

Status of Water, Sanitation and Hygiene Facilities in Public Secondary Schools in Yenagoa, Nigeria

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Abstract Adequate water, sanitation and hygiene (WASH) services have positive implications on students learning outcomes. Hence, this study assessed the status of WASH services in public secondary schools in Yenagoa. The study adopted a descriptive cross-sectional survey design, which involved direct field observation of WASH facilities and the administration of structured questionnaire to the entire 16 public secondary schools in Yenagoa. However, the analysis involved 15 schools, as one of the schools did not return its questionnaire. Data obtained was analyzed using descriptive statistics and the Joint Monitoring Programme (JMP) classification of WASH services in schools. The results show that WASH services in most of the schools are inadequate and unsatisfactory. Hygiene service was the worst provided WASH services in the schools as only two (13.33%) schools had basic hygiene service, one (6.67%) school had limited hygiene service and 12 (80%) schools had no service. Next was water service where three (20%) schools had basic drinking water service, another three (20%) schools had limited drinking water service and nine (60%) schools had no water service. Although sanitation had the best WASH coverage in the schools, basic sanitation service was only obtainable in seven (46.67%) schools, limited sanitation service in five (33.33%) schools and no service in three (20%) schools. Also, the toilet to students' ratio ranges from 1:27 to 1:760, which were higher than the WHO recommended average of 1:25 for girls and 1:50 for boys. The study recommends the prioritization of the provision of WASH services in schools.

Keywords: hygiene, public, sanitation, secondary school, water, Yenagoa

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1. Introduction

Adequate water, sanitation and hygiene (WASH) services are basic requirements for healthy living, especially for children below the age of five. Unfortunately, these basic requirements are poorly provided in most developing countries, especially, sub-Saharan Africa, as the region could not meet the Millennium Development Goals (MDGs) targets for water and sanitation [1]. Over the past years, the Joint Monitoring Programme (JMP) has focused more on households' access to WASH, with less emphasis on institutional (healthcare facilities and schools) access, even though these are places where people of different socio-economic, cultural and health status meet on a daily basis. The risks of acquiring infectious diseases due to inadequate WASH services in these settings are high [1], hence the JMP since 2015, has prioritize global monitoring of WASH in schools and healthcare facilities.

Several impacts of inadequate WASH in schools have been documented in the literature. Inadequate WASH services negatively affect children's health and well-being;

increase the rate of school absenteeism, poor cognitive performance and growth retardation [2,3,4]. Inadequate WASH services in schools may lead to dehydration, diarrhea, worm and urinary infections. Diarrhea and worm infections are the major health burdens amongst schoolchildren, which have been associated with poor WASH services. In fact, 88% of diarrhea cases are caused by inadequate WASH services [5], which contribute significantly to the rate of absenteeism in school. Studies have shown that adequate WASH services in schools promote school attendance. For example, a campaign promoting hand washing with soap in thirty primary schools in Egypt reduced diarrhea-related absenteeism by 30% [6]. Similar findings have also been reported in Colombia and China [7,8]. Hand washing with soap and water, as simple as it is, has been identified as one of the most effective barriers to the transmission of WASH-related diseases and could reduce the incidence of diarrhea disease by 42 to 48% [9]. Unfortunately, this life saving exercise is not frequently practiced in most schools in developing countries due to several reasons such as lack or unreliable water sources, hand washing facilities with soap and water, and poor hygiene education [10,11].

Worm infections in schoolchildren have similar consequences as diarrhea and could impact on the rate of absenteeism in school attendance, growth retardation and cognitive performance even though it can be largely controlled by adequate WASH services. It has been estimated that about 47% of children between the ages of five to nine in developing countries suffer from worm infection [12]. Worms can easily spread among schoolchildren because they play together, touch each other and most times practice poor hygiene (use toilets and often do not wash their hands with soap and water after usage). However, adequate WASH services act as important barrier to the transmission of worm infection among schoolchildren, which has reduced worm-related school absenteeism. For example, worm reduction programmes in schools in Kenya reduced school absenteeism by one quarter [13]. Similarly, studies have also shown that improving sanitation facilities is associated with a reduction in gastrointestinal illness. For example, [9] reported that there was a 34% reduction in gastrointestinal illness across twelve studies carried out in developing countries due to improvement in sanitation facilities.

