THE STATUS OF SANITATION FACILITIES IN SELECTED PUBLIC SCHOOLS IN KABUSHI CONSTITUENCY OF NDOLA URBAN

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CERTFICATION

The under signed hereby certifies that, he has read and hereby recommend the acceptance of this research report in partial fulfillment of the requirements for the Degree of Masters Disasters studies of Mulugushi University.

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DEDICATION

This research work is dedicated to the Almighty God, my daughters Natasha, Chimwemwe and Sons Lesa Lesa , Musonda and not forgetting my beloved husband Mr Derick Lesa, who worked extremely hard to see that I finish this research report without any obstacles above all the spiritual guidance and financial support he rendered to me during my research. I would also like to dedicate to my late parents who have been the source of inspiration throughout my academic life and their counsel.

God bless you all.

DISCLAIMER

I Mary Lesa, hereby declare that this thesis is my own and autonomous work. All sources and aids used have been indicated as such. All texts either quoted directly or paraphrased have been indicated by in-text citations. Full details are given in the reference list which also contains internet sources containing URL and access date. This work has not been submitted to any other examination authority.

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ABSTRACT

The study assessed the status of Sanitation in selected public schools of Kabushi Constituency in Ndola district. The study employed a cross sectional or survey design. The target population consisted of the Ndola city council public health department, school administrators, teachers and pupils in public schools. Purposive sampling was used to select Ndola as the study area, four (4) head teachers and two key informants from the department of health. The simple random sampling method was used to select 200 pupils from the four schools under study. The total study sample was 231.The self-administered questionnaire, semi-structured interviews and focus group discussion guide were used for data collection. Qualitative data were collected and analyzed on an ongoing process as themes and sub-themes emerged through thematic analysis. Quantitative data were analyzed using SPSS and Excel through which descriptive statistics in form of statistical tables, and charts were generated. The findings showed that the sanitation status of the assessed public schools in Ndola is generally poor as seen from the pupil respondents that 30 (15%) referred to the accessibility to water facilities in their respective schools as merely in Existence, 84 (42%) referred to the water accessibility in schools as Improved, 52(26%) referred to the water accessibility in their schools as Functional, while 34(17%) described water accessibility as other. The problem of inadequate sanitation impacts negatively on the social well-being of the community as it contributes to a high child morbidity and mortality. The study also reveals that 93% of the respondents reported that WASH has not been implemented in the district. Similarly, 2% of the pupils reported having WASH programs in schools, 10% of the pupils were not sure while 78% reported not having a WASH program in school. The findings of the study further showed that the role of City Council in enhancing proper sanitation in schools include monitoring legislation and developing an enabling environment for proper sanitation. Based on the findings of the study, it was concluded that the sanitation status of the assessed public schools in Ndola are generally poor and the problem of inadequate sanitation impacts negatively on the health and social well-being of communities on the environment in the city. The study recommended the need for the enforcement of regulations on norms and standards for school infrastructure in order to match with increasing population.

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LIST OF ACRONYMS AND ABBREVIATIONS

CBOs	Community Based Organizations
CGS	Clean and Green Schools
CRED	Center for Research on Environmental Decisions
DWAF	Department of Water Affairs and Forestry
FNDP	Fifth National Development Plan
GRZ	Government Republic of Zambia
IDDR	International Day for Disaster Reduction
IMF	International Monetary Fund
LDCs	Least developing countries
MHM	Menstrual Hygiene Management
PRSP	Poverty Reduction Strategy Plan
SDGs	Sustainable development goals
SSHE	School sanitation and hygiene education
UNESCO	United Nations Education Scientific cultural organisation
UNICEF,	United Nations International Children Emergency Fund
URL	Uniform resources locator
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization
WinS	WASH in Schools
ZEMA	Zambia Environment Management Agency

CHAPTER ONE

BACK GROUND

1.0 Introduction

This study focuses on Assessing the Status of Sanitation in Selected Public Schools in Ndola's Kabushi constituency. The first section, presents the background to study, thereafter, the subsequent section brings to the fore, the problem statement, objectives of the study, research questions, significance of the study and operational definitions of terms. The last section gives a summary of the chapter.

1.1 Background of the study

The global community is seeing a frequent rise in the occurrences of disasters that range from earthquakes, floods, storms, epidemics, fires, landslides, hurricanes, tsunamis and social conflicts, all of which may result in loss of life and property. Over 400 national disasters take place every year, affecting close to more than 230 million people leading to an average of almost 75,000 deaths annually (Action Aid, 2007). Zambia, just like many other country in the sub-region, is a country not prone to the aforementioned spectacular destructive and media intensive disasters such as volcanic eruptions and massive earthquakes, but has rather been dominated or rather experiences its share of localized incidents of infernos, road accidents, droughts , epidemics , human made disasters such as oil spills and mining accidents and above all lack of proper sanitary facilities and seasonal flooding in vulnerable communities compounded by the construction of informal or unplanned settlements. Sanitation in Zambia is one area that has not been fully addressed and as a result the country has seen an outbreak of epidemics such as the recent cholera outbreak. The most recent global estimates of sanitation coverage made by the World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF) concluded that in 2008, about 2.6 billion people did not use improved sanitation in household facilities ,which hygienically separate human excreta from human contact(Water Aid ,2008).

Sanitation is one subject that has been neglected for a long time and this has contributed to high levels of sickness and death especially among infants and children around the globe due to poor hygiene conditions. More investment is required in hygiene and sanitation and that is why 2008 was declared the international year for sanitation in order to curb the potential disasters of huge death tolls resulting from different communicable diseases such as di-

arrheal. Sanitation can be thought of as a public health condition that relates to clean drinking water and adequate treatment and disposal of human excreta and sewage. The Water Supply, Sanitation and Hygiene

Education (WASHE) programs envisions a world where all people have access to sustainable water and sanitation services that they can afford, and where all people can live under hygienic living conditions to improve their health, dignity and economic living standard including that of the school environment. This stems from the fact that every child has the right to a safe and healthy learning environment which include adequate WinS (WASH in Schools) services. Although this important issue is gaining attention, realizing universal access to adequate sanitation facilities remains a huge challenge in developing countries including Zambia. In support of efforts to address this gap, over 70 organizations worldwide, renewed their commitment to WinS in the 2012 Call to Action, which outlined six points of action for mobilizing partners with the vision of universal access to WinS (UNICEF, 2016).Water Supply, Sanitation, and Hygiene Education (WASHE) in the community and indeed in schools contributes to better health and educational outcomes among school-aged children.

The direct consequences of lack of access to safe drinking water and sanitation services are enormous and include outbreaks of water-borne diseases and parasitic infections especially among the urban poor, of school going age. According to WASH Alliance (2011) inadequate access to safe water and sanitation services, coupled with poor hygiene practices, is the cause of at least one quarter of all child deaths and 20% of the total childhood disease burden globally. Water, sanitation and hygiene are also linked to school attendance and performance (particularly among girls), safety and security of women and girls, and socio- economic development of communities (UNICEF, 2009). Therefore, providing adequate levels of water supply, sanitation and hygiene in learning institutions such as primary schools is of direct relevance to the Sustainable Development Goals (SDGs) of achieving universal primary education, promoting gender equality and reducing child mortality, and supportive to achievement of other goals.

The perennial outbreaks in water-borne diseases may stem from the mal-use of nature and environment by the people through, disturbance of fresh water sources and other notable activities which may cause perennial flooding as well as disposal of waste including human

excreta which may contaminate the water table and lead to various kind of disasters. This scenario has previously led to a serious disruption of the functioning of the community which the schools serve, making the community unable to cope with its own resources. In light of the foregoing, it is not clearly known whether public schools in Ndola have implemented proper sanitary conditions at school level in order to mitigate the threat posed by these human induced disasters via poor sanitation facilities. It is this knowledge gap, therefore, that this study sought to fill.

1.2 Statement of the problem.

Children spend three quarters of the day within the school premises up to a minimum of 8 hours as stipulated by the Ministry of General Education policy (MoE, 2010). The provision of proper sanitation facilities in schools is essential to ensure the well-being of the child in order to progress to a higher level. However, the current high enrolment rates coupled with the upgrading of public institutions from primary to secondary schools has raised concerns among stakeholders because it is unclear whether this rate of enrolment has been matched by expansion of sanitary facilities in schools to accommodate all pupils. GRZ (2009) observes that the development of school buildings has focused on classrooms and has not adequately considered issues of water supply, sanitation and hygiene facilities. The situation has led to filthy potential health hazardous school surroundings in Ndola urban resulting from the practice of open defecation by pupils due to inadequate functional toilets. This led to government‘s recent directive to have all schools with poor sanitary conditions and lack of hand washing facilities outside the latrines closed to prevent further outbreaks of cholera within schools. It therefore remains unclear as to whether schools have adequately addressed the sanitation issue in line with government and international standards in the post 2018 cholera outbreak period. If this scenario remains unchecked, the schools and the nation at large face a potential health risk from diarrhea diseases such as the recent cholera epidemic in Lusaka that led to closure of all learning institutions country wide. There is therefore need to study the status of sanitation in public schools in Ndola district.

1.3 General Research Objective

The general objective and purpose of this study was to assess the status of sanitation in selected public schools in Kabushi constituency of Ndola urban.

1.4 Specific Objectives

The study sought to answer the following objectives

i. To establish the presence of sanitation facilities in the selected public schools in Ndola.

ii. To assess if pupils and teachers have access to adequate latrine accommodation and clean and safe drinking water in the selected public schools in Ndola district.

iii To evaluate the performance of the WASH policy in selected schools.

iv. To investigate the role of the Ndola city council in enhancing proper sanitary facilities in schools.

1.5 Research Questions

Arising from the background of the study and the problem statement, the following research questions were developed.

i. Are sanitations facilities present in the selected public schools in Ndola District of constituency.

ii. Do pupils and teachers have access to adequate latrine accommodation and clean and safe drinking water in the selected public schools in Ndola district?

iii. How is the performance of the WASH policy in the selected public schools

iv. What is the role of the Ndola City Council in enhancing proper sanitary facilities in schools?

1.6 Formulation of Hypothesis

In this study two hypotheses were formulated as follows;

H_0: The status of sanitation in selected public schools in Ndola urban constituency is significantly poor.

H_1: The status of sanitation in selected public schools in Ndola urban is significantly conducive.

1.7 Significance of the Study

It is hoped that the findings of this study would provide valuable insight to the government of the day, policy makers and educational practitioners on the status of Sanitation in Selected Public Schools in Kabushi constituency in Ndola urban. It is also hoped that the find-

ings of this study would be valuable to the existing body of knowledge on the status of Sanitation in the country.

1.8 Identification of variables

Based on the Theoretical framework, the literature review and the conceptual framework the study adopted the following variables, clean and safe drinking water, pupil/toilet ratio and hand washing and sanitization facilities which all operate on the basis of behavior life skills which include knowledge, practice and attitude. In this study the status of sanitation is the dependent variable and access to clean and safe drinking water, pupil/toilet ratio and hand washing facilities are the independent variables.

1.9 Scope of the study

This study assessed the Status of Sanitation in Selected Public Schools of Kabushi Constituency in Ndola urban. The study particularly focused on Masala and Dambo Secondary Schools, Masala and Chilengwa Primary Schools randomly sampled from Kabushi constituency in Ndola district between 2017 to 2018.

1.10 Limitation of the Study

This study assessed the status of sanitation in selected public schools of Kabushi Constituency in Ndola District. The study was however, delimited to Kabushi Constituency due to inadequate resources and limited time available. Financial resources and time allowing, data for the study were going to be collected from all the 12 schools in the constituency.

One limitation to the study was that it was difficult to collect data from the head teachers and it was difficult to take the actual visitations to the toilets as the heads were not comfortable with the move. Data collection at these institutions took place at the time when pupils were extremely busy with mock Examinations.

1.11 Operational Definitions

Status: refers to the situation at a particular time during a process.

Awareness: is the ability of knowing and understanding that something is happening or exists. It is the state of being conscious of something.

Disaster: is defined as a serious disruption of the functioning of a community or a society, causing widespread human, material, economic or environmental losses which exceed the ability of the affected community/society to cope using its own resources (ISDR, 2002:24).

Hazard: is defined as a potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation (ISDR, 2002:24).

Disaster prevention: refers to those activities that provide outright avoidance of the adverse impact of hazards and related environmental, technological and biological disasters.

