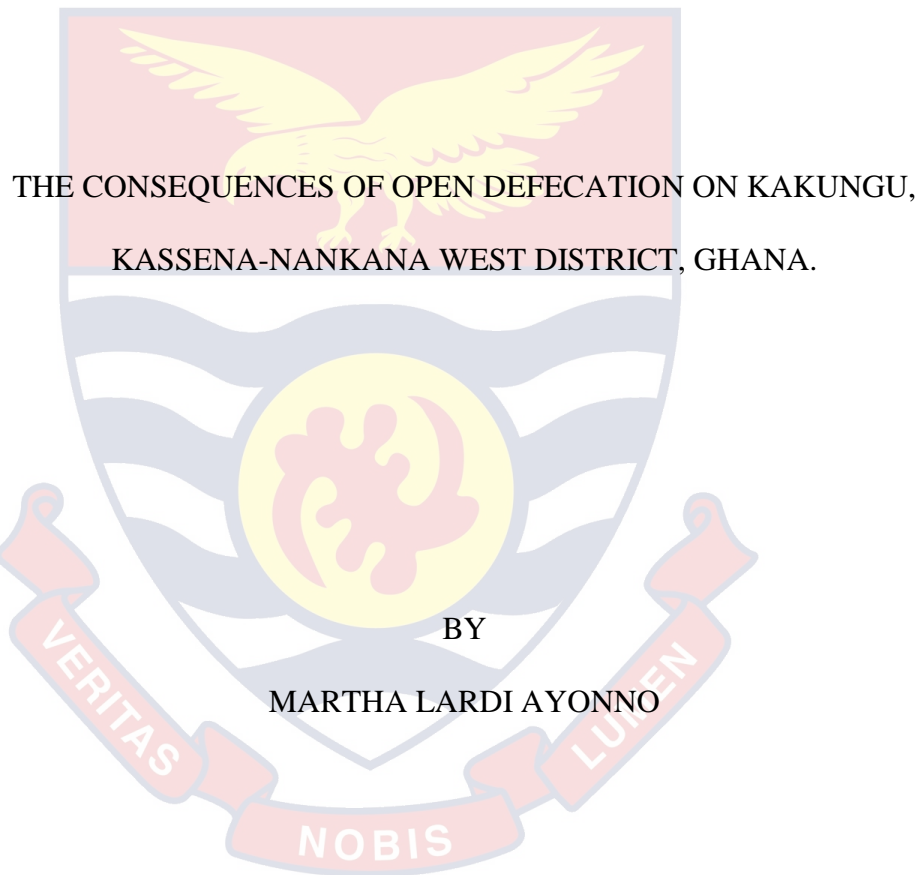


PRESBYTARIAN UNIVERSITY COLLEGE, GHANA

FACULTY OF DEVELOPMENT STUDIES

DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES

MANAGEMENT



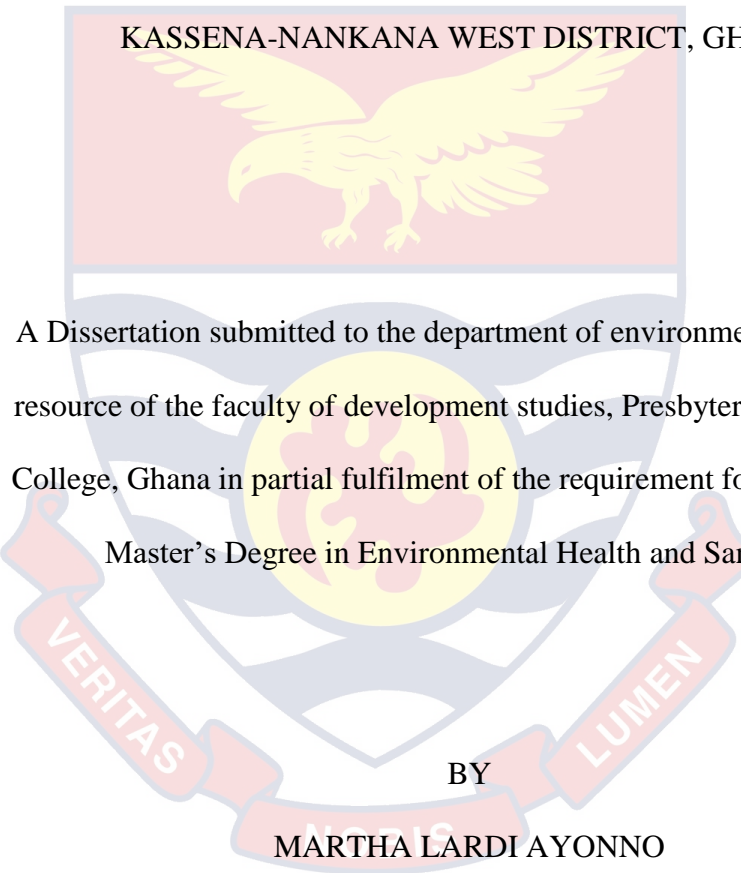
2020

PRESBYTERIAN UNIVERSITY COLLEGE, GHANA

FACULTY OF DEVELOPMENT STUDIES

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCE

THE CONSEQUENCES OF OPEN DEFECATION ON KAKUNGU,
KASSENA-NANKANA WEST DISTRICT, GHANA



A Dissertation submitted to the department of environment and natural resource of the faculty of development studies, Presbyterian University College, Ghana in partial fulfilment of the requirement for the award of Master's Degree in Environmental Health and Sanitation

BY

MARTHA LARDI AYONNO

SEPTEMBER 2020

DECLARATION

Candidate's Declaration

I hereby declare that this Dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Name:.....

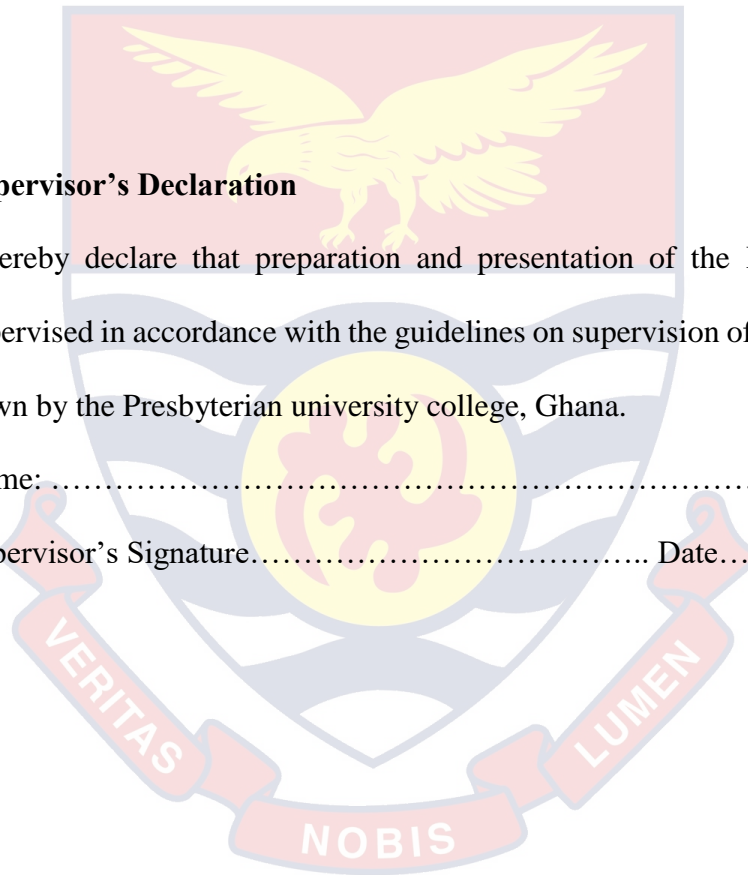
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Supervisor's Declaration

I hereby declare that preparation and presentation of the Dissertation were supervised in accordance with the guidelines on supervision of project work laid down by the Presbyterian university college, Ghana.

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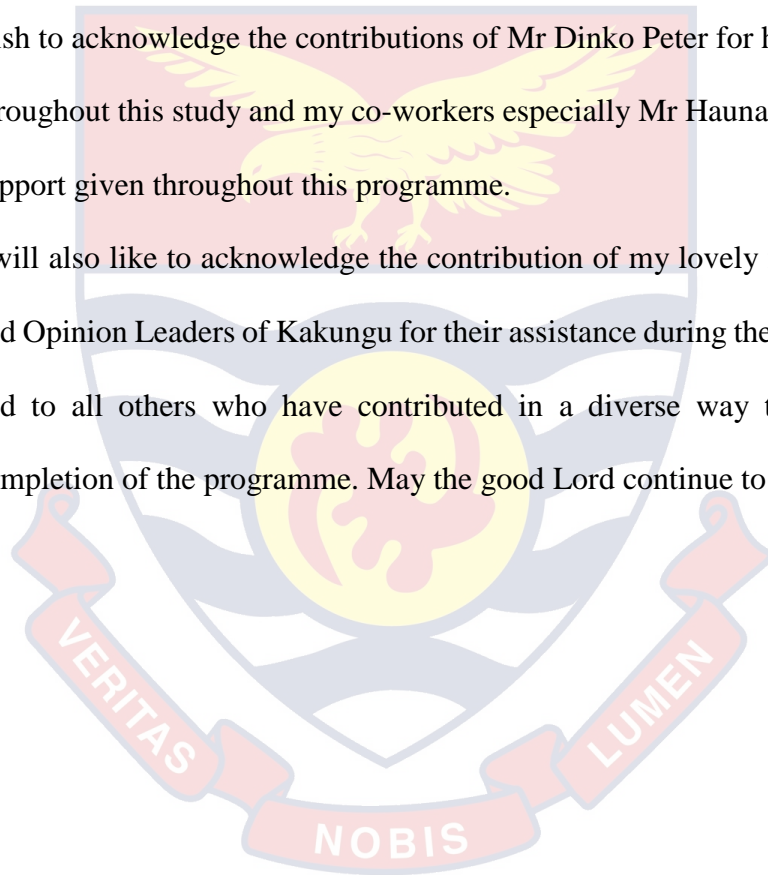
ABSTRACT

The study seeks to describe the consequence of open defecation on Kakungu due to lack of household latrines in the Kassena-Nankana West District in Ghana. The study employed both qualitative and quantitative Methodology in data collection. A questionnaire administration to three hundred households randomly selected from two section of the community. Non-probability-accidental sampling strategy was administered to 300 responded out of 665 residences from Kakungu community in the District. Findings from the study revealed that some respondents had no toilet facility in their home. Those who had the facility were under construction due to malfunctioning. Those who had not patronize public toilets with a cost between one Ghana cedi per trip. Those who could not afford practice open defecation. Forty-five (45) persons which stands for 15% also think that washing your hands immediately before eating is very good hygienic practice. The remaining one hundred and twenty-nine (129) respondents think that hands should be washed anytime hands are dirty or better still anytime we do something that contaminates the hand. The researcher concluded that, the inability of most inhabitants of Kakungu community to accessed, afford, maintained toilet facility and wash their hands at all critical times highly influence the seasonal cases of cholera in the community as shown above. As a result, of this research, I therefore recommend, the adoption Community-Led Total Sanitation (CLTS) approach to increase access to sanitation and hygiene services in Kakungu, the International Development Agency through community water and sanitation Agency in collaboration with the ministry of sanitation and water resource should support the people of Kakungu community with the digni-loo type of toilet to improve access to sanitation facility.

ACKNOWLEDGEMENTS

I enjoy the support, assistance and encouragement of many people and institution during my period of study of this programme My appreciation goes to my supervisor Dr. Mrs. Mary Adu-Kumi for her intellectual suggestions, advice and thoughtful directions throughout this work, I also wish to thank the District Environmental health and sanitation Director, Madam Elizabeth Nyebaase for her encouragement, contribution and assistance during my study. In addition, I wish to acknowledge the contributions of Mr Dinko Peter for his being with me throughout this study and my co-workers especially Mr Hauna Abdulai for their support given throughout this programme.

I will also like to acknowledge the contribution of my lovely family, the youth and Opinion Leaders of Kakungu for their assistance during the project activities and to all others who have contributed in a diverse way to the successful completion of the programme. May the good Lord continue to bless us all.



DEDICATION

I dedicate this work to God Almighty and the Ayonno Family for their love, support and Encouragement throughout my educational endeavors.



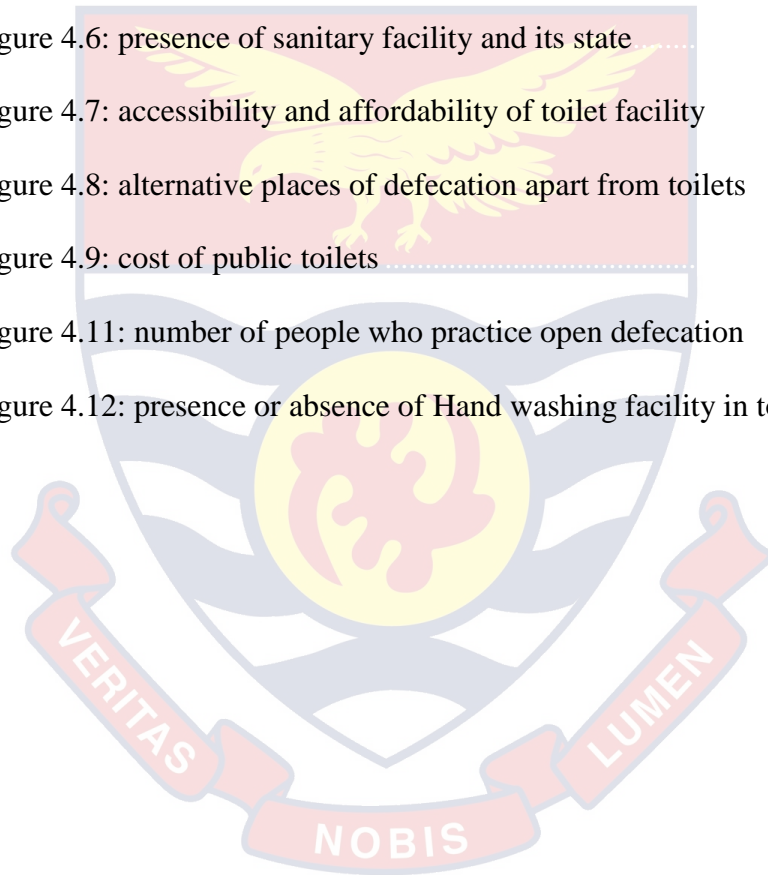
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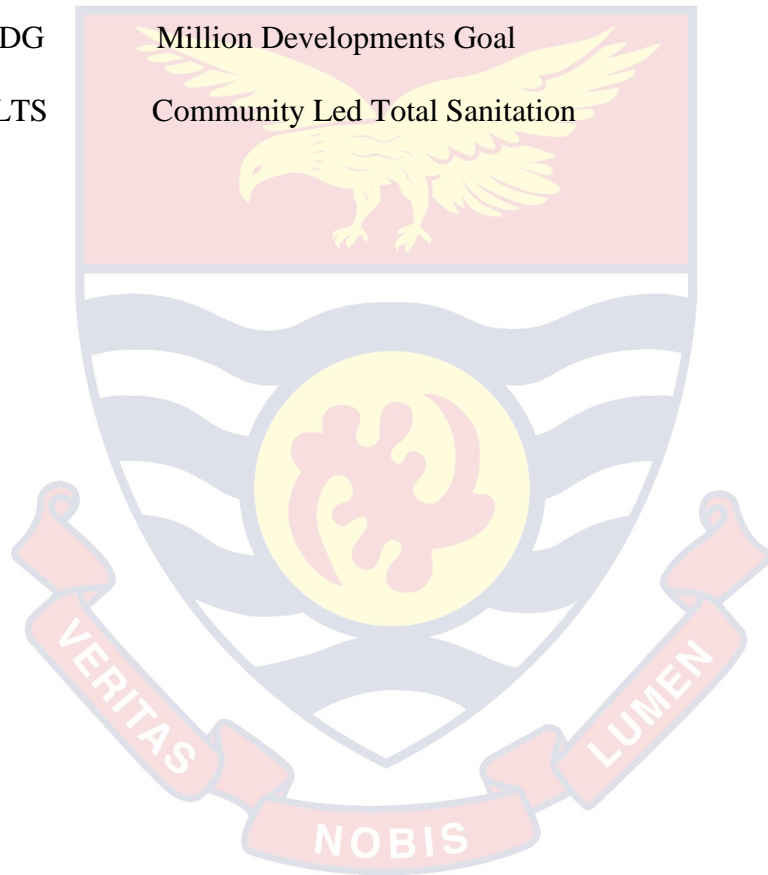
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ACRONYMS

