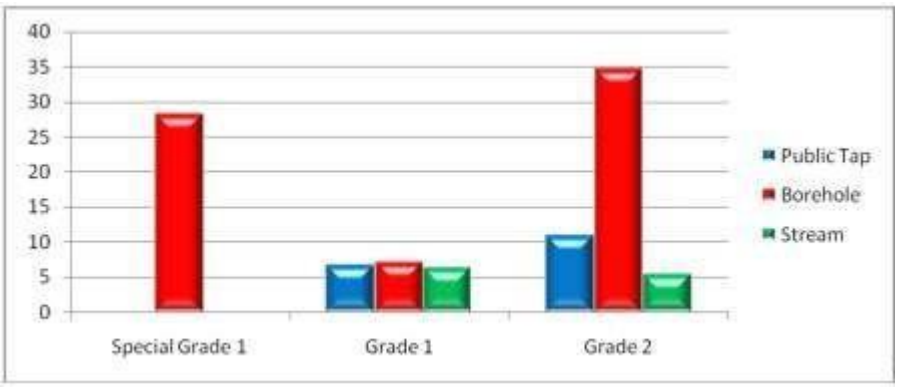


Figure 2: Sources of Water Supply in School
Source: Authors' Fieldwork, 2021

With respect to types of toilets, four (4) different types were identified which includes water closet (WC), ventilated improved pit (VIP), Pour flush latrine (PFL), pit latrine with cover (PLC). Findings revealed that a greater percentage of respondents (55.8%) used pit latrine with cover, while 19.9%, 14.5%, and 9.8% used water closet, ventilated improved pit, and pour plush latrine respectively. This finding agrees with a report by UNICEF & IRC (2005) which established that 67 percent of primary schools in Nigeria had pit latrines, and only 3 percent used water closets (WC), while the remaining 30 percent of the surveyed schools had no toilet.



Figure 3: Types of Toilet Facility available in School
Source: Authors' Fieldwork, 2021

Access to Water and Sanitation

Access to school water revealed significant levels of inequality among schools. The study established that 100% of special grade one schools sourced water from a protected source, while 69% and 89.3% of grade one and grade two schools sourced water respectively from the improved source. Also, 31% and 10.7% of grade one and two sourced water from unimproved sources respectively. Furthermore, on average, 88.8% sourced water from improved, while 11.2% sourced water from an unimproved source. Those that used unimproved source sourced their water from nearby streams and this was attributed to lack of other sources of water close to the schools due to their location in rural communities where borehole and public tap are not commonly available.

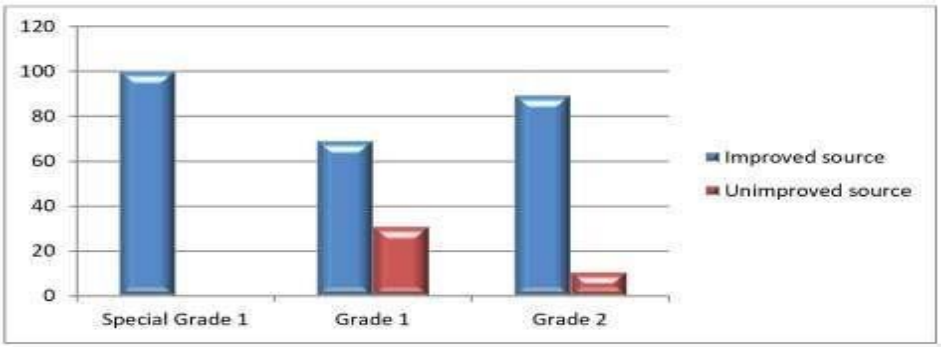


Figure 4: Percentage (%) of Schools with Access to Improved Water Source
Source: Authors' Fieldwork, 2021

Also, the level of spatial inequality in access to water in terms of physical distance indicated that there was no public primary school with optimum access to the water supply which is defined by WHO to mean the availability of water supply through multiple taps continuously during school hours (WHO, 2009). This, therefore, means that there was no school with a constant supply of water through multiple tabs continuously during school hours. However, 100% of special grade one schools had intermediate access since they had water within the school, which therefore means water was sourced within less than 100m distance. Furthermore, 77.7% and 70.8% of grade two and grade one schools, had basic access to water supply since they sourced their water between 100m and 1km, while 29.2% and 11.6% of grade one and two schools have no access to water because they sourced water in a distance above 1km. Thus, Figure 3 indicates the level of school accessibility to water supply with comparison to global standards as stipulated by WHO.