Sanitation: refers to public health conditions related to clean drinking water and adequate treatment and disposal of human excreta and sewage. It must be mentioned from the outset that this study adopts the UNICEF standards in reference to sanitation and all concepts in the study are discussed in view of the UNICEF international standards.

Open Defaecation: It is the practice of passing out excreta in open field and indiscriminately. This excreta often finds its way into sources of drinking water and food and may lead to disease.

Hygiene Education: The process that helps people learns about the things and practices that prevent sickness and promote good health. It enables people to understand their situation, empowers them to plan and act to prevent diseases.

1.12 Theoretical Framework

This section presents the conceptual framework.

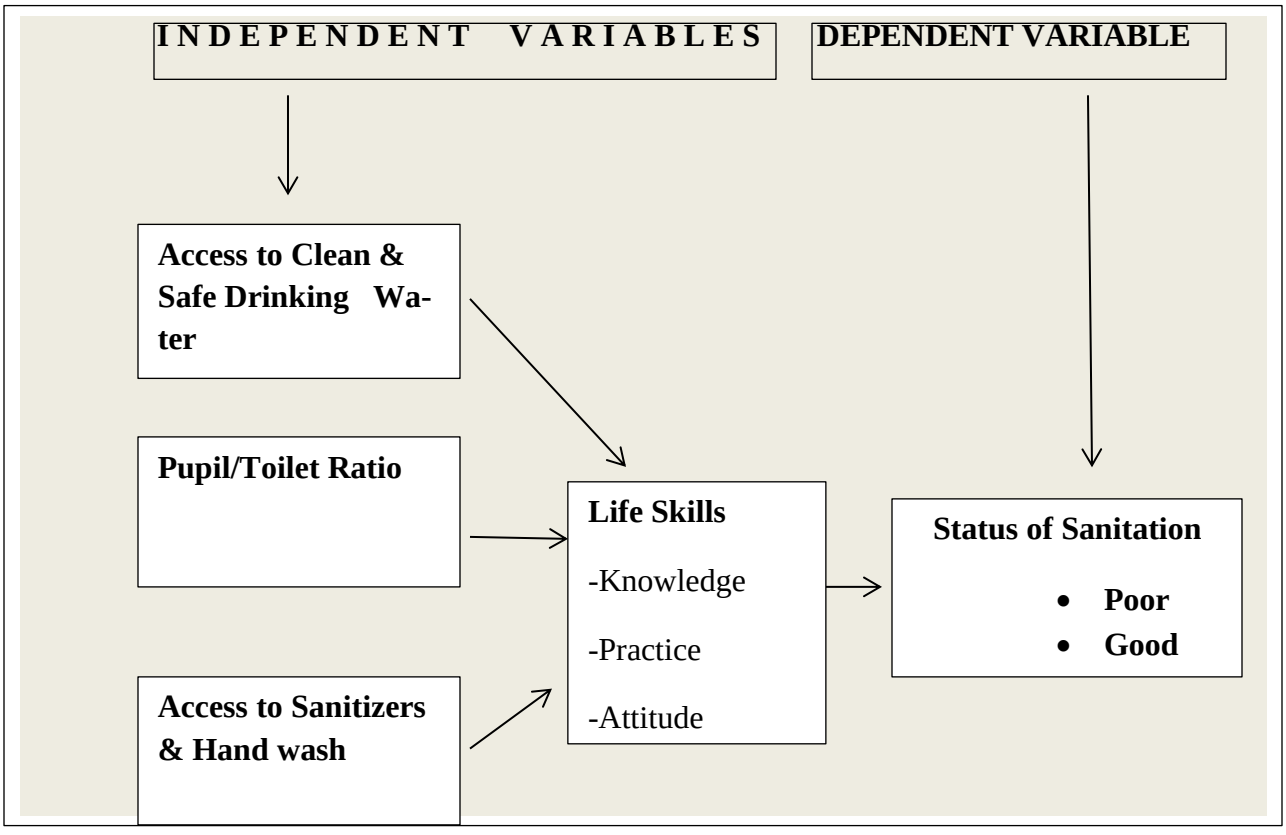
"NEW GERM THEORY"

This study is guided by the new germ theory of disease (Blanch, and Shern , 2011).This model postulates that horrible public health outcomes are related to sanitation and explains how poor sanitation cause illness. In order to help control infections and exposure, public hygiene measures are to be adopted and new techniques like vaccination and antibiotic treatments are to be taken. The emergence of effective public health technologies and demand for public hygiene measures have since taken a new force and legislation was passed, standards set, and new infrastructure was constructed to deliver clean water and safe food and to dispose of waste effectively (Mara 2011). In the mid 1800's, approximately 100,000 people died in the United Kingdom as a result of a cholera epidemic. The industrial revolution had led to increased urbanization, and in 1842, the average life expectancy for male industrial workers was fifteen. Death rates in urban centers were twice as high as those in ru-

ral settings. Clearly the effects of early urbanization and industrialization were devastating to health (Blanch, and Shern 2011).

In the midst of a cholera epidemic, John Snow suspected that water was somehow involved and following a careful epidemiological study of the distribution of cholera cases, he concluded that the water supply was involved in the infections. Louis Pasteur then developed the germ theory of disease and Robert Koch identified the cholera bacillus as the infectious agent. Koch's discovery coupled with Snow's practical findings and Pasteur's general theory set the trend where public hygiene measures were to be adopted to reduce exposure, and new techniques like vaccination and antibiotic treatments would be of help to control infection. With the emergence of effective public health technologies, demand for public hygiene measures had new force. Legislation was passed, standards were set, and new infrastructure was constructed to deliver clean water and safe food and to dispose of waste effectively. Over time, basic hygiene practices such as hand washing and sanitizing instruments have become routine in medical care and in daily life. These public health measures resulted in the greatest reduction in disease and mortality in history.

1.13 Conceptual Framework



The conceptual framework indicates that the life effective education for children is not just teaching facts about health risks and bad hygiene practices. The life skills approach focuses on changing children's hygiene behavior and that of the family and the wider community with a view to improving their quality of life. To ensure that all aspects of appropriate hygiene behaviors are addressed, hygiene education focuses on the development of:

(i) Knowledge and understanding of practical and theoretical information on hygiene. For example all children know that illnesses such diarrhea and worm infections are a result of poor hygiene hence the need to wash their hands with soap after visiting the toilet.

(ii) Attitudes and personal opinions about hygiene that influence actions and responses to unhygienic situations. For instance children want to be clean and healthy.

(iii) Practical skills to carry out specific hygiene behaviors for instance children wash hands to prevent illness and infection.

1.14 Organization of the report

This report is organized into six chapters.

Chapter One: The first chapter presents the introduction of the study which include the background to the study, the research questions and objectives as well as the conceptual and the theoretical frameworks among other things.

Chapter Two: The second chapter presents the literature that was reviewed related to the study.

Chapter Three: The third chapter looks at the methodological approaches adopted for the study.

Chapter Four: Chapter four presents the research findings or results to the study.

Chapter five: The fifth chapter discusses the results.

Chapter Six: The last and final chapter provides the summary, conclusions and the recommendations based on the findings.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The previous chapter introduced and presented the background to the problem under study .This chapter presents a review of literature relevant to the study. It presents what is known about the subject. This chapter also helps to show the existing gap in literature.

2.1 An Overview of the Concept of Sanitation in Public Schools

Sanitation literally means measures necessary for improving and protecting health and well-being of the general populace. It refers to any system that promotes proper disposal of human and animal wastes, proper use of toilet and avoiding open space defaecation (WASH Alliance (2011).It simply means public health conditions related to clean drinking water and adequate treatment and disposal of human excreta and sewage. The status of sanitation in public schools has raised concern among many stakeholders and it is therefore important to focus on the standards of the concept from an international perspective from which Zambia is party. When sanitation systems are inadequate or fail , the impact on the health of the community and the negative impact on the environment can be extremely serious as witnessed by the 1.5 million cases annually of diarrhea in children under the age of 5 and the recent outbreaks of cholera.((White Paper on Basic Household Sanitation in South Africa ,2001).

Well-designed education programs need to demonstrate the link between sanitation, hygiene, health and economic development. Hygiene promotion campaigns are most effective among younger populations, and pupils can be targeted both as beneficiaries and agents of behavioral change within their families and their communities. Hygiene education needs to incorporate in the school curricula, together with the provision and maintenance of sanitation facilities in the school premises. Providing separate sanitation facilities at schools for boys and girls can also help to keep girls in school much longer. According to Chikwanu (2014) the long term benefits of education especially for women are well understood in the sense that educated mothers are more likely to adopt healthy hygiene and sanitation behaviours and consequently have lower infant mortality rates in their households.

The increased interest in water, sanitation and hygiene in schools can contribute to a safe and healthy learning environment which is a positive development. Steps really need to be adopted to accelerate and coordinate progress on water, sanitation and hygiene programmes in schools.

According to UNICEF (2015) the main indicators categories used in anlysing sanitation include three main concepts namely water(whose focus is to whether there is a functional , improved and portable as well as existence of a water source in the environment.), sanitation (whose focus is on whether quantity meets national standards, functional toilets ,single-sex toilets ,improved toilets and existence of toilets) and hand washing (whose main focus is on whether there is existence of hand-washing facilities and soap as well as existence of hand-washing facilities). Table 2.1 below depicts the main analysis tools in describing the concept of sanitation according to UNICEF(2015).

Table 2.1: Main Indicator Categories Used in the Analysis of Sanitation

Water	**Sanitation**	**Hand washing**
• Functional source • Improved/potable source •Existence of water source	• Quantity meets national standards • Functional toilets • Single-sex toilets • Improved toilets • Existence of toilets	• Existence of hand-washing facilities and soap • Existence of hand-washing facilities without soap.

Source: UNICEF, 2015

A functional water source refers to a tap, borehole, and well or indeed any water point that produces water and whether that water point is accessible to the pupils. An improved/potable water source refers to any water source such as a water dispenser that is mobile from one place to another, whereas an existence water source simply refers to a water source that exists regardless of whether it produces the commodity.

2.2. Global Trends in School Sanitation

According to UNICEF (2015) the global average for school sanitation coverage is slightly lower than water coverage, at 63 per cent in 2008 and 69 per cent in 2013. Furthermore, for the least developing countries (LDCs), the average proportion of schools with adequate

sanitation rose nine percentage points over the five-year period from 42 per cent in 2008 to 51 per cent in 2013. As with school water coverage, UNICEF (2015) found that school sanitation coverage is highest in Western Asia and lowest in sub-Saharan Africa and the largest reported increase in global estimated sanitation coverage in schools increased by 6% from 2008 to 2013.The study also revealed that estimated global proportion of schools with adequate sanitation coverage was in South Asia, with an increase of 21 percentage points from 2008 to 2013.

2.3 Sub Saharan statistics

The achievement of proper hygiene and good sanitation has continued to pose serious challenges to various countries in sub-Saharan Africa. According to World Health Organization, sanitation coverage is pegged at 70%. (World Health Organization, 2008; 2010). WHO (2008) also reports that other studies have also shown that decent and functional toilet facilities that provide comfort and convenience to people in the region remain inaccessible. This results from various factors including the cost of latrine construction, lack of knowledge on designs and utilization (Water AID, 2011).

2.4 Zambian sanitation situation

Zambia as a country has not been spared from the challenges of poor sanitation. The World Bank (2012) reports that access to safe water and sanitation in the urban and rural areas was estimated at 37% and 13%, respectively with about 65% of the total population estimated at 11.6 million in 2005, living in rural areas. The rural population has for a long time experienced low access to basic services including safe water supply and sanitation as compared to urban.

2.5: The presence of sanitation facilities in Public Schools.

Access to Toilets, Clean and Safe Drinking Water in Public Schools is one condition that should be met in all schools in order to encourage school attendance.

2.5.1 Access to Clean and Safe Drinking Water

Diseases related to inadequate water, sanitation and hygiene are a huge burden in developing countries. WHO (2004) estimated that 88% of diarrheal diseases are caused by unsafe water supply, and inadequate sanitation and hygiene. WHO (2004) further reveals that many schools serve communities that have a high prevalence of diseases related to inadequate water supply, sanitation and hygiene including lack of hand washing, and where chil-

dren are malnourished with the prevalence of other underlying health problems .If every human being in the world had access to a regulated piped water supply and sewage connection in their houses, 1863 million days of school attendance would be gained due to less diarrheal illness (WHO, 2004).