WHO.	World Health Organization
UNICEF	United nation's children fund
CONIWAS	Coalition Non-Governmental organizations
OD	Open Defecation
ODF	Open Defecation Free
R.I.C.E	Research institute for compassionate Economics
MDG	Million Developments Goal
CLTS	Community Led Total Sanitation



CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Access to improved sanitation facilities is key to attainment of decent human living. However, many people in the world especially in Africa continent still do not own and use improved toilets due to lack of sanitation facilities within their households, they resort to the practice of Open defecation. The practice of open defecation is one of the major sanitation issues facing the world today (Ambest, 2016). Globally, it is estimated that about 2.5 billion people lack access to toilet facilities and as a result practice open defecation. Indeed, the practice of open defecation could be described as Africa phenomenon (Tifow, 2011) noted that, one out of three rural people in Africa practice open defecation. In Ghana, 85% of persons do not have a basic toilet, 60% use shared toilets, 6% use unimproved toilet while 19% defecate in the open. WHO/UNICEF on the celebration of world toilet day 19th, November in Upper East Region said the Region recorded 74.7 rate of open defecation. Akapule report that 82 % of persons defecate in the open in Upper East region, 79% in the Upper West Region 73% in the Northern Region (Akapule, 2015). The practice of open defecation remains a major threat to development, impacting progress in health, education, gender equity, social and economic development (Tifow, 2011). The cost of open defecation in the economy of Ghana is enormous. Ghana loses about USD 290 million yearly due to poor sanitation and hygiene (Ghana Coalition of NGOs in the water and sanitation and hygiene (CONIWAS, 2012).

It added that globally, 1.4 million children die every year from preventable diarrhea and cholera alone due to poor sanitation which is caused mostly by the practice of open defecation (Water Aid, 2012).

1.2 Problem Context Globally, National, and Locals

Open defecation (OD) which is the act of relieving our self in the open or inappropriately disposing of excreta is a public health concern (UNICEF/WHO, 2012). Over one billion people engage in the practice worldwide contributing to many problems including water contamination and the spread of diseases leading to children malnutrition. Furthermore, 2.5 billion individuals worldwide do not use improved sanitation facilities which ensure hygienic separation of human excreta and prevent the contamination of the local environment (UNICEF/WHO, 2012). Poor sanitation and hygiene have been linked to a specific negative health outcome including diarrhea which remains the leading cause of death among children under five years, and which results in the death of approximately 750000 people worldwide (United Nation Report, 2010). Approximately 15% of the global population nearly 1 billion people defecate in the open. India has four times these global rates with nearly 60% of its population practicing open defecation (United Nation Report, 2010). India's situation is more striking given that it is richer than many other countries that have reduced open Defecation particularly in sub-Saharan African countries and across its border in Bangladesh (UNICEF/WHO, 2012). Culturally, India appears distinct from other countries which May explain its high rate of open Defecation (Research Institute for Compassionate Economics [R.I.C.E], 2010).

One of the goals of sustainable development, goal 6 (SDG) is that by 2030, to achieve access to adequate and equitable sanitation and hygiene for all

and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations. In spite of the critical role effective human excreta management and, for that matter, sustainable environmental sanitation plays in human development, the MDGs target on basic sanitation was widely unachieved. The country registered an increase in access to adequate basic sanitation over the 15-Years period of the MDGs from just 11% in 2000 to 15% in 2015. This meant that sanitation coverage increased by 4% since the year 2000 (at 11% coverage) to 2015 (WHO/UNICEF 2015). Currently, available data show that the total access to basic sanitation in Ghana is estimated at 21%; with rural and urban coverage of 17% and 25%, respectively. There has been an increment of 6% after the MDG era with the remaining 76% left defenseless against the inevitable consequence of poor sanitation. Only one in every five households in Ghana has an improved sanitation facility for their household (Ghana post MDGs Sanitation situation an overview/journal of water). The Upper East Region recorded the highest open Defecation in Ghana with a percentage of 74.7 (Demographic Health Survey DHS, 2014). This was revealed in Bolgatanga at the commemoration of 2016 World toilet day with theme: Stop open defecation, own a household toilet now.

1.3 Statement of the Problem

Paga-kakungu is known with the possible outbreak of cholera during the rainy seasons. Majority of the inhabitants' lack access to toilet facilities, and hence defecate in the open widely. These practices affect the lives of the people, as rain water washes faeces to water bodies, wells and boreholes which served as their drinking water source. In such situation, the people are exposed to

various Sanitation and Water related diseases, such as diarrhea, cholera and malaria and among others.

The findings of the project will serve as one of the reference materials for the development practitioners, academia, students, governments and other organizations interested in finding solutions to the menace of open Defecation in Ghana and beyond.

1.4 Main Objective

To describe the consequences of open defecation on Kakungu due to lack of household latrines in the Kassena-Nankana West District in Ghana.

1.4.1 Specific objective

To examine the types of household latrines in houses of Kakungu

1. To examine the knowledge level of dwellers on Sanitation related disease
2. To assess the Sanitary condition of their house hold latrines
3. Analyse the proportion of community members who participate in open defecation

1.5 Research Question

The study seeks to find answers to the following questions

- i. What type of household latrines are used by the dwellers of Kakungu community?
- ii. What is the knowledge level of dwellers on sanitation related disease in Kakungu community?
- iii. What are the sanitary conditions of their sanitation facilities?
- iv. What is the proportion of community members who participate in open defecation?

1.6 Organization of Study

This study is organized in to five chapters, with the summary organized below:

Chapter one focus on the introductory aspect of the research topic. This chapter consists of the introduction, background of the study, statement of the problem(s), objectives of the study, significance of the study, limitations and organization of the study. Chapter Two refers to literature Review, which reviews the related literature on the topic. Chapter three deals with the research methods used and includes sample frame and size as well as the source of data collected that is primary source and secondary source, the sampling and the method used for the research. The chapter also gives a profile of the study area Kassenan-Nankana West District Assembly. Chapter four is concern with the discussion of data, analysis of data and the interpretation of data collected. Chapter five deals with finding, recommendations and conclusion of the study.

1.7 Limitation of the Study

Due to the dry season farming and limited time, 300 dwellers out of many at Kassenan-Nankana West District Paga were used for the study. This may have an effect on the analysis and conclusion about to give the true reflection of the phenomenon in the community.

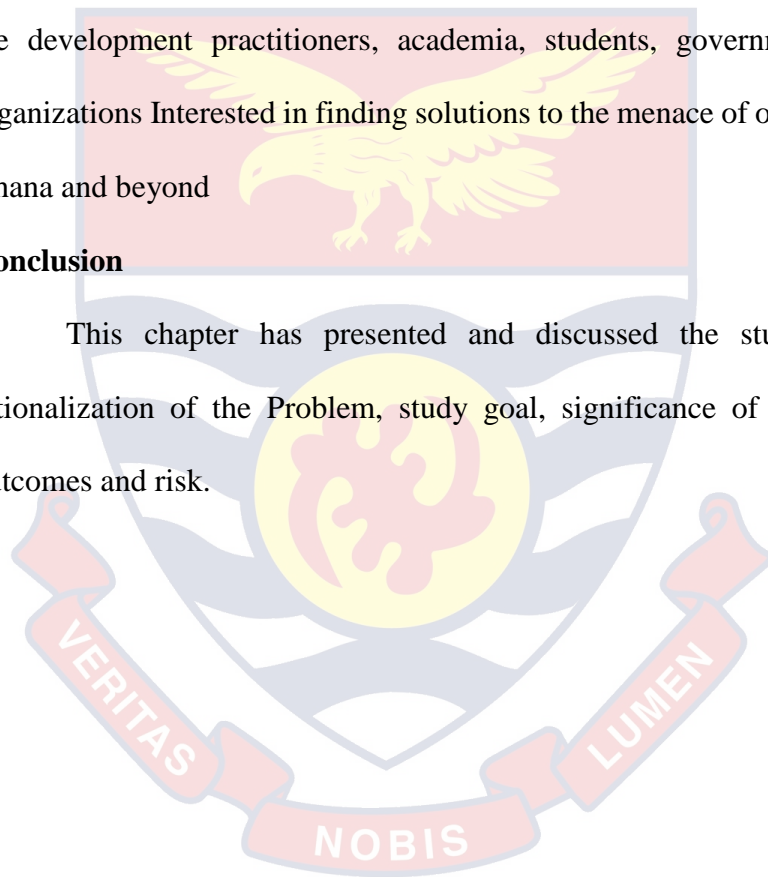
1.8 Significance of Study

The study provides information associated with the challenges to improving the bad sanitation situation in the Kakungu Community to the District Assembly, NGOs and health professionals in the district, regional and national levels. The information helps the Assembly in planning, non-governmental organizations in intervention and health authorities in mapping diseases in the

district. Recommendations provide available options of sanitation facilities and how to access these facilities. This would enhance their knowledge in accessing good sanitation practices and reduce occurrence of water and food borne disease. The study contributes to addressing the incidence of open defecation in Kakungu Community. It will also increase the knowledge of the people on the effects of open defecation as result to adopt the Community Led Total Sanitation support (CLTS). The findings of the project serve as one of the reference materials for the development practitioners, academia, students, governments and other organizations Interested in finding solutions to the menace of open defecation in Ghana and beyond

Conclusion

This chapter has presented and discussed the study background, rationalization of the Problem, study goal, significance of the study, study outcomes and risk.



CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter reviews existing literature on open defecation as a phenomenon in communities. The chapter presents and discusses social norm as the theoretical framework in this study, the chapter looks at the causes of open defecation, the effects of open defecation on the general well-being of people, the advocacy model presented and the conclusion.

2.2 Theoretical Review

The theory that underpins this study is the Social Norm Theory. This is presented and discussed under the following sub-headings:

Social Norm Theory from an International Perspective (University of Pennsylvania-United States of America) Bicchieri (2016), the theory of social norm is a theory of what motivates collective patterns of behavior. It tries to answer a very basic question of why do people do what they do? Furthermore, Bicchieri (2016) explains that a social norm is a rule of behavior such that individuals prefer to conform to it, that is, most people in their reference network conform to it most people in their reference network believe they ought to conform to it on condition they believe. Bicchieri (2016) uses the following very simple, measurable concepts to answer the question why people do what they do:

Preference (conditional): People do what they do because they prefer to act that way. That is, Preference = a disposition to choose in a specific way, all things considered. Choices reveal preferences; If I choose A over then I prefer A Over

B. Preferences \neq likings (Bicchieri, 2016). According to Bicchieri (2016) there are two Kinds of Preference;

Unconditional: I have the preference regardless of what I expect others do or what I expect others think I should do. Unconditional Preference is Independent Choice

Conditional: My preference depends on what I expect others do or what I expect others think I should do. Conditional Preference is Interdependent Choice the possible answers given by Bicchieri (2016) to why people prefer to do what they do are:

- (1) Because they believe it meets a need
- (2) Because they believe it is the right thing to do
- (3) Because they believe other people are doing it
- (4) Because they believe others think they should do it

To relate the above possible answers to the two kinds of preference: (1) and (2) are Unconditional preferences; (3) and (4) are conditional preferences (Bicchieri, 2016).

Personal Normative Belief: According to Bicchieri (2016), personal normative beliefs are beliefs about what should happen. For examples:

I believe: “Men should (or should not) control the use of a phone in a household.”

I believe: “Women should (or should not) report intimate partner violence to police.”

I believe: “Sexually active people should (or should not) use condoms.”

Social Expectations: Bicchieri (2016) highlights that there are two kinds of Social

Expectations which are:

Empirical expectations which are beliefs about what we expect others to do.

For Examples:

- I expect: “Most women will not maintain a bank account.”
- I expect: “Most girls will marry before the age of 15.” (Bicchieri, 2016)

Normative expectations which are beliefs about what others think we should do. For Examples:

Present: **Empirical expectations:** I believe enough other people are conforming to the behavioral rule

Social Norm Theory from African Perspective (Kenya)

Causes of Open Defecation in Communities

In the study communities, people are women are forced to defecate only in the dark exposing them to serious illness due to Waiting, in addition to increased risk of harassment and assault to and from defecation areas. Tifow (2011) claims that among children under age five, the two main causes of Mortality; acute respiratory infections and diarrhoea diseases are closely linked to poor water, sanitation and hygiene. Of the 1.8 million people estimated to die each year from diarrhea, 1.5 million are children. Repeated diarrhea episodes are a significant underlying cause of malnutrition, leading to weakened immune systems and stunted growth (UNICEF, 2014).