In order to reap the benefits of adequate WASH services there is the need to acquire more reliable data on the true status of WASH in schools so as to understand the scale of the problem and develop workable intervention strategies to tackle the issues militating against adequate WASH services in schools at the global, regional, national and local levels. In the literature, there is dearth of information on the status of WASH services in public schools in Nigeria and Bayelsa State in particular. In fact, no study of this nature has been found in the literature in Yenagoa. It is in view of this that this study was designed to determine the status of WASH services in public secondary schools in Yenagoa. This study will provide valuable base data which the Ministries of Education, Health, Water Resources and other relevant stakeholders (WHO, UNICEF, CSO and NGOs) could use to develop informed strategies to tackle the challenges of WASH services in public schools in Yenagoa. This study was guided by the following research questions: What is the status of water supply in public secondary schools in Yenagoa? What is the status of sanitation and hygiene facilities in public secondary schools in Yenagoa? Following this introduction is the literature review, study area, method of study, results and discussion, and conclusion.

2. Literature Review

UNICEF [3] asserts that the main aim of WASH in schools is to improve the health and learning performance of schoolchildren, and by extension that of their families-by reducing the incidence of WASH-related diseases. In order to achieve this aim, UNICEF has designed the Child Friendly Schools (CFS) manual, which underscores the notion that to be “truly child-friendly, a school must have accessible gender-appropriate toilets and hand-washing facilities, access to potable drinking water and proper solid waste management. The school must also teach children appropriate hygiene practices” [3]. UNICEF noted that an efficiently and effectively

implemented WASH programme has several benefits to the students. Such students will be healthier; perform better in school; positively influence hygiene practices in their homes, among family members and the wider community; change their current hygiene behaviour and continue better hygiene practices in the future among other benefits.

In spite of the associated benefits of adequate WASH provision in schools, available studies have shown that a significant proportion of schools globally and especially in developing countries lack adequate WASH services. For example, [14] global baseline report on drinking water, sanitation and hygiene in schools, revealed that an estimated 570 million, 620 million and 850 million, children worldwide lacked a basic service and had either limited or no drinking water, sanitation and hygiene services at their school, respectively. Unfortunately, sub-Saharan Africa is the region with the highest proportion of schools with no water service (47%) and less than 50% coverage of basic sanitation and hygiene, which has the capacity to slow down learning outcomes of children in sub-Saharan African schools.

Also, a report by [15] revealed that 30% of surveyed primary schools in Nigeria had no toilets of any kind; while 67% had pit latrines and only three per cent had water closets (WC). By implication the level of sanitation in the surveyed schools is poor, and students may be forced to practice open defecation (which is the lowest form of sanitation) with its attendant health and social implications. Similar situation was also reported in a more recent study in secondary schools in Ibadan, Nigeria by [10], where 24% of surveyed schools used WC; while 76% of the schools used pit toilets, with a toilet to student ratio of 1:185, which is far higher than the [16] recommended standards of 1:25 for girls and 1:50 for boys. In addition, the study also revealed that 77% of the schools had no wash hand facilities; while 88% of the schools with wash hand facilities had no soap. This trend has dangerous implications for the health and future aspiration of students. For instance, [17] asserts that the lack of toilets in schools discourages ten per cent of school-age African girls from attending school, which may affect their academic performance and increase the likelihood of affected girls dropping out of school.