A study by Harvey and Adenya (2009) surveyed 132 schools in Zambia and found that 98% of schools had hygiene education programmes, although this proportion may be higher than in the population at large, as most of these schools have had some e xternal support. The study further revealed that while 80% of schools had some kind of water source in the school grounds, 87% also had some kind of hand washing facility,60% of which consisted of a container or concrete tank with tap water.

2.5.2 Access to Functional Latrines /Toilets

UNICEF (2015) assigns scores based on a criterion for each assessed toilet facility. The description of each assessment score is presented in Table 4.3.The range of the score is

0-3; 0 being the most favorable score while 3 is the most unfavorable score obtainable.

Table 2.2: Description of Assessment Scores of Latrine Accommodation.

Score	Description
0	The existing situation and facilities are acceptable. No improvement is necessary.
1	The existing situation and facilities are reasonable but would benefit from improvement. Action is not necessarily a priority.
2	The existing situation and facilities are very poor. Improvement is urgently required.
3	There are no facilities. Provision is the highest priority.

Source: UNICEF(2015).

In India the government has paid more attention to the issue of sanitation infrastructure including latrines, and is running on a campaign slogan of “toilets before temples” and launching the Swachh Bharat: Swachh Vidyalaya (“Clean India: Clean Schools”) initiative to provide universal access to sex-specific latrines in all government schools. This recent

initiative echos the earlier SSHE program,which also sought to provide universal access to latrines in all government schools (UNICEF, 2015).

In Nigeria a study by Aremu (2012) intended to access the status of sanitation facilities in primary schools within Ilorin city reveled that sanitation access varies widely as low as 15% in some areas and higher than 80% in others while about 58.65% of primary schools do not have improved sanitation facilities. Aremu (2012) further points out that currently Nigeria is part of the countries whose sanitation coverage rates are between 20 and 40 % points below the MDG targets and observed that many of the available data and progress reports on the Millennium Development Target on sanitation focus on access at household levels without reference to access at public places like bus stations, schools, markets, religious and refugee camps, and construction sites. The study further indicated that boosting sanitation in public places like primary schools could lead to the attainment of other MDGs in terms of health, education and economic development.

In Zambia for provision of latrine accommodation (Toilets) in schools regulation 81(a) (i) and (ii) of the public health (drainage and latrine) regulations requires that; For females

- 1 water closet for every 10 or part of 10 for the first 30 females.
- Over 30 females and under 50 - 4 water closets.
- Over 50 females and under 70 - 5 water closets.
- Over 70 females and under 100 - 6 water closets.
- And thereafter one water closet for every 25 females or part of 25.

For Males the regulations require that:

- 1 water closet for every 20 males or part of 20 for the first 100 males and thereafter;
- 1water closet for every 30 or part of 30.
- In addition, the male sanitary block shall be provided with urinal accommodation to the extent of 2 feet (0.6meters) of urinal for every 20 males or part of 20. And provision of hand washing basins.

In view of the above regulations a study by Harvey and Adenya (2009) across the Zambia found 37% of all schools reporting the presence of permanent toilets and 56% reported the presence of temporary toilets with almost identical numbers of toilets for girls and boys.However, since it is recommended that there should be one toilet for every 40 boys and one toiletfor every 25 girls. Harvey and Adenya further argue that in real terms 27% of

boys in Zambian schools had adequate access to sanitation while a staggering 9% of girls did.Another study conducted by Phiri (2016) in Chikankata district in Southern province found poor hygiene practices in both schools such as, stains of blood on the latrine floors, open defecation, indiscriminate disposal of fecal matter in the latrines, low hand washing practices, smeared wall with fecal matter and urinating on the floor. The hygiene practices of both schools visited were poor.

2.6 The performance of the WASH policy in schools.

The WASH campaign is a worldwide coalition of concerned stakeholders who envisage that sanitation should be high on the development agenda. It has used the broad membership base of the Water Supply and Sanitation Collaborative Council to promote the idea that hygiene and sanitation are important and should be available to everyone (Mooijman et al, 2010).Council members operate across the globe and in a multitude of forums and as a result, the message has been delivered consistently to all levels of decision makers. Water, Sanitation and Hygiene (WASH) in Schools is a program that focuses on a combination of technical (hardware) and human development (software) components necessary to produce a healthy school environment and to develop or support appropriate health and hygiene behavior's (Mooijman et al, 2010). WASH's technical areas of focus include drinking water, hand washing and toilet facilities in and around the school. According to a report by the Government of the Republic of Zambia (GRZ, 2009) the human development components include activities that promote conditions within the school and practices of children that help to prevent water and sanitation related diseases and worm infestation. Chikwanu(2014) quoting Adam et al (2009) suggests that school sanitation and hygiene education depend on a process of capacity enhancement of teachers, education administrators, community members, village or ward water and sanitation committees, public health, Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs).

A study by Grossi et al, (2016) analysed from 42 countries in the Pan-European region revealed that at least 40 countries reported having policies in place that address WASH in schools. Grosi et al (2016) further argue that most of the countries have legally binding requirements, while some have non-statutory guidelines either in place of or complementing/extending the legal requirements.

Scientific evidence on impacts of WASH in schools on pupils' health and well-being have been well articulated by Grossi et al (2016) that Inadequate WASH programs affects children's health, well-being and cognitive performance. Various studies undertaken, although limited in number, indicate a clear association between children's health and WASH conditions in schools. A significant number of pupils avoid using WASH facilities, with consequences on health, well-being and cognitive performance. Grossi et al (2016) argue that inadequate WASH in schools may result in dehydration, urinary infections and constipation and, in some countries, parasitic infections. The evidence shows that toilet avoidance is fostered not only by insufficient and inadequate facilities but also by a lack of awareness among both teachers and children concerning the importance of WASH and the consequent school policies for drinking and toilet visits. Available studies by Aremu (2012) also reported a beneficial effect of hygiene interventions, with a significant reduction of absenteeism due to infections during and/or after the intervention.

Access to water, sanitation and hygiene (WASH) is essential for healthy development and growth of children all around the world and is therefore every child's right, as stated in the Convention on the Rights of the Child (United Nations, 1989). The recently approved 2030 Agenda for Sustainable Development (United Nations, 2015) also encompasses WASH in schools under the Sustainable Development Goals (SDGs) for health and well-being (SDG 3), education (SDG 4) and water and sanitation (SDG 6). The new Agenda explicitly addresses WASH in institutional settings like schools, and calls on countries to reduce the burden of WASH-related diseases and achieve universal and equitable access both to safe and affordable drinking-water and to adequate and equitable sanitation and hygiene improve the learning environment n schools for all by 2030 (Caincross et al ,2010).

A study by Chikwanu (2014) conducted in Zambia in 60 schools revealed that 34 (57%) of them had WASH related committees. However, 23 (38%) schools stated that they did not have any WASH related committee while three (5%) schools did not indicate whether they had committees or not. The study further revealed that study 34 (57%) schools had WASH related meetings though the frequency varied from one school to the other. According to UNICEF (2016) indicator parameters recommended in the WASH in Schools Monitoring Package should include;

Water – where there should be a functional water point available at or near the school that provides a sufficient quantity of water for the needs of the school, safe for drinking and accessible to children with disabilities.

Sanitation-The number of functional toilets and urinals for girls, boys and teachers must meet national standards and are accessible to children with disabilities. This study therefore adopts the indicator parameters in accessing the subject at hand. Table 2.2 below depicts the Indicator Parameters recommended in the WASH in Schools Monitoring Package

Table 2.3: Indicator Parameters Recommended in the WASH In Schools Monitoring Package.

Component	**Indicator**	**Parameters**
Water	A functional water point must be available at or near the school that provides a sufficient quantity of water for the needs of the school, is safe for drinking and is accessible to children with disabilities	1. Functionality (functional) 2. Proximity (at or near) 3. Quantity (sufficient quantity) 4. Quality (safe) 5. Accessibility (children with disabilities)
Sanitation	The number of functional toilets and urinals for girls, boys and teachers must meet national standards and are accessible to children with disabilities	1. Quantity (number/national standards) 2. Functionality (functional) 3. Gender (girls, boys) 4. Quality (national standards) 5. Accessibility (children with disabilities)
Hygiene	Functional hand-washing facilities and soap (or ash) should be available for girls and boys in the school and hygiene is taught	1. Functionality (functional) 2. Soap (soap (or ash) available) 3. Hygiene education (hygiene is taught)

Source: UNICEF 2015

2.7 The Role of Ndola City Council in Enhancing Proper Sanitary Facilities in Schools.

The role of the central government in enhancing proper sanitary facilities in the respective countries and indeed in schools can be described from a various points of view.

2.7.1 Policy and Legal Framework

According to African Development Fund (2009), the legal and policy framework of the development and management of the water and sanitation sector in Zambia include the Local Government Act (1991), which gives local authorities prime responsibility for the provision of water supply and sanitation services, the decentralization policy (2002) aimed at decentralizing government responsibilities and functions among which include rural water and sanitation to lower level government through devolution and the National Water Policy (1994).UNICEF (2006) argues that the water policy has seven key principles that give guidance to the institutional framework for the sector as follows: separation of water resources functions from water supply and sanitation, separation of regulatory and executive functions within the water supply and sanitation sector, devolution of authority to local authorities and allowing participation of the private enterprises, achievement of full cost recovery in the long run for the water supply and sanitation services through user charges (with due regard for fairness and equity by providing a minimum level of services to persons who are unable to afford the full cost of services),human resources development leading to more effective institutions, technology appropriate to local conditions, and increased GRZ spending priority and budget spending to the sector.

GRZ has drawn a draft of the "Fifth National Development Plan (FNDP 2006-10)"- June 2006. The FNDP, which is also the county's Poverty Reduction Strategy (PRSP) as the basic planning framework for the formulation and implementation of the country's sector policies, strategies and programs, identifies the water and sanitation sector as one of the priority areas for poverty eradication (IMF, 2007).

2.7.2 Urban Water Supply and Sanitation

The role of the city council is to also provides adequate, safe, and cost effective water supply and sanitation services with due regard to environmental protection. Development and provision of sustainable water and sanitation service to more people in urban and peri-urban areas through (World Bank, 2009).

National and Local governments through City and Municipal councils are also charged with the responsibility to allocate funds to sanitation and hygiene education and ensure their inclusion in poverty alleviation strategies and budgetary allocations, assess the effectiveness of different public spending programmes on increasing access, lobby external support agencies for discretionary terms for financing hygiene promotion and sanitation, provide financial incentives to local and district governments who can deliver efficient and effective sanitation and hygiene promotion programmes, develop and finance micro-credit schemes managed by local NGOs or the private sector to target households, and work with private sector lenders and product manufacturers to create programmes for extending credit to members of the most vulnerable communities (WHO,2004b).

The findings by WHO (2004a) show that national governments are supposed to frame national policies in a way that enshrines the idea of gender and equity at the centre of sanitation and hygiene promotion, invest in training or retraining front-line staff to work effectively with women, men and children, earmark funds for school sanitation and commission research to identify where social or economic groups are persistently excluded from access to sanitation. National governments also need to ensure that the overall sanitation framework is gender sensitive, by enabling the participation of women in the development of sanitation policy. UNICEF (2005) further points out that gender provisions ought to address both the practical and strategic needs of men and women, which differ according to culture and traditions, location and other factors, as well as an appropriate strategic approach that takes into consideration these differences. The availability of the girl child in school ultimately impacts the adoption of healthy sanitation and hygiene practices and significantly reduces infant mortality.

National governments should review and modify laws, rules and regulations that constrain small-scale entrepreneurs from working in sanitation, invest in strengthening regulators so that they know how to support, regulate and control small-scale providers, and invest in training and capacity building for small-scale providers (Rheinländer et al, 2010).

Another study by WHO (2004b) found that National governments have a role to play in investing in sanitation in schools, pay for training of teachers to deliver effective hygiene education, creation of incentives for schools to do more in-house, fund national education and

awareness campaigns aimed at children and young people; as well as creating legislation to require schools to provide separate toilet facilities for boys and girls.

In 1994, the Government of the Republic of South Africa launched a coherent water supply and sanitation programme that included policy development, new financial arrangements, organisational reform, decentralization and implementation. The programming process was led by the Department of Water Affairs and Forestry (DWAF) which delivered a significant and intensive infrastructure programme through a variety of organizational partners and a range of institutional arrangements. It allocated more than US$ 230 million to water and sanitation projects in 2002 (WHO, 2004a). The South African National Sanitation Programme has set a goal of providing access to all people in rural, peri-urban and informal settlements by 2010. In 2002, sanitation services were provided to an additional 2.4 million people.