2.3 Access to sanitation

The UN millennium project defined basic sanitation as: Access to, and use of excreta and waste water facilities and services that provide privacy and dignity while at the same time ensuring a clean and helpful living environment both at home and in the immediate neighborhood of users. An improved sanitation facility is defined as a facility used for excreta disposal whereby the

human excreta are hygienically separated from human contact or their immediate environment, thus reducing the risk of fecal-oral transmission to its users.

Facilities meeting this condition include:

- Toilet with sewer connection/septic tank
- Pour flush toilet/pour flush latrine to sewer, septic tank/ pit
- Ventilated improved pit (VIP) latrine and
- Latrine with a slab. (UNICEF and WHO, 2008)

Good sanitation is foundation for health that affords protection from a wide range of infection including diarrhea, a leading cause of child deaths, yet 2.6 million people still do not have a safe means of excreta disposal at home (WHO and UNICEF, 2004). A target to have this number was added to the Millennium Development Goals in 2002. The enormity of the challenge, however, comes with the acknowledgement that public resources alone are unable to solve this global problem and new demand-oriented approaches are needed (Mehta and Knapp, 2004; WSSCC and WHO, 2005).

Lack of sanitation facilities compound the situation by contaminating water sources such as rivers as defecation along water banks introduces various helminthes ova from infected person's excreta into the water bodies posing a serious public health problem. If sanitation is not provided within the home, privacy and physical security are also an issue. If there are no adequate sanitation facilities within the home, women and children often have to go to shared latrine or open spaces to defecate.

2.4 Factors that Influences Open Defecation and Latrine Ownership in Rural Households

The is global review of formative research studies identifies a number of commonalities across countries and regions, as well as a number of emerging themes that positively and negatively influence sanitation behaviours. Although some differences are found across countries, in general themes coalesced around facets of opportunity, ability, and motivation. Findings suggest that a number of factors serve to promote positive sanitation behaviours. These factors include changing social norms, challenging perceptions of latrine affordability, fostering positive latrine attributes, and increasing consumer demand for latrines through emotional hooks, such as associating latrine use and ownership with improved social status. Ensuring that latrines are available and functioning will also serve as a precursor to use. The relationship between behaviour and other concepts, such as knowledge, sanctions, enforcement of rules or regulations, and values and attitudes, is less clear. This may be due to the different research objectives and questionnaires/ guides of the studies, or it could reflect the actual relevancy of these factors to sanitation behaviours. At any rate, making robust conclusions regarding their influence on sanitation behaviours is more challenging. A number of research recommendations emerged from this global review, given that it identifies a number of factors that resonate with sanitation behaviours. Most importantly, there are opportunities to conduct “lighter” and more tailored formative research. These are summarized here:

- Including the most important determinants identified in this review as a means to monitor program impact and assess the extent to which these factors may have changed over time.

These determinants are access and availability to functioning latrines, sanitation products, and services; latrine product attributes; social norms around open defecation; perceptions of latrine affordability; competing priorities for other household items; and a number of emotional, social, and physical drivers. Addressing wealth and contextual factors will also be important, as well as self-efficacy in contexts where improved latrines are being constructed.

- Using more specific or less burdensome research methods. Depending on the program needs and objectives, other methods could be used to answer research questions that we know less about but are known to be important and specific to different study populations. For example, 0 street/village intercept surveys to address price perceptions and willingness to pay for latrines, or supply-side surveys to address actual product availability and pricing. 0 qualitative research to explore determinants of behaviour when few people are actually “doing” the behaviour. For example, if only 5 percent of a population is estimated to own an improved latrine, investigating reasons for improved latrine ownership in a quantitative survey would require a very large sample size.
- Using standardized research guidelines and approaches to ensure greater comparability between countries and target groups. This has also been noted as important in other sanitation behaviour change frameworks, notably the RANAS model, which has underscored the need for standardized measurement of different theoretical factors through the use of single questions in a survey (Inauen et al. 2013). There are also opportunities for more specific behavioural questions to delve deeper into self-reported latrine use. Namely, respondents should be asked about their defecation behaviour, and not what they think others in their households are doing.

For example, specific behavioural questions may address whether or not respondents used a latrine the last time they defecated, as well as clarifying defecation practices that occur inside or outside the home (e.g., at work). This will also allow for further investigation of barriers regarding why people who own latrines may not use them. For additional guidance, refer to the “Study Design and Questionnaire Tips” document, available online in WSP’s Sanitation Marketing Toolkit (<http://wsp.org/toolkit/toolkit-home>).

- There may be value in conducting additional analysis on the primary data to allow for making more robust conclusions and for exploring the importance of Sani FOAM factors relative to each other. Analysis could also consider making statistical comparisons between the different behavioural groups. The impact of wealth disparity could also be further investigated. In particular, understanding the specific barriers and drivers to improved sanitation among the rural poorest will help improve programmers’ ability to design effective behaviour change interventions, particularly as the sector moves toward more equity-focused goals in the post-MDG setting. Finally, the role of gender in decision-making should also be investigated. The findings presented in the quantitative research reports generally reflect male perceptions, given that the study respondents were usually male household heads or representatives. Future quantitative formative research studies should ensure that women are adequately represented in the sample. This will help to explore the role of gender and further facilitate an understanding of the factors that may influence sanitation behaviour according to men and women.

• The “focus” component of the Sani FOAM framework ensures that program managers and implementers define the behaviour to be changed and the target group prior to research studies or interventions, and this is noted as important in other sanitation frameworks (Mosler 2012). However, the Sani FOAM framework may also benefit from further clarification regarding the “focus” component, namely to acknowledge more contextual factors that are known to affect sanitation behaviours (see Figure 1). For example, perceptions of the physical environment such as available sources of water, level of the water table, pattern of precipitation, and available land space. These concepts have been suggested as an important component to address in sanitation behaviour change frameworks (Dreibelbis et al. 2013).

2.4 Definition of Sanitation

From the millennium development goals monitoring, an improved sanitation facility is defined as one that hygienically separates excreta from human contact (United Nations Children ‘s Fund and World Health Organization (UNICEF/WHO 2014).

2.5 Improved and Unimproved Sanitation

Improved sanitation (closely related to "safely managed sanitation service") is a term used to categorize types of sanitation for monitoring purposes. It refers to the management of human feces at the household level. The term was coined by the Joint Monitoring Program (JMP) for Water Supply and Sanitation of UNICEF and WHO in 2002 to help monitor the progress towards Goal Number 7 of the Millennium Development Goals (MDGs).

The opposite of "improved sanitation" has been termed "unimproved sanitation" in the JMP definitions. The same terms are used to monitor progress

towards Sustainable Development Goal 6 from 2015 onwards. Here, they are a component of the definition for "safely managed sanitation service"(Rojas, E. 2015).

2.6 Assess to portable water as a means of improving sanitation

It is common for many international organizations to use access to safe drinking water and hygienic sanitation facilities as a measure for progress in the fight against poverty, disease, and death. It is also considered to be a human right, not a privilege, for every man, woman, and child to have access to these services. Even though progress has been made in the last decade to provide safe drinking water and sanitation to people throughout the world, there are still billions of people that lack access to these services every day.

According to the World Health Organization and UNICEF, in 2015, 91% of the world's population used drinking water from improved sources (58% from a piped connection in their dwelling, plot or yard, and 33% from other improved drinking water sources), leaving 663 million people lacking access to an improved source of water.

The world met the United Nations' Millennium Development Goal (MDG) drinking water target to halve the proportion of people without sustainable access to safe drinking water by 2015 in 2010, 5 years ahead of schedule. More than 2 billion people gained access to improved water sources from 1990 to 2010. However, many people remain without access to improved drinking water.

Access to safe drinking water is measured by the percentage of the population having access to and using improved drinking water sources.

Improved drinking water sources should, but do not always, provide safe drinking water, and include:

- Piped household water connection
- Public standpipe
- Borehole
- Protected dug well
- Protected spring
- Rainwater collection

Unimproved drinking water sources include:

- Unprotected dug well
- Unprotected spring
- Surface water (river, dam, lake, pond, stream, canal, irrigation channel)
- Vendor-provided water (cart with small tank/drum, tanker truck)
- Bottled water*
- Tanker truck water

According to the World Health Organization and UNICEF, in 2015, only 68% of the world's population used improved sanitation facilities, with Sub-Saharan Africa and Southern Asia having only 30% and 47%, respectively. An estimated 2.4 billion people are still without improved sanitation. About 13% of the world's population lives without any form of sanitation and practice open defecation.


Access to sanitation is measured by the percentage of the population with access and using improved sanitation facilities.

Improved sanitation facilities usually ensure separation of human excreta from human contact, and include:

- Flush or pour-flush toilet/latrine to:
 - Piped sewer system
 - Septic tank
 - Pit latrine
- Ventilated improved pit (VIP) latrine
- Pit latrine with slab
- Composting toilet

Shared sanitation facilities are of an otherwise acceptable improved type of sanitation facility that is shared between two or more households. Shared facilities include public toilets.

Unimproved sanitation facilities do not ensure hygienic separation of human excreta from human contact and include:

- 
- Pit latrine without a slab or platform
 - Hanging latrine
 - Bucket latrine
 - Open defecation in fields, forests, bushes, bodies of water or other open spaces, or disposal of human faeces with solid waste

2.7 Sanitation and Health

Sanitation is a necessity for a healthy life.^[51] Health impacts of the lack of safe sanitation systems can be grouped into three categories: Direct impact (infections), sequelae (conditions caused by preceding infection) and broader well-being. It was estimated in 2002 that inadequate sanitation was responsible

for 4.0 percent of deaths and 5.7 percent of disease burden worldwide (Skambraks, A. K. et al 2017). Lack of sanitation can result in feces-contaminated drinking water and cause life-threatening forms of diarrhea to infants. In 2011, infectious diarrhea resulted in about 0.7 million deaths in children under five years old and 250 million lost school days. It can also lead to malnutrition and stunted growth among children. Numerous studies have shown that improvements in drinking water and sanitation (WASH) lead to decreased risks of diarrhea. Open defecation – or lack of sanitation – is a leading cause of diarrheal death. Approximately two billion people are infected with soil-transmitted helminths worldwide. This type of intestinal worm infection is transmitted via worm eggs in feces. It happens in environments where there is no effective separation of humans and feces due to lack of sanitation (Skambraks, A. K. *et al.*, 2017).

Some 827 000 people in low- and middle-income countries die as a result of inadequate water, sanitation, and hygiene each year, representing 60% of total diarrhoeal deaths. Poor sanitation is believed to be the main cause in some 432 000 of these deaths. Diarrhoea remains a major killer but is largely preventable. Better water, sanitation, and hygiene could prevent the deaths of 297 000 children aged under 5 years each year (Skambraks, A. K. *et al.*, 2017). Open defecation perpetuates a vicious cycle of disease and poverty.

The countries where open defecation is most widespread have the highest number of deaths of children aged under 5 years as well as the highest levels of malnutrition and poverty, and big disparities of wealth (WHO 2010).

Drinking water, also known as potable water, is water that is safe to drink or to use for food preparation. WHO/UNICEF, (2004). The amount of drinking water

required varies. It depends on physical activity, age, health issues, and environmental conditions. Americans, on average, drink one liter of water a day and 95% drink less than three liters per day. For those who work in a hot climate, up to 16 liters a day may be required. Water is essential for life, (Rebecca E; Lim and Stephen 2013).

Typically, in developed countries, tap water meets drinking water quality standards, even though only a small proportion is actually consumed or used in food preparation. Other typical uses include washing, toilets, and irrigation. Grey water may also be used for toilets or irrigation. Its use for irrigation however may be associated with risks. Water may also be unacceptable due to levels of toxins or suspended solids (WHO, 2010).

2.8 Sanitation and Its Related Diseases

Sanitation refers to public health conditions related to clean drinking water and adequate treatment and disposal of human excreta and sewage. Preventing human contact with faeces is part of sanitation, as is hand washing with soap. Sanitation systems aim to protect human health by providing a clean environment that will stop the transmission of disease, especially through the fecal–oral route (Wolf, J. et al 2014). For example, diarrhoea, a main cause of malnutrition and stunted growth in children, can be reduced through adequate sanitation. There are many other diseases which are easily transmitted in communities that have low levels of sanitation, such as ascariasis (a type of intestinal worm infection or helminthiasis), cholera, hepatitis, polio, schistosomiasis, and trachoma, to name just a few (Carr, R., & Strauss, M. 2001).

A range of sanitation technologies and approaches exists. Some examples are community-led total sanitation, container-based sanitation, ecological sanitation, emergency sanitation, environmental sanitation, onsite sanitation and sustainable sanitation Spuhler, D.*et al.*, (2020). A sanitation system includes the capture, storage, transport, treatment and disposal or reuse of human excreta and wastewater (UNICEF 2017). Reuse activities within the sanitation system may focus on the nutrients, water, energy or organic matter contained in excreta and wastewater. This is referred to as the "sanitation value chain" or "sanitation economy". The people responsible for cleaning, maintaining, operating, or emptying a sanitation technology at any step of the sanitation chain are called "sanitation workers" (UNICEF 2017).

Several sanitation "levels" are being used to compare sanitation service levels within countries or across countries. The sanitation ladder defined by the Joint Monitoring Programme in 2016 starts at open defecation and moves upwards using the terms "unimproved", "limited", "basic", with the highest level being "safely managed". This is particularly applicable to developing countries (Fewtrell, L.*et al.*, 2005). The Human Right to Water and Sanitation was recognized by the United Nations (UN) General Assembly in 2010. Sanitation is a global development priority and the subject of Sustainable Development Goal 6. The estimate in 2017 by JMP states that 4.5 billion people currently do not have safely managed sanitation. Lack of access to sanitation has an impact not only on public health but also on human dignity and personal safety (UNICEF 2017). Sanitation includes all four of these technical and non-technical systems: Excreta management systems, wastewater management systems (included here are wastewater treatment plants), solid waste management systems as well as

drainage systems for rainwater, also called storm water drainage. However, many in the WASH sector only include excreta management in their definition of sanitation (Skambraks, A. K. *et al.*, 2017).

Another example of what is included in sanitation is found in the handbook by Sphere on "Humanitarian Charter and Minimum Standards in Humanitarian Response" which describes minimum standards in four "key response sectors" in humanitarian response situations.

