UNIVERSITY FOR DEVELOPMENT STUDIES

OPEN DEFECATION IN THE WA MUNICIPALITY OF THE UPPER WEST REGION: AN ASSESSMENT OF SOCIO-ECONOMIC AND CULTURAL INFLUENCES

FRANK, NYONGNAAH ATEGEENG

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FEBRUARY, 2016

DECLARATION

Student

I, Frank, Nyongnaah Ategeeng, declare that this thesis is my own work and a result of my own investigation. All the sources that I have used or quoted have been indicated and acknowledged by means of complete references. To the best of my knowledge, this work has not been submitted before for any degree at any other university.

Candidate's Signature: …….. Date ……

Name: ……

SUPERVISORS'

I hereby declare that the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of dissertation/thesis laid down by the University for Development Studies.

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ABSTRACT

The study assessed the socio-economic and cultural factors influencing open defecation in the Wa Municipality in the Upper West Region of Ghana. The study was conducted in 21 randomly selected communities in the Municipality. The case study design was used. Mixed method approach was used in collecting data for the study. Three hundred and sixty-seven closed and open- ended questionnaires were administered to household heads or their representatives for the quantitative study whiles eight key informant in-depth interviews were conducted and personal observation was used for the qualitative study. Data gathered from the field was analysed using both quantitative and qualitative approaches. The findings of the study revealed that ancestral beliefs/inheritance, inadequate public and household toilet facilities, poor maintenance of public toilets, the perception that children's faeces are not dangerous, financial constraints, low levels of education, the belief that witches and wizards visits toilet facilities at night and the idea that it is only the duty of a man to construct a toilet facility were established as the major socio-economic and cultural factors influencing open defecation in the Wa Municipality. Faeco-oral diseases were also identified as consequences associated with open defecation. The study recommends intensive and quality public education, financial support for needy households to construct household toilets, community participation and ownership of sanitation facilities, privatization of few existing community public toilets and strict enforcement of the National Building Regulation (Act 462) as some effective ways of curbing open defecation in the Wa Municipality.

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DEDICATION

I dedicate this thesis to my wife, Mrs Evelyn Ategeeng in honour of her unflinching love and support throughout my course of study at the University.

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LIST OF ACRONYMS

CDD	Centre for Democratic Development
CWSA	Community Water and Sanitation Agency
GSS	Ghana Statistical Service
HH	Households
JHS	Junior High School
KVIP	Kumasi Ventilated and Improved Pits
MA	Municipal Assembly

MDG	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
NGO	Non-Governmental Organization
OD	Open Defecation
OPD	Out Patience Department
SHS	Senior High School
SPSS	Statistical Package for Social Scientist
TECH	Technical
UN	United Nations
UNICE	United Nation Children's Education Fund
VIP	Ventilated Improved Pits
VOC	Vocational
WC	Water Closet
WHO	World Health Organization
WMA	Wa Municipal Assembly
WSSCC	Global Water Supply and Collaborative Council

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Open defecation is one of the serious health problems facing most developing world's (WSSCC, 2000). The just ended Millennium Development Goal (MDG) target 7.C. set in 2002, which included reducing by half the proportion of population without sustainable access to basic sanitation by 2015 (UN, 2010) was not achieved at the current rate as estimates indicate that this can only be achieved by 2026 (WHO/UNICEF, 2012). Open defecation is widely practised in both urban and rural settlements of Ghana (Galaa, 2012). And the Wa Municipality is not an exception. Adults do open defecation around the fringes of settlements while children defecate on rubbish pits in the Wa Municipality

Open defecation rates keeps on reducing gradually since 1990, and it is now projected that less than a billion people (946 million) presently practise open defecation (WHO/UNICEF, 2015) it is said that 90 percent of open defecation is carried out predominantly in rural areas and the majority 71 percent of those without any improved form of sanitation live in rural areas (WHO/UNICEF, 2011). The existence of open defecation is associated with diseases and poverty and is usually considered as disrespect to personal dignity (WHO/UNICEF, 2014). The highest numbers of deaths of children under the age of five, as well as high levels of under nutrition, high levels of poverty and large inequalities between the rich and the

underprivileged usually occurs in countries where open defecation is most commonly practised (WHO/UNICEF, 2014).

In 2010, it was projected that open defecation was practiced by 8 percent of the urban population and 35 percent of the rural population in sub-Saharan Africa (WHO/UNICEF, 2012). In Nigeria, 200,000 children under the age of five die due to diarrhoea, while the numbers for cholera within the region are also high as a result of contaminated water as reported by UNICEF (Hemen, 2011). Ghana had been ranked second after Sudan in Africa for open defecation, with five million Ghanaians not having access to any toilet facility (WHO/UNICEF, 2015). The practice is most prevalent in the Upper East Region with about 89 percent of the people without any form of latrine, followed by the Northern Region with about 72 percent and then the Upper West Region with about 71 percent (UNICEF, 2015). Households which have no toilet facility of any kind available for use in the Upper West Region, mostly resort to use the bush or the field or small receptacles that are available for defecation (Water Aid, 2008). The seriousness of the situation is that children are learning the practice from the adults. The consequences of open defecation are numerous; it pollutes underground water sources, contaminates agricultural produce, and causes faeco-oral diseases such as cholera, diarrhoea and bilharzias. Connell (2014) indicates that open defecators cite lack of finances, insufficient funds, “too expensive,” or “don’t have money” as key barriers to building latrines or making improvements. Latrines are perceived as expensive to construct, especially when associated with cement or deeper pits. Latrines are also

perceived to be more expensive to build in certain seasons, such as during the rainy seasons when construction is perceived as more challenging, due to flooding.

Cultural factors surrounds open defecation practices in every society such as taboos and beliefs, which must be well understood before any sanitation programme can hope to be effective (Water Aid, 2008). Defecation is a private matter, which adults are unwilling to discuss. The lowest class of people in the society are often associated with contact, transport, treatment, and disposal and cleaning of latrines, (Anand, 1999) in most cultures, and most households, it is women rather than men who deal with their children's excreta. In public services, it is nurses, most of whom are women, who are expected to deal with the defecation processes of patients under their care. Gender differences and constraints, such as the requirement in some societies for women to defecate under cover of darkness, are important contributory factors to open defecation. Research from India has shown that detrimental health impacts (particularly for early life health) are even more significant from open defecation when the population density is high. The same amount of open defecation is twice as bad in a place with a high population density average like India versus a low population density average like sub-Saharan Africa (Chambers, 2009). Open defecation in some communities of the Wa Municipality has become a serious health threat, putting residents at the risk of sanitation related diseases such as cholera, diarrhoea and typhoid, among others. Children below ten years are often seen defecating around the premises of public toilet facilities and waste containers freely without any reprimand thereby giving a very bad smell to residents within that vicinity. Adults are also found openly defecating in near-by bushes and some

throw black polythene bags containing faeces indiscriminately (Kuorsoh, 2012). The sight and smell of faeces around constitute a major embarrassment to residents and visitors to the Wa Municipality

1.2 Problem Statement

Open defecation as pertains in the Wa Municipality is of much concern. Human faeces are found in open spaces in-between houses, with some rapped in black polythene bags behind buildings. In situations where public toilets are available, faeces are still seen surrounding the toilet with the resultant stench and flies nuisance. The practice of open defecation facilitates the transmission of pathogens that cause diarrheal diseases, the second leading contributor to the global burden of disease (WHO, 2014). It is estimated that 1.7 billion cases of diarrheal occur every year; causing approximately 800,000 deaths among children less than 5 years of age worldwide (UNICEF, 2012). Human excreta, especially faeces are the most dangerous to health. One gram of fresh faeces can contain 10,000,000 viruses, 1,000,000 bacteria, and 100 parasite eggs (UNICEF, 2000). The 2010 Population and Housing Census, attests to the fact that 41.8% of households in Wa Municipality had no toilet facilities in their homes. And according to the Wa Municipal Health Service 2010 annual report on sanitation related diseases, a total of 73,903 cases were recorded. Out of this, typhoid and diarrhoea diseases which were closely linked to the problem of open defecation accounted for 624 and 5,300 cases respectively (Kuorsoh, 2012). In spite of the numerous Water, Sanitation and Hygiene projects such as the National Community Water and Sanitation Programme, Sustainable Rural Water and Sanitation Projects among others

implemented by Government in the Wa Municipality and Non-Governmental Organizations such as UNICEF to improve upon sanitation, the sight and smell of faeces around reduces the aesthetic quality of the environment and causes embarrassment to residents and visitors to the Wa Municipality. What are the issues responsible for open defecation in the Wa Municipality? Can this issue be attributed to socio-economic and cultural causes? This unanswered questions pertaining to open defecation in the Wa Municipality is what the research seeks to enquire.

1.3 Main Research Question

Research questions are questions that a researcher would like to answer through a study (Kumar, 1999). They are necessary because they aid in addressing the research problem. The main research question that the research seeks to answer is: What are the underlying factors influencing open defecation in the Wa Municipality?

1.3.1 Sub-Research Questions

The sub-research questions are:

i. How does socio-economic factors influence open defecation in the Wa Municipality?
ii. How does cultural factors influencing open defecation in the Wa Municipality?
iii. What are the consequences associated with open defecation in the Wa Municipality?

iv. Are there alternative methods of defecation practices in the Wa Municipality?

1.4 Research Objectives

1.4.1 Main Research Objective

On the basis of the research questions, the main objective of the study is to assess the underlying socio-economic and cultural factors influencing open defecation in the Wa Municipality of the Upper West Region.

1.4.2 Specific Objectives

Specifically, the research seeks to achieve the following objectives:

i. To establish the socio-economic factors influencing open defecation in the Wa Municipality

ii. To examine the cultural factors influencing open defecation in the Wa Municipality

iii To establish the consequences associated with open defecation in the Wa Municipality

iv. To identify alternative methods of defecation practices in the Wa Municipality

1.5 Significance of the Study

Open defecation is a social convention widely practised and reinforced by socio-economic and cultural factors which relate not only to the practice itself, but also to latrine use (Water Aid, 2008). This study will help to identify these factors, which

act as social and cultural barriers to the elimination of open defecation. The results of this study will be beneficial to the Wa Municipal Assembly, interest groups in the water and sanitation sector and health promotion agents in their quest to address sanitation-related issues in the Municipality. Even though literature abounds on open defecation and its associated health risk, however, information available on the socio-economic and cultural influences of open defecation in the Wa Municipality seems scanty. Other researchers can also rely on this study as a source of literature to continue researching on socio-economic and cultural factors influencing open defecation.

1.6 Scope of the Study

The location of the study area is the Wa Municipality of the Upper West Region of Ghana. It lies within latitudes 1º40'N to 2º45'N and longitudes 9º32'W to 10º20'W. It has a total land mass of 234.74 square kilometres. The study was carried out in twenty (21) randomly selected communities within the Municipality. The study focus on the socio-economic and cultural factors influencing open defecation, the consequences of open defecation as well as examining other alternatives methods of defecation practices. The targeted population for the study was households, landlords, religious and traditional leaders as well as some selected state institutions in the Wa Municipality thus the Municipal Environmental Sanitation Officer, the Municipal Disease Control Officer of the Ghana Health Service, the Municipal Director of Community Water and Sanitation Agency.

1.7 Organization of the Study

The report was organized into five (5) chapters. Chapter one contained the introduction, which constitutes the background to the study, problem statement, objectives of the study, research questions, significance of the study, limitation of the study, scope of the study, and organisation of the study. Chapter two entails literature review and conceptual issues which contains relevant literature on socio-economic and cultural factors influencing open defecation, consequences associated with open defecation and alternative methods of defecation as well as conceptual and theoretical framework of the study. Chapter three constitutes the methodology which consists of the research design, sources of data, study population, sampling frame and sample design, data collection instruments, sampling techniques and methods of data analysis.

Chapter four is made up of data analysis and presentation. Chapter five, which is also the last, contains summary, conclusions and recommendations for policy decision-making

1.8. Limitations of the Study

The researcher faced some challenges during the study. Prominent among them included the following: Firstly, covering 21 sampled communities within the Wa Municipality came with some financial implications since the research work was self-sponsored. Transportation, feeding, stationery such as papers for printing and photocopying questionnaires, files, pens etc. were all provided by the researcher. However, this challenge was resolved through a bank loan obtained to fund the budget of the research work.

Secondly, some respondents within some sampled communities were unwilling to participate in the research work since several NGO's came and promised them financial assistance to construct their individual household latrines but never fulfilled their promise. This challenge was resolved amicably through education. Respondents were made to know that the research work was purely academic and that their concerns would be communicated to the appropriate authorities.

Thirdly, inconsistent population values obtained from Wa Municipal Assembly and the Ghana Statistical Office - Wa Office on the population of Wa Municipal made it difficult for determining the sampling frame and the sample size. However, population figures where reconciled before arriving at the final figures.

Lastly, boundary demarcation was another challenged encountered since the researcher must know the boundaries of each communities to facilitate the sampling process. This situation was common within the communities/suburbs within the Wa Township. However, the Assembly men within those communities and the Town and Country Planning Department assisted in resolving this challenge. In conclusion, amidst these challenges the quality of data collected was not compromised.

CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL ISSUES

2.1 Introduction

This chapter reviews relevant literature on the theories and concepts underpinning the study. Major concepts such as; open defecation, the disease exposure pathways, excreta related pathogens and diseases in relation to the study were reviewed. An overview of sanitation and the sanitation ladder were also discussed to show the differing levels of sanitation access. The social norm theory was also adapted as an analytical tool in understanding how individuals incorrectly perceive the attitudes/behaviours of peers and other community members to be different from their own and how this influence open defecation. The chapter concludes with a summary of lessons from the literature reviewed.

2.1.1 Theoretical Framework

Kombo and Tromp (2006) see a theoretical framework as a collection of interrelated ideas based on theories. It is a reasoned set of prepositions which are derived from and supported by data or evidence. A theoretical framework accounts for or explains phenomena). Hence the social norm theory has been adapted and used as an analytical tool in understanding how societal norms and behaviours contribute to the problem of open defecation. However, some modifications have been made to the theory to suit the purpose of the study.

2.1.2 History of the Social Norms Approach

The social norms approach was first suggested by Alan D. Berkowitz and H. Wesley Perkins based on research conducted at Hobart and William Smith Colleges in the 1980's (Berkowitz and Perkins, 1987; Perkins and Berkowitz, 1986), although it was initially referred to by different names. It has since been implemented at all levels of prevention: primary or universal with entire campus or community populations, secondary or selective with particular sub-populations (such as Greeks and athletes) and tertiary or indicated with individuals.

2.1.3 The Theory of Social Norms

Social norms theory describes situations in which individuals incorrectly perceive the attitudes and/or behaviours of peers and other community members to be different from their own. This phenomenon has also been called "pluralistic ignorance" (Miller and McFarland, 1991). These misperceptions occur in relation to problem or risk behaviours (which are usually overestimated) and in relation to healthy or protective behaviors (which are usually underestimated), and may cause individuals to change their own behaviour to approximate the misperceived norm (Prentice and Miller, 1993). This in turn can cause the expression or rationalization of problem behavior and the inhibition or suppression of healthy behavior. Social norms theory predicts that interventions which correct these misperceptions by revealing the actual, healthier norm will have a beneficial effect on most individuals, who will either reduce their participation in potentially problematic behavior or be encouraged to engage in protective, healthy behaviours. Using college student use of alcohol as a case study, reviewed by Berkowitz (2003) and Perkins (2002) and

(Perkins, 2003) said that that most college students overestimate the alcohol use of their peers (i.e., there is pluralistic ignorance with respect to alcohol use). This overestimation results in most moderate or light-drinkers consuming more than they would otherwise and may also encourage non-users to begin drinking. Heavy users of alcohol are even more likely to believe in this misperception and use it to justify their heavy drinking. This latter case is an instance of "false consensus" (i.e. falsely believing that others are similar when they are not). The extent to which alcohol use is misperceived has been strongly correlated with heavy drinking in many studies. Similar patterns have been documented for tobacco use. False consensus and pluralistic ignorance are mutually reinforcing and self-perpetuating. In other words, the majority is silent because it thinks it is a minority, and the minority is vocal because it believes that it represents the majority. Providing accurate normative feedback is one way to break this cycle, which can otherwise create a self-fulfilling prophecy (i.e., everybody drinks more because everybody thinks that everybody drinks more). Thus, information about healthy drinking norms and attitudes will encourage most individuals to drink less or not at all (which is more consistent with their underlying values and intentions), and also challenge the reasoning that abusers use to justify their drinking. Applying the social norm theory to the practice of open defecation, open defecators perceives that majority of community members defecate openly and the minority in the community also think that they represent the majority of people in the community that do not practice open defecation.

Open defecation is not yet perceived as a problem by the people practicing it, and in many places is an accepted practice (Gautam, 2014).

In the light of above literature, open defecation is an example of a customary belief and a collective behaviour which is guided by unconditional preferences of the people. Their behaviour is not determined by what others who matter to them do. There is no empirical expectation, thus what people think it is done nor is there normative expectation, what people think others think should be done. Social expectations do not matter to an individual as there are no sanctions for doing such an act. Though there are many differences in custom, cultures and social norms in Wa Municipality, due to the vast diversities in culture and customs, the normative expectations regarding open defecation practice is mostly common across the entire Municipality.

2.1.4 Assumptions of the Social Norms Theory

The assumptions of social norms theory as stated by (Berkowitz, 2003) includes:

i. Actions are often based on misinformation about or misperceptions of others 'attitudes and/or behavior.

ii. When misperceptions are defined or perceived as real, they have real consequences.

iii. Individuals passively accept misperceptions rather than actively intervene to change them, hiding from others their true perceptions, feelings or beliefs.

iv. The effects of misperceptions are self-perpetuating, because they discourage the expression of opinions and actions that are falsely believed to be non-conforming, while encouraging problem behaviors that are falsely believed to be normative.

v. Appropriate information about the actual norm will encourage individuals to express those beliefs that are consistent with the true, healthier norm, and inhibit problem behaviours that are inconsistent with it.

vi. Individuals who do not personally engage in the problematic behaviour may contribute to the problem by the way in which they talk about the behaviour. Misperceptions thus function to strengthen beliefs and values that the "carriers of the misperception" do not themselves hold and contribute to the climate that encourages problem behaviour.

vii. For a norm to be perpetuated it is not necessary for the majority to believe it, but only for the majority to believe that the majority believes it.