In South Africa the generic roles and responsibilities of national government including establishing legislation, policies, norms and standards, co-ordinating and monitoring national programmes, providing support to other spheres of government, regulating service provision, intervening where there is a lack of capacity, and providing advocacy and guidance. (South African White Paper, 2001).

2.8 Conclusion

It is clear from the literature that most studies on sanitation have been mainly conducted by International organizations with few efforts from an academic point of view. Furthermore most of these studies were purely quantitative and were carried out in rural settings. This study is therefore a significant departure as it assesses the problem of the status of sanitation which can lead to a potential epidemic in a urban setting grappling with the continued problem of an exponential population growth.

CHAPTER THREE

MATERIALS AND METHODS

3.0 Introduction

The previous chapter reviewed literature relevant to the study. This chapter presents the methodology used in the study. Included in this chapter are; research design, target population, sampling techniques, study sample and procedure, methods of data collection, data analysis techniques, validity testing and ethical considerations.

3.1 Location and description of study area

This section presents the study area and description of the location.

3.1.1 Location

The study was carried out in Kabushi constituency of Ndola urban, in the Copperbelt region. The city lies between $12^{o}53'$ 15" S and 28^{o} 58' 30" E.(CSO,2010) The District is situated about 300 km from the capital Lusaka and has been divided into four (04) constituencies namely Ndola Central, Chifubu, Kabushi as well as Bwana Mkubwa constituencies.

3.1.2 Description

Ndola is inhabited by a multicultural population with Bemba being the mostly widely spoken language. The population of Ndola stands at 451,246 (2010, Census of Housing and Population) comprising 223 020 males and 228 226 females with the annual growth rate of 1.9 % (CSO, 2012).There are 78 public schools divided 9 zones including 20 secondary, 55 primary and 3 special schools. Four schools from the Kabushi constituencies in Ndola were sampled namely Masala and Dambo Secondary schools and Masala and Bonano primary schools .Ndola district was particular selected because it was one of the cities that has had persistent cholera incidences in the past two decades. The reason for conducting research in Ndola schools is that the researcher is familiar with the area and has easy access to schools. Most importantly there are schools that are located in disaster-prone areas situated near rivers, in unplanned settlements with poor sanitary conditions, and as such there is a possibility of flash floods and diseases caused by environmental pollution, which may lead to poor health.

Below depicts the map of Kabushi constituency in Ndola District.

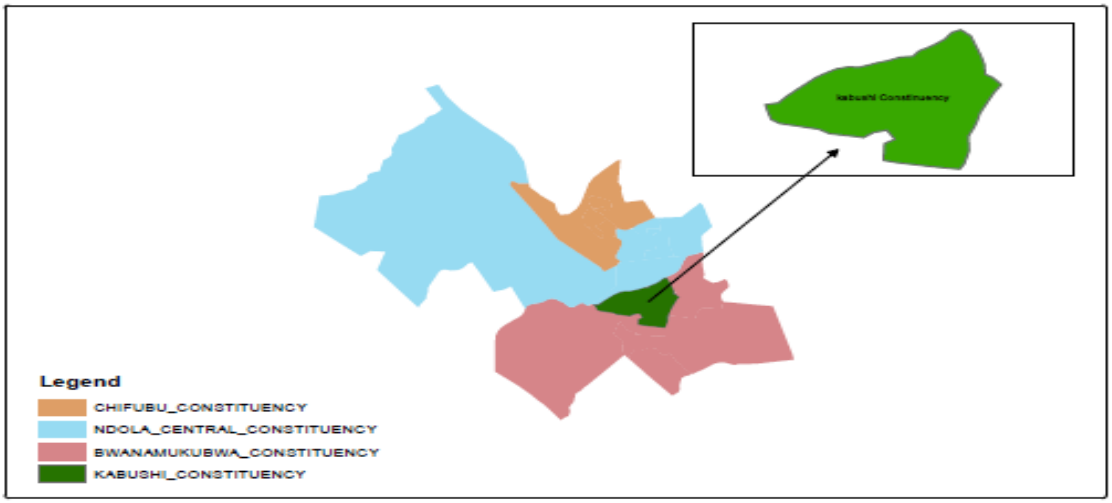


Figure 3.1: Map of Ndola showing Kabushi constituency

3.2 Research Design

Ngandu-Kasonde (2013), quoting Gosh (2004) observes that a research design is the arrangement of conditions for collecting and analyzing of data in a manner that requires combining importance with the research purpose. It is the intangible structure within which research is conducted and it constitutes the blueprint for the collection, measurement and analysis of data. This study therefore adopted a descriptive survey design/cross sectional design in which qualitative and quantitative methods were used. A survey design is a research method that is often used to assess thoughts, opinions, feelings, behavior and the characteristics of a large population. In this study the survey design was appropriate because this research was mainly descriptive and meant to get local authorities, learners and teachers' opinions and their attitudes towards the sanitation status of public schools in the district. The study also employed both qualitative and quantitative approaches in data collection in order to allow the researcher to triangulate the data that shall be collected.

3.3 Population

Boasavanthappa (2007) defines population as the category of persons or objects that meet the criteria for study established by the researcher. It can also be defined as any set of persons, objects or measurements having observable characteristics in common. The target

population for this study comprised the learners, the teaching personnel and local authority officials from the department of public health from Ndola city council.

3.4 Study Sample and Sampling Procedure

In terms of delimitating the district in educational zones, Ndola has been divided into 9 zones comprising 7(seven) public schools in each zone. The schools that participated in this survey were selected by a simple random sampling technique to reflect the four (4) schools that were sampled from the seven secondary and primary schools in zone 6 (six).The study sample comprised four (4) Head teachers, (2) local authority officers from the Ndola city council department of Public health, a sample of 50 pupils and one focus group discussion comprised of 6 teachers from each school. The total study sample therefore, amounted to 230. The justification for selecting 50 pupils from each school and one teacher focus group from each school is that the study was mainly descriptive. In addition, the sample size of 230 participants was selected mainly for three (3) reasons. The first one was that financial resources were limited and could not allow for a sample bigger than the one selected. Secondly, the timeframe given within which the study was to be completed was limited to allow for a sample bigger in terms of size than was selected. Lastly and most importantly, the selected sample size was reasonably adequate in that the study was more qualitative and less quantitative in nature. As such, the interest of the researcher was to carefully select smaller numbers of cases to give a greater depth of information on the topic under study (Teddlie and Yu, 2007). In this respect, therefore, the study aimed at achieving a sample size of at least 230 respondents. This sample size had enough cases from which to establish meaningful analysis. Within the scope of the research, the sample size determination was based on Fraenkel and Wallen (2003) who argue that a minimum of 100 is recommended for descriptive while a minimum of 500 is recommended for correlational studies. In all these examples, and using the minimum of 100 as a yardstick, our sample was representative of the pupils ,teachers, Head teachers and local government officers in the four constituencies of Ndola district and was therefore large enough to perform some statistical inferences.

3.5 Data Collection Methods

The study employed triangulation method where both quantitative and qualitative methods of data collection was used. Two types of data were collected namely primary and secondary data.

3.5.1 Primary data

Primary data were collected from pupils, teachers, head teachers and Ndola city council workers form the department of public health at Ndola city council using structured questionnaire consisting of both open and close ended set of questions. Personal in-depth interviews were also conducted with curriculum specialists. One Focus Group Discussion of between 6 to 8 teachers was conducted in each school.

3.5.2 Focus Group Discussion and procedure

Prior to the discussion, the purpose of the discussion was explained to the participants. These discussions were held in their respective schools and researchers assured participants confidentiality concerning the discussions.

3.5.3 Limitation of the study

The term data collection simply refers to how the researcher obtains the empirical data to be used to answer the research questions. There are several challenges that the researcher faced during the process of collecting data which included:

(i) Apathy as a result of lack of interest that the respondents may have in or the absence of any wish to respond to interviews or answering the questionnaires during the data collection. This was manifested through returning unanswered questionnaires, while some did not even return the questionnaires and hence were removed from the analysis.

(ii) Fatigue: there was temporary inability of respondents to respond to a situation as a result of over exposure or excessive activity. Some schools or areas have been over researched hence, fatigued. Therefore, some respondents did not want to take part in any more research activity. This was encountered by the researcher where some officers would not give in to be interviewed and,

(iii) Negative attitude: this is the tendency of gloom outlook or an arrogant manner that the respondents may develop inwardly toward the whole exercise of the research being conducted (Popper, 2004).this attitude was displayed by some officers especially those that needed to be interviewed.

In order to collect data successfully amidst those challenges, the researcher tried by all costs to fully engage the respondents through asking them to feel free either to participate or not. The researcher also explained the importance of conducting this research to them. Further-

more the researcher worked with the immediate supervisors such as the deputy head teachers and senior teachers who helped to administer and collect questionnaires.

3.6 Data Analysis

Kombo and Tromp (2006) describe the process of data analysis as the bringing of order, structure and meaning to the mass collected data (Kombo and Tromp, 2006). Qualitative and quantitative data collected in the study was analyzed as follows;

3.6.1 Qualitative Data Analysis

Qualitative data from semi-structured interviews and questionnaires was collected, coded into themes and sub-themes. Qualitative data was analyzed thematically based on the main emerging themes.

3.6.2 Quantitative data analysis

The data from 200 questionnaires collected, were entered into the Statistical Package for Social Sciences (SPSS) Version 21.0 software for analysis. Descriptive statistics in form of frequencies tables, and charts were generated using SPSS software and excel.

3.6.3 Observation

In the schools under investigations, observations were utilized on the premises, to verify some of the responses that the respondents were giving. Major elements that were observed were the toilet facilities, hand-washing facilities, sanitation and hygiene on the walls and the availability of clean water for use in the selected schools.

3.7 Ethical consideration

Throughout the research, ethical principles relating to issues of informed consent, non-deception and confidentiality of participants was strictly adhered to. According to Bryman(2008) participation in the study was voluntary and based on informed consent, with right of withdrawal at any time. In order to protect their confidentiality the names of participants was with-held throughout the study.

CHAPTER FOUR

RESEARCH FINDINGS

The preceding chapter provided the methodology employed for collection and analysis of data in the study. The data were collected from local authority officials, education administrators, teachers and pupils. The present chapter presents the results on the Status of Sanitation in Selected Public Schools of Kabushi constituency in Ndola urban. The results are presented using the thematic approach in line with the four objectives set out in chapter one of this dissertation, namely: To establish the presence of sanitation facilities in the selected public schools in Ndola, to assess if pupils and teachers have access to adequate latrine accommodation and clean and safe drinking water in the selected public schools in Ndola district, to evaluate the performance of the WASH policy in selected public schools and last but not least to investigate the role of the Zambian government in enhancing proper sanitary facilities in school.

In this chapter, the researcher begins by first presenting the demographic characteristics of the participants in the study. Thereafter, the presentation of both qualitative and quantitative results follows. Under each theme derived from the four objectives above, qualitative results are presented first. In doing so, some key quotes from interview conversations with respondents have been highlighted to illustrate their importance to the study. Thereafter, quantitative data are presented using statistical tables, frequency counts and charts.

The results are carefully presented without any attempt to discuss them.

4.1. Demographic Characteristics of Respondents

Table 4.1: Percentage Distribution of Gender of Respondents

Category	**Key informants**	**Head teachers**	**Teachers**	**Pupils**	**Total**
Male	01	03	16	90	**110(48%)**
Female	01	01	08	110	**120(52%)**
Total	**02 (0.9%)**	**04(1.7%)**	**24(10.4%)**	**200(86.9%)**	**230(100%)**

From Table 4.1 above, this study had a total number of 230 respondents. These included, Two (0.9 %) key informants from the department of public of Ndola city council and Four (1.7 %) Head teachers, 24(10.4%) Teachers and 200 (86.9%) pupils. In terms of gender, there was a fair representation of the respondents as 110 respondents were males which comprised 48% of the total number while 120 (52%) were females.

4.2.1 Level of Education and Age of Respondents

In this study, 00 (0%) were categorized as having obtained informal education only, 00(0%) respondents indicated having gone as far as primary level, 200 (86.9%) reported as having gone as far as secondary level, while 30 (13.1%) obtained tertiary education as shown in table 4.2 below. The age distribution of respondents was more confined to the youths. The majority of the respondents were aged less than 20 years, (86.1%), followed by those aged between ages 40-59 (7.4%) while those between 20-39 years (3.9%). Those aged above 60 years and above were represented by 2.6%.