Studies carried out in other developing countries show similar results with what was reported in Nigeria. For example, [18] carried out a multi-national cross-sectional WASH study of six sub-Saharan African countries: Ethiopia, Kenya, Mozambique, Rwanda, Uganda and Zambia, and reported that one per cent of rural schools in Ethiopia and Mozambique, and 23% of rural schools in Rwanda had improved water sources on premises, improved sanitation, and water and soap for hand washing. The report further stated that 23% of rural schools in the six countries studied met the WHO’s recommended student-to-latrine ratios for boys and for girls. In a similar vein, [19] in a cross-sectional survey of WASH in 526 schools in 12 low socio-economic status municipalities in Nicaragua reported that 43% of surveyed schools had drinking water infrastructure, while 64% had sanitation infrastructure. The report further stated that 81% of the schools had no hand washing stations and 74% of surveyed schools had no soap for hand washing.

Sanitation facilities were not in use at 28% of the surveyed schools with sanitation infrastructure and 26% of schools with water infrastructure had non-functional systems. Furthermore, only eight per cent of schools had budgets to purchase toilet-cleaning supplies, while 75% obtained supplies from students' families.

The WASH status report of some surveyed colleges and high schools in the developed world is similar to what was reported in some developing countries. For example, the WASH status conducted in colleges and high schools in France revealed that 28% of students never visited the toilets and avoid the use of drinking water facilities, which were only available within the toilet areas in half of the surveyed schools. In addition, 32% of students complained about bad smell from the sanitation facilities, 19% of damaged infrastructure, 12% of lack of privacy-especially for boys, and lack of consumables: toilet paper, 42%; soap, 25% and driers, 15% [2].

In Italy, similar findings were also reported in a 2014 survey of schools, where 40%, 44% and 66% of schools had missing consumables such as toilet paper, soap and paper towels respectively. In addition, in 2013, 38% of the surveyed schools had no certificate of compliance with hygiene and health norm, which was released by local health authorities [2]. The reviewed studies show that WASH services in schools in both developing and developed countries are largely inadequate and unsatisfactory to achieve WASH objectives in schools. However, these

surveys are the required starting point to know the scale of the problem so that workable intervention programmes can be developed to tackle the challenges of poor WASH services in schools.

3. The Study Area

Yenagoa is a coastal settlement located in the Niger Delta region of Nigeria and lies within latitudes $4^{\circ} 55'$ and $5^{\circ} 02'$ North of the Equator and longitudes $6^{\circ} 15'$ and $6^{\circ} 25'$ East of the Greenwich Meridian (Figure 1). It is the administrative headquarters of Bayelsa State, which was created in 1996. Since the creation of the state, the city has experience rapid population growth due to the influx of migrants who move in to take advantage of the opportunities created by the new status of the city. The population of Yenagoa has increased from 50, 000 persons in 1991 to about 300, 000 persons in 2006 [20]. Yenagoa is about 15 metres above sea level and is drained by the Ekole and Epie creeks. The city experience the Equatorial type of climate (Koppen's Af classification), which is dominated by two seasons-dry and rainy. The dry season is experienced from October to March, while the rainy season is from April to September. The average monthly temperature is about 28°C , while the average annual rainfall is about 4000mm, with an average relative humidity of about 70 per cent.