2.2 Overview of Sanitation

Sanitation is a basic condition for development. Sanitation covers the control of public water supplies, excreta and wastewater disposal; refuse disposal, control of vectors of disease, housing conditions, food supplies and handling, atmospheric conditions, and the safety of the working environment. Sanitation is a way of life and a quality of living that can be expressed in a clean home, office, industries, etc. Also, sanitation may specifically be looking at food hygiene, control of straying animals, cleaning of market and public places and the collection and sanitary disposal of waste. Improved sanitation is important because it makes human health better, promotes economic and social development and also helps the environment (Eade and Williams, 1995).The definition of sanitation differs depending on the

context one is looking at. Tearfund (2007) in their presentation on demand-led approaches to sanitation gave various definitions of sanitation to include:

- Safe collection, storage, treatment/re-use of human faeces and urine
- Practice of sound hygiene behaviour (including hand-washing and household storage of water)
- Management and reuse of solid waste
- Management and reuse of household waste water
- Drainage of storm water
- Management of hazardous waste and industrial waste

However, at a workshop organized by the Centre for Democratic Development (CDD-Ghana) in Accra, the Ministry of Local Government and Rural Development defined sanitation "as the state of cleanliness of a place, a community, or a people and in particular it relates to the quality of life aspect of human health as determined by the physical, biological, social, and psychological factors of the environment. It is the theory and practice of assessing, controlling and preventing those factors in the environment that can potentially and adversely affect the health of this generation and future generations (CDD, 2002). According to the World Health Organization, Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. For the purpose of this research, the definition of the World Health Organization would be adopted.

Adequate sanitation, together with good hygiene and safe water, are fundamental to good health and to social and economic development. That is why, in 2008, the Prime Minister of India quoted Mahatma Gandhi who said in 1923, ''*sanitation is*

more important than independence'' (Singh, 2008 cited in Mara etal, 2010). Improvements in one or more of these three components of good health can substantially reduce the rates of morbidity and the severity of various diseases and improve the quality of life of huge numbers of people, particularly children, in developing countries (Esrey e tal, 1991)

Although safe water campaigns have received media attention and funding in the past decade, the global sanitation crisis has not shared the same spotlight or made the same amount of progress. The Millennium Development Goals (MDGs) recognize the importance of water and sanitation in goal 7c: To halve the proportion of the population without sustainable access to improved drinking water and basic sanitation (UNICEF, 2006). According to the 2006 Millennium Development Goals (MDGs) update from the World Health Organization (WHO) and United Nations Children's International Education Fund (UNICEF), the world has met the 2015 goal for improved water but will miss the goal for improved sanitation coverage by half a billion people. (UNICEF, 2006). Most of the population without access to improved sanitation and improved water is in south eastern Asia and Sub Saharan Africa. While most places without improved drinking water are rural, lack of sanitation facilities affects both urban and rural areas. (UNICEF, 2006)

There are many sanitation options throughout the world including various dry and water based systems. "Improved sanitation" is defined by WHO as facilities that ensure hygienic separation of human excreta from human contact. (UNICEF, 2006) Included are flush and pour flush toilets with piped sewer systems or septic tanks, soak away pits, ventilated improved pit latrines, pit latrines with slabs, and

composting toilets. Not included in the improved definition are any of the above facilities that are shared between more than one household or are public facilities. (UNICEF, 2006).

According to a March 2012 newsletter of Water Aid, Ghana can only boast of a paltry one per cent annual growth in sanitation, making nonsense of the target for the country to have solved 54 per cent of its sanitation problems by 2015. Over 20 per cent of the population still lacks access to basic sanitation facilities like toilets; a situation which has resulted in about 5 million people openly defecating into gutters and the shores of beaches every day. Poor management of solid and liquid waste coupled with bad attitude of citizens towards waste disposal was also turning the clock backward for the country in achieving the MDG target on sanitation, Water Aid alerts.

2.2.1 The Sanitation Ladder

The concept of "sanitation ladder" (Figure 2.1) has been introduced by World Health Organization to show differing levels of sanitation access which gives more information than the dichotomous "improved"/unimproved" labels (WHO, 2008). The lowest rung of the sanitation ladder is open defecation. The next rung is some sort of unimproved sanitation facility, such as pit latrines with no slabs, trenches, and buckets. Next is an improved facility that is somehow shared, in this case, the facility itself is adequate, but it is not considered improved access because it is shared between households or is a public facility.

Figure 2.1: The sanitation Ladder

Source: Adapted from WHO, 2008**.**

The top rung on the sanitation ladder is the improved sanitation facilities of personal flush toilet, pit latrines with slabs, and VIP facilities**.** The World Health Organization (WHO) defines "improved sanitation" as access to personal sanitation facilities that are able to hygienically separate human waste from human contact (WHO, 2008). These include flush and pour-flush toilets that empty into a sewer, septic tank or soak away pit, as well as pit latrines with slabs, ventilated improved pit latrines (VIPs) and composting toilets. Unimproved sanitation includes no

sanitation facilities at all, known as “open defecation”, pit latrines without slabs, hanging toilets, buckets, and shared or public facilities of any type.

2.2.2 Open Defecation

The Millennium Development Goals (MDGs) adopted at the Millennium Summit of the United Nations in September 2000, calls for a dramatic reduction in poverty and marked improvements in the health of the poor. Access to safe water and sanitation are fundamental for better health, poverty alleviation and development; and improving water and sanitation services has been recognized as a crucially important strategy towards meeting the MDGs (WHO, 2003). During the MDG period, the elimination of open defecation has been increasingly recognized as a top priority for improving health, nutrition and productivity of developing country populations. In 1990, more than half the population in 16 countries practiced open defecation, and more than ten percent in 62 countries (WHO/UNICEF , 2015).

Faeces, “poo’’ or popularly called ‘shit’ is a highly sensitive, almost taboo topic across all cultures. Circumventing this sensitivity has contributed to the failure of many programmes aimed at preventing the practice of Open Defecation (OD). Open defecation is the practice of defecating in the open, be it common or private spaces and may include fields, forests, bushes or bodies of water (Budge, 2010). The World Health Organization in its 2015 joint monitoring report on progress on sanitation and drinking water asserts that open defecation rates have been decreasing steadily since 1990, and it is estimated that fewer than one billion people (946 million) now practice open defecation worldwide. Two thirds live in Southern Asia, nearly three times as many as in sub-Saharan Africa. However, the number of people practicing

open defecation in Southern Asia has declined only moderately, from 771 million in 1990 to 610 million in 2015, a reduction of just 21 per cent. During the same period the number of people practicing open defecation has actually increased in sub-Saharan Africa, and the region now accounts for a greater share of the global total than in 1990.

In sub-Saharan Africa, where 25 percent of the population practices open defecation, diarrhea is the third biggest killer of children under five years old. Studies estimate that a child dies every 2.5 minutes because of unsafe drinking water, poor sanitation and hygiene. Children with diarrhea eat less and are less able to absorb the nutrients from their food, which makes them even more susceptible to bacteria related illnesses. Compounding the problem, the children most vulnerable to acute diarrhea also lack access to potentially life-saving health services.

According to the United Nations 2013 World toilet day celebrations, Liberia, the nation most affected by Ebola, roughly half the nation's 4.2 million citizens don't use toilets and as such practice open defecation whereas in rural Sierra Leone, the second worst-hit country of Ebola it is estimated that 28 percent of their population are engaged in open defecation. Pathak (1999) observed that modern civilization has increased rather than lessened the problem of scavenging and open defecation. The implication is that bringing about effective and sustainable changes in sanitation practices involves much more than good engineering. It often requires changes in human behavior. The explanation is that if sanitation is to be effective and sustainable it must come from the people and must be nourished by knowledge.

More importantly, hygienic disposal of wastes, particularly human excreta should be the underlying objective of all sanitation programs (Pathak, 1999).

2.2.3 Socio-economic factors influencing open defecation

Open defecation is an old sanitation issue globally and Ghana in particular, which persist till date, despite damming effects of open defecation. Why the practice continues to persist is the question that is the concern of this study. Literature has shown that the technical feasibility of a particular sanitation system depends on several factors. These factors include cost and affordability, communal or household facilities, ground conditions, population density, upgrading potential, reuse of waste, anal cleansing materials, timing and maintenance. In general, low income groups do not spend more than 2-5 percent of their income on excreta disposal (Anand, 1999).

A study from Connell (2014) indicates that there is a relationship between household wealth and latrine ownership. There is a positive relationship between a household's socio-economic status and its position on the sanitation ladder. Improved latrine owners are wealthier than unimproved latrine owners or open defecators, are more educated, and have higher literacy rates, which is consistent with findings from the (WHO/UNICEF, 2015). For example, in Rajasthan, respondents from highest quintiles are more likely to own latrines than those in the lowest quintiles. In contrast, those from the lowest socio-economic quintiles are most likely to defecate in the open. Poverty has been cited as one of the considerations in choosing a place to defecate. This consideration reflects in whether or not fees are charged or whether one can build one's own facility. Beyond

this, in building one's own facility, the financial strength of the person determines the particular type of facility to install in his or her house. In affirmation of this observation Jenkins and Scoff (2007) have argued that the adoption of latrines in poor communities follows three behavioral patterns: preference, intention and choice. The third pattern, choice is however based on the financial standing of the individual. Therefore, finances cannot be ruled out in decisions regarding the facility to use.

A study conducted by (Santah, 2013) concludes that people have expressed the pains of poverty which is displayed in the condition of some of their dwellings, dilapidated mud houses often with part of their roof falling off. For most community members, therefore, choosing an option to go to toilet depends on whether it is affordable or not. Confirming the findings by (Santah, 2013) M. Souleymane Kindo; Water, Hygiene, and Sanitation Project Coordinator, Nasséré, Burkina Faso said:

> "*The construction of latrines requires the participation of communities. However, the contribution requested is still considered as too high. People often say they cannot conceive sleeping in thatched-roof huts and on the other hand build latrines with cement and reinforcing steel just to defecate. Thus, they give less importance to the latrines than to other facilities and do not want to invest in latrines…*"

In support of this notion, Osumanu and Kosoe (2013) contend that financial constraints present two challenges. First, it inhibits house owners from the provision of household toilets and, secondly, people's inability to afford fees charged by public toilet operators. This implies that if a household cannot afford the fees for the use of a public toilet and cannot also afford to construct one, then they will

practice other methods which will not only make the environment unclean but pose a lot of health challenges. Pickford (1991) indicates that where there are no latrines, people resort to relieving themselves in the open. They usually do this in the fields or bushes or any undeveloped land. The conclusion one can make here is that lack of places of convenience (latrines) is one of the reasons why people defecate indiscriminately. This conclusion is, however, debateable in the case of Wa Municipality, the study area, because even in areas where public toilets are available, people still defecate indiscriminately.

Nabiochoge (1997) as cited by Mahamudu, 2011) in a study to determine factors that contribute to indiscriminate defecation in Bawku Township reported that 40 percent of the households had toilets while 60 percent did not have. He further reported that not all lodgers of these households with toilets have access to the use of the facilities. This study therefore supports the findings cited earlier on and also suggests that even where toilets were in some houses, not all lodgers were allowed to use them. Lack of effective maintenance is identified as one of the problem often cited by some people for not using toilets where they exist. For instance, Nyonator, (1996) implied this notion when he opined that latrines already in existence needed continuous maintenance or users view them becoming hazardous facilities, thus encouraging the indiscriminate defecation by people of the community. (Caincross and Feachem, 1993) reports that in Juba, Sudan, “smell” was the chief problem associated with the existence of old toilet facilities. Water Aid, (2009) also reports that many traditional latrines are not well maintained, and a persistent complaint about traditional designs from those surveyed was that they generally do not allow

for the escape of unpleasant smell and 'heat' from the latrine. Many people prefer to defecate in an open space in the bush where the faeces will dry quickly in hot weather, rather than in a confined and unpleasant-smelling building. In some localities poor hygiene standards in public latrines especially during the rainy season when pits may fill with water discourages people from using them even when the toilets are maintained.

Osumanu and Kosoe (2013**)** indicate that respondents complained seriously about conditions of public toilets in the town because the facilities are not cleaned regularly. At times the holes are not emptied on time. Most of the facilities do not have bins to collect used toilet papers and these are disposed-off on the surroundings of the holes. Also, people who use the facilities tend to defecate around the holes which contribute to the poor condition of the facilities. There were also times when people found it inconvenient to use the toilets because of scores of flies. These findings suggest that even where toilets exist, poor maintenance can make people avoid them.

Social norms are also contributory factors to open defecation. Social norms are the rules that govern how individuals in a group or society behave. According to the Sani FOAM framework, social norms include behavioral standards that exist in the community for an individual to follow, and are the presence or absence of traditions and cultures that govern behavior (Andersen, 1995; Fehr and Gaechter, 2000; Bettenhausen and Murnighan, 1991 as *cited by* Connell, 2014). Family members, peers, and others in the community defecate in the open, making this a common

behavior that is rooted in culture and tradition and learned since childhood. Connell (2014) observed that in Peru, open defecation is described as:

> "… The most natural thing." In East Java, a focus group participant noted, *Yeah, I am embarrassed if people pass by, but I think everybody is used to it, everybody also does that.*

And in Kenya, a participant described, *some people may have a toilet, but are not used to going to the toilet. It depends on (with) how a person was brought up. If he is used to going to the bush, he will still go to the bush.* Connell (2014) continues to say that Open defecation is described as traditional, habitual, and part of one's daily routine, and these social norms are also held more strongly by open defecators. For example, In Tanzania, 40 percent of all respondents agree or strongly agree that "it is normal for people to defecate in the open in their community." In one area surveyed, as many as 80 percent of respondents agreed or strongly agreed with this statement. In Rajasthan, 28 percent of open defecators state this behavior is "practiced by generations" and 47 percent agree "we are used to defecating in the open." In Bihar, 49 percent of open defecators agree "we are used to defecating in the open." In certain circumstances (such as when traveling) or for certain target groups (such as children), the practice of open defecation is deemed more acceptable, hence societal norms must be well understood in initiating any sanitation program.

2.2.4 Cultural Factors Influencing Open Defecation

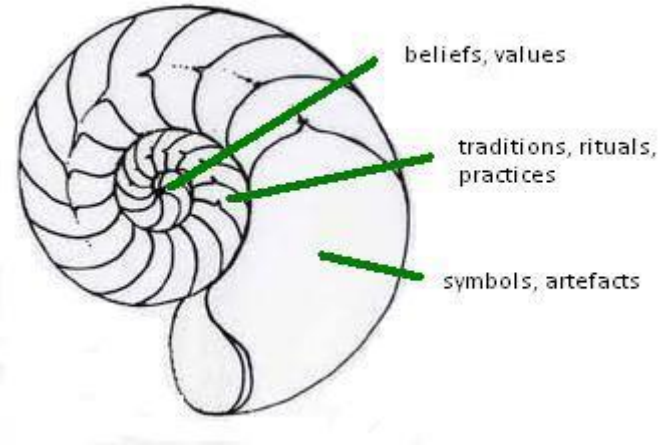
Culture is the particular knowledge, beliefs, and understanding of art, law, morals, customs, and other skills and habits that a person acquires as a member of a given

society (Water Aid, 2009). Beyond their individual differences, the members of a group or a society have particular ways of thinking and behaving, and will react to situations in similar ways. Culture is also an instrument; a tool by which we assign meaning to the reality around us and to the events that happen to us. This constant building of meaning involves repetition and the reproduction of the ways of doing things and behaving which have been acquired; and renewal of the incorporation of new elements that add to or replace what has been acquired. Because of these processes of repetition and renewal, societal attitudes are not unchangeable and communities can choose to give up harmful practices, although there is a need to accept that this process may take some time. Culture is a system of shared values, beliefs, behaviour and symbols that the members of society groups use to interact with their social surrounding. Reijerkerk and Schewald (2009) used the Nautilus shell to symbolize different layers of cultural phenomena (Figure 2.2):

- Values, norms and beliefs form the core of any culture.
- Traditions, rituals and practices characterize a culture.
- Symbols and artefacts like expressions, stories, gestures or pictures are expressions of culture.

Socio-cultural beliefs make some communities resistant to changing their sanitation practices and poses as a serious threat to eliminating open defecation.

Figure 2.2: Layers of cultural phenomena



Source: Adapted from Schelwald and Reijerkerk, 2009.

Socio-cultural factors play a significant role in explaining indiscriminate defecation. In the words of (Cotton etal, 1995), the importance of cultural beliefs and perception in latrine use was amply demonstrated in Kumasi, Ghana, when it was agreed to provide pit latrines after several master plans for sewerage were abandoned. According to the report, the house holder of the first demonstration unit refused to use the latrine because he was a Muslim and the latrine faced the direction of Mecca. Belcher & Vazquez-Calcerrada(1972) in their study in Uganda, in the late 1940s found out that people were afraid to use latrines because their fixed location would provide sorcerers with easy access to their excreta for devilish purposes. Another perception of the people, according to the study, was that faeces of one's own in contact with another could bring about contamination; hence defecating at random in the bush and surroundings was considered the safer alternative to outwit the sorcerers. According to Nawab et al. (2006) cited in Santah (2013), incorporating cultural preferences in the planning of improved sanitation, aids in the understanding of people's attitude and behaviour. This in turn helps to adopt

feasible strategies for sensitizing and motivating people on the needs for developing appropriate environmental practices. Nawab et al. (2006) go further to make a case for this stance with a study on societal preference in designing ecological sanitation system in North Frontier Province, Pakistan. It is noted that every household in the primarily Muslim community wanted water within the toilet or latrine for anal cleaning which is common in Muslim cultures. The Islamic religion requires of a person all possible cleaning as part of purification rituals for praying. Their respondents were, therefore, in favour of flush toilets.