Table 4.2: Level of Education of Respondents by Age

		Age of participant (Years)				**Total**
		< 20	**20-39**	**40-59**	**60+**	
Level of Education	Informal	00	00	00	00	**00 (0%)**
	Primary	00	00	00	00	**00 (0%)**
	Secondary	198	02	00	00	**200 (86.9%)**
	Tertiary	00	07	17	06	**30 (13.1%)**
	Total	**198(86.1%)**	**09(3.9%)**	**17(7.4%)**	**06(2.6%)**	**230(100%)**

Source: Field data

Having presented the demographic characteristics of the study participants, the next section presents the results of the study.

4.3 The presence of sanitation facilities in Public Schools.

One of the four objectives of the study was to assess the accessibility to Latrine accommodation, Clean and Safe Drinking Water in the Selected Public Schools. This objective was guided by the research question; Are sanitation facilities present in the selected public schools in Ndola? To get well informed responses, the researcher targeted head teachers,

teachers and the pupils in the study to provide answers to this question. The findings revealed the following and these results are presented below.

4.4 Access to latrine accommodation

For provision of latrine accommodation in terms of gender segregated toilets the study findings are shown in Table 4.4 below.

Table 4.4: Access to Gender Segregated Latrine Accommodation in Schools

School	STAFF TOILETS			PUPIL TOILETS		
	No of teachers	**No of functional toilets**	**Ratio**	**No of pupils**	**No of functional toilets**	**Ratio**
Masala Secondary	Female 46 Male 38 **TOTAL 84**	02 02 **TOTAL 04**	23:1 19:1	Girls 975 Boys 1049 **TOTAL 2024**	09 07 **TOTAL 16**	108:1 149:1
Dambo Secondary	Female 34 Male 16 **TOTAL 50**	01 01 **TOTAL 02**	34:1 16:1	Girls 1201 Boys 963 **TOTAL 21 64**	06 05 **TOTAL 11**	200:1 192:1
Chilengwa Primary	Female 56 Male 15 **TOTAL 71**	02 02 **TOTAL 04**	28:1 7:1	Girls 1950 Boys 1050 **TOTAL 3000**	11 12 **TOTAL 23**	177:1 87:1
Masala Primary	Female 37 Male 09 **TOTAL 84**	01 01 **TOTAL 02**	37:1 9:1	Girls 893 Boys 862 **TOTAL 1755**	08 05 **TOTAL 13**	111:1 172:1

Source: Field data

For provision of latrine accommodation in terms of gender segregated toilets the study findings from table 4.4 above revealed that:

.At Masala Secondary School the school has a total of 975 girls sharing 9 functional toilets in the ratio of 108:1 closets, while 1049 boys share a total of 7 functional closets in the ratio of 149:1. In terms of female staff a total of 46 female staff share 2 functional closets in the ratio 23: 1 while the 38 male staff shares two toilet closets in the ratio 19:1.

At Dambo Upgraded Secondary School the findings reveal that 1201 girls share 6 functional toilets in the ratio 200:1 while 963 boys share 5 functional toilets closets in the ratio 192:1. As for the members of staff 34 female staff share, 1 toilet closet in the ratio 34:1 while 16 male members of staff share 1 toilet closet in the ratio 16:1.

At Chilengwa Primary School a total of 1950 girls share 11 functional toilets in the ratio 177:1, while 1050 boys share 12 toilets in the ratio 87:1.For female members of staff, 56 females share 2 toilets in the ratio 28:1, while 15 male members of staff share 2 toilet closets in the ratio 7:1.

Lastly at Masala Primary a total of 893 girls share 8 closets in the ratio 111:1 while 862 boys share 5 toilets closets in the ratio 172: 1.In terms of staff 37 female staff at Masala primary share 1 toilet closet in the ratio 37:1 while 9 male members of staff share 1 toilet closet in the ratio 9:1.In line with UNICEF (2015) the assessment of the latrine accommodation in the four schools are presented below.

In terms of quantity the number of toilets for teachers, boys and girls in all the four schools investigated is below the acceptable standards. Most of the toilets have a compromised functionality status.

All the four schools reported having access to sanitation, while none have 100 % functional toilets/latrines a more reliable estimate of children's actual access to sanitation services at school level. In terms Gender related to toilet usage all the four schools had single sex toilets such as the girls-only toilets or latrine holes or boys-only toilets**.** In terms of accessibility to pupils with physical ability no school had any toilets accessible to pupils with physical disabilities or the physically challenged. In terms of the quality parameter improved and unimproved pit latrines were found in all schools with most schools having unimproved facilities.

4.4.1 Access to clean and safe drinking water

Indicators used to measure water coverage, fall under functional source **,** improved/potable source ,existence of water source or unknown. The data collected shows that of the 4 schools included in this study, no school fell under the definition as unknown ,one (1) school could be referred to as having 'improved' or 'potable' water supply, while two (2) schools denoted the existence of a water supply and only (1) school had a measured water

source functionality . In all the schools the water source (boreholes) is within the school compound and the school is connected to the water network from the Kafubu water utility companies though the supply is intermittent.

4.4.2. Pupil perception on accessing clean and safe drinking water.

Based on the main indicator categories used in the sanitation analysis by the UNICEF (2015) as reviewed in the literature an assessment from the 200 pupils revealed that 30 (15%) referred to the accessibility to water facilities in their respective schools as merely in Existence, 84 (42%) referred to the water accessibility in schools as Improved / Portable source, 52(26%) referred to the water accessibility in their schools as Functional while 34(17%) described water accessibility as other. The water accessibility in the schools according to pupils' assessment is shown figure 4.1 below.

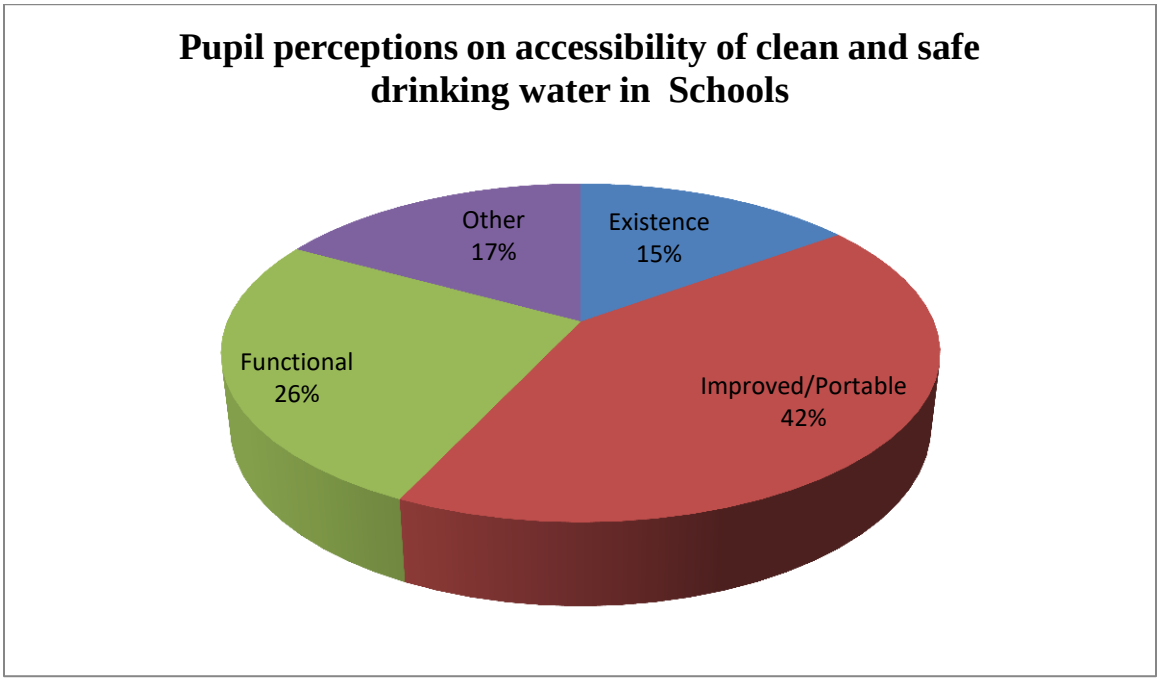


Figure 4.1: Pupil perception on accessibility of clean and safe drinking water in schools.

4.4.3 Connection to the Kafubu Water and Sewarage Company water grid and other water supplies

Concerning access to safe drinking water the Head teachers reports in the respective schools revealed the following; At the four schools the findings reveal that the schools under study are connected to the Kafubu Water and Sewerage Company grid the main supplier of water

in the district and the schools have also sunk boreholes which are both operational in order to meet the challenge of water supply in exception for Dambo secondary which has not yet sunk a borehole.

4.4.4 Access to hand washing.

With regards to hand washing facilities all the four schools had established water points merely to the existence of sanitation facilities especially after the decree by the government even though soap was missing in all the water points established in the four schools.

4.4.4.1 Pupil perceptions on hand washing facilities in schools.

In terms of hand washing facilities 20 (10%) reported having existence of hand washing facilities and 100(50%)reported having hand washing facilities without soap while 80(40%) reported having no hand washing facilities. Figure 4.5 below depicts the pupil responses regarding hand washing facilities in the schools.

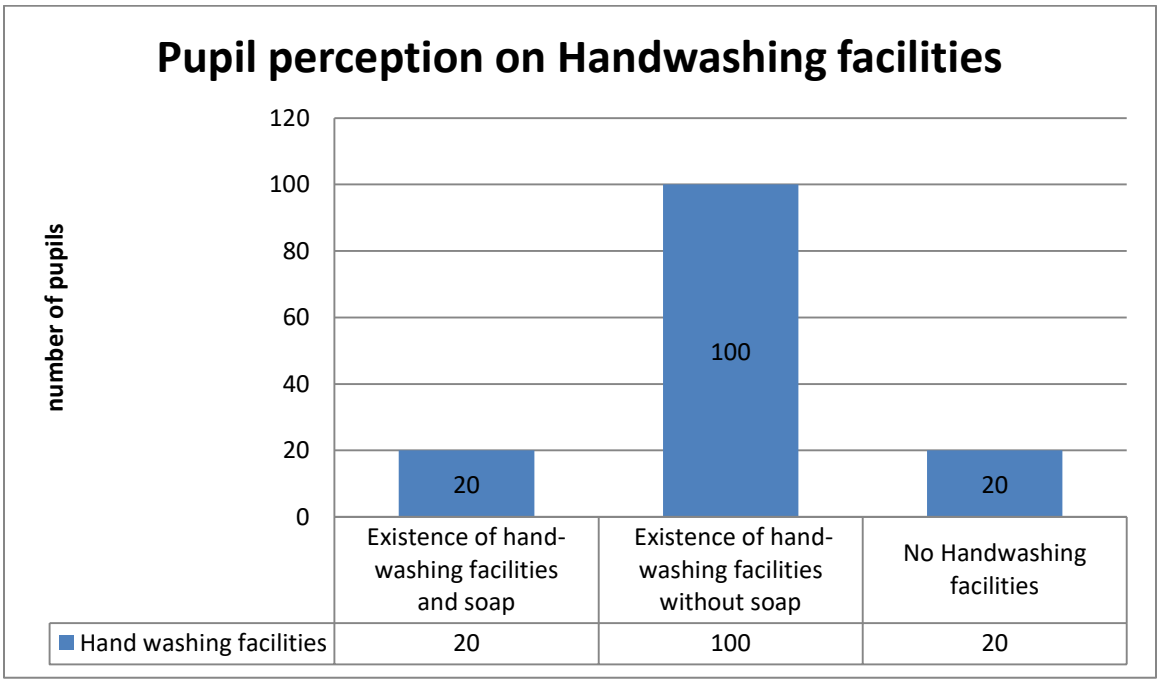


Figure 4.5: Pupil perceptions on hand washing facilities in schools.

4.4.5 General indicators used on sanitation coverage

In summary, most of the schools refer merely to the existence of sanitation facilities, availability of gender-segregated toilets, a few functioning toilets and while none of the schools reported coverage based on meeting national standards for the number of students per toilet .