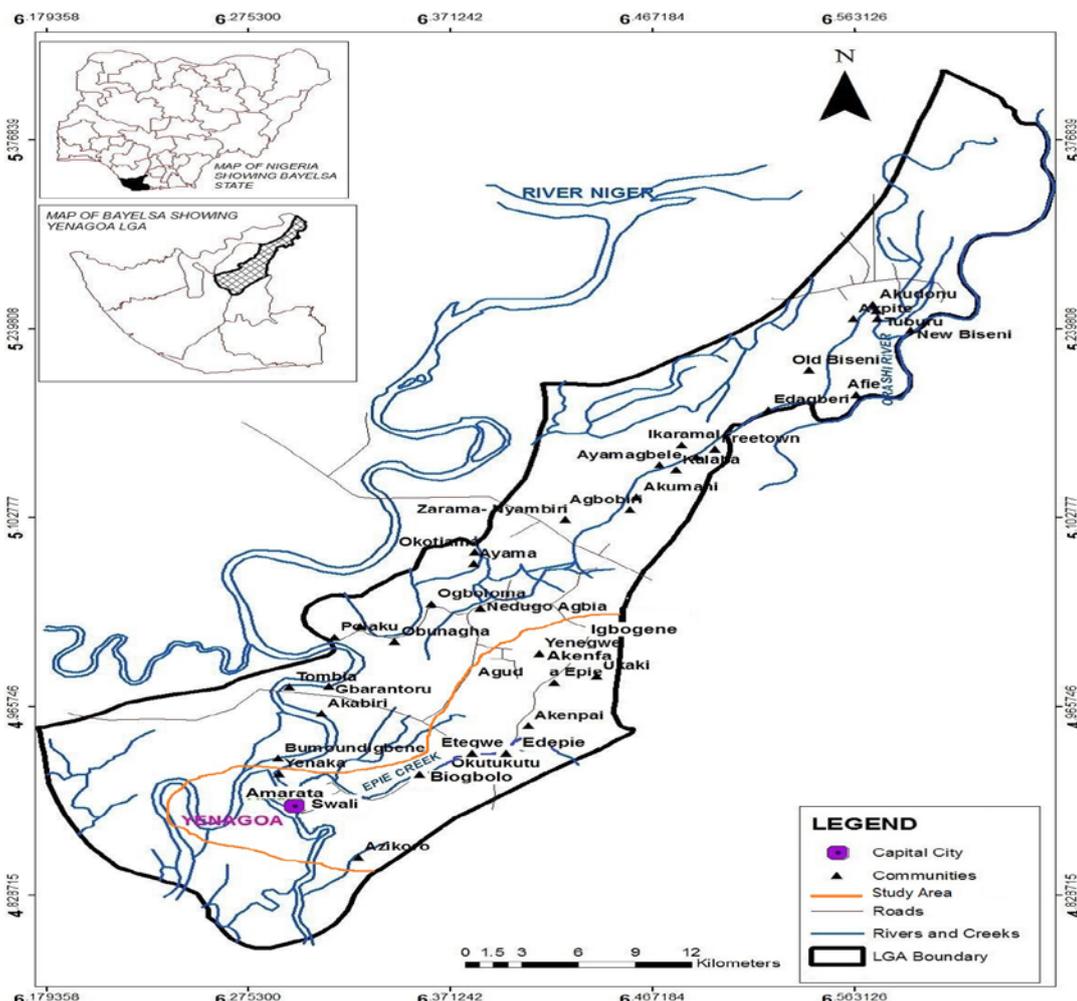


Figure 1. Yenagoa Local Government Area Showing the Study Area (Source: Adapted from [21])

Although Yenagoa has experienced significant growth in infrastructural facilities, however, the provision of these facilities have lagged behind population growth, which has put pressure on available infrastructures, such as road network, electricity, water provision and housing [20]. There is also an increase in the establishment of healthcare facilities and schools to meet the demand of the growing population by the government and private individuals. Unfortunately, some of these healthcare facilities and schools either private or public do not meet set standards, especially in the provision of WASH services. In spite of this situation, no base data on the status of WASH services in schools in Yenagoa is available in the literature. This would make it difficult for policy makers to appreciate the true situation on ground and develop workable interventions to tackle the challenges. This situation prompted this study, which will bridge this existing gap in knowledge.

4. Method of Study

The cross-sectional survey research design was adopted in this study, which involves the assessment of WASH services in public secondary schools in Yenagoa. The population for the study comprises of all the public secondary schools (16) located in Yenagoa, which was obtained from the office of the Bayelsa State, Ministry of Education. Using the [22] equation $[S = X^2 NP (1-P) \div d^2 (N-1) + X^2 P (1-P)]$ for determining sample size from a given population, where: S, is required sample size; X^2 , table value of chi-square @ d.f = 1 for desired confidence level; N, the population size; P, the population proportion (assumed to be 0.50 since this would provide the maximum sample size); and d, the degree of accuracy expressed as a proportion (0.05), a sample size of 15 schools was calculated; however, since this figure was less than the population by just one school, the researcher decided to consider the entire study population (16 public secondary schools in Yenagoa).