One of them is "Water Supply, Sanitation and Hygiene Promotion" (WASH) and it includes the following areas: Hygiene promotion, water supply, excret management, vector control, solid waste management and WASH in disease outbreaks and healthcare settings (Musoke, D. *et al.*, 2018). Hygiene promotion is seen by many as an integral part of sanitation. The Water Supply and Sanitation Collaborative Council defines sanitation as "The collection, transport, treatment and disposal or reuse of human excreta, a domestic wastewater and solid waste, and associated hygiene promotion. (Musoke, D. *et al.*, 2018)"

Despite the fact that sanitation includes wastewater treatment, the two terms are often used side by side as "sanitation and wastewater management". "For the purposes of this manual, the word 'sanitation' alone is taken to mean the safe management of human excreta. It therefore includes both the 'hardware' (e.g. latrines and sewers) and the 'software' (regulation, hygiene promotion) needed to reduce faecal-oral disease transmission. It encompasses too the re-use and ultimate disposal of human excreta (Musoke, D. *et al.*, 2018) The term environmental sanitation is used to cover the wider concept of controlling all the factors in the physical environment which may have deleterious impacts on

human health and well-being. In developing countries, it normally includes drainage, solid waste management, and vector control, in addition to the activities covered by the definition of sanitation. (Skambraks, A. K. *et al.*, 2017)."

Sanitation can include personal sanitation and public hygiene. Personal sanitation work can include handling menstrual waste, cleaning household toilets, and managing household garbage.

Public sanitation work can involve garbage collection, transfer and treatment (municipal solid waste management), cleaning drains, streets, schools, trains, public spaces, community toilets and public toilets, sewers, operating sewage treatment plants, etc. Workers who provide these services for other people are called sanitation workers. The overall purposes of sanitation are to provide a healthy living environment for everyone, to protect the natural resources (such as surface water, groundwater, soil), and to provide safety, security and dignity for people when they defecate or urinate.

The Human Right to Water and Sanitation was recognized by the United Nations (UN) General Assembly in 2010. It has been recognized in international law through human rights treaties, declarations and other standards. It is derived from the human right to an adequate standard of living (Skambraks, A. K. *et al.*, 2017). Effective sanitation systems provide barriers between excreta and humans in such a way as to break the disease transmission cycle (for example in the case of fecal-borne diseases). This aspect is visualised with the F-diagram where all major routes of fecal-oral disease transmission begin with the letter F: feces, fingers, flies, fields, fluids, food.

One of the main challenges is to provide sustainable sanitation, especially in developing countries. Maintaining and sustaining sanitation has challenges that are technological, institutional and social in nature. Sanitation infrastructure has to be adapted to several specific contexts including consumers' expectations and local resources available (Skambraks, A. K. *et al.*, 2017). Sanitation technologies may involve centralized civil engineering structures like sewer systems, sewage treatment, surface runoff treatment and solid waste landfills.

These structures are designed to treat wastewater and municipal solid waste. Sanitation technologies may also take the form of relatively simple onsite sanitation systems. This can in some cases consist of a simple pit latrine or other type of non-flush toilet for the excreta management part (Skambraks, A. K. *et al.*, 2017). Providing sanitation to people requires attention to the entire system, not just focusing on technical aspects such as the toilet, faecal sludge management or the wastewater treatment plant. The "sanitation chain" involves the experience of the user, excreta and wastewater collection methods, transporting and treatment of waste, and reuse or disposal. All need to be thoroughly considered.

2.9 Economic Effects of Improving Sanitation

The benefits to society of managing human excreta are considerable, for public health as well as for the environment. As a rough estimate: For every US\$1 spent on sanitation, the return to society is US\$5.50. (WHO 2010) For developing countries, the economic costs of inadequate sanitation are a huge concern. For example, according to a World Bank study, economic losses due to inadequate sanitation to The Indian economy are equivalent to 6.4% of its

GDP- Most of these are due to premature mortality, time lost in accessing, loss of productivity, additional costs for healthcare among others. Inadequate sanitation also leads to loss from potential tourism revenue. This study also found that impacts are disproportionately higher for the poor, women and children. Availability of toilet at home on the other hand, positively contributes to economic well-being of women as it leads to an increase in literacy and participation in labor force (Skambraks, A. K. *et al.*, 2017).

The safety and accessibility of drinking-water are major concerns throughout the world. Health risks may arise from consumption of water contaminated with infectious agents, toxic chemicals, and radiological hazards. Improving access to safe drinking-water can result in tangible improvements to health. Providing access to safe water is one of the most effective instruments in promoting health and reducing poverty. Safe drinking water is treated water that has been tested for harmful and potentially harmful substances and has met or exceeded drinking water quality standards (Anniston Water Works and Sewer Board, 2017)

In 2015, 71% of the global population (5.2 billion people) used a safely managed drinking-water service – that is, one located on premises, available when needed, and free from contamination. (WHO, 2017). Shortage or lack of safe water leads to sanitation problems and water-borne diseases, including diarrhoea, cholera, dysentery etc. because end-users resort to use polluted surface water in open wells, rivers and dams (Graciana, 2010). Even though the untreated surface water may not be harmful if used for bathing, cleaning and washing, it can have adverse health effects on drinking or cooking (Gine&PerezFoguet, 2008).

Water quality on the other hand refers to chemical, physical, biological and radiological characteristics of water (Nancy, 2009). It is a measure of conditions of water relative to the requirement of one or more biotic species and or to any human need or purpose (Johnson et al, 1997). The water quality of rivers and lakes changes with the seasons and geographic areas, even when there is no pollution present. There is no single measure that constitutes good water quality. For instance, water suitable for drinking can be used for irrigation, but water used for irrigation may not meet drinking water guidelines.

2.10 Benefits of Improving Sanitation

Benefits of improved sanitation extend well beyond reducing the risk of diarrhoea. These include:

- reducing the spread of intestinal worms, schistosomiasis and trachoma, which are neglected tropical diseases that cause suffering for millions;
- reducing the severity and impact of malnutrition;
- promoting dignity and boosting safety, particularly among women and girls;
- promoting school attendance: girls' school attendance is particularly boosted by the provision of separate sanitary facilities; and
- potential recovery of water, renewable energy and nutrients from faecal waste.

A WHO study in 2012 calculated that for every US\$ 1.00 invested in sanitation, there was a return of US\$ 5.50 in lower health costs, more productivity, and fewer premature deaths.

2.11 Challenges of Improving Sanitation

In 2013, the UN Deputy Secretary-General issued a call to action on sanitation that included the elimination of open defecation by 2025. Achieving universal access to a basic drinking water source appears within reach, but universal access to basic sanitation will require additional efforts (WHO 2014). The situation of the urban poor poses a growing challenge as they live increasingly in mega cities where sewerage is precarious or non-existent and space for toilets and removal of waste is at a premium. Inequalities in access are compounded when sewage removed from wealthier households is discharged into storm drains, waterways or landfills, polluting poor residential areas (Rojas, E. 2015).

Limited data available on this topic suggests that a large proportion of wastewater in developing countries is discharged partially treated or untreated directly into rivers, lakes or the ocean. Wastewater is increasingly seen as a resource providing reliable water and nutrients for food production to feed growing urban populations. (Rojas, E. 2015).

- management practices that ensure wastewater is sufficiently treated and safely reused;
- institutional oversight and regulation; and
- public education campaigns to inform people about wastewater use.

As the international authority on public health, WHO leads global efforts to prevent transmission of diseases, advising governments on health-based regulations. On sanitation, WHO monitors global burden of disease and the level of sanitation access and analyses what helps and hinders progress. Such

monitoring gives Member States and donor's global data to help decide how to invest in providing toilets and ensuring safe management of wastewater and excreta (Rojas, E. 2015). WHO works with partners on promoting effective risk assessment and management practices for sanitation in communities and health facilities *through the WHO Guidelines on Sanitation and Health, Safe Use of Wastewater, Recreational Water Quality and promotion of Sanitation Safety Planning. WHO also supports* collaboration between WASH and health programmes such as neglected tropical diseases, cholera, polio and antimicrobial resistance (WHO 2019)

2.9.2 Conclusion

This chapter review critically existing literature on the phenomenon of open defecation in Communities. The chapter also present and discuss social norm as the theoretical Framework in this study, the chapter also look at the causes of open defecation and the effects of open defecation on the general well-being of people. The chapter also presented and discussed the advocacy model of (CTLS).

CHAPTER THREE

METHODOLOGY

3.1 Chapter Overview

This chapter is center on the criteria for the selection of participants for the data collection which comprised of both primary and secondary data. The chapter discusses research design, study population, source of data, research instrument, sample seize, sample procedure, location and description of study area as well as data analysis procedure. In addition, the section further presents the profile of the study area, the characteristics of the beneficiaries as well as the data analysis and presentation processes. In all 300 respondents formed the sample size of the study.

3.2 Research Design

The study used the descriptive method of presentation where both qualitative and quantitative data were obtained and analyzed. A number of questionnaires were administered to the inhabitant of kakungu Communities.

3.4 Study Population

The estimated population of inhabitants of this community is approximately six hundred and sixty-five (665) from 2010 census data. The population under study consists of people who live in Kakungu communities in Paga Were selected from the study population communities and their ages ranged from 18-65 years.

3.5 Sample Size

The sample size was three hundred (300) respondents to represent the population under study One Hundred-fifty (150) from each section of the Community respectively. The sample size was selected for reasons of money,

time among other constraints. The subjects selected represented about 45% of the population under study.

3.5 Sampling Technique

The main road that passes through Paga Township was used as a major dividing line for data collection. The community was divided into two sub sections. (1, 2.) Ten houses were selected from each sub-section using simple random sampling method. Questionnaires were administered to people who actually live in this Communities.

3.7 Study Area

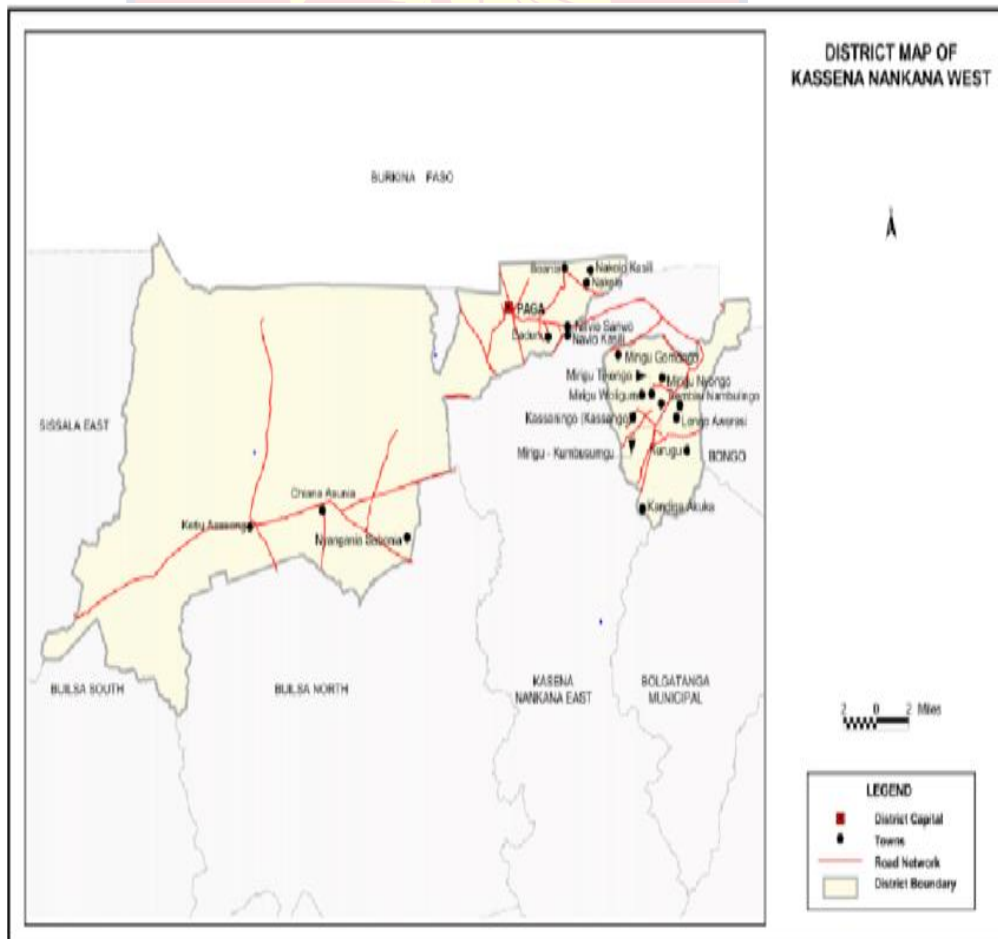


Figure 3.1: Map of Kassena Nankana West

International Growth Centre in association with the London Publishing Partnership.

3.7.1 Location and size

The Kassena-Nankana West District is one of the twelve districts in the Upper East Region of Ghana. It is located approximately between latitude 10.97° North and longitude 001.10 West. The Kassena-Nankana West District has a total land area of about 1004km. It shares boundaries with Burkina Faso to the north, Bongo district to the east, Bolgatanga Municipal south east, Kassena-Nankana municipal to south, Builsa district and Sisala East west respectively.

3.7.2 Relief and drainage

The District is underlain mainly by Bririmian and grante rock formation. The relief of the district is generally low lying and undulating with isolated hills rising up to 300meters in the Western part of the district. Notably among these hills are Fie, (9280metres), Busono (350metres), and Zambao (360metres). The district is mainly drained by the Sissili River and its tributaries. There are however some few dugouts and ponds which are used for lives tock and crop production and for domestic purposes.

3.7.3 Climate

The Kassena-Nankana West District is part of the interior continental climatic zone of the country characterized by pronounced dry and wet seasons. The two seasons are influenced by two oscillating air masses. First is the warm, dusty and dry harmattan air mass which blows in the north easterly direction across the whole district from the Sahara Desert. During its period of influence (late November – early March) rainfall is entirely absent, vapor pressure is very low (less than 10mb) and relative humidity rarely exceeds 20% during the day but may rise to 60% during the nights and early mornings. Temperature are usually modest at this time of the year by tropical standards (26°c – 28°c) May

to October marks the wet season. During this period, the whole of West African sub-region including Kassena-Nankana West District is under the influence of a deep tropical maritime air mass. This air mass together with rising convection currents provides the district with rains. The total rainfall amounts to averagely 950mm per annum.

3.7.4 Vegetation

The vegetation is mainly of Sahel Savannah type consisting of open savannah with fire swept grassland separating deciduous trees among which may be seen a few broad-leafed and fire leached tree species. Some of the most densely vegetated parts of this district can be found along river basins and forest reserves. Examples are the Sissili and Asibelika basins most of these trees in the forest areas shed their leaves during the dry season. The activities of man over the years have also affected the original vegetation considerably. Common trees which are also of economic importance include the following:

- (i) Dawadawa
- (ii) Sheanut
- (iii) Baobab
- (iv) Nim
- (v) Mango

Soil

Two main soil types can be found in the district. These soil types are the savanna, ochrosols and the ground water laterite. The Northern and Eastern parts of the District are covered by the Savannah Ochrosols, while the rest of the district is characterized by ground water laterite. The Savannah Ochrosols are porous, well drained, loamy, and mildly acidic and interspersed with patches of

black or dark grey clay soils. This soil type is suitable for cultivation of cereals and legumes. The ground water laterite is developed over shale and granite. Due to the underlying rock type, they become water logged during the rainy season and dry up during the dry season, thus causing cemented layers of iron-stone which make cultivation difficult.