Water Aid (2009) in its reports indicates that in Mali, and for the Idoma people in Nigeria, open defecation is seen as an ancestral practice passed down through generations. Open defecation is culturally encouraged in Idoma communities as it is a taboo to defecate in a building or super structure, and many older people still refuse to defecate in any sort of enclosed area. In some Idoma communities, husbands do not allow their wives or daughters to share latrines with them, and will generally refuse to pay to build latrines for the use of female family members. The same research work indicates that in Ghana, fear of being possessed by demons or losing your magical powers is the leading cause of open defecation across all the areas where the study was carried out. Nearly half of the respondents in Tamale believed that public toilets are surrounded by evil spirits and therefore should be avoided, with a significant group of respondents in the Wa East district believing that latrine use will strip the user of their magical powers.

Osumanu and Kosoe (2013) confirmed that several socio-cultural factors inhibit households from the use of public toilets and cited some socio-cultural factors

associated with the use of public toilets in Wa Township. According to the study, a respondent explained that witches often disguise themselves as frogs, fowls or other animals and enter the toilet to eat the faeces at night. According to him:

> *".....these disguised animals can harm anybody at night. It is even possible for a witch to disguise as a maggot. As a result, anybody who attends communal toilets can contract spiritual marriages as one exposes his/her private organs and may never be able to marry again".*

Supporting the research findings by Osumanu and Kosoe (2013), (Bwire, N.D) indicates that the Kilifi population in Kenya believes a person's faeces can be used to bewitch him/her. Therefore most people avoid using a defecation site other than their own. Witchcraft still plays a major role in the lives of the Kilifi communities and they have a mortal fear of being bewitched. While visiting another homestead, a visitor is usually shown a designated spot to use. The belief is that their faeces could easily be picked up and used for witchcraft once they have left. So it is common for people upon visiting a neighboring homestead to walk all the way back to their own home, should they feel the urge to attend to the 'call of nature'. These socio-cultural factors and socio-cultural beliefs may inhibit households or house owners who hold onto such values to provide communal toilet facilities in their homes for usage.

Water Aid (2009) in its study said that in some communities in Burkina Faso and Mali, people are ashamed or embarrassed to be seen walking in the direction of a latrine or toilet even by close relatives such as their spouses or children as other people will know they are going to relieve themselves. Most people will avoid walking directly towards toilets, and some prefer not to have any at home as they feel that defecating in

the bush offers more privacy. For the Bwaba ethnic group in Burkina Faso, if someone gives you food, you are expected to defecate in his field (and fertilize the crops), as the act of giving entitles the giver to receive something in return.

With these perceptions and beliefs, individuals and communities who practice open defecation do not see the need to help in eliminating such a canker.

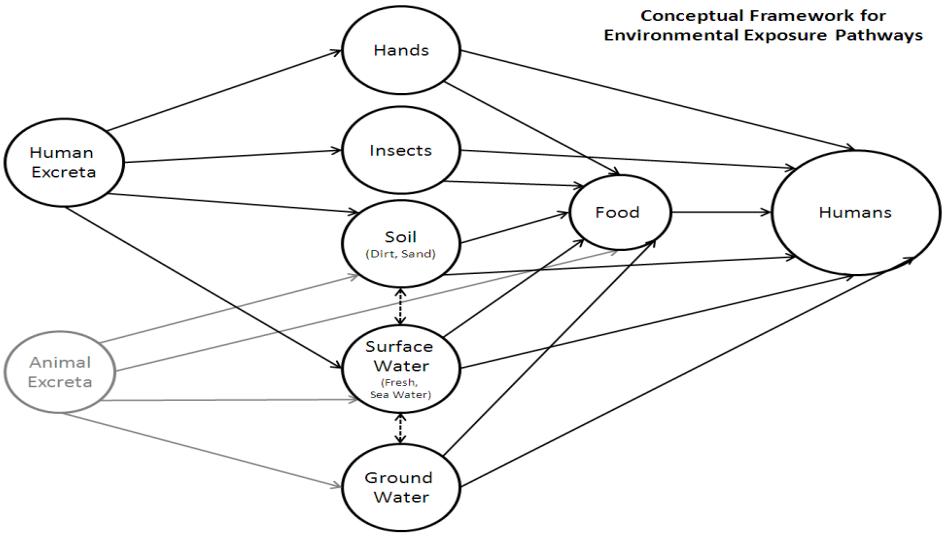
2.3 Consequences of Open Defecation.

2.3.1 The Disease Exposure Pathway

Open defecation is the most significant environmental factor in the transmission of excreta related diseases. Various transmission and exposure pathways are associated with this. The likelihood of direct contact is the prime one, but also contamination of drinking water sources, crops and soil and breeding sites of disease transmitting vectors are of concern. The degree of exposure however varies considerably for different groups as well as with population density and seasons. The likelihood of exposure is always greater in densely populated areas, where children are the most vulnerable and have a higher frequency of contact with contaminated soils than adults. The impact on surface water directly and through storm water drains will occur due to open defecation including “flying latrines” in urban areas. A higher exposure to pathogens through drinking water may also occur in the rainy season compared to the dry season. Open latrines remain the single most important risk factor for trachoma disease (Emerson, et al., 1999). *Musca sorbens*, the fly that transmits *Chlamydia tranchomiasis* breeds predominantly in human faeces on the soil surface, but not in covered pit latrines. In a Gambian study a mean

of 1426 flies/ kg of human faeces on the ground were registered (Emerson *et al*., 1999).

Figure 2.3: Disease exposure pathways



Source: Adapted from (CGSW, 2010)

The disease exposure pathways (Figure 2.3) depict these major faecal exposure pathways. Contact with both human and animal excreta poses a risk of enteric infection and disease to humans, but for sanitation related interventions, the focus is on pathways that involve human excreta. According to (Stenstrometal, 2011) the transmission pathways of excreta related pathogens may be either primary (through direct contact exposure) and/or secondary, (exposure through an external route). Primary transmission includes person to person contact but in this context also direct contact with faeces or faecal soiled surfaces. Secondary transmission includes, vehicle borne (food, water etc.), and vector-borne. The first is through contamination of e.g. crops or water sources. The second is mainly through created breeding sites of the vectors. Airborne transmission may also occur, for example

during wastewater irrigation. This simple relationship is essential to consider in designing and implementing, or modifying excreta use schemes so that they will lead to a decreased risk of disease.

2.3.2 Excreta related Pathogens and Disease

A large range of pathogenic organisms of viral, bacterial, parasitic protozoan and helminthes origins may be present in faeces; only few are excreted with urine. The faecal pathogens with environmental transmission mainly cause gastro-intestinal symptoms such as diarrhea, vomiting and stomach cramps. Several may also cause symptoms involving other organs and severe sequels or be an interrelated factor for malnutrition. Stenstrom *et al*. (2011) on microbial exposure and health assessments in sanitation technologies and systems said that in developing countries outbreaks of cholera, typhoid and shigellosis are of major concern. In both industrialized and developing countries bacterial pathogens, like *Salmonella, Campylobacter* and enterohaemorrhagic *E. coli* (EHEC) are of general importance. More than 120 different types of viruses may be excreted in faeces, including members of the enteroviruses, rotavirus, enteric adenoviruses and human caliciviruses (noroviruses) groups. Hepatitis A is also of major concern and the importance of Hepatitis E is emerging, and considered a risk for both water- and food-borne outbreaks, especially where the sanitary standards are low. *Schistosoma haematobium* are excreted both in faeces and urine while other types of *Schistosoma*, e.g. *S. japonicum and S. mansoni* are just excreted in faeces (Stenstrom *et al*., 2011).

Generally, infectious organisms from infected persons' excreta may reach other individuals through contact with contaminated areas and thereafter accidentally be

transmitted in minute quantities to the mouth. The same occurs when contaminated crops are eaten or when drinking contaminated water. In a study conducted by Kpieta and Laari, (2014) indicates that high total coliform levels signifies high levels of faecal contamination of the reservoirs and the possible presence of disease causation pathogens in the water. The presence of *E. coli* in water samples almost always indicate recent faecal contamination, meaning there is a greater risk that pathogens are present.

2.3.2.1 Diarrheal Diseases

The World Health Organization (WHO) defines diarrhea as "the passage of three or more loose or liquid stools per day, or more frequent passage than is normal for the individual." Diarrheal diseases are one of the most common causes of death in low-income countries, contributing to 15 percent of an estimated 8.795 million deaths in children under the age of five globally (WHO, 2009). Infectious diarrheal diseases include other severe diseases such as cholera, typhoid and amoebic dysentery. Diarrhea can be caused by bacterial (e.g. Vibrio cholerae), viral (e.g. Rotavirus) and protozoa (e.g. Giardia) organisms most of which are found in water or food contaminated by faecal material. Diarrhea is transmitted by the faecal-oral pathway illustrated in Figure 2.3. Human faeces are the primary source of pathogens causing diarrhea, poor sanitation, lack of adequate water supply and hygiene are all contributing factors to high instances of diarrheal disease (WHO, 2009) .Existing studies have also estimated that improved sanitation can contribute to an approximate one third reduction in diarrhea.

2.3.2.2 Intestinal Nematode Infections

Nematode parasitic infections continue to represent a major public health threat, particularly in developing countries. Nematode infections are transmitted by eggs or larvae, which can enter human hosts by either penetrating the skin (Hookworm), being ingested from uncooked/unwashed vegetables (whipworm and roundworm) or by not washing hands contaminated with soil**.** Ascariasis is caused by the roundworm *Ascaris lumbricoides*. Eggs are passed in the infected faeces, which in poor sanitation conditions may contaminate water and soil. The infection is transmitted via ingestion of infective eggs, from contaminated soil or from uncooked products contaminated with soil or wastewater containing infective eggs. Ascaris eggs can survive for months or years in favorable conditions. Children are most at risk of being infected while playing in soil contaminated with human faeces. Similarly to *ascariasis*, *trichuriasis*is caused by ingestion of infectious eggs of the whipworm *Trichuristrichur*ia.

Hookworm infections result from the ingestion or skin penetration of the hookworm larvae *Ancylostomaduodenale or Necator americanus*, which are found in soil. The larvae develop in soil through the deposit of faeces containing eggs from infected persons. The ingested larvae are carried in the bloodstream from the lungs to the small intestine where they attach to the intestinal wall. As they mature into adult worms, they digest quantities of blood and cause further losses to the human system. Research on disease transmission suggests that intestinal nematode infections can be prevented by adequate water, sanitation and hygiene (Esrey et al., 1999) For example, a recent systematic review, also found the use of sanitation is associated

with significant protection against hookworm infection (Moraes et al., 2004) Similarly, other studies have shown an increased risk of ascariasis is associated with being exposed to untreated wastewater (Ziegelbauer et al., 2012) open defecation (Habbari et tal., 2000) and no hand-washing with soap (WHO, 2012). For instance, in their review of the literature, Esrey et al. (1991) found that water supply and sanitation improvements can reduce the prevalence of ascariasis by a median of 28 percent and hookworm infection by a median of 4 percent

2.4 Gender Impacts of Open Defecation

Considering the darkest side of the practice of open defecation, Hirve, et al., (2014) said that among everyone, women are being disproportionately impacted. Women and young girls face sexual harassment, insult, shame and insecurity while defecating in open. It thus poses a serious threat to the safety of women and girls who are forced to defecate in the open. Sometimes during night they are forced to defecate at places which are far away from their residents. Rape and sexual molestation take place when women search for places for open defecation that are secluded and private, often during hours of darkness (Lennon, 2011). According to (Kumar, 2013), nearly 50 per cent of rape cases in Bihar occur when women engage in open defecation. Senior police official Arvind Pandey from the Indian state of Bihar told the BBC *that 400 women would have 'escaped' rape in 2012 if they had toilets in their homes.* The rape cases take place when women go outside to defecate early in the morning and late in the evening. These 'sanitation-related' rapes made up nearly half of the more than 870 cases of rape in Bihar in 2012. 'Bad boys' mostly target newlyweds and unmarried girls, as they are more likely to suffer silently

(Kumar, 2013). In a research conducted by (Bapat and Agarwal, 2003) said that women are watched and molested when defecating in the open. A respondent said that:

> *"Until now, we have used open land for defecating; men go on one side and women on the other. People passing by can see women squatting. The day before yesterday, an old woman went out to defecate at seven in the evening and a man came from behind and grabbed her. A few of us generally go together for the toilet. Men hide behind the bushes and watch women when they are squatting. If they see a woman alone, they creep in and molest her."*

Aside rape and sexual molestation carried out on women who practice open defecation, Bapat and Agarwal, (2003) cited Hirve (et al., 2014) who said that women are likely to face higher levels of psychosocial stress compared to those with access to latrines as a result of deeply ingrained feelings of shame and indignity related to nudity and defecation. For open defecation, women often have to wait till dark or rise early, confront the fear of physical and sexual harassment and relieve themselves in haste.

2.5 Toilet Facility Use and Coverage

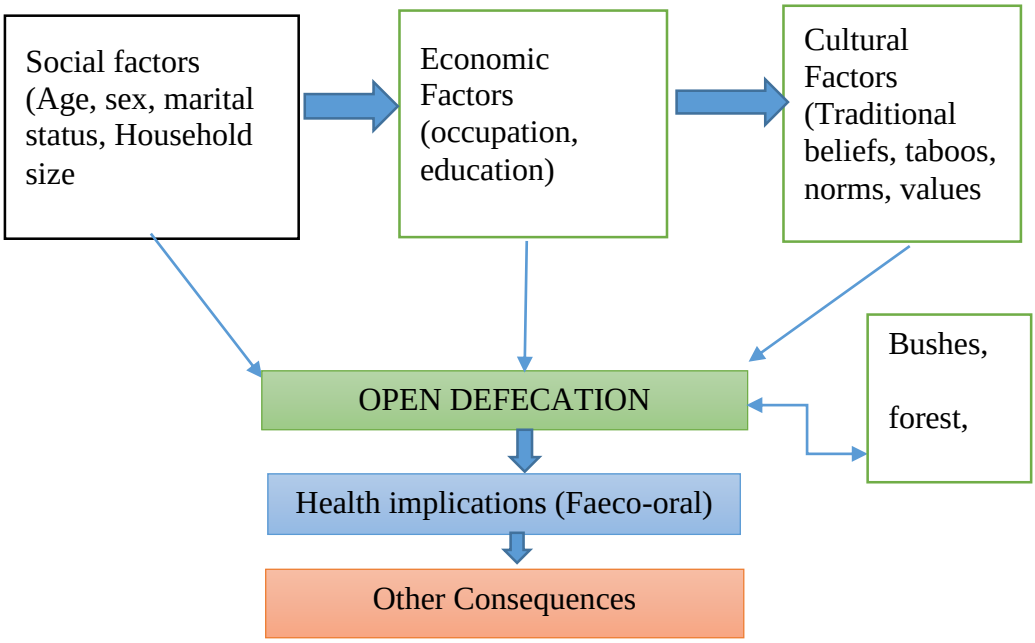
As a result of inadequacy in the provision of toilet facilities in many cities in the developing world, a large number of the residents practice open defecation or defecate in some materials like waste paper or plastic bag. This practice has been given different terminologies in different cities like wrap and throws in Cebu (Philippines) or flying toilets in Accra (Ghana). UN- Habitat, (2003), reported that

Hardoy et al, (2001) conducted studies in many cities including Addis Ababa, Bangalore (India), Colombo (Sri Lanka), Dhaka (Bangladesh), Kingston (Jamaica), and Ouagadougou and has found open defecation to be a serious problem (UN-Habitat, 2003, p.173).Ghana, like many other countries, has battled and continues to battle with issues pertaining to sanitation management. Several interventions have been made through policy frameworks and interventions. These interventions culminated in the formulation of the National Sanitation Policy launched in 1999 (and revised in 2009). The policy envisaged public-private interaction and collaboration in the provision of sanitation facilities including toilet facilities in the country. To facilitate this collaboration, sanitation issues have been decentralised to Metropolitan, Municipal and District Assemblies. The transfer of power to these assemblies is, however, without a transfer of the accompanying expertise, budget, personnel and equipment. Poor sanitation behaviour and attitude on the part of the citizenry have also constrained strides in the sector (Santah, 2013).Toilet facility coverage is an indicator for improved sanitation and coverage. It is neither a regular practice nor a widespread phenomenon. That is to say toilet facility coverage changes through time and space (Atuahene, 2010). Devine (2009), documented that factors such as limited resources (toilet facilities) together with quality of structures as the main physical barriers to safe disposal of human excreta in East Java. The people of East Java practice 'flying toilet', that is, open defecation due to limited number of toilet facilities. The few toilet facilities available are also of poor quality according to the people of East Java.

2.6 Conceptual Framework

A conceptual framework represents the researcher's synthesis of literature on how to explain a phenomenon. It maps out the actions required in the course of the study given his previous knowledge of other researchers' point of view and his observations on the subject of research. In other words, the conceptual framework is the researcher's understanding of how the particular variables in his study connect with each other. Thus, it identifies the variables required in the research investigation. It is the researcher's "map" in pursuing the investigation. According to (McGaghie et al. 2001) the conceptual framework "sets the stage" for the presentation of the particular research question that drives the investigation being reported based on the problem statement. Below is the conceptual framework of the study.

Figure 2.4: Conceptual Framework of the Study



Source: Adapted from (Gautam, 2014)

2.7 Conclusion

From the review of literature above, open defecation is caused by several factors which can broadly be classified as social, economic and cultural factors. The consequences of open defecation are enormous some of these include: pollution of water bodies, pollution of agricultural produce, transmission of faeco-oral diseases such as diarrhoea, typhoid, and dysentery. Other consequences such as shame, rape, molestation as well as psychological stress are associated with open defecation.