4.5 The performance of the WASH policy in selected schools.

Apart from assessing the access to toilets, Clean and Safe Drinking Water in the selected public Schools, the second research objective of the study sought responses to the question: How is the performance of the WASH policy in the selected public schools? To thoroughly answer this question, key informants including local authority officers, head teachers and teachers, were targeted for responses by means of semi structured interviews and focus group discussions. The results revealed that the majority of teachers and the two key informants thought: WASH has not been actually implemented in the sampled schools even though it is on paper it is non- existent. Moreover WASH was mistaken for other programs such as School Health Nutrition (SHN).However similar programs have been implemented in all the schools on the Copperbelt known as Clean and Green Schools (CGS). The most frequently reported issues related to WASH Programs included inappropriate planning, problems with physical infrastructure, poor cleaning and maintenance, and inadequate operation of water supply, sanitation and hygiene services and Policies and regulations on WASH in schools have not been fully implemented**.**

4.5.1 Inappropriate planning

To illustrate, at a Focus Group Discussion one teacher had this to say about inappropriate planning:

> *Inappropriate planning by the ministry of education has exposed disparities and inequalities in WASH accessibility in schools. Children with disabilities do not have equal access to WASH related facilities in schools. Girls' needs, especially during menstruation, are often not considered with lack of showers.*

4.5.2 Problems with physical infrastructure

Another point that came out from the focus group discussion was that there were problems with the physical infrastructure.

One teacher from the focus group discussion stated:

> *Hygiene management and practice are not always adequate in schools. Toilets are frequently reported to be dirty, overcrowded and smelly; soap, toilet paper, drying devices and disposal bins are insufficient. As a consequence, toilet avoidance is*

common among pupils and a lack of adequate hygiene education means that the practice of healthy behaviours is not promoted.

Another teacher from another focused group discussion echoed these sentiments

Sanitation facilities may be absent or inadequate to pupil numbers and needs. Use of sanitation facilities is hindered by insufficient maintenance and cleanliness, poor building materials, lack of privacy and bad illumination.

4.5.3 Poor cleaning and maintenance

A similar concern was expressed by an educationist who suggested poor cleaning and maintenance. He suggested that:

The reality of WASH in schools does not reflect the aspirations of standards in place and is not adequate to pupils' needs. WASH in schools is faced with many challenges. School surroundings dirty due to insufficient cleaning and maintenance, though not always acknowledged by school management. Vandalism is also a serious challenge.

4.5.4 Inadequate operation of water supply, sanitation and hygiene services

A local government officer from the department of public health was of the view that:

Access to water for drinking and hand-washing in schools is often not ensured. Water may be absent, intermittent, unsafe and/or hard to access, far away or not allowed in class. Insufficient numbers or inadequate hand washing facilities hinder hand washing practices.

4.5.5 Non- implementation of policies and regulations on wash in schools

Both key informants were of the view that WASH programs have not been fully implemented in schools. For example, on further inquiry regarding the implementation of WASH, a local government administrator suggested that:

Most schools have no WASH programs but have some programs in place which are diverse and often neglect critical WASH aspects. These programs include School Health and Nutrition (SHN)….National standards and regulations are not commonly in place. Schools choose and regulate the essential requirements for ensuring adequate WASH in schools differently, however. Important aspects are not always ad-

dressed or regulated in line with international standards on, for example, pupil–toilet ratios and water points.

One teacher from the Focus Group Discussion opined that:

The legal framework is complex and lacks efficient coordination. It is complex and spreads responsibilities among numerous institutions without a clear leading actor, thus compromising coordination and compliance. Leadership on WASH in schools in the education sector is often weak, as WASH in schools is not considered an education intervention.

Another teacher from the focus group discussion stated:

Policies and targets are set, confirming schools commitment and reflecting priorities, but full implementation and improvement of WASH in schools is not guaranteed. WASH policies and targets in schools are mostly in place but are not fully implemented in schools. Enforcement mechanisms are not always well established, however.

4.5.6 Implementation of WASH in schools

Regarding the implementation of WASH schools a question was asked to find out whether WASH has been implemented in schools in the zone. Table 4.5 below shows the results in terms of percentages.

Table 4.5: Implementation of WASH in schools

Response	**Teachers (n=28) Percentage**	**Pupils (n=200) Percentage**
Yes	0%	2%
Not sure	7%	10%
No	93%	78%
Total	100%	100%

From table 4.5 above the study reveals that none of the teachers said WASH has been implemented in schools, 7% are not sure whether it has while 93% reported that WASH has

not been implemented in the four schools in the zone.Similarly,2% of the pupils reported having WASH programs in schools,10% of the pupils were not sure while 78% reported not having a WASH program in school.

4.6 The role of the Ndola City Council in enhancing proper sanitary facilities in schools.

The third and final objective of the study provided the researcher an opportunity to explore the role of the Ndola City Council in enhancing proper sanitary facilities in schools. This was guided by the research question: What is the role of the Ndola City Council in enhancing proper sanitary facilities in schools? The responses from the two key informants from the local council indicated the following: Enforcing legislation of norms and standards among citizens, ensuring compliance with national policy, norms and standards, coordinating interventions aimed influencing health and hygiene behaviour, monitoring legislation through the municipal and local councils, co-ordination and monitoring progress related to sanitation and monitoring the outcome of a number of sanitation programmes.

4.6.1 Enforcing legislation of norms and standards among citizens.

One of the roles of the Ndola city council gathered from the findings was related to enforcing public health legislation through the Ndola City Council Health department in conjunction with the local council police. One public health workers believed that there was need to enforce an enabling national legislation and norms and standards. He stated that:

> *It is the municipality who is in the first instance accountable for the provision of sanitation services and, through its Environmental Health Practitioners, it enforces and promotes health and hygiene awareness and to monitor the health of its communities and as a measure of disaster prevention.*

Another local council official said:

> *The municipality is responsible for ensuring an environmentally safe approach to sanitation and for monitoring the impact of the sanitation process on the environment.*

4.6.2 Ensuring compliance with national policy, norms and standards.

The other role of the city council from the respondents was to ensuring compliance with national policy, norms and standards. One teacher from the focus group discussion suggested that;

> *Developing norms and standards for the provision of sanitation and co-coordinating the development by the municipalities of their Water Services Development Plans as a component of their Integrated Development Plans (IDP) and providing support to the provinces and municipalities in the planning and implementation of sanitation improvement programmes.*

4.6.3 Coordinating interventions aimed influencing health and hygiene behaviour

One other role of the Ndola city council coming from the findings is coordinating regional planning. One teacher from the focus group discussion suggested:

> *The role of the Department of Health is supposed to co-operate with the provinces, take primary responsibility for coordinating information relating to public health ,co-ordinating the planning and interventions aimed at influencing the health and hygiene behaviour of communities and at creating a demand for sanitation services through health and hygiene awareness and education programmes and standardizing existing and prepare new norms and standards relating to health aspects of sanitation and water supply.*

4.6.4 Coordinating and monitoring progress and the outcome of sanitation programmes.

Another prominent role coming out from the respondents was to monitor progress and the outcome of various sanitation programmes. One teacher from the focus group discussion stated that;

> *Monitoring the outcome of various sanitation programmes and maintain a data base of sanitation requirements and interventions, providing capacity building support to provinces and municipalities in matters relating to sanitation; providing financial support to sanitation.*

4.6.5 Pupil perception on the role of the city council in enhancing proper sanitary facilities

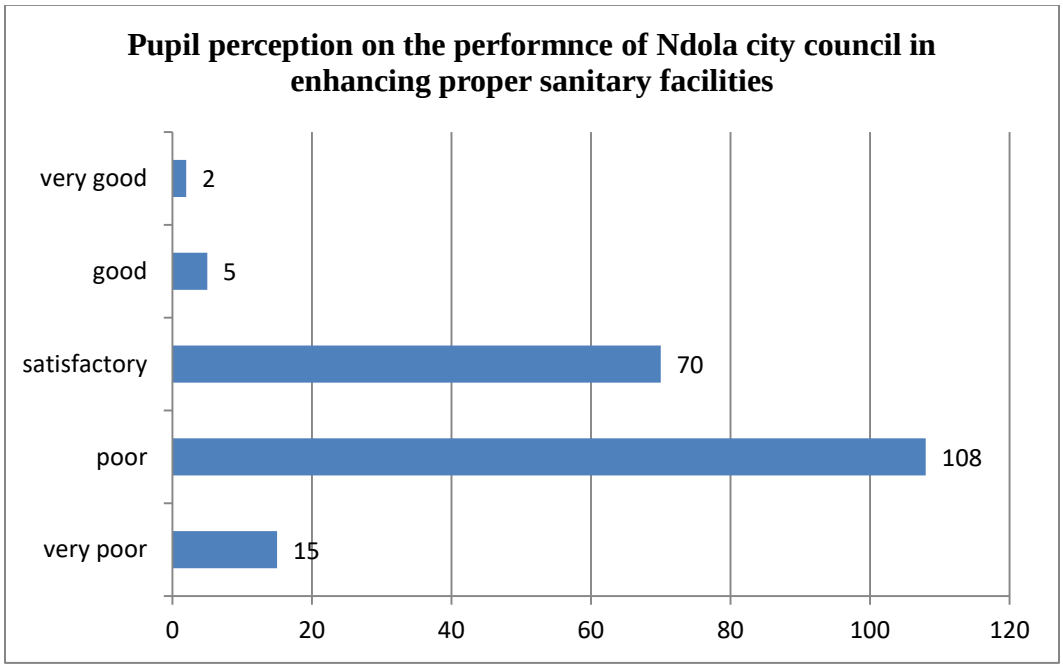


Figure 4.7: Pupil perception on the role of Ndola city council in enhancing proper sanitary facilities in schools**.**

Pupils perception on the performance of the Ndola City Council in enhancing proper sanitary facilities were measured using the likert scale and 15 (7.5%) perceived the role of the city council as very poor, 108 (54%) viewed the role of the city council as poor,70 (35%) thought the city council performed satisfactorily,5(2.5%) perceived the role of the city council as good while2(1%) rated the performance of the city council as very good.

4.6.6: Teacher perceptions on the role of Ndola city council in enhancing proper sanitary facilities in schools.

Table 4.6 below depicts teacher responses regarding the role of Ndola city in enhancing proper sanitary facilities in schools is on course on not. The responses are shown below in Frequencies (F) and percentages (%). The findings reveal that none of the teachers (0%) strongly agreed that Ndola city council is on course in enhancing the establishment of proper sanitary facilities in schools,3(11%)agreed the city council was on course,5(18%)disagreed that the city council was on course ,while 20(71%) strongly disagreed that the council was on course in enhancing the establishment of proper sanitary facilities in schools.

Table 4.6: Teacher perception on the role of Ndola city council in enhancing proper sanitary facilities in schools.

Statement	SA		A		D		SD	
	F	%	F	%	F	%	F	%
	0	0%	3	11%	5	18%	20	71%

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

The previous chapter presented the results/findings of the study. The present chapter discusses the findings presented in chapter four in relation to the literature reviewed and the conceptual framework in chapter two in the light of the three objectives in the study. The major findings are discussed under four (4) headings derived from the research questions. This is meant to provide adequate answers to the four objectives and realize the purpose of this study.

5.1 Presence of sanitation facilities in public schools.

This section discusses the presence of sanitation facilities in the schools under investigation.

5.1.1. School provision of latrine accommodation

For provision of latrine accommodation in terms of gender segregated toilets the study findings revealed that at the four schools under study had gender segregated latrine accommodation even though they were far short the adequate number recommended for a public institution due to over enrolment as depicted in figure 5.1 below.

Figure 5.1: Latrine accommodation in terms of ratios per school.

School	STAFF TOILETS			PUPIL TOILETS		
	No of teachers	**No of functional toilets**	**Ratio**	**No of pupils**	**No of functional toilets**	**Ratio**
Masala Secondary	Female 46 Male 38 **TOTAL 84**	02 02 **TOTAL 04**	23:1 19:1	Girls 975 Boys 1049 **TOTAL 2024**	09 07 **TOTAL 16**	108:1 149:1
Dambo Secondary	Female 34 Male 16 **TOTAL 50**	01 01 **TOTAL 02**	34:1 16:1	Girls 1201 Boys 963 **TOTAL 21 64**	06 05 **TOTAL 11**	200:1 192:1
Chilengwa Primary	Female 56 Male 15 **TOTAL 71**	02 02 **TOTAL 04**	28:1 7:1	Girls 1950 Boys 1050 **TOTAL 3000**	11 12 **TOTAL 23**	177:1 87:1
Masala Primary	Female 37 Male 09 **TOTAL 84**	01 01 **TOTAL 02**	37:1 9:1	Girls 893 Boys 862 **TOTAL 1755**	08 05 **TOTAL 13**	111:1 172:1

Source: Field data

Furthermore, the number of functional toilets and urinals for girls, boys and teachers do not meet national standards and are not accessible to children with disabilities. The situation is a direct recipe for disasters resulting from water borne vectors. These results are in line with Phiri (2016) who did his study in Chikankata district in Southern province, and found poor hygiene practices in schools including, stains of blood on the latrine floors, open defecation, indiscriminate disposal of fecal matter in the latrines, low hand washing practices, smeared wall with fecal matter and urinating on the floor.