Demographic Characteristics

The estimated total population of the District is 83,780. The population is about 90 percent rural. 43 percent of the total population is below 15 years. The District population growth rate is also estimated at 2%. DPCU.

Ethnicity

The predominant tribes in the district are the Kassena and the Nankana. There are however few migrant workers from other parts of the neighboring Burkina Faso residing in the district. Despite the varied tribal components, the society is generally patrilineal and traditionally male dominated. Women are generally less active in decision making and are responsible for the bulk of the household activities such as planting, weeding, harvesting and selling. Cooking and fetching of water also constitute traditional duties of women in the district.

Methods Used

A questionnaire, interview and observation checklist was used for data collection. The questionnaire was designed in relation to the objectives of the study. The observation checklist was designed such that it gave guidelines for what to look for. Questions asked and observations made were such that the needed information was ascertained. The systematic and orderly manner in which the questions and observation checklist were arranged ensured that specific answers were obtained. Open ended questions and observation checklist

were used. Respondents who were not conversant with the English language had the questions interpreted to them in the local language by the researcher

Profile of Project Site or Beneficiaries

The Kassena-nankana West District with its capital at Paga is one of the newly created Districts in the upper East Region in the year 2008. It was carved out of the then Navrongo Municipal by Legislative Instrument (LI) 2066. The district was inaugurated on 28th February, 2008. One of the reasons for the creation of the district was to redirect developmental Projects to the communities in the north and west of the Municipal (now Paga) which was Relatively less developed as compared to Navrongo. The Kassena-nankana west District has 263 communities, comprising of 2 urbans, six peri-urban and 255 rural areas (Barron, P. et al 2011).

Population Size, Structure and Composition

The population of Kassena-Nankana West District, according to the 2010 Population and Housing Census, is 76,904 representing three percent of the regions total population. Males Constitute 40.6 percent and females represent 56.4 percent. The district has peri- urban Population of 93,550, representing 63.2 percent.

The district has a sex ratio of 102.3. The Population of the district is youthful (0-14 years) representing 37.5 percent and depicting a broad base population pyramid which tapers off with a small number of elderly persons (60+ years) (5.9%). The total age dependency ratio for the District is 71.2, the age dependency ratio for males is higher (71.9) than that of females (70.5) (Barron, P. et al 2011).

Fertility, Mortality and Migration

The District has a Total Fertility Rate of 3.4 which is slightly higher than the Regional average of 3.5. The General Fertility Rate is 92.8 births per 1000 women aged 15-49 years and a Crude Birth Rate (CBR) of 24.2 per 1000 population (PHC, 2010). The crude death rate for the district is 5.7 per 1000. The death rate for males is highest for ages 70+ years representing 47.1 deaths per 1000 population while for the females, the highest death rate of 28.4 deaths per 1000 population is for age 70+ years. Also, 7.2 percent of deaths in the district are due to accident/violence/homicide/suicide, while the rest are due to other Causes. Majority of migrants (58.7%) living in the district were born elsewhere in the Neighboring country Bukina faso.

Household Size, Composition and Structure

The district has a household population of 146,291 with a total number of 23,447 Households. The average household size in the district is 6.3 persons per household. Children constitute the largest proportion of the household composition accounting for 43.3 percent. Spouses form about 9.9 percent. Extended (Heads, spouse(s), children and Head's relatives) households constitute 50.5 percent of the total number of households in the district (Population and Housing Census, 2010).

Marital Status

About half (48.5%) of the population aged 12 years and older are married, 45.3 percent have never married, 0.6 percent are in consensual unions, 3.8 percent are widowed, 1.1 Percent are divorced and 0.7 percent are separated. By age 25-29 years, about two-third of the females (70.1%) are married compared 30.7 percent of their male counterparts.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

In the chapter, there various structured question that were captured in the questionnaire is treated separately. The result after administering each question in the questionnaire is provided and analyzed systematically. In cases where respondents give additional information to the interviewer that is also relevant to the study, those issues are also addressed accordingly in the narrative. In other instances, where are pictures that are of good use to the research, they are captured to help in the interpretation of certain facts that are outlined in the discussion.

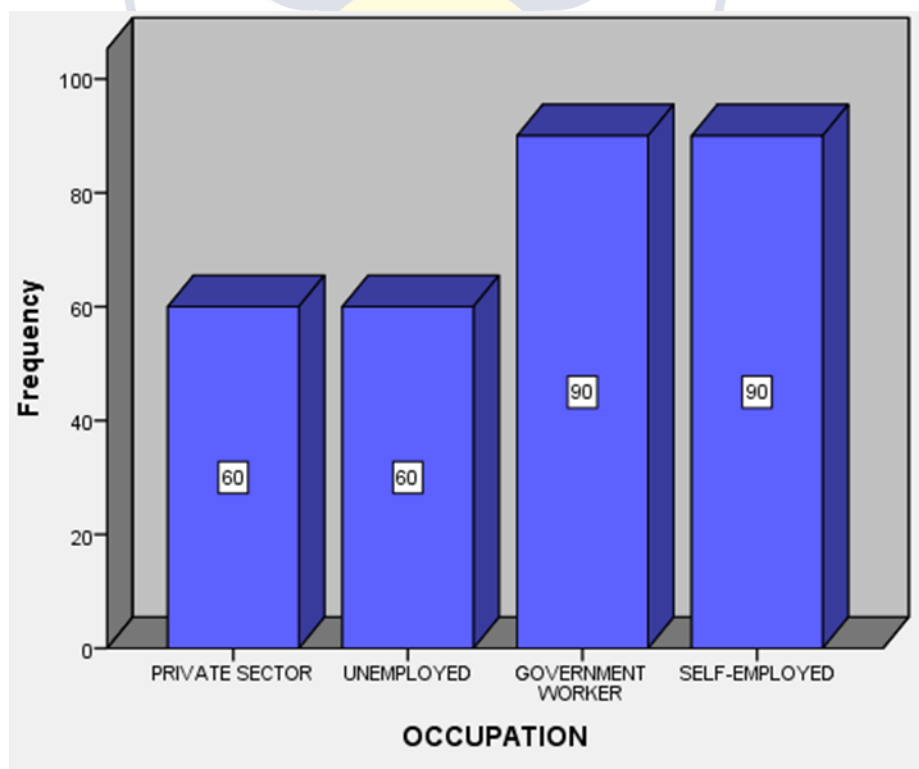


Figure 4.1 Occupations of Respondents

Source: Field Survey (2020)

An individual's income level is dependent on the kind of occupation he or she is engaged in. In other words, the amount of money an individual has to cater for his or her family is determined by his or her occupation. This researcher having this in mind was interested in the occupation of respondents. From figure 4.1. Above out of three hundred (300) respondents, sixty (60) of them which represents 20% were either in the private sector of production or unemployed whiles ninety (90) of the respondents which also stand for 30% were also either engaged in government job or self-employed.

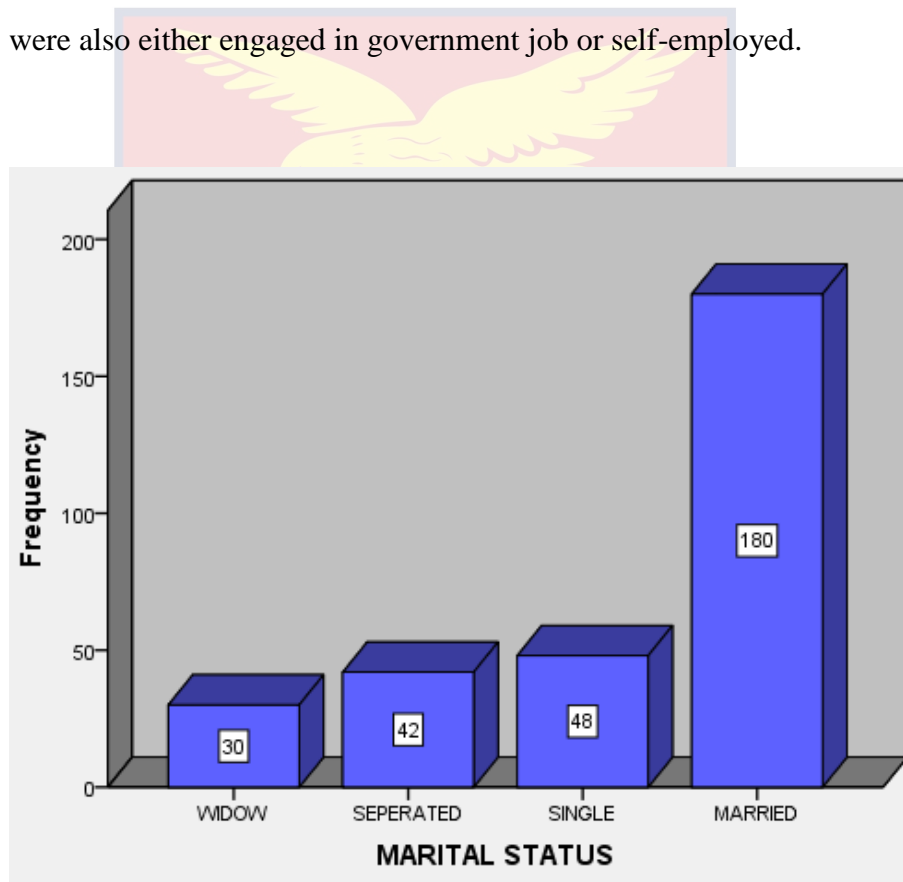


Figure 4.2: Marital Status of Respondents

Source: Field Survey (2020)

One's socio-economic background is affected by his or her marital status. Those who are married tend to live a better life as compared to the widow. In addition, those who are married are challenged to construct their own sanitary facilities to be used by the family. From figure 4.2 above out of three hundred

(300) respondents, thirty (30) representing 10% were widows, forty-two (42) representing 14% are separated, forty-eight (48) representing 16% are singles while the remaining one hundred and eighty (180) representing 60% are married.

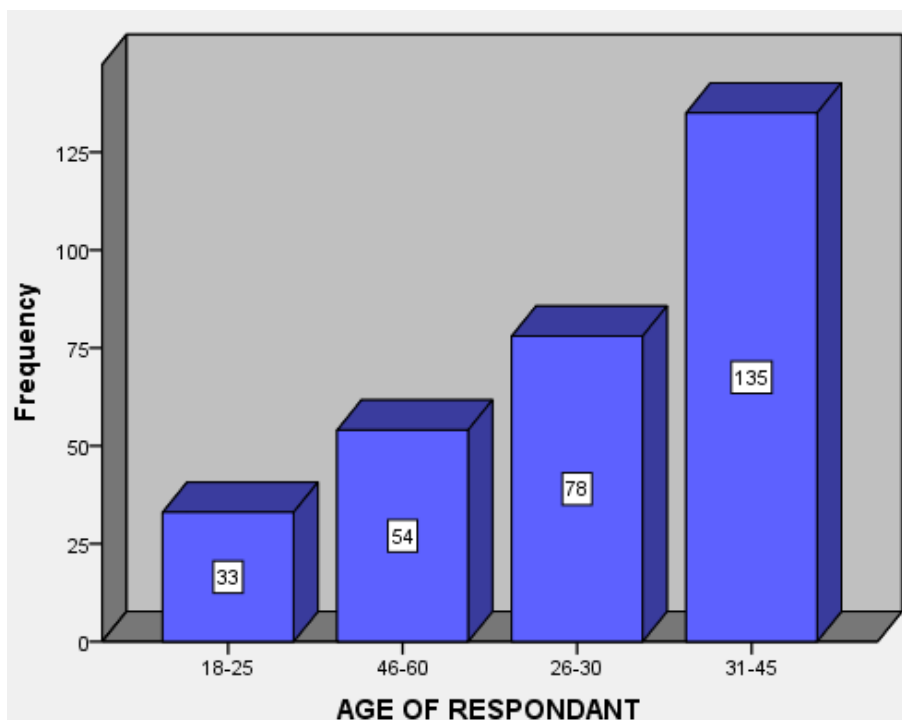


Figure 4.3: Age of Respondents

Figure 4.1 Occupations of Respondents

Source: Field Survey (2020)

Particular age groups are more comfortable to practice open defecation as compared to others. In figure 4.3 above, out of three hundred (300) respondents, thirty-three (33) of them representing 11% are between the ages of 18 and 25, fifty-four (54) which stands for 18% also in the age range of 46 and 60, seventy-eight (78) of the respondents representing 26% and the majority of the inhabitants are between age 31 and 45. Their number is one hundred and thirty-five which represents 45% of the total respondents.

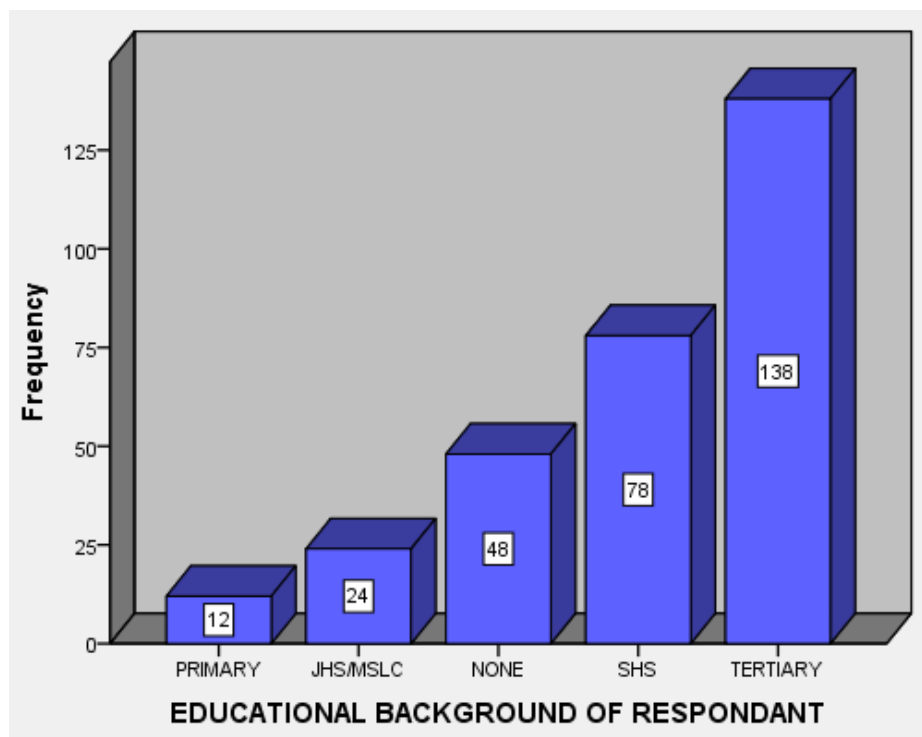


Figure 4.4: Educational Background of Respondents

Source: Field Survey (2020)

Educational background of an individual has a direct bearing on his or her understanding on sanitation and things that have adverse effect on the environment. It's therefore very necessary for a research on sanitation like this to investigate the educational background of respondents to be able to deduce from the population. In figure 4.4 above Twelve (12) out of the three hundred (300) respondents representing 4% are people with primary education only, twenty four(24) which represents 8% are either middle school leavers or JHS leavers forty eight (48) which represents 16% have no formal education at all, seventy eight (78) which represents 26% of them have also completed senior high school whereas the remaining one hundred and thirty eight (138) which stands for 46% are people who have been to the tertiary institution.