However, the various authors failed to link how these factors mentioned above are contributing to open defecation in specific locations such as the Wa Municipality of the Upper West Region. Therefore, these factors will be critically examined in the Wa municipality to fill in the gap in the existing literature on the topic under study '' socio-economic and cultural influences of open defecation in the Wa Municipality of the Upper West Region. This leads the discussion on methods and techniques that will be employed to gather data for analysis in the next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

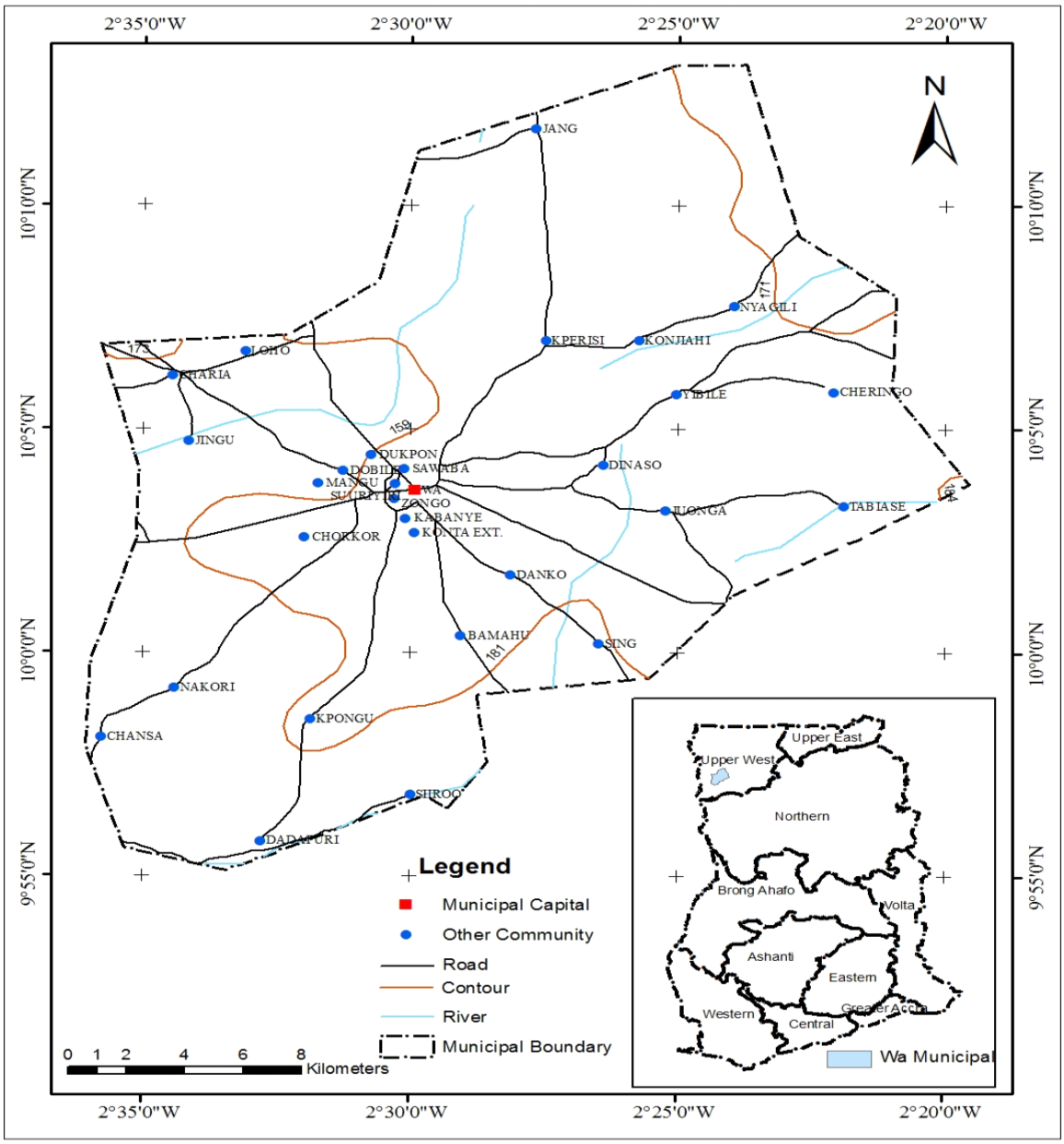
3.1 Introduction

After establishing the conceptual issues of the study, this chapter examines the research methods/approach adopted for sourcing data or information in order to accomplish the study objectives and questions. The chapter contains the profile of the study area, research design, definition of the target population, sampling techniques and procedure, sample frame and size determination, sources of data, data collection technique/instruments and methods of data analysis.

3.2 The Study Area

The locational context of this study is Wa Municipality, which is the regional capital for the Upper West Region of Ghana. Wa Municipality lies between latitude 10^0 40'N to 20^0 45'N and on longitude 90^0 32'W (Figure 3.1), thus covering an area of approximately 1,180 square kilometres which is about 32 and 2.56 percent of the region and nation respectively. The Municipality is bounded to the North by the Nadowli-Kaleo, to the South by both Wa East and West Districts, to the East and West by Wa West and East. According to Ghana Statistical Service (2010) the total population of the Wa Municipality is 107,214 and forms 15.3 percent of the population of Upper West Region

Figure 3.1: Map of Wa Municipality



Source: *Adapted from* Aduah and Aabeyir (2012)

3.2.1 Establishment of the Municipality

Wa Municipal Assembly was created out of the then Wa District in 2004 with legislative instrument (L1) 1800 in pursuant of the policy of decentralization started in 1988. It is envisaged that the creation of the municipality will increase peoples' direct participation in governance; the municipal governing authority's quick response to the needs and aspirations of residents in the municipality; promote public monitoring of the local government's operations and enhance effectiveness and efficiency of local officials and fair distribution of available resources.

3.2.2 Administrative Set-up

The administrative system of the Municipality is made up of the Municipal Assembly and its Secretariat, Departments of the Assembly, 4 Zonal, 1 Urban Council and 73 Unit Committees. The Assembly has a membership of 45, 2/3 of which is elected and 1/3 appointed by government in consultation with traditional authorities of the Municipality. The Municipal Assembly, the highest decision making body, has a membership of 45. It consists of the MCE, 2/3 elected members by universal adult suffrage, the MP representing the constituency, 1/3 appointed members by the President in consultation with chiefs and interest groups

3.2.3 Types of Toilet Facilities Used by Households

It is very important for every household to have an efficient and hygienic method of human waste disposal available in a dwelling unit, but a different situation is seen whereby there are no such facilities, which is improper for the community as whole. The 2010 Population and Housing Census attests to the fact that 41.8 percent of the

households in the Wa Municipality had no toilet facilities in their homes and therefore resort to free range in bushes and open fields. In the rural areas it is worse with 70.8 percent while that for urban localities it is 30.4 percent (GSS, 2010)

The second type of toilet facility patronised by households is public toilet (WC, KVIP, Pit, Pan, etc.), which accounts for 37.0 percent for the entire Municipality, urban localities (44.4%) and rural areas (18.1%). This is followed by WC (water closet), with a proportion of 10.1 percent, 11.8 percent for urban localities and 5.7 percent among rural areas. The least used type of toilet facility is bucket/pan with insignificant proportions (GSS, 2010)

3.2.4 Environment and Sanitation

The Municipal Assembly lacks the capacity and financial resources to ensure maximum environmental sanitation standards. Skills, technologies and funds from the private sector are required for the development of waste management systems, particularly in providing final disposal site services, composting, recycling and treatment of waste, Biogas production, in the absent of these facilities has affected the sanitation state in area. The sanitation situation in the project area is certainly nothing to write home about. Nearly 80% of the populations do not have access to a toilet (WMA, 2013). Many households for instance, do not have any kind of toilet facilities or they may be in bad condition. Open defecation is increasingly becoming alarming in some sections of the Municipality putting residents at the risk of sanitation related diseases such as cholera, diarrhoea and typhoid among others.

The few available public toilets are constantly abused by some users and to those who cannot withstand the sight of the filthy looking facilities resort to open defecation. Children below ten years are often seen defecating around the premises of these public toilet facilities and waste containers freely without any reprimand thereby giving a very bad smell to residents within that vicinity. The Municipality which is fast developing into a Metropolis must resort to the use of household toilet facilities, but this has constantly been overlooked by landlords because of the increasing demand for accommodation by students at the tertiary level. The municipality as at 2008 had about 8,505 residential buildings. With this number of residential buildings, the municipality can currently boast of only one Water Closet (WC), 12 KVIP's, 31 septic latrines and one Ventilated Improved Pit (VIP) as its public places of convenience. Private and institutional toilet facilities include 1,511 WCs, 36 KVIP's, 227 VIP's, 35 pan latrines and six pit latrines without any single private septic tank latrine in the municipality.

3.2.5 Literacy and Education

Wa Municipality is endowed with educational facilities and can be seen as an educational hub and hosts some of the finest and best Senior High Schools (SHS) in Ghana. Much is therefore expected from Wa Municipality in terms of education and literacy. For instance it has a campus of the University for Development Studies and a proliferation of SHS, both public and private and also a polytechnic. The population of Wa Municipal, according to the 2010 Population and Housing Census, is 107,214 representing 15.3 percent of the region's total population, of the population 11 years and above, 65.2 percent are literates and 34.8 percent are non-

literates. The proportion of literate males (74.1%) is higher than that of females (56.7%). Six out of ten people (60.7%) indicate they can speak and write both English and Ghanaian languages. Of the population aged 3 years and above (48,131) in the Municipality, 22.2 percent has ever attended primary school in the past and 37.0 percent are currently attending (GSS, 2010)

3.2.6 Social and Cultural Structure

The 2010 Population and Housing Census show that 80.4 percent of the people in the Wa Municipality belong to the Mole-Dagbani group which comprises the Waalas who are the indigenous people, Dagaabas and the Sissalas. There have been considerable inter-marriages between the Waalas, Dagaabas and the Sissalas. This has removed language barriers to a matter of linguistically and semantic variations especially between the Waalas and the Dagaabas. Peaceful co-existence is further enhanced by commerce. However, the adoption of Islam by the Waalas on one hand and Christianity the Dagaabas on the other remains a factor of value differences between the two groups. Other ethnic groups found in the Municipality include the Frafra, Akan, Ewe, Ga, Dagomba, Grushi, Gonja and Moshies who are engaged in secular work and commercial activities (GSS, 2010).

3.2.7 Municipal Health Status

According to the Municipal Health Service 2010 annual report on sanitation related diseases, a total of 73,903 cases were recorded. Out of this, typhoid and diarrhoea diseases which were closely linked to the problem of open defecation accounted for 624 and 5,300 cases respectively. (WMA, 2013). Sanitation related diseases top the

list of diseases that are reported at the OPD in the municipality. 7,278 cases of typhoid fever were reported between 2010 and 2014, within the same period 48,818 diarrhoeal cases were reported. 10,528 and 21 cases of intestinal worms and cholera cases were also reported between 2010 and 2014 respectively (Municipal disease control officer, personal communication, February 2, 2016).

3.2.8 Research Design

The research design for this study is a descriptive and interpretive case study. The Case study design is a research methodology and also an investigative tool that is commonly used in studying social phenomena (Babbie and Mouton, 2004). Case Study Design permits an in-depth investigation of individuals, groups, or events which may be descriptive or explanatory.

The mixed method approach was used to collect data for the study. Mixed method research is the process and procedures for collecting, analysing and inferring both qualitative and quantitative data in a single study or in sequential studies based on priority and sequence of information (Green and Caracelli, 1989). Questionnaires were used to collect data for the quantitative study. The questionnaires were administered to households, traditional, religious and formal institutions such as (MOH, CWSA, MA, etc.) on social, economic, and cultural factors influencing open defecation. The questionnaires covered various socio-demographic characteristics of respondents- age, sex, and marital status, and religious affiliation, educational and occupational background. The questionnaire also covered the major sub-themes of the objective of the study. The qualitative methods that were used include observations and interviews. In-depth interviews were carried out with specific

participants such as the Wa Municipal Environmental Health Officer, the Municipal Disease Control Officer of the Ghana Health Service, Religious and Traditional leaders whose selection was based on possessing characteristics and information relevant to the objectives of the study (Kumekpor, 2002)

3.2.9 Sampling Techniques and Procedure

Two main sample techniques used in various studies were adopted and applied for the study. These are probability sampling and non-probability sampling (Twumasi, 2001). Probability sampling, also known as 'random sampling' or 'chance sampling' gives every item in the universe an equal chance of inclusion in the sample. Simple random and systematic was used. The Non-probability sampling method (purposive) was also used, although they do not offer any basis for estimating the probability that each item in the population has been included in the sample (Bernard, 1990).

The simple random sampling technique was used in selecting twenty-one (21) communities out of the eighty-four (84) communities within the five (5) Administrative Zonal councils in the Wa Municipality for the questionnaire administration. Using the lottery method, numbers were assigned to each of the communities in the various zones and kept in a bowl thoroughly mixed. The communities were picked randomly till twenty-one (21) communities were selected as shown in Table 3.1. This ensured that all communities within the municipality have equal chances of being part of the study and to also avoid biasedness.

Table 3.1: Sample communities with their sample sizes in the Wa Municipality

Community	2010 PHC	Total No. of Households (2010)	Percentage of Households (% of HH)	Percentage of sample selected (%) of H H* SF	Sample selected from community
Sampled communities under Wa Urban Council					
Dokpong	1,235	297	7	25.69	26
Sokpayiri	1,211	231	5	18.35	18
Kpongpaala	323	54	1	3.67	5
Konta	2,856	255	5	18.35	18
Zongo	573	78	2	7.34	7
Danko	825	224	5	18.35	18
Charia	2,615	450	10	36.7	37
Kpaguri	3,014	219	5	18.35	18
Chansa	874	144	3	11.01	11
Kumbiehe	627	96	2	7.34	7
Sombo	3,795	812	18	66.06	66
Sampled communities under Boli zonal Council					
Boli	1,879	367	8	29.36	29
Jinkpang	690	97	2	7.34	7
Sampled communities under Busa Zonal Council					
Biihee	770	72	2	7.34	7
Sampled communities under Kpongu Zonal Council					
Dandafuro	2,003	462	10	36.7	37
Tampiani	527	38	1	3.67	5
Sampled communities under Kperisi Zonal Council					
Chegli	810	89	2	7.34	7
Piisi	891	171	4	14.68	15
Charingu	626	81	2	7.34	7
Jonga	1,100	167	4	14.68	15
Yibile	496	71	2	7.34	7
Totals	**27,740**	**4,475**	**100**		**367**

Source: Author's Construct, December 2016.

Systematic random sampling was used to select housing units for questionnaire administration to the various households. Within the selected communities, blocks were created based on the number of houses in the community and interviewers selected households to interview by systematically walking through the blocks and interviewing household heads or their representatives as shown in table 3.2. For this study, a household was defined as a person or group of persons who live together in the same house or compound and shared the same house-keeping arrangements and are catered for as a unit (GSS, 2010). By this definition, however, family members may not necessarily be household members based on their living (WHO/UNICEF 2012) arrangements. In the same vein, not everyone who lives in the same house can be defined as constituting a household. Further, length of time of stay of members is not considered as some may just be visitors to the house and may not necessarily be permanent members of the household. Therefore, the study, focused on people who live in the same house and eat from the same pot and have access to the same facilities in the house at least six months before the study. In a house where there were multiple households, only one household was interviewed. Again in each selected house where the household interviewed was not the owner of the house, an attempt was made to interview the owner of the house (the landlord). Purposive sampling was thus used to select 8 participants for in-depth interviews as shown in table 3.3. Purposive sampling or judgemental sampling helps one to use his/her judgment to select cases which will best assist him/her to find answers to your research questions and objectives. According to (Neuman,

1991), purposive sampling is best used when the sample is small and in cases that are particularly informative.