Data for the study was obtained using a structured questionnaire and direct physical inspection of WASH facilities in the schools. The questionnaire was administered by hand directly to the head teacher or any other designated staff of the school to fill and return immediately to avoid the lost of questionnaire. The physical inspection of WASH facilities was carried out to authenticate claims made in the questionnaire and to

determine the functional state of the facilities at the time of visit in accordance with the recommendations of the JMP. In addition, the informant was asked some oral questions on issues not captured in the questionnaire based on the physical observation made in the field. The questionnaire comprises of four sections-A, B, C, and D. Section A, focused on the characteristics of the school, Section B on the water supply status, Section C on sanitation status and Section D on hygiene facilities. The WASH status of the schools was assessed using the JMP service ladders for global monitoring of WASH in schools, which classified WASH services as basic, limited and no service. The various definitions of these service levels for drinking water, sanitation and hygiene are shown in Table 1. The obtained data was presented in tables and analyzed using descriptive statistics.

5. Results and Discussion

5.1. Characteristics of Schools

The study involves the assessment of WASH services in 16 public secondary schools in Yenagoa, capital of Bayelsa State. However, one of the schools did not return its questionnaire and was excluded from the study. Thus, the respondent rate for this study was 93.75%. The characteristics of the schools for this study are presented in Table 2. The schools that were included in this study were 2 boys' only, 3 girls' only and 10 co-educational schools, which represent 13.33%, 20% and 66.67%, respectively. This shows that most of the schools are co-education, which serves the needs of both boys and girls in the communities where they are located. The age of the 15 schools were five years and above, with seven (63.63%) of them being 15years and above, which indicates that the schools are old enough to afford government the needed time to provide basic WASH services in the affected schools. The average population of the schools was 1,067 students, which range from 400 – 1,620 students, with eight (53.34%) schools having a population of over 1,000 students. Since most of the schools are the only government schools in their respective communities, probably explains the relative high population of the schools. The average staff population (academic and administrative) was 62, which range from 28 – 84 staff, with 13 (86.67%) schools having above 50 staff.

Table 1. The JMP Service Ladders for Global Monitoring of WASH in Schools

Drinking Water	Sanitation	Hygiene
Basic Service: Drinking water from an improved source and water is available at the school at the time of the survey (improved sources include piped water, boreholes or tube wells, protected dug wells, protected springs and packaged or delivered water. Unimproved sources include unprotected wells, springs and surface water).	Basic Service: Improved sanitation facilities at the school that are single-sex and usable (available, functional and private) at the time of the survey (improved facilities include flush/pour flush toilets, ventilated improved pit latrines, composting toilets and pit latrines with a slab or platform. Unimproved facilities include pit latrines without a slab or platform, hanging latrines and bucket latrine).	Basic Service: Hand washing facilities with water and soap available at the school at the time of the survey (Hand washing facilities may be fixed or portable, and include a sink with tap water, buckets with taps, tippy-taps and jugs or basins designated for hand washing. Soap includes bar soap, liquid soap, powder detergent and soapy water but does not include ash, soil, sand or other hand washing agents).
Limited Service: Drinking water from an improved source but water is unavailable at the school at the time of the survey.	Limited Service: Improved sanitation facilities at the school that are either not single-sex or not usable at the time of the survey.	Limited Service: Hand washing facilities with water but no soap available at the school at the time of the survey.
No Service: Drinking water from an unimproved source or no water source at the school.	No Service: Unimproved sanitation facilities or no sanitation facilities at the school.	No Service: No hand washing facilities available or no water available at the school.

Source: Adapted from [14].