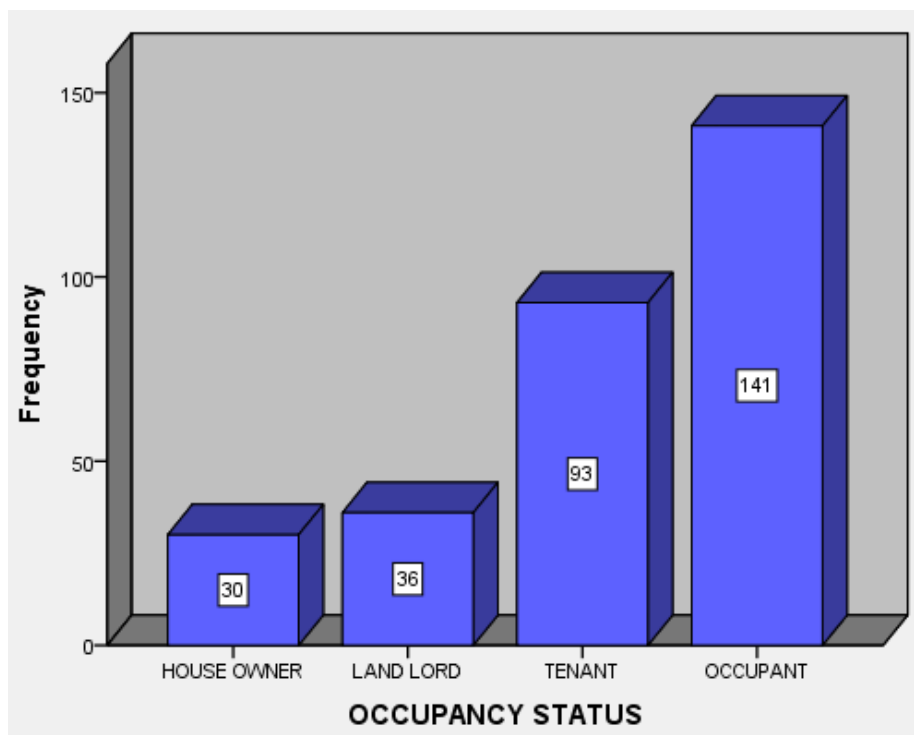


Figure 4.5: Occupancy Status of Respondents

Source: Field Survey (2020)

The occupancy status has gotten some correlation with sanitation issues in a house in the sense that people tend to take good care of something that is theirs as compared with that does not belong to them. In the case of sanitary facilities, landlords and house owners are more committed to taking good care and maintaining their sanitary facilities compares with tenants and occupants. In figure 4.5 above Thirty (30) out of three hundred (300) respondents representing 10% are house owners, thirty-six (36) which stands for 12% are also landlords, ninety-three (93) of the respondents which represents 31% are tenants and the remaining majority of one hundred and forty-one (141) representing 47% are occupants.

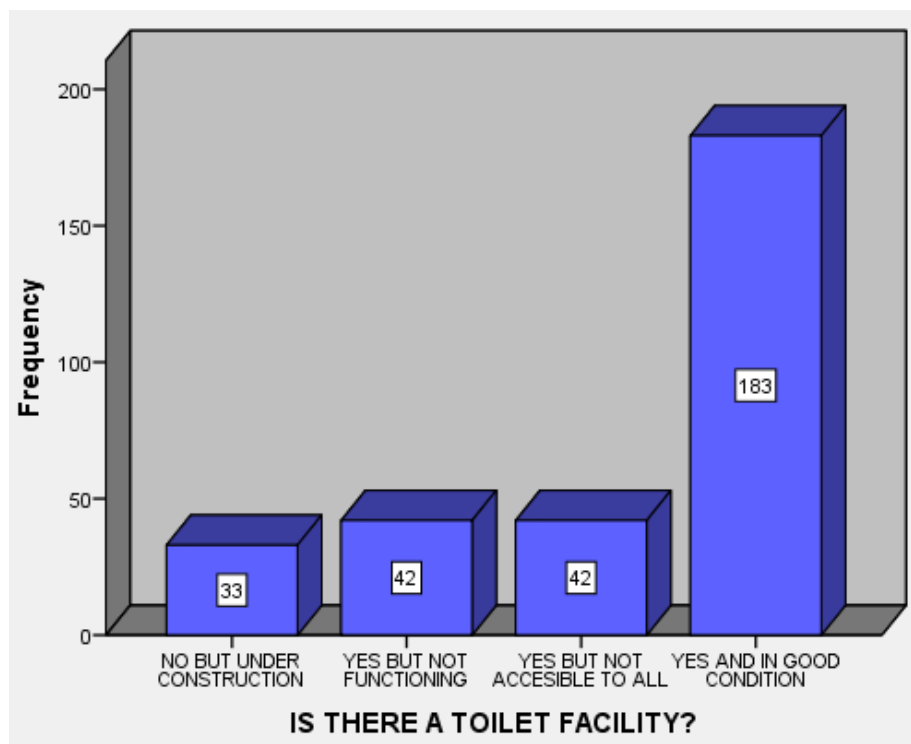


Figure 4.6: Presence of Sanitary Facility and its State

Source: Field Survey (2020)

The main question that is normally asked when it comes to sanitation issues is whether or not there is a toilet facility in the house in question. The researcher investigated whether there is a toilet facility in the house of the respondents as well as the state of those toilet facilities. From figure 4.6 above out of three hundred (300) respondents, thirty-three (33) representing 10% of them have no toilet facilities meanwhile they have some under construction, forty-two (42) of the respondents have the facility under construction due to malfunctioning, another forty-two (42) have the facility but don't have access to it due to reasons such as landlords disallowing them from using it one hundred and eighty-three (183) have the facility functioning and in good use.

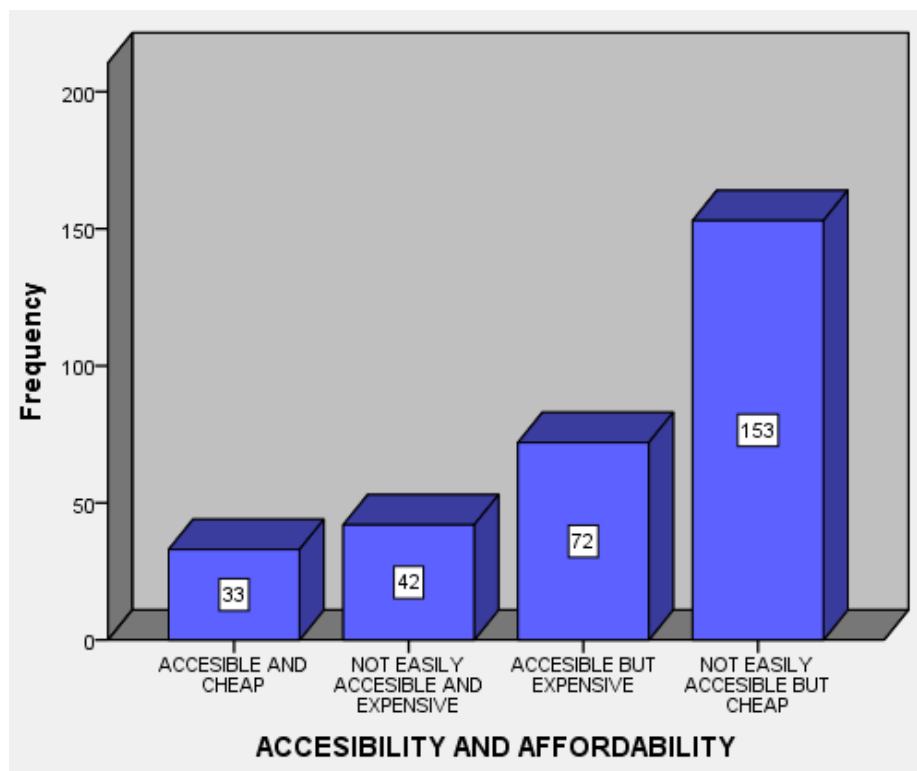


Figure 4.7: Accessibility and Affordability of Toilet Facility

Source: Field Survey (2020)

Whether or not there is a toilet facility in a household is a necessary but not a sufficient requirement for good sanitation. Accessibility of the toilet facility is of great importance. The research too into consideration the accessibility of the toilet facilities apart from the availability. In figure 4.7 above out of the three hundred (300) respondents, only thirty-three (33) of them have a toilet facility that is accessible and cheap as well, this stands for 10% of the total respondents. Forty-two (42) have very expensive facilities coupled with lack of accessibility, seventy-two (72) have very accessible facilities but the price is beyond the ordinary man and the larger chunk of respondents that is one hundred and fifty-three (153) which stands for 51% have facilities that are easy to afford but difficult to access.

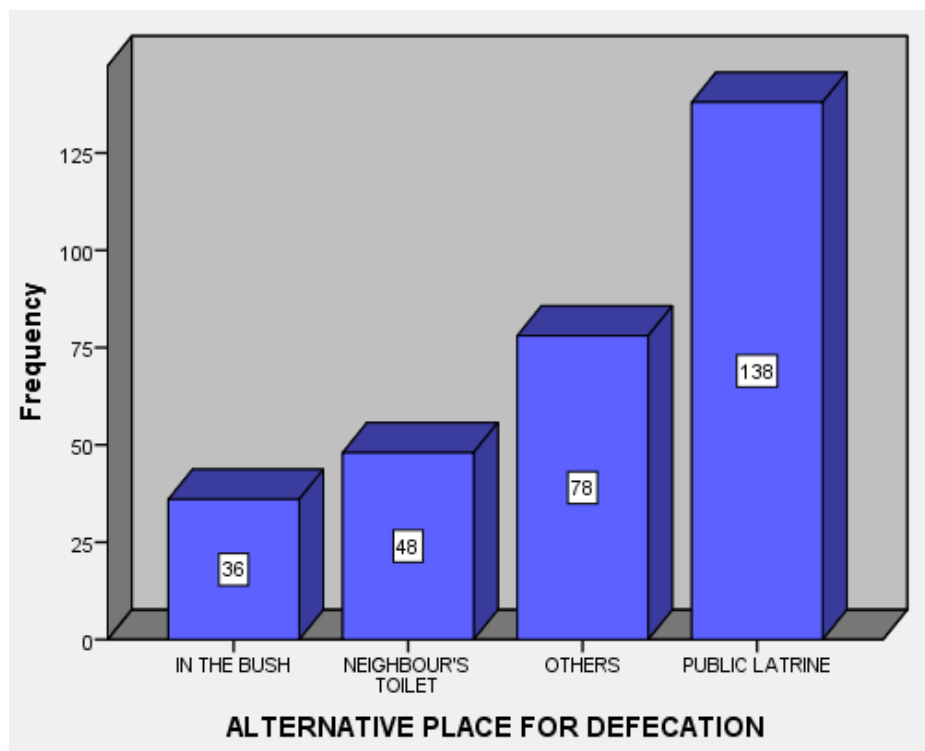


Figure 4.8: Alternative Places of Defecation Apart from Toilets

Source: Field Survey (2020)

The researcher was also interested in the alternative places for in case their facilities are not accessible as well as those without toilet facilities. In figure 4.8 above out of three hundred (300) respondents, thirty-six (36) which represents 12% uses the nearby bush in case there is no available place for defecation. Also, in an instance where there is no toilet facility at their disposal, this people use the bush. Another fraction of the respondents also uses their neighbor's toilet when their facility is not accessible this numbers of respondents represent 16% of the total respondents and are also forty-eight (48) in numerical terms. Seventy-eight (78) of the respondents representing 26% of the total respondents used other types of sanitary facilities other than the ones mentioned in the questionnaire while the greater proportion of one hundred and thirty-eight representing 46% uses public toilet as an alternative means.

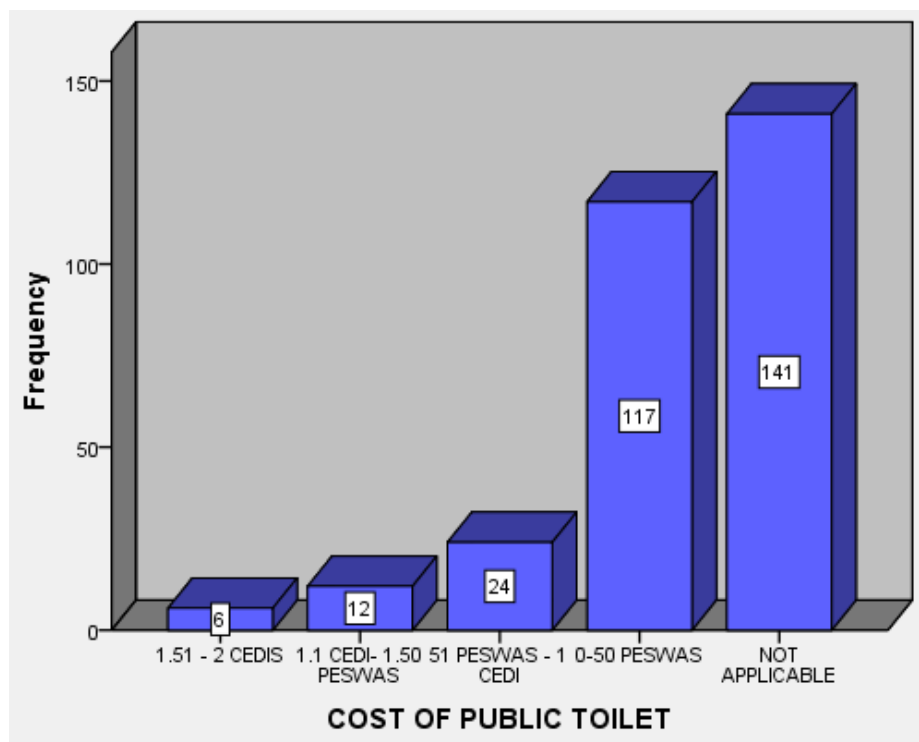


Figure 4.9: Cost of Public Toilets

Source: Field Survey (2020)

The cost of visiting a toilet facility can be the reason why people will result to other alternatives such as open defecation. The researcher investigated the amount that people pay when they visit the public toilet. In figure 4.9 above out of three hundred respondents, one hundred and forty-one of the respondents have toilet facilities in their homes and there have no need visiting the public toilet unless emergencies. One hundred and seventeen of the remaining pays fifty Ghana pesewas or less to visit a toilet facility per trip representing 39% of the total respondents, twenty-four representing 8% within a range of fifty-one Ghana pesewas and one Ghana cedi per trip. Twelve of the respondents representing 4% of the total also pay between a range of one Ghana cedi, one pesewa to one Ghana cedi fifty pesewas and the remaining six respondents which stands for 2% pays relatively higher per trip.