Table 3.2: Systematic Sampling of Communities in the Wa Municipality

S/N	SELECTED COMMUNITY	TOTAL NO. OF HOUSEHOLDS (sample Frame)	TOTAL HOUSEHOLDS TO BE SURVEYED (Sample Size)	SAMPLE FRACTION (K^{TH} House)
1.	Dokpong	297	26	Every 11th house
2.	Sokpayiri	231	18	Every 13th house
3.	Kpongpaala	54	5	Every 11th house
4.	Konta	255	18	Every 14th house
5.	Zongo	78	7	Every 11th house
6.	Danko	224	18	Every 12th house
7.	Charia	450	37	Every 12th house
8.	Kpaguri	219	18	Every 12th house
9.	Chansa	144	11	Every 13th house
10.	Kumbiehe	96	7	Every 14th house
11.	Sombo	812	66	Every 12th house
12.	Boli	367	29	Every 13th house
13.	Jinkpang	97	7	Every 14th house
14.	Biihee	72	7	Every 10th house
15.	Dandafuro	462	37	Every 12th house
16.	Tampiani	38	5	Every 8th house
17.	Chegli	89	7	Every 13th house
18.	Piisi	171	15	Every 11th house
19.	Charingu	81	7	Every 12th house
20.	Jonga	167	15	Every 11th house
21.	Yibile	71	7	Every 10th house

Source: Field Survey, December 2016

Table 3.3: Number of in-depth interviews conducted with key informant

NAME OF INSTITUTION/	NUMBER OF PERSONS
Municipal Disease Control Officer-GHS	1
Municipal Health and Sanitation Officer	1
Regional Director – CWSA	1
Toilet Attendants	2
Traditional Leader(Traditionalist)	1
Christian Religious Leader	1
Islamic Religious Leader	1
TOTAL	**8**

Source: Author's construct, January 2016

3.2.10 Sample Frame and Sample Size Determination

Sample frame refers to a list from which one can draw his/her sample (Bhattacherjee, 2012). The sample frame is the actual number of units that are captured in the population. The sample frame was made up of the selected households within the Wa Municipality. Choosing a representative sample for a study is crucial for generating results that reflect characteristics of the entire population. The researcher, being guided by this fact, carefully selected representative samples that justified the generalization of the findings. Twenty-one (21) communities within the Wa Municipality were chosen and the total number of

households for the sample calculated as shown in Table 3.1. above .The sampling frame was 4,475 households. The total number of households interviewed was determined using the (Yamane, 1967) formula for determining sample size since the sample frame is known. That is $n=N/ [1+N (\alpha)^2]$, Where: n = sample size, N = Sample frame (all households in the selected study communities), and α was the margin of error estimated at (0.05)

$n = 4,475/ \{1+4,475 (0.05)^2\}$

$n = 4,475/12.1875$

$n = 367.1794$

n = 367 households

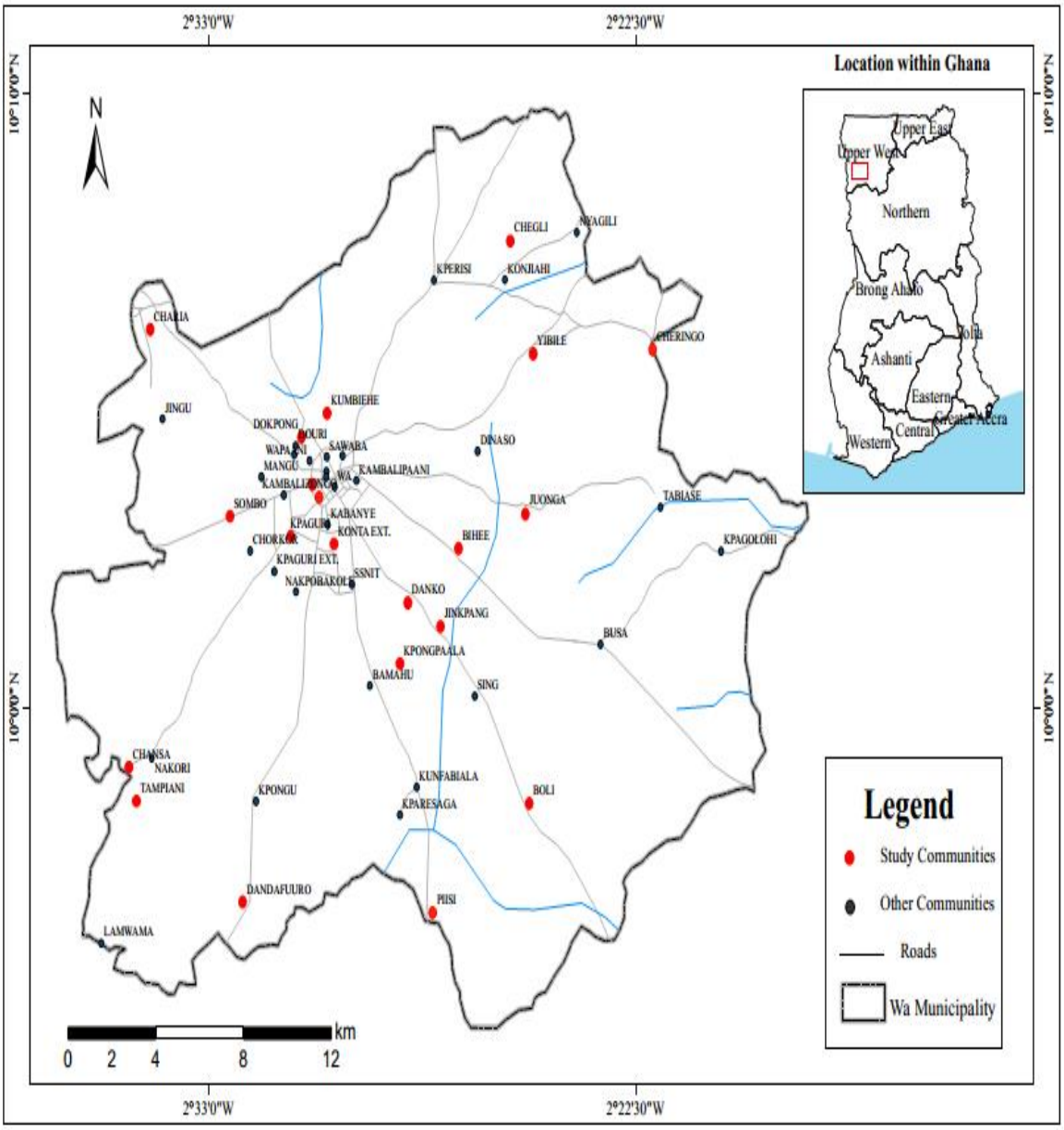
Therefore, the sample size for the questionnaire survey was 367. The allocation of sample sizes to each community was influenced by the number of households in each community for purposes of achieving representation. Simple proportions were used to allocate the sample size of 367 to the 21 sampled communities as shown in table 3.1

3.3 Key Data Variables for the Research

A variable is an empirical property which can take on two or more values and help in moving a research from conceptual to empirical levels, using variables as key elements of the research problem (Miller and Brewer, 2003). In this research, the socio-economic and cultural variables that were explored in this study included; Age, sex, marital status, educational status, occupational status, ownership of toilet

facilities, traditional norms and beliefs, consequences of open defecation as well as alternative defecation practices.

Figure 3.2: Map of Wa Municipal showing the study communities



Source: Adapted from WMA (2013)

3.4 Sources of Data

The study adopted both primary and secondary sources of data in order to accomplish the study objectives. Primary/field data was collected through the administration of questionnaires for personal household interviews, interview guides for discussions that were held with key informants and observation in the 21 selected communities. Household questionnaires were used to collect information on households.

Secondary data was gathered from sources such as published and unpublished documentations (books, articles, thesis, and journals) as well as other publications that were sourced from libraries, institutions and the internet, and this provided the conceptual issues and a definite meaning to the topic.

3.5 The Study Population/Unit of Analysis

The study population can be defined as all people or items (unit of analysis) with the characteristics that one wishes to study. The unit of analysis may be a person, group, organization, country, object, or any other entity that you wish to draw scientific inferences about (Bhattacherjee, 2012). The targeted population for the study was heads of households, individuals, landlords, religious and traditional leaders, opinion leaders and environmental non-governmental organizations. In order to attain a credible study, some state agencies including the Wa Municipal Assembly, Ghana Health Service, Community Water and Sanitation Agency (CWSA) were also part of the empirical units for data acquisition.

3.6 Community Entry

The data collection exercise began with reconnaissance survey to the selected communities. This was followed by visits to selected communities. The idea behind this was to interact with traditional authorities, opinion leaders and assembly members. The research objectives and the reasons to carry out the study were made known to the chiefs and their subjects. With their consents being sought, residents were told to feel comfortable and to volunteer information on any issues when approached. Having sought permission from the chiefs and elders in the various communities, a research team was then dispatched into the communities to first administer the questionnaires.

3.7 Data Collection Tools and Techniques

The selection of a particular approach to collect data must be decided upon in the light of one's problem, the purpose of the study, the resources available and the skills of the researcher. Data was collected from two main sources. These were primary and secondary sources. Primary data was collected from the field using questionnaires, interview guide and observation whiles Secondary data were gathered from sources such as published and unpublished documentations (books, articles, thesis, and journals) as well as other publications that were sourced from libraries, institutions and the internet. Below is the description of the specific tools that were used to collect data from the sources mentioned above.

3.7.1 Questionnaires

The main instrument used for the data collection was the questionnaire. According to Twumasi (2001:54), "questionnaires are useful and more appropriate for the collection of statistically quantifiable information from many respondents within a short period of time". The household questionnaires designed contained both closed and open-ended questions. Fox (2006) as *cited by* (Maalu, 2011) argues that closed-ended questions capture direct information from respondents, while the open-ended questions provide opportunities for the respondents to discuss issues of interest at length to express their opinion. Items in the research instrument included the socio-demographic characteristics of respondents (gender, age, marital status, religion, ethnicity and educational background of respondents), socio-economic and cultural influences of open defecation as well as the consequences and alternatives methods of defecation.

Before the administration of the questionnaires, 2 research assistants were trained with emphasis on the best interpretation of the questions in the local language for the understanding of illiterate respondents as well as how to use probing questions in cases where the respondent had no answer or option to choose. 20 questionnaires were pre-tested at 2 selected communities within the study area and this facilitated early detection of wrongly worded questions and those that could be difficult for understanding, and corrections were made. Averagely, 20 minutes was used for a respondent. However, in some cases the administration of the questionnaire took a much time because often, respondents deviated in their responses and gave long and

winding answers to questions. Data collection often starts at 09: 30am to 06:00pm in order to capture respondents working in both the formal and informal sectors.

3.7.2 Interviews

An interview is a conversation between two people that has a structure and a purpose. It is designed to elicit the interviewee's knowledge or perspective on a topic. For Kahn & Cannell (1957) cited in (Saunders et al., 1997) an interview is a purposeful discussion between two or more people. Interview involves asking questions, listening, expressing interest and recording what is said. In an interview, the interviewer's presence and form of involvement; that is, how he or she listens, attends, encourages, interrupts, digresses, initiates topics, and terminates responses is integral to the respondent's accounts (Mishler, 1986) cited in (Kreuger and Neuman, 2006).

Semi - structured interviews were used in this study in soliciting responses from interviewees in the district. According to Sarantakos (2005) semi- structured interview is a form of interview where the researcher opts for interview structure that is flexible with minimal restrictions which is often in the form of guide and not a rule. Questions asked under semi- structured interviews are mainly open- ended which give respondents the opportunity to express their opinion on the issue at stake. In-depth interviews were conducted with key informants. Participants for the in-depth interview included the Municipal Sanitation and Environmental Health Officer, The Municipal Disease Control Officer of the Ghana Health Service, The Regional Director for CWSA, the chief of Boli community (traditional leader) two religious leaders (one from the Christian community and another from the Muslim

community) and two toilet attendants, one in Wa town and the other in a rural area where a public toilet was available.

Interview guides were used for the in-depth interviews. These varied from respondent to respondent but covered basically the theme of the research (Saunders et al., 2009). The interview guides were not strictly adhered to in the order in which they were written as the interviews took the form of conversations while at the same time steering them in line with the objectives of the study. These participants were selected based on possessing characteristics and information relevant to the objectives of the study.

3.7.3 Personal Observations

Further, observations were done of the phenomenon under study. This was to capture those issues that were not raised during discussions but were of importance to the study. (Araoye, 2003) cited in Maalu, 2011) posits that observation enables the researcher to collect vital information of interest devoid of the use of experimental methods. It was also a way of acquiring first-hand knowledge of the situation regarding daily activities and defecation practices of the people. Observations were guided by a check list that captured the specific activities, events and happenings of interest to the study. This was necessary to guide the observations and ensure that specific and useful happenings were noted. Observations were made in the following areas: defecation sites, toilet facilities and their distance from households, defecation practices and preferences, sanitation in existing public and individual household latrines and the general sanitation within the selected communities. Pictures were also taken to affirm the observations made and to throw

more light on the situation under study. The information obtained from the observation was also used to complement and at the same time supplement information not adequately covered by other research instruments.

3.7.4 Secondary Data

The above data collection tools mentioned above yielded primary data or first-hand information. Additionally, data was obtained through the use of secondary information or available literature from textbooks, organizational records and reports, journals and internet search. The secondary data also facilitated the development of the conceptual issues as seen earlier in the literature review.

3.8 Ethical Considerations

Every study involving human life brings ethical considerations to the fore. According to Punch (2005) cited in Creswell, 2009) says that research does involve collecting data from people, about people. Researchers need to protect their research participants: develop a trust with them; pro- mote the integrity of research; guard against misconduct and impropriety that might reflect on their organizations or institutions: and cope with new, challenging problems (Isreal and Hay, 2006).Guided by these principles, Permission was sought from Wa Municipal Assembly and traditional authorities under whose jurisdiction the study community is sited. In addition, verbal informed consent from participants was sought from the beginning to the end of the study and opportunity was given to any person who wished to withdraw from the study at any point in time, to do so. They were also

assured of anonymity and confidentiality and this has been ensured by protecting their identity through the use of pseudonyms to represent their responses.

3.9 Method of Data Analysis

The data analysis employed both quantitative and qualitative approaches. Quantitative data from the survey were computer-processed for analysis using the Statistical Package for Social Sciences (SPSS Version 20). In using the SPSS, data were first coded by assigning numbers to verbal responses such that the raw data was reorganized into a form easy to enter into a computer. The analysis was done by first, developing a template. This process involved creating variables of key issues from the questionnaire such that specific questions can be noted. The codes were then entered onto the SPSS template according to the variables created; results were then generated using descriptive statistics such as tables, frequencies, percentages and charts. Cross- tabulations were made to establish relationships or associations among key variables of the study such as occupational and educational background of respondents. The analysis of data was on the area of socio-demographic characteristics of respondents in the study communities, and the study objectives thus socio-economic factors influencing open defecation, cultural factors, and consequences of open defecation as well as alternative methods of defecation.

Qualitative data obtained from the in-depth interviews and personal observations were grouped into themes and categories with reference to the research objectives. Qualitative analysis took the narrative form through description and the results used to support the quantitative data.

3.10 Quality Control for Data Reliability and Validity

Proper supervision was carried out while's research assistants were carrying out the field work. The primary data collected were edited to check completeness, accuracy and consistency of responses in order to detect and eliminate errors. An independent person helped in the SPSS analysis and results were compared to ensure accuracy. A thorough review was done after each day's work and problems that need to be addressed were done immediately

3.11 Conclusion

A research must be carefully planned and effectively carried in order to address the objectives it has set for itself. This chapter has spelt out the parameters within which sampling was carried out and as well how the data was collected and analyzed. The next phase of the study discusses the data analyzed.

CHAPTER 4

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents analyses of the field data both quantitatively and qualitatively. It presents findings on the socio-demographic characteristics of respondents, socio-economic and cultural factors influencing open defecation, consequences associated with open defecation as well as alternative methods of defecation in the Wa Municipality.

4.2 Socio- Demographic Characteristics of Respondents

In this segment, the socio-demographic characteristics of respondents derived from the structured questionnaires administered are presented. It consists of their sex, age, marital status, religion, ethnicity and educational background which are analyse in the context of the study as shown in Table 4.1

4.2.1 Sex of Respondents

Males and Females biologically have different needs in terms of where to defecate and this may influence the type of toilet facilities to use. The sex distribution shows that males made up 62 percent of the respondents whiles females constituted 38 percent. This clearly contravenes the sex-composition of the Ghanaian population and the population of the Wa Municipality.

Table 4.1: Socio-demographic characteristics of respondents

Description		Freq.	%	Description		Freq.	%
Sex:	Male	227	61.9	**Religion:**	None	4	1.1
	Female	140	38.1		Christian	111	30.2
					Muslim	241	65.7
Age:	19-29yrs	153	41.7	**Ethnicity:**	Dagarti	168	45.8
	30-49yrs	153	41.7		Waala	191	52.0
	50-69yrs	46	12.5		Sissala	3	.8
	70yrs+	15	4.1		Others	5	1.4
Mar. St.:	Married	269	73.3	**Educ. Back:**	None	157	42.8
	Single	94	25.6		Primary	52	14.2
	Others	4	1.1		JHS/Middle Sch.	48	13.1
					SHS/Tech/Voc.	67	18.3
					Tertiary	39	10.6
					Others	4	1.1

Source: Field Survey, March 2016

According to the 2010 Population and Housing Census the female population in Ghana makes up about 51.3 percent of the total population while males constitute 48.7 percent and in the Wa Municipality, males constitute 49.7 percent and females represent 50.6 percent (GSS, 2012). This high male population in the study could

be attributed to patriarchal nature of the society and the type of economic activity engaged by men in the study communities. Most respondents, representing 34 percent, were engaged in farming and during the study most of the men were found resting under trees because they had finished harvesting their farm produce and were waiting for the next rains to start tilling their lands. As a result, most of the men were at home.

4.2.2 Age of Respondents

The respondents for the study included both males and females in different age groups ranging from 19 - 70 or more years. Age group 19 - 29 years and 40 - 49 years both represents 41 percent. The age group 70 years and more also represents 4 percent. Defecation is a response to a natural urge. The practices associated with it, therefore, are not the sole prerogative of a particular age group. The aged group 19- 49 years are active and can walk long distances to defecate. However a respondent 70 years and more said ‘’… *My son, looking at my age, very soon I will be no more, I will die. So building a household toilet facility will be a waste for me…..*’’ This implies that the aged within the study communities see no need to own a household toilet facility of any kind and as such defecate openly when the need arises.

4.2.3 Marital Status of Respondents

Marriage is a recognised institution for the establishment and maintenance of family life. According to Nukunya (2011) cited by Santah (2013), marriage confers a number of rights, duties and obligations on people and these often reflect in their

behaviour and roles they are expected to play in the society. From the data, 73 percent of the respondents were found to be married while 25 percent were single. The high rate of married people in the study communities can better be understood when viewed in the context of the religion of respondents. About 1 percent of respondents admitted they were merely cohabiting with their partners.

4.2.4 Religion of Respondents

Majority of the respondents (65 percent) are Muslims followed by Christians (30 percent). However, 1 percent of the respondents do not worship any of the three major religions in Ghana, i.e., traditional worship, Christianity and Islam. This supports the 2010 Population and Housing census, which indicate that Muslims make up 65 percent of the population in the Wa Municipality; this may positively help in minimizing open defecation since all the major religions prohibits open defecation. A Christian religious leader interviewed said that:

> "…..*The bible is clear on open defecation in Deuteronomy 23:13, God told the Israelites, 'thou shalt have a paddle upon thy weapon; and it shall be, when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee'... there is no quotation in the bible that supports open defecation…..*"

From the Islamic perspective, an Imam interviewed also quoted the Hadis related by Abu Daud who said "…..*That the prophet of Allah (S.A.W) said, cleanliness is part of faith''*

Based on the religious background of respondents, 96 percent of the respondents said that they practise open defecation not because their religion supports it. It is not encouraged by any religious group but due to factors such as financial constraints, inadequate toilet facilities, poor maintenance of few existing public toilets, indiscipline etc.