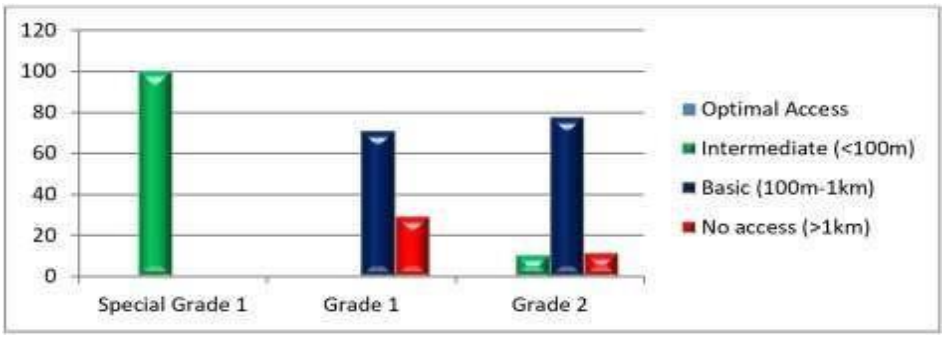


Figure 5: Percentage of Schools with Access to Water Source within 1km Distance
Source: Authors' Fieldwork, 2021

The study established the proportion of schools with access to water within 30minutes total time of fetching water as established by WHO. Just like the access distance, it shows that no school had optimum access to water supply with respect

to time as defined to mean water supplied through multiple tabs continuously. However, a school with a functional water supply within its premises are adjudged to have access to water within a period of time of less than 5minutes, and as such 100% of special grade schools and 10.7% of grade two schools were in this category, thus, were considered to have intermediate access. In addition, 91.6% and 79.4% of grade two and grade one schools had access respectively, while 9.9% and 8.3% had no access in grade two and grade one school respectively.

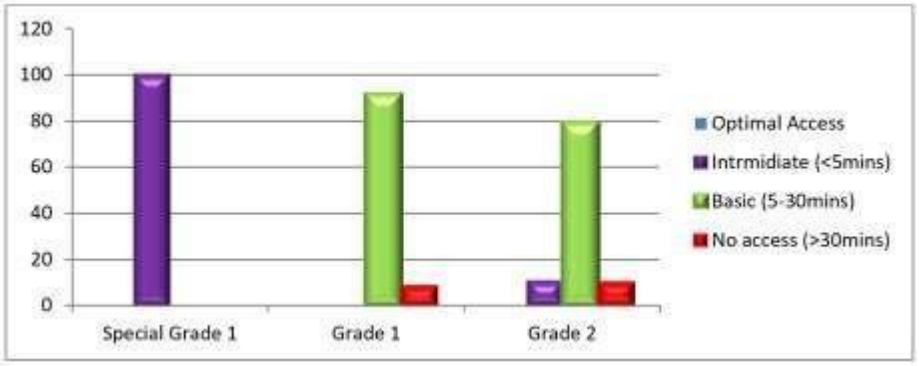


Figure 6: Percentage of Schools with Access to Water within 30 minutes
Source: Authors' Fieldwork, 2021

Findings further revealed inequality in access to sanitation facility with respect to UBEC requirement. The percentage of schools with access to improved toilet type as defined by UBEC to mean only access to water closet (WC) system and ventilated improved pit (VIP). It shows that on average, 67.9% of schools used the unimproved toilet, while 32.1% used the improved toilet type. However, this varies across the category of schools as 100% of grade one and 69.4% of grade two schools use unimproved toilets respectively. 65.7% and 30.6% of special grade one and grade two schools used the improved toilet. Thus, on average, and 65.7% of special grade one school used improved toilet, while 30.6% used unimproved toilet.