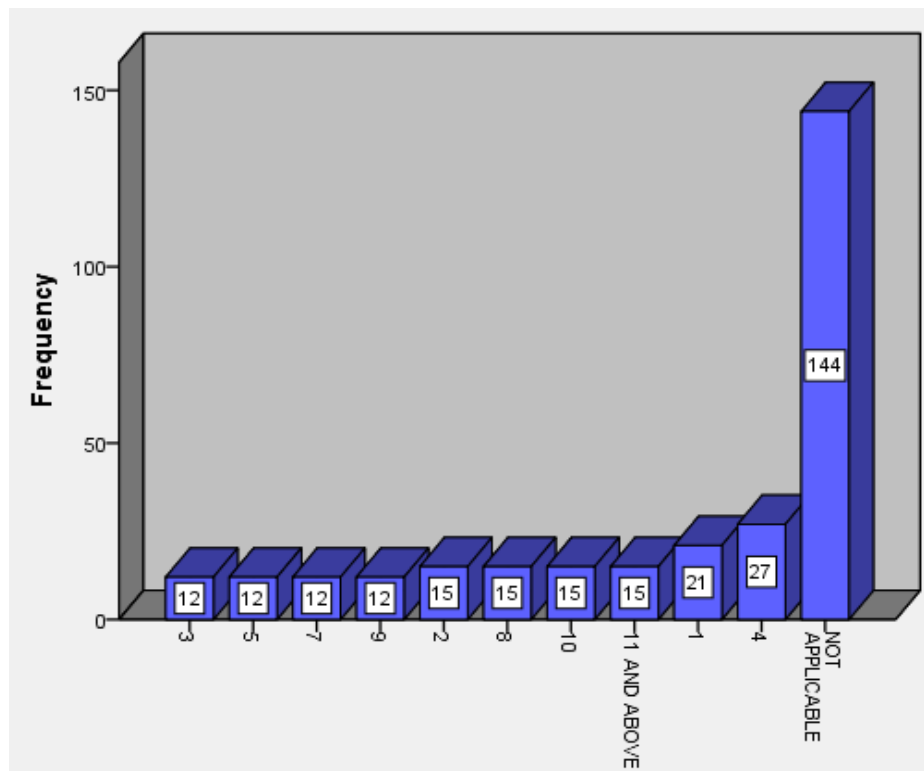


Figure 4.10: Number of People Who Pay to Use Pay to Use Toilets

Source: Field Survey (2020)

The number of people per household who pays to visit the toilet can reveal a hypothetical figure of the rate of potential open defecation. When the number of people who pays to visit the toilet is high, it means that the number who will use other alternative when they don't have money to visit the toilet is high therefore increasing the potential risk of open defecation. In this research, twenty-four respondents according to figure 4.10 above said three (3) inhabitants of their house pays to visit the toilet, sixty-three of the respondents have five (5) residents of the house paying to visit the toilet due to lack of access, in another seventy-eight responses, seven inhabitants pay to visit the toilet while the remaining one hundred and thirty-five respondents have nine (9) inhabitants paying to visit the toilet. It can therefore be generalized that in all the response, there is always someone in all the houses who does not have access to toilets.

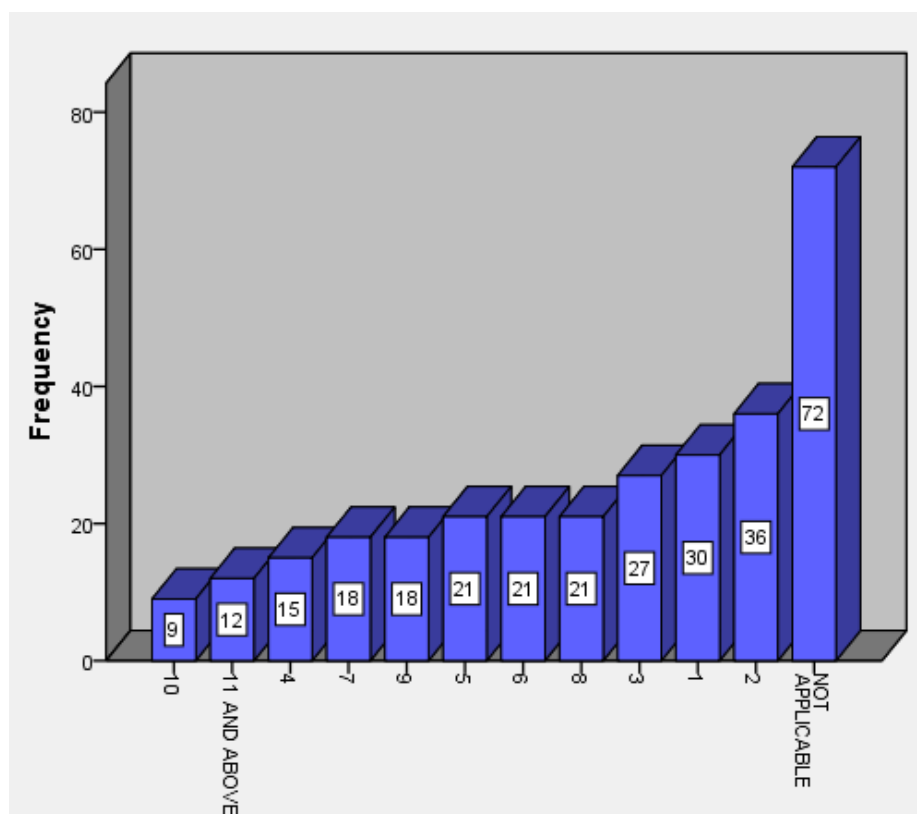


Figure 4.11: Number of People Who Practice Open Defecation

Source: Field Survey (2020)

From the result given in figure 4.11 above, nine (9) respondent have ten (10) people resident in their house who practice open defecation, 12 respondents also stay with more than eleven (11) people who defecate in the open, fifteen (15) of them are also occupying the same house with four (4) people who also practice it, eighteen (18) in two different house who also lives with seven (7) and nine (9) people respectively, three set of twenty-one respondents also lives with five, six and eight inhabitants who practice open defecation, twenty-seven also live with three inhabitants who rely on open defecation, thirty of the respondents also lives with one person who practices open defecation and thirty-six live with two persons defecating in the open. The remaining seventy-two respondents do not have people practicing open defecation in their homes.

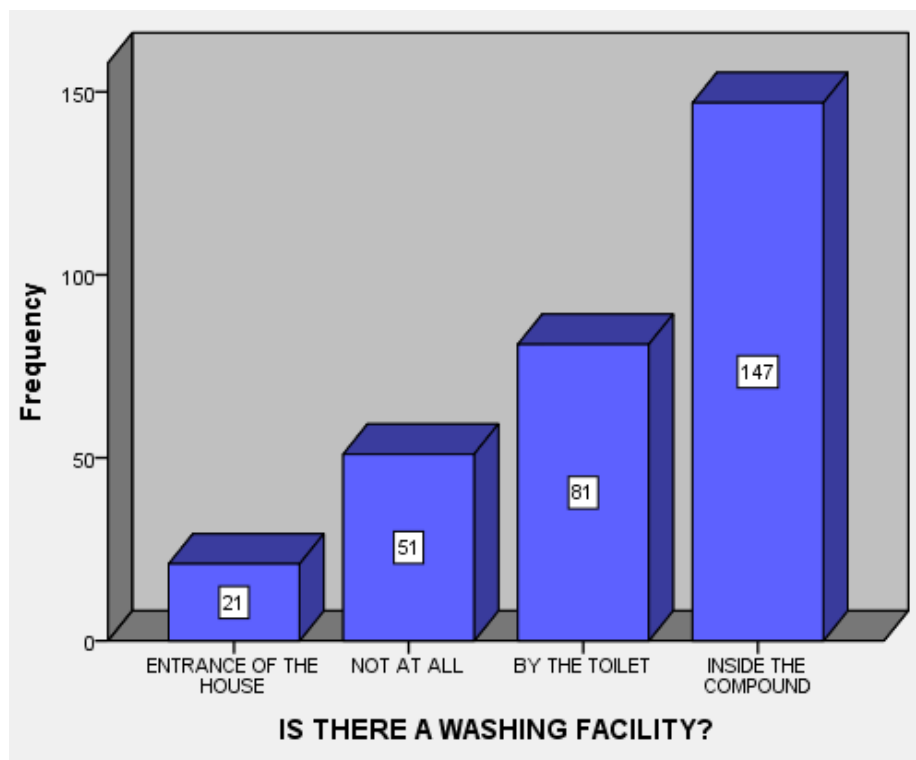
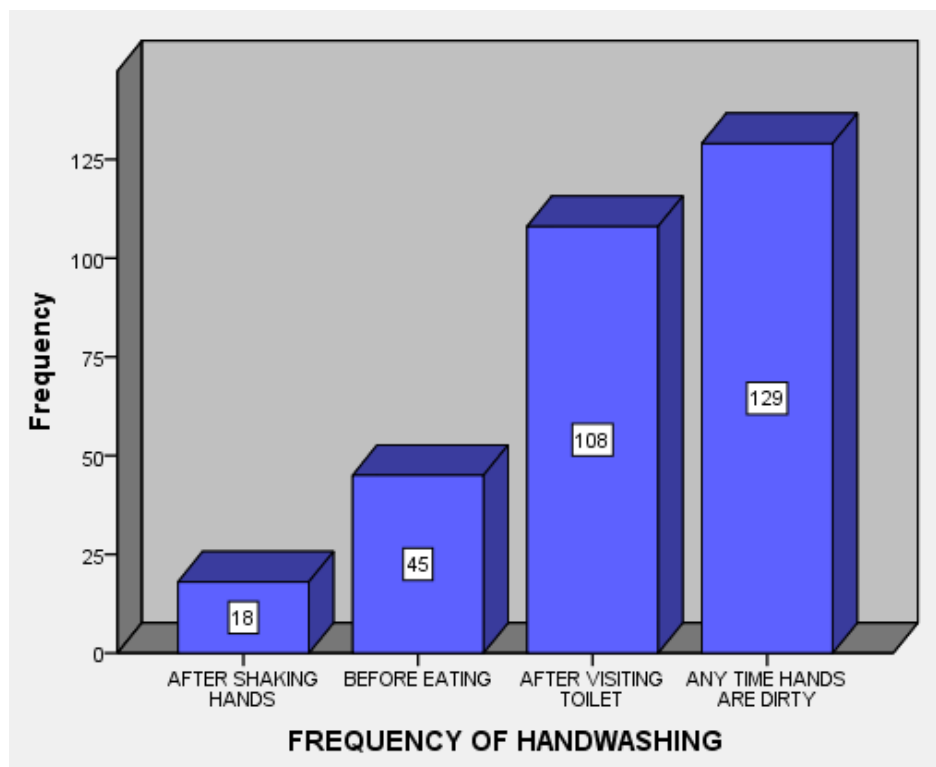


Figure 4.12: Presence or Absence of Hand Washing Facility in Toilet Facilities

Source: Field Survey (2020)

The presence of a toilet facility in a house is partially a determinant to the practice of open defecation by the members of that house. However, if there is a no water or cleaning facility after using the toilet, sanitation is compromised. The researcher investigated whether there are cleaning or washing facilities for three hundred respondents on the issue of washing facility. In figure 4.12 above, out of three hundred respondents, twenty-one have washing facilities at the entrance of the toilet where people can use after visiting the toilet, fifty-one do not have it at all, eighty-one representing 27% have washing facilities by the toilet and the remaining one hundred and forty-seven which stands for 49% have the facility in the compound but not inside the facility.



Source: Field Survey (2020)

The frequency and critical moment people wash the hand proves of how their understanding of hand washing and its importance. The research also used to investigate how frequent the inhabitants of Kakunga washes their hands making an inductive generalization from figure 4.13 above, the three hundred respondents used in the research. Eighteen (18) representing 6% respondents thinks that washing your hands after shaking hands with others is the best in other words the most critical moment that motivates them to wash their hands is when they shake hands with others, forty five (45) which stands for 15% also thinks that washing your hands immediately before eating is very good hygienic practice that is they wash their hands before eating, one hundred and eight (108) which stands for 36% of the total respondents, the remaining one hundred and twenty nine respondents thinks that hands should be washed anytime hands are dirty or better still anytime we do something that contaminates the hands.

4.2 Discussion

According to researches, the type of sanitation facilities that people own is dependent on their socio-economic background. People with high income levels tend to have improved sanitation facilities as compared to people with low income levels. In the case of Kakungu community, quite a good number of the inhabitants are unemployed which stands to reason that they have not gotten any constant flow of income. These people are very likely to practice open defecation. The other portion of people are those working with the private sector, they community has not gotten strong private companies therefore, this people are not likely to receive good salaries which can help them afford improved sanitation systems. This people are also likely to either practice open defecation or use unimproved sanitation systems such as pit latrines which is another form of single site open defecation.

In the absence of sanitary facility on the house, singles and the widowed who are also singles in a different form find it relatively easier to practice open defecation as compared to those married. In this research, it is clear that a good number of the inhabitants are singles in other words do not live with spouses therefore, have a higher tendency of practicing open defecation. Those who also do not have any support from their husbands especially the widows without any form of income are also likely to practice open defecation. In a research conducted in India on open defecation, it was established that most of the respondents in their youthful ages prefer to practice open defecation as compared to children and the aged. Using the same analyses to infer the case of the people of Ghana and for that that matter the people of Kakungu, it very likely that the

youth will prefer to practice open defecation will have a very serious adverse effect because they are comprising the highest proportion of the population.