Table 2. Characteristics of Schools

Questionnaire variable	Response variable	Number of respondents	Percentage response (%)
Type of school	Boys only	2	13.33
	Girls only	3	20
	Co-educational	10	66.67
Year of establishment	Less than 5 years	0	0
	5 – 9 years	3	27.27
	10 – 14 years	1	9.09
	15 – 19 years	2	18.18
	20 and above	5	45.45
School population	Less than 500	1	6.67
	500 – 999	6	40
	1000 – 1449	4	26.67
	1500 – 1999	4	26.67
Staff population	Less than 25	0	0
	25 – 49	2	13.33
	50 – 74	9	60
	75 – 99	4	26.67
	100 and above	0	0

Source: Authors fieldwork, 2019.

5.2. Water Supply Status of Schools

The water supply status of the schools is presented in Table 3. The data shows that nine (60%) of the schools have no water source for either drinking or other different uses within the school premises. The six (40%) schools with water sources within their premises had boreholes. However, only three (20%) of the schools use borehole as their major source of drinking water and for other different uses, because some of the boreholes were either not functioning at the time of visit or the water quality was not good enough for drinking and other uses. The major source of drinking water and for other uses was sachet/bottle water, which eight (53.33%) schools rely on, while another group of three (20%) schools indicated water vendors and one (6.67%) school use river/stream. When asked of the adequacy of the major water source in

terms of functionality, quality and quantity, only three (20%) of the respondents indicated that their major water source was adequate; while 12 (80%) respondents were unsatisfied as they either indicated inadequate (53.33%) or very inadequate (26.67%). This response is not surprising because reliance on sachet/bottle water and vendors cost money and these sources may not be able to meet the quantity of water required for other uses such as sanitation and hygiene. In some cases the quality of water from these sources are compromised [23].

Using the JMP classification for drinking water in schools, only three (20%) schools had basic water service, another three (20%) had limited water service, while nine (60%) had no service. This situation is not different from the findings of an earlier study in Nigerian schools [15] which shows that 64% of surveyed schools had no water service, which forced some of the students to trek about 2-3km twice a day for water. In addition, the report noted that only 32% of drinking water sources were safe at schools with drinking water on premises. Similarly, the [14] global baseline report on drinking water, sanitation and hygiene in schools revealed that nearly half of schools in sub-Saharan Africa have no drinking water service. The drinking water services in schools in this study are far below the global average, as 69% of schools globally had a basic drinking water service, 12% of schools had a limited drinking water service, while 19% of schools had no drinking water service.

In spite of the inadequate sources of drinking water used by schools in this study, 12 (80%) schools do not treat their drinking water before consumption. However, 9 (60%) schools still pay for water from these poor sources and have been doing so for the past five years and above. This is an indication that for over a decade not much progress has been made to improve on WASH services in Nigerian schools. This portends great danger to the health of students and staff of the affected schools as the relationship between WASH services and water related diseases has been established in the literature [1,9].

Table 3. Water Supply Status of the Schools

Questionnaire variable	Response variable	Number of respondents	Percentage response (%)
Availability of water source in school	Yes	6	40
	No	9	60
Major source of water supply for drinking and other different uses	Well	0	0
	Borehole	3	20
	River/stream	1	6.67
	Water vendors	3	20
	Sachet/bottle water	8	53.33
	Pipe borne water	0	0
Adequacy of the major water source in terms of functionality, quality and quantity	Very adequate	0	0
	Adequate	3	20
	Inadequate	8	53.33
	Very inadequate	4	26.67
Is the drinking water treated before consumption?	Yes	3	20
	No	12	80
Payment for water from the major supply source?	Yes	9	60
	No	6	40
If yes, for how long has the school been using this water source?	Less than 5 years	0	0
	5 – 9 years	2	22.22
	10 years and above	7	77.78

Source: Authors fieldwork, 2019.