4.2.5 Ethnicity of Respondents

From the data, 52 percent of the respondents belonged to the Waala ethnic Group whiles 48 percent were Dagaabas with the least being the Sissala ethnic Group with 0.4 percent. This is in line with the 2010 Population and Housing Census which showed that about 80 percent of the people in the Wa Municipality belong to the Mole-Dagbani group which comprises the Waalas who are the indigenous people, Dagaabas and the Sissalas. One's ethnic group can contribute to ones thoughts and attitudes, and can also have an impact on how people are raised, their core values, and their sense of family and tradition. The history of one's ethnicity, special holidays and cultural beliefs are all things that can be passed down between generations and shape the individual's identity. This confirms a statement made by a respondent in one of the study communities from the Waala ethnic Group that:

> "A *traditional Waala Man does not know what is a KVIP or a toilet facility. The only thing he knows is to locate any open space or bush and do his thing there (defecate) and go away''* (Dandafuro community, December, 2015)

4.2.1 Availability of Toilet Facilities

Availability of a household toilet is key to the improvement in sanitation. However, the study revealed that majority of respondents within the study communities do not own or possess any form of toilet facility. Out of the 367 households interviewed, 6 percent of them possessed pit latrines, and 5 percent have WCs as shown in table 4.2. It was also revealed that 88 percent of the respondents had no form of toilet facility and were practising open defecation. This study is in line with the 2010 Population and Housing Census conducted in the Wa Municipality which said that 41.8 percent of households in the Wa Municipality had no toilet facilities in their homes and, therefore, resort to free range in bushes and open fields. This study also supports the 2013 Wa Municipal Assembly's report which said that more than 80 percent of residents had no form of toilet facility and therefore defecates in any open space available.

Table 4.2: Ownership of Toilet Facilities

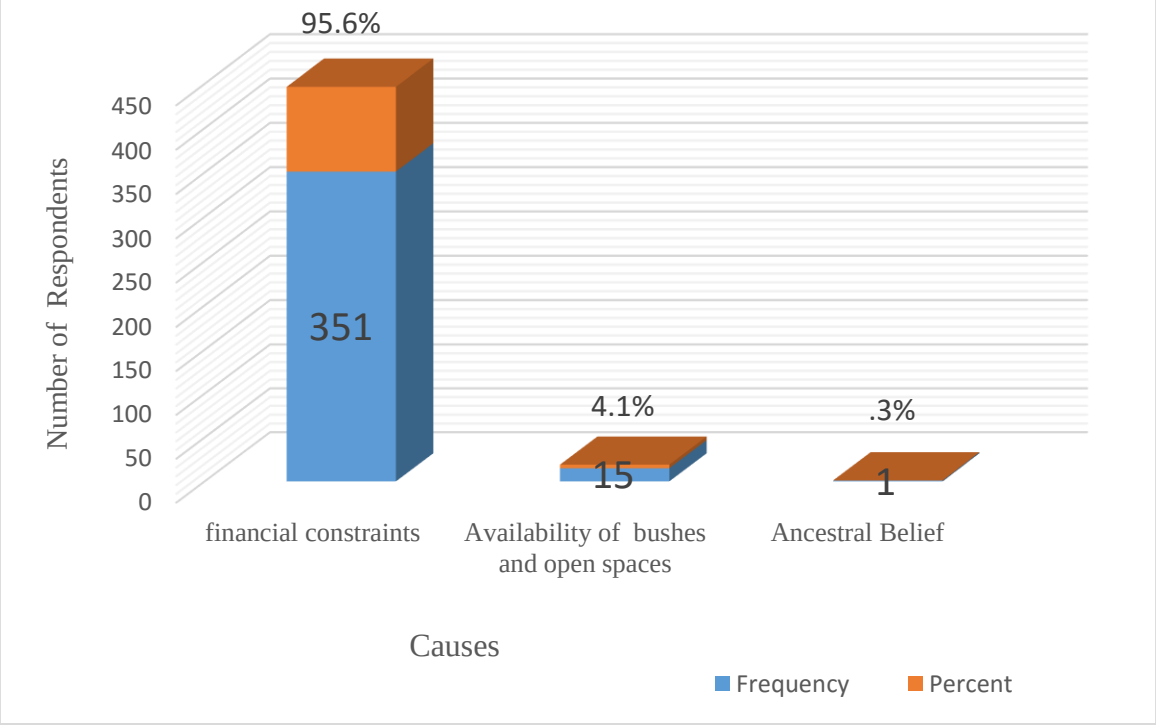
Type of toilet facility	Frequency	Percent
Pit latrine	25	6.8
Personal toilet(WC)	19	5.2
No toilet facility	323	88.0

Source: Field Survey, March 2016

Most respondents (44 percent) had good understanding of the dangers of open defecation and the dangers associated with it in terms of hygiene and health. However, the broader question seemed to be one of priorities: the number one constraint for all respondents (94 percent) was financial constraints, translating into

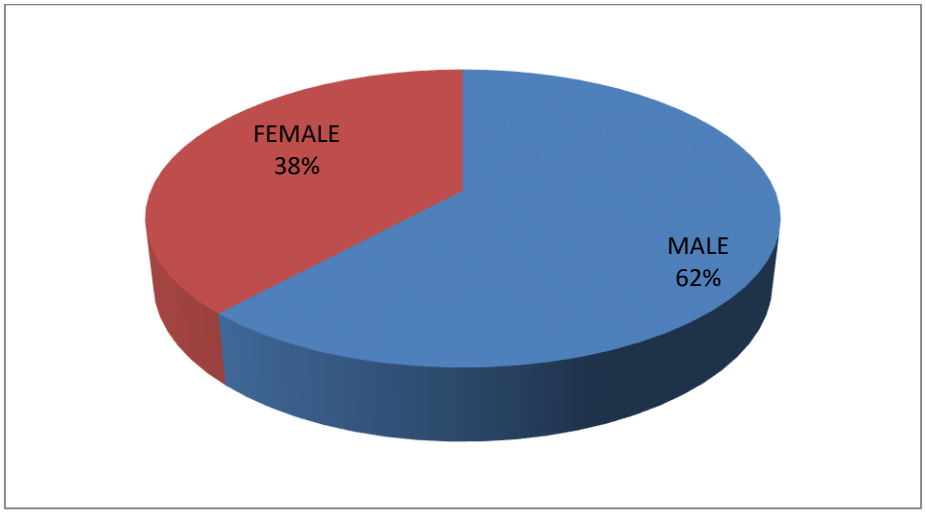
the inability to purchase materials, pay for labour etc. as shown in the figure below (Figure 4.1). Many respondents also said they were already in debt over money borrowed for other things, such as payment for food, weddings, or machinery for the farm and find it difficult to generate income. This confirms the findings of Santah (2013) when she concludes that people have expressed the pains of poverty which is displayed in the condition of some of their dwellings, dilapidated mud houses often with part of their roof falling off. For most community members, therefore, choosing an option to go to toilet depends on whether it is affordable or not other reasons include ancestral beliefs, availability of open spaces/bushes among others especially those rural communities within the study area.

Figure 4.1: Reasons for lack of toilet facilities



Source: Field Survey, March 2016

Figure 4.2: Respondents without Toilet Facilities by Gender



Source: Field Survey, March 2016

Provision and ownership of toilet facilities is not the sole prerogative of one person. But in some traditional societies, especially the Wa Municipality, the man as the head of the household is in charge of providing basic amenities for the household including the provision of toilet facilities. In some communities, women do not have the legal right to own property. The study revealed that 62 percent and 38 percent of males and females respectively, were without any form of toilet facility as shown in figure 4.2. The number of females without any form of toilet facility can be attributed to the fact that they were in their marital homes and provision of a household toilet facility was the sole duty of the head of the household, which is the man. One female respondent in response to why she did not have a toilet facility said:

"My son, you know I am a woman and my husband can divorce me at any point in time and remarry, if I use my money and build a toilet

*facility I am divorced. (God forbid) My rival will come and use the facility at no cost" (*Yibile Community, December 2015*)*

4.2.2 Educational Background of Respondents

Education is often seen as an empowering tool in society. One's level of education can shape how he or she views the world and can contribute to social growth. It can lead to increased earning capacity which in turn can contribute to quality of life. Education can also contribute to decision- making processes that alter the paths people take in life. Education gives knowledge and skills to demand and negotiate varied health needs and complexities and so acts as a stimulator for change (Santah, 2013). In line with this, data was gathered on the educational background of research participants.

From the data gathered from respondents, it was revealed that 42 percent of the respondents had no form of formal education, 14 percent had primary education whiles about 1 percent received education through night studies (Non-Formal Education). These three groups can, to some extent, be described as illiterates as they can neither read nor write the local and English languages, hence during the data collection process questions were read and translated to them for responses and this prolonged the period for the data collection. The study also indicates that 13 percent and 18 percent of respondent attended JHS/Middle School and SHS/Tech/Voc respectively. Most of these persons were found sitting in groups under mango trees because they were not able to continue to the tertiary level after their course of study at the SHS. This was clear as only 10 percent of respondent had tertiary education. When the Municipal Environmental and Sanitation Health

officer was asked whether open defecation was practised by only illiterates in the Municipality who cannot read and/or write and as such are not aware of the health implications of open defecation he quickly said:

> "..... *My brother, don't go far with your statement because the issue in the municipality is different. Well educated people in the municipality are often seen defecating in gutters, bushes and especially in the forest reserve located at Konta. So the problem of open defecation is not about lack of education (Municipal Environmental Health Officer, WMA- , 02-02-16)*

4.2.3 Educational Background and Ownership of Toilet Facility

In the most obvious way, educational levels influence economic status, as higher paying jobs tend to require advanced or specialized education. It is also a well-known fact that education determines social status and allows people to trust those who are educated in their fields of employment. The educated in the society are always held in high esteem and usually serve as role models for many people in the community and are consulted on important social issues. Usually, some uneducated persons perceive that it is only the educated who are supposed to own toilet facilities and this was a common view expressed during the data collection process respondent said:

"Looking at you, well-educated and dressed, I don't think you cannot construct household latrine. But for me, my work will not fetch me more money to construct a toilet facility'' (Chegli Community, January 2015)

The study also sought to establish some relationship between educational levels and ownership of toilet facilities by respondents. This was done using cross tabulation and the results shown in table 4.3. From the table, it can clearly be seen that there exist some relationship between educational background of respondents' and ownership of toilet facilities, 35 percent out of the 157 respondents who had no form of education and are considered illiterates, said they do not own and use any form of toilet facility and as such resort to defecate in any available space. And out of a total of 51 respondents (43 percent) who attained primary education, only about 0.3 percent of respondents own and use toilet facilities.

Table 4.3: Cross-Tabulation of Educational Background and Ownership of Toilet Facility

		OWNERSHIP OF TOILET FACILITY		Total
		YES	NO	
EDUCATIONAL BACKGROUND	None	26 (7.1%)	131 (35.7%)	157 (42.8%)
	Primary	1 (0.3%)	51 (13.9%)	52 (14.2%)
	JHS/Middle School	14 (3.8%)	34 (9.3%)	48 (13.1%)
	SHS/Technical/Vocational	8 (2.2%)	59 (16.1%)	67 (18.3%)
	Tertiary	14 (3.8%)	25 (6.8%)	39 (10.6%)
	Non-Formal Education	2 (0.5%)	2 (0.5%)	4 (1.1%)
Total		65 (17.7%)	302 (82.3%)	367 (100%)

Source: Field Survey, March 2016

4.2.4 Occupational Status of Respondents

The study also gathered data on the economic activities engaged by respondents. The occupation of an individual determines one's sources of income. In a society, we are often judged by what we do and what we earn. When getting to know someone, the question of what we do for a living is often among the first to be addressed. Table 4.4 shows the occupational status of respondents sampled from selected communities within the Wa Municipality.

Table 4.4: Occupational Status of Respondent

OCCUPATION	FREQUENCY	PERCENTAGE (%)
Trading	69	19.7
Farming	144	39.2
Formal Sector	37	10.8
Others (Artisans etc.)	117	33.3
TOTAL	**367**	**100**

Source: Field Survey, March 2016

From Table 4.4, the data indicates that majority of the respondents (39 percent) are into small scale farming and usually farm to feed only their family members and the surplus sold to care for the basic needs of the family. The inability of farmers to earn much from the sale of farm produce was a serious problem expressed by farmers and this makes them financially handicapped. This is in line with a study conducted by Osumanu and Kosoe (2013), when they said that financial constraints prevents house owners from providing household toilets and also prevents people from paying fees charged by public toilet operators.

The 2010 Population and Housing Census indicate that skilled agriculture, forestry and fishery employed the largest (29 percent) of the employed population in the Wa Municipality (GSS, 2012). There are also significant representations of other occupations (33 percent) mainly artisans comprising (carpenters, masons, seamstresses, hairdressers, mechanics, electricians and painters) and about 19 of respondents were also engaged in petty trading, mainly in selling farm produce such as yams and cereals, selling of cooked foods and provisions. The increase in the number of farmers without toilet facilities in their homes can be attributed to the fact that most farmers spend most of their time on their farms coming home very late in the evening. A farmer in one of the communities said.

> *"I spend most of my time on my farm, so when I construct a toilet in my house I will not have much time to use the facility. Because of this, I defecate in the bush before coming home''* (Charingu Community, December, 2015)

4.2.5 Occupational Status of Respondents and Ownership of Toilet Facility

The study also sought to establish a relationship between occupation and ownership of toilet facilities. The results of the cross tabulation reveal that there is a relationship between occupation of respondents and ownership and usage of toilet facilities. Out of 132 respondents who were farmers only 6.3 percent own a toilet facility whiles 29.7 percent do not have any form of toilet facility. They cited financial constraints as the major contributory factor. The study also revealed that, out of 120 artisans comprising of masons, plumbers, electricians, hairdressers etc. only 5.2 percent of them can boast of a toilet facility whiles 27.5 percent said do not

have any facility. They also attributed their inability to finances since the work they do does not generate much income to cater for their family expenses.

Table 4.5: Cross-tabulation of Occupational Status and Ownership of Toilet Facility

		Ownership Of Toilet Facility		
		Yes	No	Total
Occupational Status	*Trading*	8(2.2%)	61(16.6%)	69(18.8%)
	Farming	23(6.3%)	109(29.7%)	132(36.0%)
	Formal Sector	15(4.1%)	31(8.4%)	46(12.5%)
	Others(Artisans)	19(5.2%)	101(27.5%)	120(32.7%)
	Total	65(17.7%)	302(82.3%)	367(100.0%)

Source: Field Survey, March 2016

4.3 Socio-economic factors Influencing Open Defecation

Social and economic factors are very important in understanding how people live in every society. It enables one to understand how people behave the way they do. Defecation is a natural urge and, subsequently, everyone will respond to it when the need arises. The study therefore sought to establish some of the social and economic reasons why people defecate openly without using toilet facilities

4.3.1 Causes of Open Defecation in the Wa Municipality

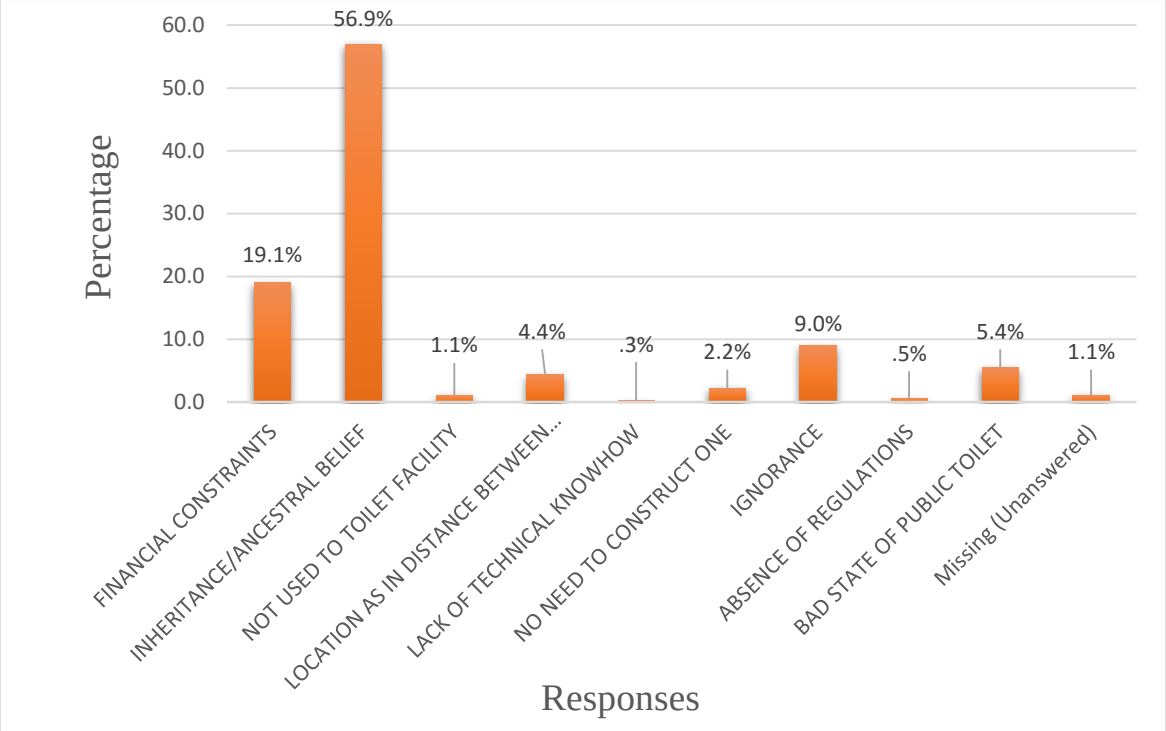
Regarding the causes of open defecation in the Wa Municipality, majority of the respondents (57 percent) said open defecation is an age long practice handed down

to them by their ancestors and has become an inheritance .This is shown in (Figure 4.4) below. No wonder a respondent said:

> *"Our fore fathers were defecating openly without any toilet facility but lived over100 years how can you convince me that open defecation is not good*?" (Danko Community, December, 2015*).* This finding confirms a similar work by Connell (2014) in Peru, where respondents described open defecation as '*…the most normal thing …*' However, 19 percent of the respondents said that it was due to financial constraints, that is, they cannot afford to construct a toilet facility and also pay regularly for the usage of public toilets. An interview with the Municipal Health and Sanitation Officer also confirmed that financial constraint is a contributory factor to open defecation. He added that:
>
> "*Last week, two gentlemen came to the Assembly to seek for financial assistance for the construction of a household latrine but the Assembly couldn't help them but gave them technical advice".(Municipal Environmental Health Officer, 06-02-16)*

Again, Connell (2014) indicates that open defecators cite lack of finances, insufficient funds, "too expensive," or "don't have money" as key barriers to building latrines or making improvements. His assertion is true as compared to the situation within the Wa Municipality.