5.1.2 School provision water

The findings revealed that even though the schools are connected to water utility company and private boreholes water supply is intermittent. With regards to hand washing facilities all the four schools had established water points merely to the existence of sanitation facilities especially after the decree by the government even though soap and sanitisers were absent in all the water points established within the school bounds. As seen from the pupil respondents 30 (15%) referred to the accessibility to water facilities in their respective schools as merely in Existence, 84 (42%) referred to the water accessibility in schools as Improved / Portable source, 52(26%) referred to the water accessibility in their schools as Functional, while 34(17%) described water accessibility as other. All of the assessed schools have insufficient quantity of facilities compared to the pupil population. The absence of soap and sanitisers in the water points poses a huge risk on the individual hygienic conditions as most germs and vectors survive in hands despite having them without soap. Hand washing is the most effective way to prevent the spread of diseases especially when done with soap

5.2. Latrine accommodation and clean,safe and drinking water.

From these findings, it is clear that all the schools under study are grappling with poor access to sanitation facilities. All the schools have very few functional latrines or urinals and pupils in these schools defecate and urinate on open grounds within and outside the school compound. This practice puts everyone within the school compound and surrounding areas at risk of acquiring both diarrheal and soil-transmitted diseases. These findings are in line with the position of conceptual framework and Aremu (2012)‘s position that most of the primary schools in Nigeria have poor sanitation facilities. This partially explains the rampant cause of diarrheal and water borne diseases in schools because poor sanitation has environmental implications. A lack of adequate sanitation or inadequately maintained or inappropriately designed systems can therefore constitute a range of pollution risks to the environment, especially the contamination of surface and ground water resources. Poor sanitation also results into social and psychological problems for instance toilets placed at a distance from the schools, inadequate communal facilities, inadequate disposal of waste and other poor sanitation practices may result in loss of privacy and dignity, exposure and increased risks to personal safety. It must be stated here that the financial cost of provision of a basic level of sanitation is easily quantifiable, yet the economic cost of poor sanitation on

the health of the citizenry and on the environment cannot be easily quantified. If not well addressed the problem of inadequate sanitation impacts negatively on the health and social well-being of communities. The sanitation facilities in public schools need more attention because they are insufficient and poorly constructed or maintained. Improving the sanitation status of the schools may therefore enhance the promotion of gender equality in schools and a reduction in both child morbidity and mortality. Proper investments in sanitation has therefore been linked with reduced morbidity and mortality and an increased life expectancy, reduced time in caring for sick , savings in health care costs , better learning capacities of school children, higher productivity among workers, increased attendance in schools especially by girls, strengthened tourism and national pride, direct economic value of high quality water such as irrigation water for crops and reduced water treatment costs among other notable benefits. Addressing gender inequality requires the construction of separate sex-specific latrines. School latrine construction presents an opportunity to address the Sustainable Development Goals, both by expanding access to education and by reducing a gender gap in enrollment that is particularly pronounced among adolescents.

5.3 The performance of the WASH policy in the public schools.

In relation to the second objective the findings of this study reveal that WASH has not been actually implemented in the sampled schools even though it is said to be present it is actually non-existent. The study reveals that none of the teachers said WASH has been implemented in schools, 7% are not sure whether it has while 93% reported that WASH has not been implemented in the four schools in the zone. Similarly, 2% of the pupils reported having WASH programs in schools, 10% of the pupils were not sure while 78% reported not having a WASH program in school. Moreover WASH was mistaken for other programs such as School Health Nutrition (SHN).However similar programs have been implemented in all the schools on the Copperbelt known as Clean and Green Schools (CGS). It was also found that most schools include less than half of the water parameters recommended in the WASH in Schools Monitoring Package. The most frequently reported issues related to WASH Programs included inappropriate planning, inadequate physical infrastructure, lack of cleaning and maintenance, and inadequate water supply, sanitation and hygiene services and *the* fact that policies and regulations on WASH related issues in schools have not been fully implemented. These results are at variance with prior research by Grossi et al,(2016) who analysed 42 countries in the pan-European region and found that that at least 40

countries reported having policies in place that address WASH in schools. Valentina et al (2016) further argue that most of the countries have legally binding requirements, while some have non-statutory guidelines either in place of or complementing/extending the legal requirements. The results are also at variance with a study by Chikwanu (2014) conducted in Zambia in 60 schools on the southern province which revealed that 34 (57%) of them had WASH related committees. From these findings it can be deduced that lack of financial support towards WASH program on the Copperbelt has been a serious impediment to the implementation of the WASH program in schools in Ndola. The WASH program does not have direct sponsorship from the government and hence people running the program in the city have had challenges to find partners to sponsor the same. The government and cooperating partners should continue to devote resources to improving school sanitation as these estimates have implications for how scarce resources might be directed to a greater effect. The absence of WASH represents a violation of the recently approved 2030 Agenda for Sustainable Development (United Nations, 2015) which encompasses WASH in schools under the Sustainable Development Goals (SDGs) for health and well-being (SDG 3), education (SDG 4) and water and sanitation (SDG 6). This study therefore has also shown that WASH a disaster preventative measure has not been implemented in schools yet it forms the basis for all sanitation programs worldwide.

5.4 The Role of the Ndola City Council in enhancing proper sanitary facilities in schools.

The findings from the study reveal that Enforcing legislation of norms and standards among citizens, Ensuring compliance with national policy, norms and standards, Coordinating interventions aimed influencing health and hygiene behavior and Coordinating and monitoring progress and the outcome of sanitation programmes. Teacher responses reveal that none of the teachers (0%) strongly agreed that Ndola city council is on course in enhancing the establishment of proper sanitary facilities in schools,3(11%)agreed the city council was on course,5(18%)disagreed that the city council was on course ,while 20(71%) strongly disagreed that the council was on course in enhancing the establishment of proper sanitary facilities in schools.

The findings are in tandem with prior research by the African Development Fund (2006) that revealed that the legal and policy framework of the development and management of the water and sanitation sector in Zambia include the local government act (1991), which

gives local authorities prime responsibility for the provision of water supply and sanitation services, the decentralization policy (2002) which aimed at decentralizing government responsibilities and functions among which include rural water and sanitation to lower level government through devolution and the National Water Policy (1994) among many roles. The findings are also in line with WHO(2004)'s findings in South Africa which found that the Government of the Republic of South Africa launched a coherent water supply and sanitation programme whose roles included policy development, new financial arrangements, organizational reform, decentralization and implementation among other roles. In general functionality, as opposed to mere existence of sanitation facilities, can provide a much more accurate picture.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.0 Introduction

The preceding chapter presented the major findings of the study. The present chapter will draw conclusions to the study, provide recommendations to the study based on the findings and make suggestions for further research.

6.1 Conclusion

A study assessing the status of sanitation in selected public schools in Ndola urban sought to answer the following research questions; Are sanitation facilities present in the selected public schools in Ndola? Do pupils and teachers have access to adequate latrine accommodation and clean and safe drinking water in the selected public schools in Ndola district? ,How is the performance of the WASH policy in the selected public schools and lastly what is the role of the Kafubu Water and Sewarage Company in enhancing proper sanitary facilities in schools?

The study yielded the following findings;

With respect to research question one the results indicate that the presence of sanitation facilities in public schools is below the WHO and Ndola city council public health recommended level. Sanitation status of the assessed public schools in Ndola is generally poor. The problem of inadequate sanitation has impacted negatively on the health and social well-being of communities in the environment and on the economy of the country.

With respect to the second research question the sanitation facilities in public schools need more attention because they are insufficient and poorly constructed or maintained. Improving the sanitation status of the schools which are lagging behind in quantity, quality and usage of sanitation facilities would partially help in achieving the Sustainable Development Goal of sanitation target, and support to achieve other goals that include universal primary education, promotion of gender equality and reduction in both child morbidity and mortality.

In view of the third research question the study found that the program of WASH has not been fully implemented in the sampled schools even though it is existent just on paper.

Moreover WASH is being mistaken for other programs such as School Health Nutrition (SHN).However similar programs have been implemented in all the schools on the Copper-belt known as Clean and Green Schools (CGS).

Finally, with respect to the fourth research question the study revealed that, the role of the Ndola City Council in enhancing proper sanitation in schools include monitoring legislation through the municipal and local councils, ensuring compliance with national policy, norms and standards, developing an enabling legislation of norms and standards, coordinating regional planning, co-ordination and monitoring progress, monitoring the outcome of various sanitation programs.

From these findings the following conclusions were drawn:

The status of sanitation in public schools is poor and there is need to scale programs that can ensure that public institutions comply with both national and international standards regarding sanitation. This scenario poses a serious health risk should the situation be left unchecked. Improving the sanitation status of the schools may therefore enhance the promotion of gender equality in schools and a reduction in both child morbidity and mortality which can be disastrously high. Moreover, the health, social, and environmental benefits of improved sanitation is maximised when sanitation is planned for and provided in an integrated way with water supply and other municipal services.

Hygiene practices are inadequate in schools in Kabushi constituency. Toilets are usually in a filthy state, overcrowded and smelly; soap, toilet paper, drying devices and disposal bins are insufficient. As a consequence, toilet avoidance is common among pupils and a lack of adequate hygiene education means that the practice of healthy behaviours is not promoted.

The study has also shown that WASH a disaster preventative measure has not been implemented in schools yet it forms the basis for all sanitation programs worldwide.

With reference to the objectives and analysis conducted, it was possible to realize the aim of the project was reached.

6.2 Recommendations

In the light of the major findings above, the following recommendations are being proposed;

i) There is need to reinforce the regulations on norms and standards for school infrastructure by the Ministry of General Education through the department of public health at district council level so that all public institution can comply with the national standards. WASH should implemented by the schools with the help of the local council and cooperating partners.

ii) There is need to Introduce constant inspection of school environments in order to monitor the levels of compliance by public institutions. Efficient surveillance is essential for policy enforcement and informed improvement planning.

iii) There is need to increase the staff levels in the department of public health in order to monitor sanitation in schools.

iv) The government needs to scale up the funding levels to schools so that schools can improve sanitation facilities.

(v)There is need to increase awareness of hygiene and health issues, through various education program Hygiene Education in order help curb the incidence of water borne diseases and associated high health care costs.

(vi) There is need to enact policies by the local government authorities to ensure WASH is compulsory and implemented in schools for good health and learning environment.

(vii) Communities must be fully involved in projects that relate to their health and well-being and also in decisions relating to community facilities, such as schools and clinics.

(viii) There is need to promote health and hygiene awareness and practices among school pupils by the local council through the department of public health and other Non-governmental organisations.

6.3 Recommendations for further study

The findings of this study clearly point to the need for a further quantitative study to enrich the current study on why is the sanitation status in still remains poor despite authorities knowing the consequences of untidy school environment.

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APPENDICES

School Managers/ Teachers Questionnaire

Appendix I

Dear Respondent,

I am a post graduate student at Mulungushi University pursuing Masters of Disaster studies. I am in process of data collection which will be used for my dissertation. My study tittle is assessing the status of sanitation in selected public schools. To this effect, I should be most grateful if you could spare some time to respond to questions on this questionnaire. The information gathered here is purely for academic purpose and as such, it will be highly confidential.

Do not write your name on this questionnaire.

Thanking you in advance.

Lesa Mary

PART A: PERSONAL PROFILE

(Indicate your choice by marking the appropriate block with "X").

Q1. Gender

Male	
Female	

Q2. Please indicate your highest professional qualification.

QUALIFICATION	RESPONSE
Certificate	
Diploma	
Bachelor' Degree	
Masters	

PhD	

Q3. What type of school are you teaching?

Primary School	
High School	
Secondary School	
Other (specify)	

Q4. If your answer to Q3 is Secondary , which learning area do you teach at school?

Mathematics	
Social Sciences	
Languages	
Business Studies	
Natural Sciences	
Technology	
Other (specify)	

Q5. For how long have you been teaching at this school?