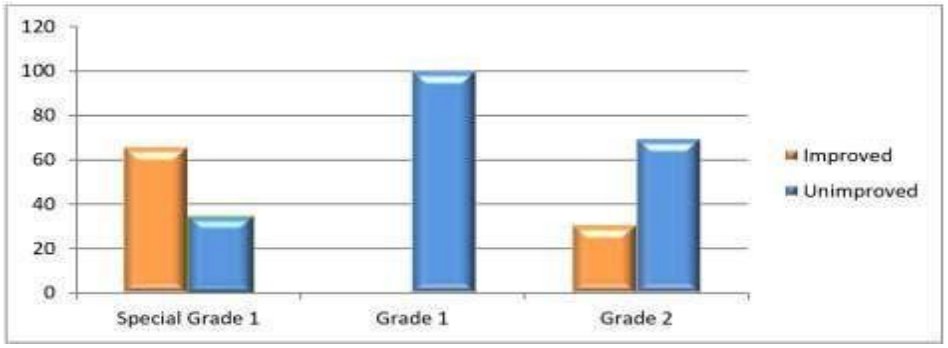


Figure 7: Percentage of Schools with Access to Improved Toilet by UBEC Requirement
Source: Authors' Fieldwork, 2021

The study reveals the percentage of schools with access to a toilet within 30 meters distance as globally and nationally established by both WHO and UBEC. It indicated that 100% of both special grade one and grade one schools accessed their

toilet facilities within a distance of more than 30meters, while 95% of grade two schools accessed toilet facilities within a similar distance. However, 5% of grade two schools accessed toilets within the required walking distance of 30meters. Consequently, on average, 98.3% of public primary school in the study area had an average distance of more than 30meters which is adopted as the national and global standard distance for access to the school toilet.

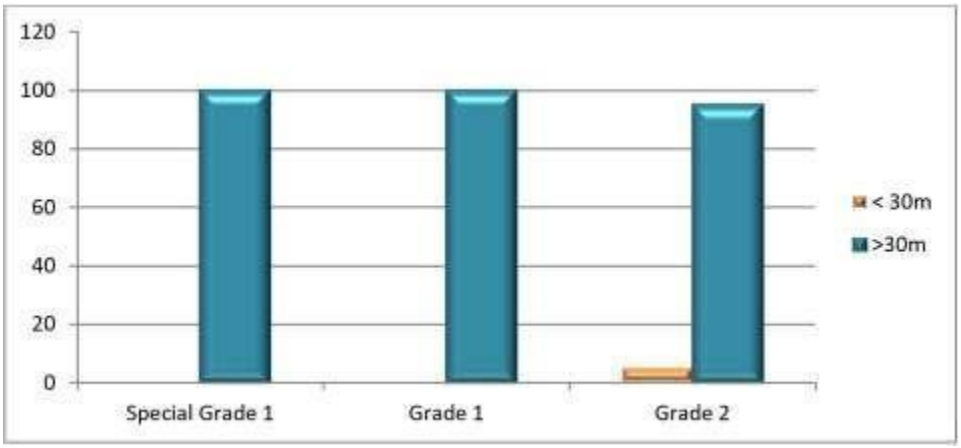


Figure 8: Percentage of schools with access to toilet within 30 metres
Source: Authors' Fieldwork, 2021

The percentage of schools with provision for a separate toilet for pupils and teachers with respect to gender as mandatorily required by the WHO and UBEC can be inferred from figure 4.5. It shows that while 100% of schools in the special grade one category had a separate toilet for male and female users. Only 50% and 33% of schools in grade two had a separate toilet for pupils, while 20% of schools in grade two and grade one had a separate toilet for male and female teachers. On average, 61% of schools had separate toilets for male and female pupils, while only 40% had similar provision for teachers. A low population of teachers might account for non-provision for both sexes.