Figure 4.4 Causes of open defecation



Source: Field Survey, March 2016

Bad state of public toilets was identified by respondents, representing 5 percent, as one of the causes of open defecation especially in areas or communities with public toilets. The stench and heat emanating from public toilets deters people from using the facility. Nyonator (1996) implied this notion when he opined that latrines already in existence needed continuous maintenance or users view them becoming hazardous facilities, thus encouraging the indiscriminate defecation by people of the community. The municipality can boast of only 42 public toilets and most of them are found within Wa town with only some few dotted around other areas of the municipality. The few ones are not properly catered for. This situation was observed at Piisi market as shown in plate 4.1.

Plate 4.1: Bad state of public toilet at Piisi Market

Source: Field Survey, January 2016

Other causes of open defecation identified include: ignorance; lack of enforcement of bye–laws in most communities; people are not used to defecating in the toilets; people do not see the need to construct toilets; lack of technical know-how; and distance between public toilets and homes. It was also observed that some respondents were willing to fight and eradicate open defecation. Locally made household toilet was discovered at Tampieni which served defecation site for an entire household as shown in plate 4.2.

Plate 4.2: A locally made household latrine at Tampieni

Source: Field Survey, January, 2016

To confirm what respondents said concerning the existence of sanitation bye-laws in the Wa Municipality, an in-depth interview with the Municipal Health and Sanitation Officer revealed that the municipality has put in place by-laws such as fines, a six month extension period for every land lord to construct a toilet facility, especially those houses without toilet facilities, formation of a sanitation task force to arrest people very early in the morning and late in the night who defecate openly and also process offenders for prosecution. He also mentioned the Criminal Code of 1960 (Act 29) and the Public Health Act 851 which deal with sanitation related offences. Contrary to what respondents said, this is a clear indication that

respondents must be educated and the law be enforced on these bye-laws to curtail the open defecation menace in the municipality. However, 11 percent of the respondents said they have some form of knowledge on existing bye-laws on open defecation.

4.4 Cultural Factors of Open Defecation

Man is a biological and social animal. He is also a cultural animal. He is cultural in that he runs his life and regulates his society not by blind instincts or detached reason alone, but rather by a set of ideas and skills transmitted socially from one generation to the next and held in common by the members of his particular social group. Culture is a blueprint for social living (Paul, 1958). There are clear differences of attitudes towards the use of sanitation facilities and the handling of excreta between diverse cultures. Despite an instinctive repulsion towards excreta, cultures influence attitudes towards handling of excreta (Dangert, 2004). Even when poverty is being reduced and toilet facilities become available, cultural attitudes and social habits may impair people from the use or avoidance of infrastructure considered hygienic and sanitary by today's standards. It was, therefore, necessary for the study to examine some of the cultural issues surrounding open defecation in the Wa Municipality.

Community members held diverse views about the role of culture in influencing open defecation when they were asked whether their culture permits open defecation. A respondent opines that:

> "*No culture in this world will be promoting something that is bad or causing a lot of harm and diseases to others. If some cultures do, then they are very bad and should be discouraged" (Kpongpaala Community, December 2015)*

An Islamic Religious Leader interviewed said that*:*

> *"..... It is not good while defecating, for someone to see your nakedness. As such an enclosed place like the toilet is needed"* (Imam, December, 2015)

This view was also held by a Traditional Leader when he said that:

> *"Nowadays, the coming of Christianity and Islam has broken all cultural barriers surrounding the usage and construction of toilet facilities. In those days, who are you to visit the toilet in the night*?"(A traditional ruler, January 2016)

The study show that 98 percent of the respondents were of the view that cultural practises and beliefs cannot influence where they defecate since open defecation promotes the spread of diseases and pollutes water bodies, especially during the rainy season, and also added that religion has come to abolish all cultural practises since they are against defecating outside. This contradicts studies by Nawab et al. (2006), Santah (2013), Belcher and Vazques-Calcerrada (1997) when they said that cultural beliefs and practices prevent people from defecating or usage of toilet facilities.

However, some respondents (representing 1.9 percent) said that cultural beliefs cannot be ruled out so far as open defecation is concerned. An interview with a community toilet attendant at Sombo indicated that most community members do not visit the public toilet after 09:00pm even though the public toilet is always opened free of charge but rather defecate openly around the facility. When quizzed further he said:

> *"..... It is believed that witches and wizards and other bad spirits visit the toilet at night and as such woe unto you when these spirits spot you around those hours in the toilet"*(Toilet Attendant, December, 2015)

This confirms a similar study by Bwire (nd) when he said that witchcraft still plays a major role in the lives of the Kilifii communities in Kenya and they have mortal fear of being bewitched because they believe that a person's faeces can be used to bewitch him/her at night.

A female respondents also complained that:

"*Men, as heads of households, have the duty to provide toilet facilities for the household since women cannot own lands. So refusal to provide a toilet facility will force household members to defecate outside* (Chansa Community, January 2016)

4.5 Consequences Associated with Open Defecation in the Wa Municipality

Open defecation is of fundamental importance to development because of the health hazard it poses to people living nearby and those living in other communities. Respondents within the study area identified some consequences that can be said to

be associated with open defecation. From the study, majority of the respondents (44 percent) agreed that open defecation promotes the spread of diseases, 14 percent said open defecation creates discomfort for residents, but 1 percent of them did not answer the question when asked to mention some consequences associated with open defecation as seen in Table 4.7.

The various exposure pathways through which open defecation spread diseases include flies visiting exposed faeces and picking germs unto uncovered food, wind blowing dust with germs from faeces unto uncovered food, and rain water washing germs from faeces into water sources to pollute them, especially during the rainy season.This affirms the work of (Stenstrom *et al*., 2011) when they said that the transmission pathways of excreta related pathogens may be either primary (through direct contact exposure) and/or secondary (exposure through an external route). Primary transmission includes person to person contact but, in this context also, direct contact with faeces or faecal soiled surfaces. Secondary transmission includes, vehicle borne (food, water, etc.), and vector-borne.

Table 4.6: Consequences associated with open defecation

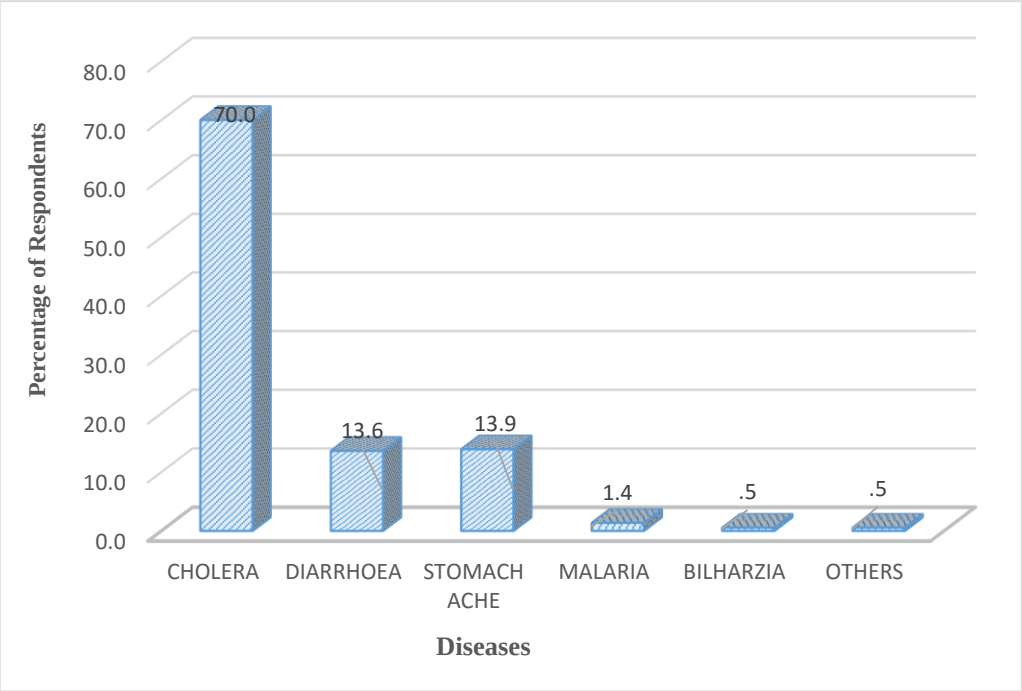
Consequences of open defecation	Frequency	Percent
Promote the spread of Diseases	164	44.7
Spoils the beauty of the Env't	54	14.7
Create Discomfort For Residence	76	20.7
Pollute water sources & Degrade the Env't	69	18.8
Others	4	1.1
Total	367	100.0

Source: Field Survey, March 2016

Poor sanitation means bad health. Bacteria, viruses and parasites, which are major causes of diarrhoea and other diseases, are all linked to poor sanitation especially open defecation. The study established some pathogens and diseases associated with faeces as shown in Figure 4.5.below. Majority of the respondents, representing 70 percent, indicated that cholera was the major faeco-oral disease, followed by diarrhoea (13 percent), and stomach cramps (13 percent). Other diseases identified by respondents include malaria, bilharzias, typhoid and intestinal worms. However, some respondents could not differentiate between diarrhoea and cholera and this can be attributed to the fact that 42 percent of the respondents had no form of education. This findings confirms the report by WHO (2008) which asserts that diarrheal diseases are one of the most common causes of death in low-income countries, contributing to 15 percent of an estimated 8.795 million deaths in children under the age of five globally. Infectious diarrheal diseases include other severe diseases such as cholera, typhoid and amoebic dysentery. An interview with the Municipal Disease Control Officer of the Ghana Health Service revealed that the major faeco-oral diseases mostly reported at the OPD for the last five years include cholera, diarrhoea, typhoid fever, and intestinal worms. He added that:

> "*The issue of open defecation is so serious to the extent that, from 2010 to 2015, 48,818 diarrheal cases, 10,528 cases of intestinal worms, 7,278 typhoid fever cases as well 21 cases of cholera were reported? And all these diseases were faeco-oral"* (Municipal Disease Control Officer-GHS, 02-02-16)

Figure 4.3: Faeco-oral Diseases



Source: Field Survey, March 2016

Aside the faeco-oral diseases identified, respondents enumerated other consequences that an individual faces as a result of defecating openly. Table 4.8 shows the results obtained from the study. Majority of the respondents (48 percent) said that open defecators usually suffer bites from reptiles, especially snakes and scorpions. A respondent told me about his encounter with a snake (cobra) when he went to defecate in the bush:

> "*In fact, I did not know a cobra was hiding in the bush. When it saw me, it started coming towards me. I took to my heels and the faeces vanished (laughing). It was not easy that day*."(Tampieni, January 2016)

Others also suffered from scorpion stings as reported by some affected Respondents. Secondly, 32 percent of respondents said they are often embarrassed when seen by friends or an in-laws defecating openly. This confirms Water Aid's (2009) study when they said that in some communities in Burkina Faso and Mali, people are ashamed or embarrassed to be seen walking in the direction of a latrine or toilet even by close relatives such as their spouses or children as other people will know they are going to relieve themselves.

Some respondents (12 percent) complained of injuries obtained from sharp objects and thorns when going into the bush or at night to defecate openly. Other respondents said that open defecation can generate quarrels among neighbours, since some people wake up very early in the morning and defecate close to houses, gardens and backyards that belong to others.

Table 4.7: Other Consequences associated with Open Defecation

Other Consequences	**Frequency**	**Percentage**
Embarrassment	119	32.4
Bites from Reptiles	178	48.5
Injury from sharp objects	44	12.0
Encourages social - vices	11	3.0
Others	15	4.1
TOTAL	**367**	**100**

Source: Field Survey, March 2016

From the study, it was also revealed that 52 percent of the respondents said, children's faeces, especially those below the age of 10 years, were considered not to be dangerous as that of adults in the study area since they believe that the type and quantity of food taken by a child cannot be the same as an adult, hence the faeces of a child cannot be compared to that of an adult. This view, held by respondents in the society, goes a long way to determine where the child will defecate. Many respondents observed that most children (31 percent) defecate into a chamber pot and the content thrown into the bush or they are made to squat in or around the house to defecate. Sometimes the faeces are left to be fed on by fowls and house flies. Polythene bags and its content are also deposited in public dump containers. This method of defecation by little children was observed during field work at Sokpayiri as shown in figure 4.8. The public dump containers provided by Zoom Lion Ghana Limited also served as a dumping site for persons who defecate in polythene bags.

It is usually said that: "charity begins at home'' and 'catch them young and they shall be yours forever'. This was the statement of the Municipal Health and Sanitation Officer when he expressed his concern on how parents in the municipality fail to introduce children at a very early age to defecating in toilets. He said that: "*Children below the ages of 5 years, defecate in chamber pots. The contents should not be thrown in the bush or compound but rather it should be disposed of in a toilet or dig and buried where there is no toilet facility. As the child grows up he/she sees it as a healthy practice to defecate in the toilet instead of the bush but some parents who practice open defecation themselves are guilty and*

cannot ensure that this is done."(Municipal Environmental Health Officer-WMA, 19-01-16)

Plate 4.3: A child defecating in a polythene bag near a public dump container

Source: Field Survey, January 2016

It was also observed that parents do not allow their children to go to the public toilets because children below the age of seven are not permitted to use the facility for fear that they will fall inside the hole and so most children have never been there and as such they will grow into adulthood without knowing how to use the toilets. One female respondent said:

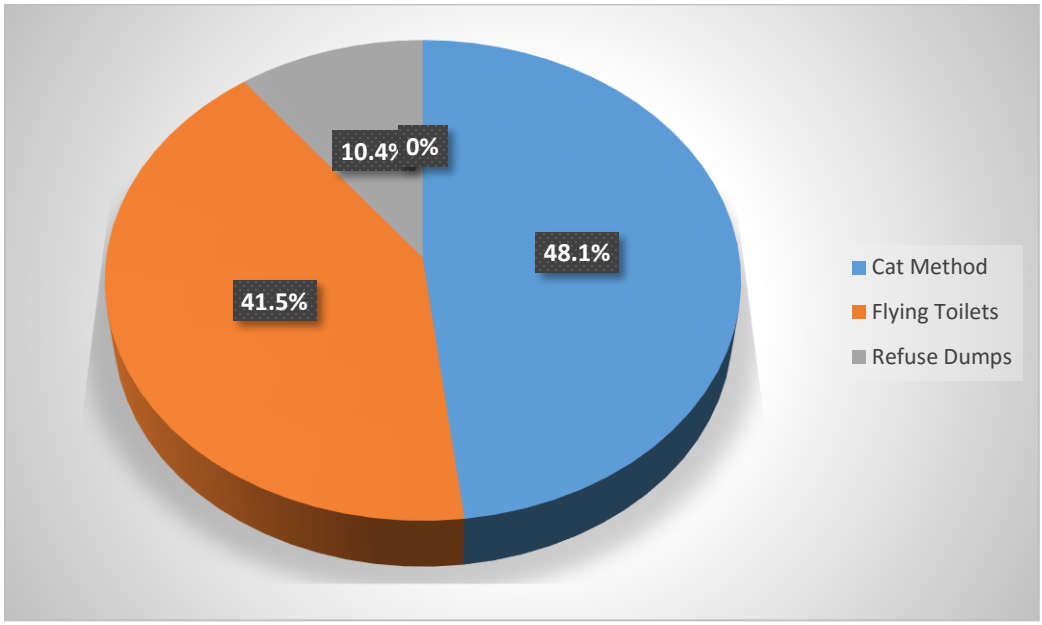
"*The first time I visited and entered a public toilet was at the Wa market, I went in and sat on something like a bucket and for several hours I couldn't free myself, but if it was in the bush, I would have freed myself very quickly"*(Dandafuro, December, 2015).

The study also revealed that 98 percent of the respondents said that usage of public toilets have nothing to do with societal norms since the consequences associated with the practice are numerous. However, it is fascinating to note that despite the non-existence of societal norms regarding the usage of public toilets, some communities with public toilets still practise open defecation.

4.6 Alternative Methods of Defecation in the Wa Municipality

People in the Wa Municipality have access to several options for defecating and, therefore, they combine and blend these options as and when necessary. From the perspective of respondents, there are numerous reasons for making use of the options or alternatives available. It is, therefore, necessary for the study to identify these defecation options so as to deepen understanding of the defecation practices and why those alternatives are preferred. Figure 4.6 below depicts the various alternative methods of defecation by respondents. From the responses of participants in the study, the following alternative methods of defecation were identified: 'cat method' (dig and burying toilet after defecation), flying toilets (defecating in polythene bags and throwing away), and defecating on refuse dumps.

Figure 4.4: Alternative methods of defecation in the Wa Municipality



Source: Field Survey, March 2016

Majority of respondents (48 percent) said that in the absence of a toilet facility, the only option available is to dig a hole, defecate and cover it. This was commonly done in the rural areas as vast areas of lands were available for community members. Also, majority of respondents, who are small-scale farmers, spend most of their times on their farms and as such this alternative method of defecation was common among them. It also implies those that use these alternative methods know the problem associated with faeces.