0 – 5 years	
6 - 11 years	
12-17 years	
18 and above	

Q6. Age since last birthday?

22 –29 years	
30 – 40 years	

41-50 years	
51 years and above	

Q7.Type of the school 1. Seondary [ ] 2. Primary [ ] 3. Community [ ]

Q8.Who sponsors the school? 1. Government [ ] 2. Grant-Aided [ ] 3. Private [ ] 4. Community [ ]

Q9. Number of teachers; 1. Male…… 2. Female……

Q10. Number of pupils; …….. girls…… boys

PART B: THE STATUS OF SANITATION IN PUBLIC SCHOOLS.

QUESTIONS (Indicate your choice by marking the appropriate block with an "X").

Q11. What type of toilets do you have in your school?

Q12. How many dish washing do have in your school?..... and where are these facilities located? …… Is hand washing soap available in your school……..

Q13. How many Toilets are functional?
……..……..

Q 14. Are these Toilets single – sex toilets?

Q15 Assessment score of latrine accommodation in the school

Score	Description	Tick where applicable
0	The existing situation and facilities are acceptable. No improvement is necessary	
1	The existing situation and facilities	

	are reasonable but would benefit from improvement. Action is not necessarily a priority.	
2	The existing situation and facilities are very poor. Improvement is urgently required.	
3	There are no facilities. provision is the highest priority.	

Q16. Are water sources hand washing facilities available in school? 1. Yes [ ] 2. No [ ]

Q17. Are existing hand wash facilities accompanied by soap?
……..……...

Q18. Does your school have water sources? 1. Yes [ ] 2. No [ ]

Q19. If yes, what is the type of these water sources?
…….……

Q20 Are these water sources functional?.....

Q20. Who funded the construction of these facilities?
……

Q21. Are the water sources located within the school grounds? 1. Yes [ ] 2. No [ ]

Q22. How available is water? 1. Regular [ ] 2. Irregular [ ]. If irregular, kindly explain ……..…… …… Q23.Is there someone responsible for the management of water supply facilities? 1. Yes [ ] 2.

No

Q22. How are funds for maintenance and repair of the facilities raised? ……..

Do you share these facilities with the community? 1. Yes [ ] 2. No [ ]

Section E: Life Skills Based Hygiene Education

Q23. Does your school offer education on hygiene to the pupils? 1. Yes [ ] 2. No [ ]

Q24.. Does the school curriculum include education on hygiene? 1. Yes [ ] 2. No [ ]

Q25. What teaching aids are used to promote personal hygiene among pupils in your school?

……

Q26. Are there any health clubs at your school? 1. Yes [ ] 2. No [ ]

Q27.. How are your pupils taught sanitation and hygiene skills?

……..……

Q28. Who is in charge of personal hygiene of the pupils at your school?

……..…

Q29. Where do you throw litters and your solid waste generated at your school?

……..

Q30. Do teachers discuss hygiene issues with pupils? 1. Yes [ ] 2. No [ ]

Q31.. Where do you conduct the discussions? Class or Assembly

ACCESS TO TOILETS, CLEAN AND SAFE DRINKING WATER

Q31. Indicate the type of toilets which are found in your school?

Flush	
Latrine	
None	

Q32. How many are for pupils---------

Q33. How many are for teachers? -------

Q34. Are there any bathrooms/showers for girls in your school? Yes [ ] No [ ]

Q35. Are there any bathrooms/showers for female teachers in your school?

PART C: THE PERFORMANCE OF WASH IN SCHOOLS

Q13. Is WASH program exist in your school? 1. Yes [ ] 2. No [ ]

Q14. If yes, when did it start? ……...……

Q15. When are the WASH programmes meetings held? 1. Once per week [ ] 2. Once per month [ ] 3. Once per term [ ] 4. When need arise [ ]

Q16. What are the roles of the committee in your school? (tick in the box). 1. Hand wash maintenance [ ] 2. Maintenance of toilets [ ] 3. Hygiene education [ ] 4. . Provision of safe drinking water [ ]

Q17. How does the committee implement the activities in your school?
……..……

Q18. Why is WASH important in schools?
……...…….

Q19. Are teachers trained in WASH programme? 1. Yes [ ] 2. No [ ] 14. If yes, who trained them? ……..……

Q20. How does the school administration support WASH programs? 1. Providing money [ ] 2. Providing materials [ ] 3. Allocating time for activities [ ] 4. Monitoring [ ] 5. Other (kindly specify) ……..……

Q21 Does the community participate in the implementation of the WASH activities? 1. Yes [ ] 2. No [ ]

Q22. If yes, how does it participate? 1. Provision of labour [ ] 2. Provision of materials [ ] 3. Encourage children participation [ ] 4. Others (kindly explain) [ ] ……... If not, why? ……

Q23. What challenges does your school face in the implementation of WASH activities?
……..……

Q24. How is the school trying to solve these challenges?
……..……

Q25. What type of toilets does your school have? 1. Flush [ ] 2. Latrine [ ]

QUESTIONS ON VARIOUS WASH PARAMETERS.

WATER PARAMETER	**ASSOCIATED QUESTION(S) IN THE WASH IN SCHOOLS MONITORING PACKAGE**	
Q26 .Quality	What is the school's main water source? (distinguishes improved vs. unimproved) Do you treat water from	

	the source you use at school in any way to make it safer to drink?	
Q27.Proximity	What is the school's main water source? (option to check "no water available in or near school")	
Q28.Functionality	How often is the water source functional	
Q29.Quantity	When the water source is functional, does it provide enough water for the needs of the school, including water for drinking, hand washing, food preparation?	
Q30Accessibility	Are drinking water facilities accessible to children with physical disabilities?	

PART D: THE ROLE OF THE GOVERNMENT IN THE ENHANCING PROPER SANITARY FACILITIES IN SCHOOLS.

Q31. What is the role of the government in the implementation of sanitation in schools?

……

Q32. What is the Role of government in the implementation of WASH activities in your schools? Q33. How many schools have worked on so far?

Q34. Do you visit these schools regularly?

Q35. What are the challenges faced in implementing WASH program?

Q36. Are the schools in the District supported in line with sanitation?

Q37. Who is in-charge of WASH programme in the district?

Thank you for your cooperation

Appendix ii

Questionnaire for Pupils

Dear Respondent,

I am a post graduate student at Mulungushi University pursuing Masters of Disaster studies. I am in process of data collection which will be used for my dissertation. My study tittle is assessing the status of sanitation in selected public schools. To this effect, I should be most grateful if you could spare some time to respond to questions on this questionnaire. The information gathered here is purely for academic purpose and as such, it will be highly confidential.

Do not write your name on this questionnaire.

Thanking you in advance.

Lesa Mary

Your school has been chosen to help answer this questionnaire which is strictly for academic purpose. The exercise serves to uphold your right of confidentiality.

You are requested to participate by filing this questionnaire. Kindly, answer all questions honestly as possible. Do **NOT** write your name or that of the school anywhere in this questionnaire to enhance maximum confidentiality. Please indicate the correct option by a tick (√) in appropriate box provided or fill in where appropriate.

Section A

Q1. What is the type of your school?

Primary [ ] Secondary [ ] Community [ ] Private [ ]

Q2. Gender Male [ ]

Female [ ]

Q3. How many toilets are for pupils? 1. Girls …….. 2. Boys ……...

Q4. How many toilets are for teachers? 1. Female …….. 2. Males …….

Q5. How many of these facilities are not operational? 1. Pupils [ ] 2. Teachers [ ]

Q6. What rules are in place for the use of toilets/latrines in your school?
……
……

Q7 Does the school have a schedule for cleaning the toilets/latrines? 1. Yes [ ] 2. No [ ]

Q8. Is there a maintenance committee for sanitary facilities in your school? 1. Yes [ ] 2. No [ ] **Section B: Hand Washing Facilities**

Q9. How many hand wash facilities does your school have? Facility number operational Not operational

Concrete tank with tap [ ]

Bucket with cup [ ]

Plastic containers with tap [ ]

Plastic containers without tap [ ]

Section c: Suggestions

Q10. What would you like to be done about WASH in your school?
……

Pupil perceptions on hand washing facilities in schools.

Q11. How do you perceive the role of government in enhancing proper sanitary facilities in school

Response	**Tick(√)**
Very poor	
Poor	
Satisfactory	
Good	
Very good	

Thank you for your cooperation

Apendix iii

Interview Guide for Local Authorities Respondents

Dear Respondent,

I am a post graduate student at Mulungushi University pursuing Masters of Disaster studies. I am in process of data collection which will be used for my dissertation. My study tittle is assessing the status of sanitation in selected public schools. To this effect, I should be most grateful if you could spare some time to respond to questions on this questionnaire. The information gathered here is purely for academic purpose and as such, it will be highly confidential.

Do not write your name on this questionnaire.

Thanking you in advance.

Lesa Mary

1. What do you know about school sanitation programs taking place in schools?
2. What is the status of sanitation in schools in Ndola district?
3. How available is
    a. Water in the schools?
    b. Toilets/latrines in the schools?

4. What is the role of the local council in the WASH programme in the schools?

5. What are the challenges of implementing WASH in schools?

6. How have you tried to solve these challenges?

7. What are the Partners of WASH in schools?

8. What is the role of the Council's role in the implementation of sanitation in schools in the district?.....

Appendix iv:

List of plates

Plate (a)

Plate(b)

Figure 4.1: Toilet accommodation for boys at one of the schools characterized by filthy floors ,broken toilet sits and non-functional hand washing facilities

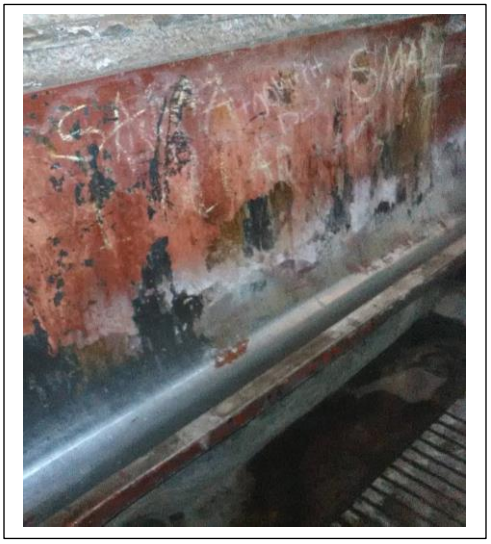

Plate (c) **Plate(d)**

Figure 4.2: Urinary facilities for boys at one of the schools.

All the four schools reported having access to sanitation, while none have 100 % functional toilets/latrines a more reliable estimate of children's actual access to sanitation services at school

Plate (f)

Figure 4.3: Girls Toilet facilities at the selected schools showing a blocked toilet (a) and a toilet facility without a door and a broken flushing handle (b) and (c) very smelly and filthy.

Figure 4.5: Pupil perceptions on hand washing facilities in schools.

Plate (g)

Plate (h)

Figure 4.6: Handwashing facilities at one of the schools with no running water and at another school nonfunctional washing basin and another school with broken taps.

Appendix v

BUDGET FOR THE STUDY

#	DESCRIPTION	QUANTITY	ESTIMATED UNIT COST K	ESTIMATED TOTAL COST K
O1	Transport			
1.1	Fuel	100 L	10.63 /L	1,630.00
	Sub total			**1,630.00**
2.0	Allowances	Lunch during research	850.00	850.00
2.1	Research assistants	2 people x 3 days	60.00 each	540.00
	Sub total			**540.00**
	Recorder	1	850.00	850.00
3.0	Stationery			
3.1	Note books	4	2.50 each	10.00
3.2	Realms of paper	5	35.00	175.00
3.3	Services			
3.4	Diskettes	2	2.00	4.00
3.5	Flash 2 50.00 100.00 4.0	2	50.00	100.00
4.0	Services			
4.1	Printing	120 x5=600	2.00/page	1200.00
4.2	Photocopying	500	1.00/page	500.00
4.3	Internet bundles	30 bundles	15.00/bundle	450.00
	Grand total			**6309.00**

Appendix vi

ROPOSED TIME FRAME

2017 2018	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
DEVELOP-MENT OF RE-SEARCH PRO-POSAL										
DATA COLLECTION										
DATA ANALYSIS										
FIRST DRAFT RESEARCH										
FINAL DRAFT RESEARCH										
FINAL RE-SEARCH RE-PORT SUBMIS-SION										
ORAL EXAMI-NATION										