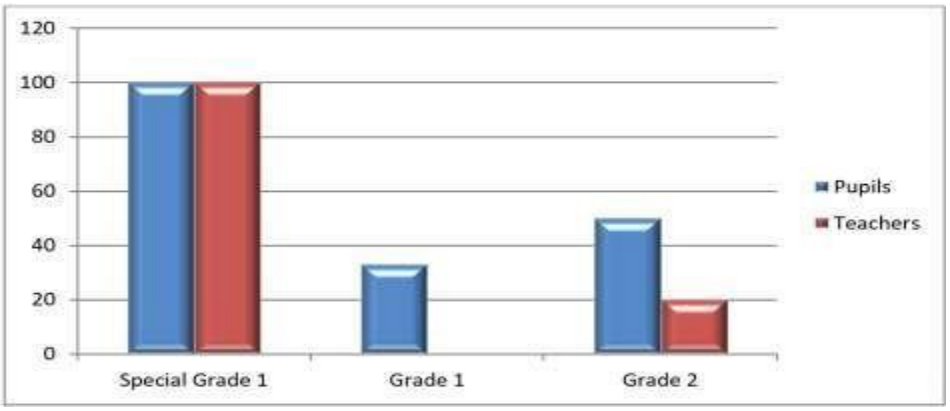


Figure 9: Percentage of Schools with Separate Toilets for Male and Female
Source: Authors' Fieldwork, 2021

Disparity in Access to Water and Sanitation in Schools

Findings of this study established that there was a significant level of inequality in access to water and sanitation among schools. The result of the analysis presented on Table 2, indicates that at a p-value of .000, for all the listed indicators of access to water and sanitation which is less than 0.05. Therefore, the null hypothesis which states that there is no significant variation in access to water supply and sanitation facility among various primary schools is rejected, and it is therefore concluded that there is a statistically significant variation in access to water supply and sanitation facility among various primary schools (Table 2).

Table 2: Analysis of Variance (ANOVA)

		Sum of Squares	df	Mean Square	F	Sig.
Average Distance of Fetching Water	Between Groups	95.950	2	47.975	52.244	.000
	Within Groups	213.961	233	.918		
	Total	309.911	235			
Average Duration of Fetching Water	Between Groups	57.946	2	28.973	26.930	.000
	Within Groups	250.681	233	1.076		
	Total	308.627	235			
Minimum time of Fetching Water from Source	Between Groups	17.229	2	8.615	21.597	.000
	Within Groups	92.940	233	.399		
	Total	110.169	235			
Minimum Distance from Classroom to Toilet	Between Groups	6.091	2	3.045	14.069	.000
	Within Groups	50.435	233	.216		
	Total	56.525	235			
Average Time from Classroom to Toilet	Between Groups	8.635	2	4.317	13.565	.000
	Within Groups	74.158	233	.318		
	Total	82.792	235			
Number of toilets	Between Groups	115.437	2	57.719	328.695	.000
	Within Groups	40.915	233	.176		
	Total	156.352	235			

Source: Authors' Analysis, 2021

Conclusion and Recommendations

This study concluded that access to water and sanitation is a universal right of the citizens, and there were tremendous efforts to improve access to water and sanitation in schools in Ibesikpo Asutan. Unfortunately, these efforts have not adequately met the needs of both pupils and teachers in public primary schools. Consequently, access to water and sanitation in public primary schools is characterized by a significant level of inequality, resulting in a situation where some schools were provided with better facilities than others, and have access to water and sanitation facilities than others. From the study, a significant portion of public schools had not met both the national and global standards of access to water and sanitation as recommended by the UBEC and WHO in their respective guideline of 2010 and 2009 respectively. Consequently, the ratio of the school population to water quantity was significantly low as the average quantity of water available was comparatively low and revealed a water shortage. The minimum distance to a source of water, minimum time of fetching at the source, and the average duration of fetching water was also below the acceptable standards. The types and conditions of

sanitation facilities in most schools were not up to standards as the number of toilets was not proportionate to the population of schools. It was evident that there were unimproved toilets in many schools, especially in grade one and grade two schools, and this was not inconsonant with the global standards of provision of improved toilets.

The study also concluded that the satisfaction with access to water and sanitation facilities in schools varies among pupils and teachers, to this end, pupils and teachers had inadequate water supply and sanitation facilities which majorly include a lack of improved toilets, wash hand basins, soap and toiletries. From the foregoing, it is recommended that along-term comprehensive plan for school water and sanitation should be undertaken in the area that will incorporate other major issues that affect inequality in access to water and sanitation. The Government through the State Primary Education Board as well as Local Education Authority should develop and ensure that copies of policy and guidelines on water and sanitation are availed in all schools. In addition, they should be more vigilant in ensuring compliance with guidelines and statutory stipulations. This would enable schools management systems to prioritize schools water and sanitation facility initiatives.

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