5.3. Sanitation Status of Schools

The sanitation status of the respective schools is presented in [Table 4](#). From the table, it was revealed that water closet was used by four (26.67%) schools, while eight (53.33%) schools use flush/pour flush toilets. Another group of three (20%) schools had no toilet facilities, which force some of the students and teachers to practice open defecation (the worse form of sanitation) in nearby bushes or go home to defecate. In some instances as was explained by one of the informants “students and staff that go home to defecate do not come back to school that day, especially if they leave some few hours to closing time. This situation really affects teaching and learning in the school”. Another informant asserts that “some girls under menstruation stay away from school because of lack of a convenient and private place to change and clear-up, which increase the rate of absenteeism”. This assertion is supported by [\[17\]](#) that the lack of toilets in schools discourages 10% of school-age African girls from attending school, which may affect their academic performance and increase the likelihood of affected girls dropping out of school. This situation can be addressed by adequate provision of WASH services in the affected schools, which could positively affect teaching and improve learning outcomes.

The number of toilets in the schools range from 0 – 40, with only four (26.67%) schools having more than 10 toilets. The ratio of toilet to students in the schools ranges from 1:27 – 1:760, while three schools with population of 1,620, 1,500 and 600 students had no toilet facility. Of the 12 schools that had toilet facilities, eight (66.67%) had a toilet to student ratio of 1:100 and above. This is a far cry from the recommended 1:25 toilets for girls and 1:50 toilets and a urinal for boys [\[16\]](#). In a similar study of public secondary schools in South-Western Nigeria, a toilet to student ratio of 1:70 - 1:320 was reported [\[24\]](#). Of the 12 schools with available toilet facilities in this study, seven (58.33%) schools had separate toilets for boys, girls and teachers; while four (33.33%) and one (8.33%) schools had separate toilets for teachers only and no separate toilet facility, respectively. In addition, seven (58.33%) of the 12 schools with toilet facilities had functional, accessible and usable toilets with doors and locks, while five (41.67%) schools had toilets that are unusable and without doors and locks. This situation may threaten the privacy of students (especially girls) in the affected schools. This is a far cry from a similar study on the evaluation of toilet facilities in primary schools in the Niger Delta, where 23 (88%) of the sampled 25 schools had functional toilet facilities [\[25\]](#).

Table 4. Sanitation Status of Schools

Questionnaire variable	Response variable	Number of respondents	Percentage response (%)
Type of toilet facility	Water closet	4	26.67
	Flush/pour flush	8	53.33
	Pit latrine with slab	0	0
	Pit latrine without slab	0	0
	Open defecation	3	20
Number of toilets	No toilet	3	20
	0 - 5	5	33.33
	6 – 10	3	20
	11 – 15	1	6.67
	16 – 20	1	6.67
	Above 20	2	13.33
Separate toilets for boys, girls and teachers?	Yes	7	58.33
	No	1	8.33
	Only for teachers	4	33.33
Are the toilets accessible, functional and usable?	Yes	7	58.33
	No	5	41.67
Are the toilets having doors and locks for privacy?	Yes	7	58.33
	No	5	41.67
Are there availability of water, tissue paper and soap at the toilet always?	Yes, always	2	16.67
	Sometimes	7	58.33
	No, never	3	25
Frequency of toilet cleaning a week	Everyday	0	0
	Once	2	16.67
	2 - 3 times	4	33.33
	4 – 5 times	5	41.67
	Occasional	1	8.33
	Not cleaned	0	0
Cleanliness and hygiene state of the toilets	Always adequate	2	16.67
	Sometimes adequate	8	66.67
	inadequate	1	8.33
	Always inadequate	1	8.33

Source: Authors fieldwork, 2019.

It was only in two (16.67%) schools that water, tissue paper and soap were found in the toilet facilities. However, seven (58.33%) respondents assert that these materials are sometimes available in the toilets, while three (25%) schools indicated never, and that individual students and staff bring their personal sanitary materials to school. Most (41.67%) of the toilets are cleaned four to five times a week, while in two schools toilets were clean once a week. This sanitary practice is unsatisfactory, as each toilet is supposed to be cleaned every day, especially when over 100 students in some of the schools use one drop hole. This practice probable explains why it was only two (16.67%) schools that had clean and hygienic toilets. In eight (66.67%) other schools the informants indicated that the toilets are sometimes adequate, while two (16.67%) schools indicated either inadequate or always inadequate.