When a larger proportion of inhabitants of a particular community are predominantly elite, the issue of open defecation is not as alarming as communities with a very low-income level. However, even though the majority of the populations are elites, more the 35% of the remaining are still less educated. The educated ones have also not gotten profitable jobs to help them own a descent sanitation system. This can be a potential threat to the environment. From the data collected, majority of the inhabitation by making an inductive analysis from the respondents are primarily tenants or occupants. These are people who do not own the facility and do not any commitment to maintaining it. Those who are under strict regulation to maintain the facilities are also not in houses that have only one household. This means that since the number of households in the house is more than one, who to clean it at which time can also create a maintenance problem.

Tenant and occupants are also people with relatively low-income level with means that they are likely to find other alternative to visit the toilets. In this research, it is evident that most of the households do not have toilet facilities which means that they are very likely to result to other alternatives such as public toilets and also using their Neighbor's or friends' toilets. Referring to the socioeconomic background of the respondents, it's more likely that they will intend practice open defecation since most of the have not gotten a stable income to rely on.

Accessibility of toilet is one of the maintain driving forces to achieving good sanitation in a country. From the research, open defecation is very rampant

at the place since many of the inhabitants have no access to their own toilet's facilities. Using a neighbor's toilet facility is not something that can be relied on because the neighbor can travel and the toilet facility locked up. This will make open defecation the only option for those individuals. In the case of those using public toilets, it is clear from this research that the income level of the inhabitants is very low and inconsistent. This means that when those inhabitants do not have money to visit the toilet, they might result to open defecation which has a serious environmental impact.

The cost of visiting a toilet facility determines whether or not people will result to other forms or not. In practical terms, if the cost of visiting a toilet facility is high, the higher the likelihood of people result into other alternative sources like open defecation. In this research, it's evident that the cost of visiting a toilet facility per trip is relatively low but people still refer to use of forms of defecating rather than paying to do so. It can also be from the fact that income level of the inhabitants deducing from the respondents is low. The number of people in a community who pays to visit the toilet is directly proportional to the number who will practice open Defecation. In other words, when the number of people who do not have their own toilet facilities and result to public toilets is high, the higher the likelihood of they practicing open Defecation. In the case of Kakungu Community, the higher fraction of the inhabitant's results to public toilets mean whiles their income levels are very low as a result of unemployment and lack of profitable jobs. This will eventually result in people practicing open defecation.

Even though many of the respondents have their own toilet facilities, there is a good number of them who still practice open defecation for whatever

reason. To some of them, open defecation is more convenient as compared to public toilet in the sense that the public toilets are mostly not in good hygienic condition. Sanitation cannot be separated completely from water. In other words, good sanitation cannot be ensured without water. From the result of the research, a very good number of the respondents do not have washing facilities which a very serious environmental impact such as the spread of communicable disease like cholera and others. The knowledge of the importance of hand washing is very important since it is one of the motivations of hand washing. It's therefore very crucial to state that majority of the inhabitants drawing an inductive logic from the three hundred respondents are not adequately enlightened on the critical condition that must motivate hand washing.

There is quite a sizable number of the respondents who are still not clear on the reasons why hands must be washed. It's interesting to note that all those who think that hands must be washed when it is dirty will not wash it when there is no visible dirt. People are tempted to think that since there is no visible dirt, then the hands are not contaminated which is false.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 introduction

This chapter summarizes the major findings of the work, draws conclusions and makes some suggested recommendations for further studies. The summary of the findings follows the order in which the research objectives were set. The section summarizes the consequence of open defecation in Kakungu community, and also indicates the local bases of which people practice open defecation. It further summarizes the results achieved after identified issues, and as well as concluded with recommendations for improvement and further research works.

5.2 Summary

The study looked at the consequences of open defecation in Kakungu community and its impact on the health of the people in the community. The study was to describe the consequences of open Defecation on Kakungu due to lack of household latrines in the Kassena-Nankana West District in Ghana. That is examine the types of household latrines in houses of Kakungu, examine the knowledge level of dwellers on sanitation related disease, assess the sanitary condition of their house hold latrines and Analyses the proportion of community members who participate in open defecation. The type of sanitary facility predominantly used by the community dwellers is the public latrine which is oftentimes not in good condition. Those with toilet facilities in their homes are also not accessible to all inhabitants of that house and also, the facilities are not in good condition.

Even though most of them according to the findings knew about sanitary related disease, there were also not committed to preventing them by adopting a

good lifestyle such as frequent washing of hands. A very good number of the inhabitants practice open defecation partly because of lack of toilet facilities in their homes as well as improper condition of those toilet facilities meanwhile, others also practice open defecation just because of the pleasure of it and not due to lack of toilet in their homes. The practice of open defecation is strongly related to the development of a country and hence no nation will develop (WHO, 2011).

This situation is not different from the situation in Kakungu. Majority of the inhabitants lacked access to toilet facilities, and hence defecate in the open widely and other improperly kept public toilet. These practices affect the lives of the people, as rain water washes faeces products to water bodies (rivers) which served as their drinking waters. In such situation, the people are exposed to various sanitation and water related diseases, such as diarrhoea, cholera and malaria and among others. Unfortunately, the inhabitants of

Kakungu have inadequate knowledge on the effects of open defecation and the importance of the practice of hand washing with soap. Theses explains why the community is prone to cholera every season. The goal of this project is to look at the consequence of open defecation in Kakungu Community and its impact on the health of the people in the community.

The specific objectives of the study are:

1. To examine houses with household latrines in Kakungu
2. To examine the knowledge level of dwellers on sanitation related disease
3. To assess the sanitary condition of their house hold latrines
4. What is the proportion of community members who participate in open defecation.

Chapter two reviewed existing literature on open defecation as a phenomenon in Communities. The chapter also presented and discussed social norm as the theoretical review in this study, the chapter looked at the causes of open defecation, the effects of Open Defecation on the general well-being of people and the advocacy model presented. Chapter three presented the profile of the study area to be Kakungu in the Kassena-Nankana West District. The target area of this project is the inhabitants of Kakungu. It is one of the rural communities in the Kassena -Nankana west District that have access to social amenities such as a school. The population of the community currently stands at 665 people according to the (Population and Housing Census, 2010). Before the project research, survey was carried out to ascertain the open defecation and other sanitation challenges in the community. The researcher administered questionnaire on opinion leaders, women leaders and some youth as well as the elderly to find out their knowledge on the consequences of open defecation in the community.

5.3 Conclusion

The research concluded that, the inability of most inhabitants in Kakungu community to accessed, afford, maintained toilet facility and wash their hands at all critical times highly influence the seasonal cases of cholera in the community. As shown in the results, out of three hundred (300) respondents, thirty-three (33) representing 10% of them have no toilet facilities meanwhile they have some under construction, forty-two (42) of the respondents have the facility under construction due to malfunctioning, another forty-two (42) have the facility but don't have access to it due to reasons such as landlords disallowing them from using it one hundred and eighty-three (183) have the

facility functioning and in good use. Out of the three hundred responded, one hundred and forty-one of the responded have toilets facility in their homes, one hundred and seventeen pay fifty pesewas to visit a public toilet per trip representing 39%. 8% pay fifty-one pesewas per trip and 4% pay between one Ghana cedis per trip to visit a private toilet. On the practice of open defecation, nine (9) respondent have ten (10) people resident in their house who practice open defecation, 12 respondents also stays with more than eleven (11) people who defecate in the open, fifteen (15) of them are also occupying the same house with four (4) people who also practice it, eighteen (18) in two different house who also lives with seven (7) and nine (9) people respectively, three set of twenty one respondents also lives with five, six and eight inhabitants who practice open defecation, twenty seven also live with three inhabitants who rely on open defecation, thirty of the respondents also lives with one person who practices open defecation and thirty six live with two persons defecating in the open.

Lastly the research also used to investigate how frequent the inhabitant of kakunga washes their hands making an inductive generalization from the three hundred respondents used in the research. Eighteen (18) representing 6% respondents thinks that washing your hands after shaking hands with others is the best in other words the most critical moment that motivates them to wash their hands is when they shake hands with others, forty five (45) which stands for 15% also thinks that washing your hands immediately before eating is very good hygienic practice that is they wash their hands before eating, one hundred and eight (108) which stands for 36% of the total respondents, the remaining one hundred and twenty nine respondents thinks that hands should be washed

anytime hands are dirty or better still anytime we do something that contaminates the hands.

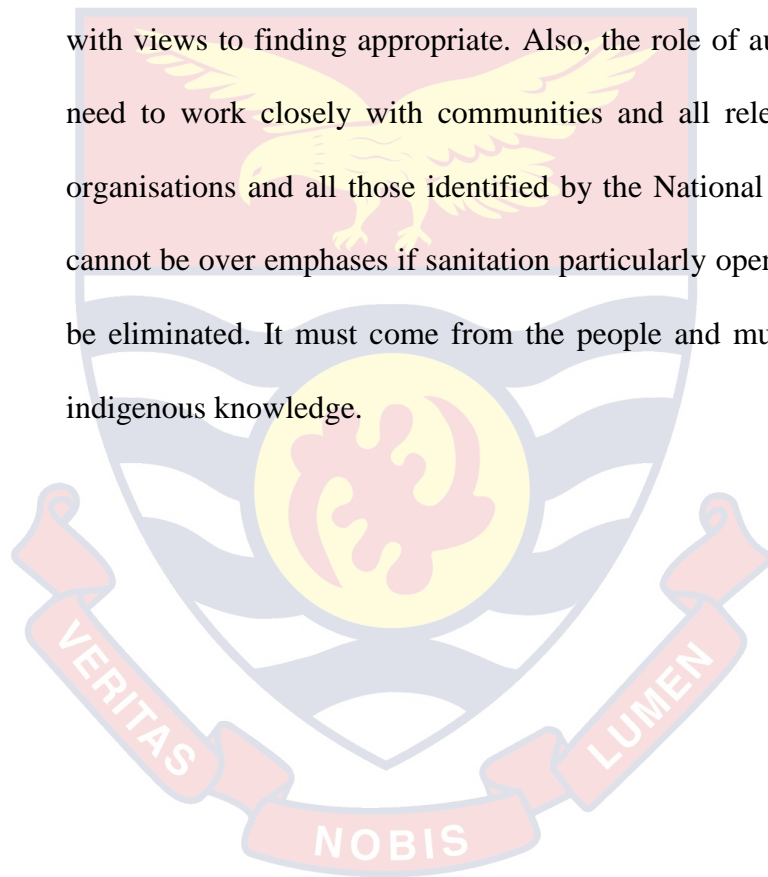
5.4 Recommendations

The practice of open defecation is link to attitude and behavioral change. This cannot be totally changed within a short period of time. As can be seen, there have been success and challenges though the project could not cover the entire community to interact every community member. Increase sanitation and hygiene services in communities are crucial to the promotion of Good health, increase income and economic potentials of communities. As an essential Service, the role of every stakeholder is needed in order to achieve a sustainable sanitation and hygiene services. The research concludes that the people of Kakungu Community should,

1. Adopt Community-Led Total Sanitation (CLTS) approach to increase access to sanitation and hygiene services in Kakungu.
2. The International Development Agency through community water and sanitation Agency in collaboration with the ministry of sanitation and water resource should support the people of Kakungu community with the
3. The Kassena-Nankana west District Assembly to enforce their bye-laws on the provision of household's latrine especially those for renting to reduces the rate of open defecation in the District. Enforcement of sanitation bye- laws in the country
4. The government, the District Assembly, the security and the traditional authority must help in prosecution and fined all those who violate the sanitation by- laws in the various communities, the politicians as a matter

of fact should not interfere in the work of the district environmental and sanitation units" activities

The analysis of the results shows that lack of Education on proper maintenance of latrines contribute to cases of cholera increase in the community and access to improved sanitation and hygiene services. Sanitation status in Ghana is such that it must be the priority of the government and development partners seriously considering the sector with views to finding appropriate. Also, the role of authorities and the need to work closely with communities and all relevant groups and organisations and all those identified by the National sanitation policy cannot be over emphasised if sanitation particularly open Defecation is to be eliminated. It must come from the people and must be nurtured by indigenous knowledge.



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APPENDICES

APPENDIX A

Questionnaires for Respondent

My name is Martha Lardi. Ayonno, a postgraduate student of the Presbyterian university college Ghana. The main objective of the research is for purposes of studies and to affect decision making in the community so as to help improve the lives of the community dwellers. Any information provided will be highly appreciated and deemed confidential.

QUESTIONNAIRE FOR HOUSEHOLDS (tick, circle or fill where applicable)

Location:

Profile of respondents

1. Gender of respondent: (1) Male (2) Female
2. Occupation: (1) Government worker (2) Self-employed (3) Private sector (4) Unemployed
3. Marital status: (1) Single (2) Married (3) Separated (4) Widowed
4. Age of respondent: (1.) 18-25 (2) 25-30 (3) 30-45 (4) 45-60
5. Educational Background:
(1) None (2) Primary (3) JHS /MSLC (4) SHS (5) Tertiary
6. Occupancy Status of respondent 1) Land lord 2) Tenant 3) Occupant (4) House owner
7. How many households are in this house?
.....

8. How many people are in this house in total?

.....

9. For how long have you been living in this house?

.....

Access to sanitation

10. Is there a toilet facility in this house?

(1) Yes but not functioning []

(2) No but under construction []

(3) Yes but not accessible to all []

(4) Yes and in good condition []

11. How will you measure your toilet in terms of accessible and affordability?

(1) Accessible but expensive [] (2) not accessible and expensive [] (3) accessible and cheap [] (4) not accessible but cheap

12. What type of facility is it? [**respondent to describe the facility**]

(1) VIP [] (2) Water Closet [] (3) Pour flush [] (4) Pit latrine []

If No to Question 10:

13. Where do you defecate?

(1) Public latrine [] (2) Neighbour's toilet [] (3) in the bush []

(4) Others: **NORIS**

14. If public toilet, how much do you pay to use the facility per trip?

.....

15. How many people in your household pay to use the facility each day?

.....

16. How often do you clean the toilet facility?

(1) Every 3 days (2) once in a week (3) once in every two weeks

- (4) Others specify.....
17. How many people in your house practice open defecation.....?
18. If you could choose, what type of toilet facility would you like to own and use in your house and why
19. Do you have hand washing facility with soap in your house/yes, no.
20. How often do you wash your hands with soap?
- (1) Before eating [] (2) after visiting toilet [] (3) after shaking hands [] (4)

Any time hands are dirty [].