Using the JMP classification for sanitation in schools, seven (46.67%) of the schools had basic sanitation service, five (33.33%) had limited sanitation service, while three (20%) had no sanitation service. In a similar study in public primary schools in Ghana, the situation was worse than the findings in this study, as only 28% of the sampled schools had good sanitation, 42% satisfactory sanitation and 31% had bad sanitation [26]. However, the global average of sanitation in schools was better than what was found in this study, as 66% of schools had a basic sanitation service, 12% had a limited sanitation service and 23% had no sanitation service. Since over 620 million children worldwide lacked a basic sanitation service at their school, it therefore means that children in schools in this study and sub-Saharan Africa contribute to this number as a third of schools in sub-Saharan Africa had no sanitation service [14].

5.4. Hygiene Status of Schools

The hygiene status of the schools as presented in Table 5 shows that only three (20%) schools had hand washing facilities, which are located by the toilet in two of the schools and far from the toilet and water source in one of the schools, as against 12 (80%) schools without a hand washing facility. As at the time of visit, two (13.33%) of the schools with hand washing facilities had both water and soap, while one (6.67%) had only water. In the three schools with hand washing facilities, the informants indicated that students always use the facility, especially after defecation, before and after eating. Since 12 (80%) of the schools are without a hand washing facility, good hygiene practice may be compromised among the students and staff of the affected schools, which could increase the risk of contracting hygiene related diseases. In all, two (13.33%) schools had basic hygiene services; one (6.67%) school had limited hygiene service, while 12 (80%) schools had no hygiene service. The average level of hygiene service in this study is far lower than the sub-Saharan Africa basic hygiene coverage in schools of below 50% and the global average of 53% of schools with basic hygiene service; 11% with limited hygiene service and 36% of schools without hygiene service [14].

In spite of the poor hygiene service in schools in this study, a similar study carried out in public secondary schools in South-Western Nigeria, shows more worrying

coverage of hygiene service in the sampled schools for the study, as only 10% of the schools had a limited hygiene service [24]. Another similar study carried out in public primary schools in the Zabzugu District of Ghana revealed that 91% of the hand washing facilities in the sampled schools was good, while only (9%) were classified as bad [26], although the authors did not state whether water and soap were present at the hand washing facilities at the time of the survey.

Table 5. Hygiene Status of Schools

Questionnaire variable	Response variable	Number of respondents	Percentage response (%)
Availability of hand washing facility	Yes	3	20.00
	No	12	80.00
If yes, where is it located	By the toilet/latrine	2	66.67
	By the water source		
	Far from the toilet and water source	1	33.33
Availability of water and soap at the hand washing facility	Yes, water and soap	2	13.33
	Water only	1	6.67
	No, neither water nor soap	12	80
Frequency of use by students	Always	3	20.00
	Sometimes	0	0.00
	Never	12	80.00

Source: Authors fieldwork, 2019.

6. Conclusion

This study on the status of WASH services in public secondary schools in Yenagoa, has shown that the WASH services in most of the schools are unsatisfactory and fell short of the JMP recommended requirements for basic WASH services in schools. This situation could have negative implications on the students' health and well-being, cognitive performance and growth retardation; increase the rate of absenteeism, spread of contagious diseases and increase rate of school dropout. The current level of WASH services in the schools if not promptly addressed could affect the attainment of the general objectives of secondary education.

In order to address the current state of WASH services in the schools, the state government should as a matter of urgency release funds for the provision of the required WASH services in all the public schools in the state. In addition, a WASH service unit should be established in the Ministry of Education, which should be saddled with the responsibility of continuous WASH service monitoring and evaluation in the schools. This will help to sustainably maintain the WASH facilities in the schools. In addition, sanitation and hygiene education should be integrated into the daily instructions and activities of the school to encouraged positive behavioural change. Furthermore, the schools should encourage the setting up of sanitation and hygiene clubs, where students could interact and share their experiences on sanitation and hygiene related matters. This would foster group action towards the attainment of a healthy and safe school environment.

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