The study also identified another alternative defecation method thus defecating in black polythene bags and throwing them away indiscriminately 'flying toilets'. This was a common phenomenon identified in Wa Town and respondents cited lack of toilet facilities as a major cause of this canker. Atuahene (2010) asserts that as a result of inadequacy in the provision of toilet facilities in many cities in the

developing world, a large number of the residents practice open defecation or defecate in some materials like waste paper or plastic bags. This practice has been given different terminologies in different cities like 'wrap and throw' in Cebu (Philippines) or 'flying toilets' in Accra (Ghana). Lastly, about 10 percent of the respondents revealed that refuse dumps were used as alternative defecation method especially by the aged and children below the ages of ten years. Fowls and other animals usually feed on faeces on these dump sites.

Respondents enumerated several reasons for the use of the defecation options mentioned above as shown in table 4.9 below. The study indicated that 67 percent of the respondents complained of lack of toilet facilities, both public and personal, as the number one reason for choosing to defecate either in polythene bags, refuse dump or practising the 'cat method'. Other respondents (representing 15 percent) cited poor state of public toilets as a contributory factor to using such options. Lack of funds to construct household latrines and the stench, heat and maggots emanating from public toilets were also cited by respondents. Devine (2010) documented that factors such as limited resources served as a barrier to safe disposal of human excreta in East Java.

Table 4.8: Reasons for Defecation Options

Reason	Frequency	Percentage
No public and personal toilets available	246	67.0
Poor states of toilets	55	15.0
Lack of funds to construct toilet facilities	43	11.7
No maggots, smell and heat from' fly toilet'	23	6.3
TOTAL	**367**	**100**

Source: Field Survey, March 2016

4.7 Effective ways of Reducing Open Defecation

Open defecation cannot be erased without diagnosing the underlying factors. Respondents' views were sought on how open defecation could be stopped. Majority think that the provision of toilets to every household is a major step for attaining total sanitation. The results clearly indicate that provision of household toilets by landlords was the surest way to reducing open defecation as 42.2 percent of respondents agreed to this assertion. This assertion was also strongly supported by the Wa Municipal Disease Control Officer and the Municipal Health and Sanitation Officer when they said:

> "*Provision of household toilets by house owners (landlords) was the surest way of reducing open defecation and strong enforcement of the*

municipal bye-laws on sanitation."(Wa Municipal Disease Control Officer, January 2016). Others (23 percent) were of the opinion that intensifying public education using religious leaders would have a great impact in reducing open defecation, since most respondents either belong to Islam or Christian religion and leaders of these religions are usually revered by their followers. Some respondents (1.6 percent) were unwilling to suggest ways of reducing open defecation since they said they do not practice open defecation. Strict enforcement of existing sanitary laws (15percent) and enactment of stiffer sanitary bye-laws to deal with offenders (14 percent) were other ways suggested by respondents in curbing open defecation.

Table 4.9: Effective ways of reducing Open Defecation

Effective ways of reducing Open defecation	Frequency	Percent
Intensify Education on the Effects of the Practice Using Religious Bodies	85	23.2
Strict Enforcement of existing sanitary Laws	57	15.5
Enactment of stiffer sanitary Bye-Laws to deal with Offenders	52	14.2
Provision of Toilet in every Household by Landlords	155	42.2
Others(Naming and Shaming of culprit's)	12	3.3
Unanswered	6	1.6
Total	**367**	**100.0**

Source: Field Survey, March 2016

4.8 Conclusion

Open defecation is a serious sanitation issue most developing countries are battling with. The situation in the Wa Municipality is not quite different as the study revealed. Socio-economic and cultural factors such as ancestral beliefs, indiscipline, education, occupation among others cannot be underestimated in an effort to eradicate open defecation. Faeco-oral diseases such as Diarrhoea, Cholera and Stomach cramps were the major diseases in the study area that were identified. Aside Faeco-oral diseases, respondents who practise open defecation indicated that they were usually embarrassed when caught in the act. However, majority of respondents were willing to construct and own household toilet facilities but cited financial issues as the major challenge. Defecation is a private matter hence, socio-economic and cultural issues surrounding it must be well understood.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the major issues raised in the discussion of findings. It starts with the socio-demographic characteristics of respondents and how this influences open defecation in the study area. The chapter also highlights how the study addressed the research questions and objectives and finally makes recommendations following the findings of the study.

5.2 Summary of Major Findings

The main objective of the study is to assess the underlying socio-economic and cultural influences of open defecation in the Wa Municipality of the Upper West Region. The summary is intended to highlight the major socio-economic and cultural factors influencing open defecation, alternative methods of defecation as well as the consequences associated with open defecation. The summary also includes suggested solutions to the problem under investigation.

The findings indicate that defecation is a natural urge and as such both sexes respond to it when the need arises. The male respondents (61 percent) dominate that of the females with 38 percent. This disparity can be attributed to the fact that in the Wa Municipality, men are considered heads of households and most of them were available at the time of the research.

The study also revealed that the modal age groups were 19-29 years and 40-49 years, representing 41 percent and 41 percent respectively. These age groups belongs to the active working class, hence they can walk long distances to defecate in bushes, near rivers, etc. The aged, 70 years and above, do not see the need to construct any toilet facility of any kind with the reason that they will soon die and as such no need to waste money in constructing a toilet facility. The study also indicates that 73 percent of the respondents were married with 25 percent being single. The high rate of married people in the study communities can be understood in the context of the religion of the respondents.

Majority of the respondents 65 percent belonged to Islam whiles 30 percent were Christians. However, the study revealed that both Islam and Christianity do not encourage open defecation but 95 percent of the respondents with these religious backgrounds practice open defecation. The predominant ethnic group identified was the Waalas with 50 percent, who are the indigenous people, followed by the Dagaabas with 48 percent. These ethnic groups share similar beliefs and norms.

The level of education among respondents was found to be very discouraging. The findings indicate that 42 percent of the respondents had no form of formal education and cannot read and write and were considered as illiterate's whiles 13 percent and 18 percent of the respondents attended JHS/Middle School and SHS/Tech/Voc respectively. This was important because education can shape how a person views the world and contribute to social growth. The study results further show that small-scale farming (36 percent) is the dominant occupation in the selected communities

followed closely by artisans (33 percent), comprising of carpenters, masons, electricians, mechanics, seamstress, hairdressers, and painters.

The major findings show that high illiteracy rate of respondents was a major contributory factor to the increasing open defecation rates in the Wa Municipality. The results of the cross-tabulation established a relationship between educational background of respondents and ownership of toilet facilities. Educated persons are always held in high esteem in every society and usually serve as role models and also educate members on important and sensitive issues. In a situation where the majority of community members are not educated, it implies embracing change will be difficult.

The occupation of respondents has an influence on their income levels. Majority of the respondents practice small scale farming and crops harvested are not sold but used in feeding the family and as such they are handicapped in raising extra income in meeting the toiletry needs, especially construction of toilet facilities. Cross tabulation of occupational status and ownership of toilet facilities also established a strong relationship between occupation and ownership of toilet facilities. The findings also add that, even though, most respondents were illiterates (people who cannot read and write) they have some knowledge concerning open defecation and were fully aware of the negative implications of open defecation.

Ancestral belief/ancestral inheritance was cited as the main reason why open defecation is a serious environmental challenge in the municipality and cannot be eradicated, especially in the rural areas where individual and public toilets are not

available. Other causes of open defecation established by the study established are financial constraints, community members not used to toilet facilities, distance from house to toilet facilities especially in Wa town, ignorance, absence of by-laws in communities, bad state of public toilets, and lack of technical know-how in the construction of toilet facilities

It was also discovered that for 98 percent of the respondents, usage of public toilets has nothing to do with societal norms since the consequences associated with the practice are numerous. This study contradicts the social norm theory which states that individuals incorrectly perceive the attitudes and/or behaviours of peers to be different from theirs and as such engage in activities that are not socially acceptable. However, it is fascinating to note that despite the non-existence of societal norms regarding the usage of toilets, some communities with public and household toilets still practise open defecation. The findings again show that financial constraint was the main reason why land lords could not provide household latrines to be used by tenants. The study also established that respondents with large household sizes cannot pay daily for the use of public toilet.

There are clear differences of attitudes towards the use of sanitation facilities and handling of faeces between diverse cultures. However, the findings indicate that respondents were divided in terms of culture and practice of open defecation as 98 percent of them were of the view that cultural practises and beliefs cannot influence where they defecate since open defecation promotes the spread of diseases and pollutes water bodies, especially during the rainy season, and also added that foreign religions have come to abolish all cultural practises since they are against defecating

outside. Other cultural beliefs influencing open defecation in the municipality include the belief that witches and wizards and other bad spirits visit the toilet at night and as such woe unto people who are seen in the toilets by these spirits and that men as heads of households, it is their duty to provide a toilet facility for the household, since women cannot own lands in the municipality. So refusal to provide a toilet facility will force household members to defecate outside.

The findings show that open defecation promotes the spread of diseases, (stomach cramps, diarrhoea, typhoid fever, intestinal worms, bilharzia and malaria), spoils the beauty of the environment, creates discomfort for residents, pollutes water sources and degrades the environment. Other consequences include embarrassment, bites from reptiles, injury from sharp objects, and encouragement of social vices. Children's faeces, especially children below the age of 10 years, is believed not to be as dangerous as compared to that of adults; hence, children defecate in chamber pots and its content thrown out for poultry and other animals to feed on, polythene bags, refuse dumps, compounds and back yard. So, children grow up without knowing how to use a toilet facility and therefore resort to defecating openly.

The study identified some alternative methods of defecation in the study communities which include the 'cat method' (dig and bury), flying toilets (wrap and throw) and the use of refuse dumps. Reasons were given by respondents why they use such defecation options. Some of these identified are lack of household and public toilets, poor state of public toilets, and financial constraints to construct household latrines.

Finally, the findings show that provision of individual household latrines or toilet facilities by households can minimize the rate at which people defecate openly. Other ways include the use of religious and traditional leaders in educating members on open defecation, strict enforcement of existing bye-laws, and enactment of stiffer sanitary bye-laws to deal with offenders and naming and shaming of culprits or offenders.

5.3 Conclusion

Open defecation is a common practice engaged by both urban and rural communities and the Wa Municipality is not an exception. The ultimate goal of this study was to assess the socio-economic and cultural influences of open defecation and also to recommend the way forward in dealing with the canker of open defecation. The study identified education and occupation as major factors influencing open defecation in the Municipality. Other socio-economic and cultural influences identified include; Ancestral beliefs/inheritance, inadequate public and household toilet facilities, poor maintenance of public toilets, the perception that children's faeces are not dangerous, financial constraints, illiteracy, the belief that witches and wizards visits toilet facilities at night and the idea that it is only the duty of a man to construct a household toilet . Faeco-oral diseases were also identified as consequences associated with open defecation. The study recommends intensive and quality public education, financial support for needy households, community participation and ownership of sanitation facilities, privatization of existing community public toilets and strict enforcement of the National Building

Regulation (Act 462) as some the ways of curbing open defecation in the municipality.

In conclusion the study disagrees with the social norm theory by Berkowitz and Perkins (1987), which states that individuals incorrectly perceive the attitudes and/or behaviours of peers and community members to be different from their own. From the study, it can clearly be seen that the problem is not only attitudinal, but economic and cultural factors also plays significant role so far as construction of toilet facilities are concern in the Wa Municipality.

5.4 Recommendations

Based on the findings, the following recommendations are made:

5.4.1 Intensive and Quality Public Education on the Effects of Open Defecation

Education is a great redeemer: it is only through education that the final solution can be found to any social problem, especially when it comes to abolishing of attitudinal prejudices. From the findings, high illiteracy is a contributory factor to open defecation by residents in the Wa Municipality. Moreover, the level of education of household head significantly influenced the type of toilet facility used by households. There is need for basic education. Providing basic education locally will have a tremendous leverage effect; it will equip the future people of Wa Municipality with the means to fight their poverty and manage sanitation issues such as open defecation better. The Ministry of Local Government and Rural Development through the MMDAs should also continue to organize regular

intensive and quality public education involving all the stakeholders in the sanitation sector on the consequences associated with open defecation and the need to eradicate the practice. Religious and Traditional leaders within the Municipality should be used intensively for the education since majority of respondents in the municipality either belong to Islam or Christianity. However, this may be meaningless without the provision of toilet facilities and proper waste disposal sites by the Wa Municipal Assembly. It will be necessary that community members are provided with sanitary facilities to complement health education.

5.4.2 Financial Support for Needy Households

The study suggests that ownership of a toilet facility was influenced by occupation of household head. Economic status of households is closely linked with the affordability of services such as construction of a toilet facility. Thus households with no reliable source of income are likely not to have a toilet facility and will be tempted to practice open defecation. Especially, it has emerged from the study that financial constraints is the fundamental factor, which compels households not to own toilet facility. Thus the Ministry of Local Government and Rural Development, Non-Governmental Organizations should assist needy households in the form of logistics to aid them in constructing toilet facility of their choice especially in rural areas where majority of residents have low income levels

5.4.3 Community Participation and Ownership of Sanitation Facilities

In communities where public toilets are to constructed, community members should be involved and also participate in issues pertaining to the construction of

public toilets by seeking the opinion of the community members through public fora so that the facility will be owned and patronized by community members. This will enable members to clear all misconceptions surrounding the usage of public toilets.

5.4.4 Privatization of Existing Community Public Toilets

Existing few public toilets in the Wa Municipality should be privatized to Individuals, companies and religious organizations and also encourage individuals and companies to construct, own and managed public toilets. Public toilets owned by the Wa Municipal Assembly are not properly kept. Hence they generate maggots, heat and stench. This deters residents from patronizing such facilities and finally resort to defecate openly.

5.4.5 Strict Enforcement of the National Building Regulation Act 462

The Wa Municipal Assembly, and the Town and Country Planning Department should sanction landlords that do not have toilets as per the national building regulation (Act 462) that governs the Assembly. Strict enforcement of this regulation will compel landlords to provide toilet facilities especially in the urban areas.

5.5 Area for Future Research

The socio-economic and cultural influences of open defecation in the Wa Municipality have been the focus of this study. This has been done by examining the social, economic and cultural factors in the Wa Municipality that predisposes residents in the municipality to resort to open defecation. The consequences associated with open defecation and alternative methods of defecation were also

discussed in the study. The findings indicate that the most effective way of reducing open defecation is the provision of household latrines. It may be appropriate that further studies be undertaken to examine the effectiveness of household latrines/toilets in reducing open defecation in the Wa Municipality.

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APPENDICES

UNIVERSITY FOR DEVELOPMENT STUDIES

FACULTY OF INTEGRATED DEVELOPMENT STUDIES

DEPARTMENT OF ENVIRONMENT AND RESOURCE STUDIES

APPENDIX A: QUESTIONNAIRES FOR HOUSEHOLD HEADS

INTRODUCTION

I am a post graduate student undertaking a study **to assess the socio-economic and cultural influences of open defecation in the Wa Municipality**. I would be very grateful if you participate in this study by answering a few questions to enable the achievement of the objectives of this study. Your responses would be treated as confidential and used only for the purposes of this research. Your name is not required. Kindly respond as truthfully as possible.

Please, for each question in the various sections indicate the chosen option(s) by ticking or filling in the blank spaces with the most appropriate answer (where applicable)

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

(a) Name Community/Village……

(b) Questionnaire No …….

(c) House Number (If any) ……..

(d) Date of Interview ……

1. **Gender of Respondents**

   01= Male

   02= Female

2. **Age of Respondents**

   01= 19-29 years

   02= 30-49 years

   03= 50-69 years

   04= 70 years and above

3. **Marital Status**

   01= Married

   02= Single

   03= Others (Specify) ……

4. **Religion**

   01= None

   02= Christian

   03= Muslim

   04= Traditionalist

05= Others (Specify)……

5. **Ethnicity**

   01= Dagarti

   02= Waala

   03= Ashanti

   04= Sissala

   05= Dagomba

   Others (Specify)……

6. **Educational Background**

   01= None

   02= Primary

   03= JHS/Middle School

   04= SHS/Technical/Vocational

   05= Tertiary

   06= Others (Specify) ……

SECTION B: ECONOMIC FACTORS INFLUENCING OPEN DEFECATION

7. Are you the landlord?

   01= Yes

   02= No

8. What is your occupation?

   01= Trading

   02= Farming

   03= Formal Sector

   04= others (specify)……..

9. What is the number of people living in this household?

   ……

10. Do you have a toilet facility in your house?

    01= Yes

    02= No

11. If yes, what type of toilet facility is it?

    ……..

12. If no, why is there no toilet facility in your house?

    …….

13. If 'No' to (11) above where do you ease yourself when you are at home?

    01 = Public toilet

    02= Toilet in neighbour's house

    03=Any open/bushy area

    04= Others,

    Specify……

14. Is there any public toilet facility in this community?(If No, go straight to question 19)

    01= Yes

    02= No

15. If yes, how far is the toilet facility from your house?

    01= less than 50 meters away

    02= between 50 meters and 100 meters away

    03= more than 100 meters away

    04= over 200 meters away

16. Do you pay for the usage of the toilet facility?

    01=Yes

    02= No

17. If yes, how much do you pay daily for using the facility?

    01= 0.10p

    02= 0.20p

    03= 0.30p

    04= 0.40p

    05= 0.50p

18. In case you cannot afford to pay for using the facility, what do you do?

    ……

    ……

    ……

……

……

……

SECTION C: SOCIAL FACTORS INFLUENCING OPEN DEFECATION

19. Do you understand what is meant by the term open defecation?

    01= Yes

    02= No

20. If yes, what is it?

    .....

21. How do you feel about open defecation?

    ……

    ……

    ……

22. In your opinion, what are some of the causes of open defecation?

    ……

    ……

    ……

23. Are they some bye-laws in the community to deal with persons who defecate openly?

1 = Yes

2 = No

24. If yes, what are these bye-laws

……

……

……

25. Where do the children and the aged (if any) in the household ease themselves?

……

……

……

……

26. Children's faeces are not as a dangerous as that of adults.

01= True

02= False

03= don't know

27. Are there some societal norms with regards to the usage of public toilets in this community?

01 = Yes

02 = No

28. If yes, what are they?

……

SECTION D: CULTURAL FACTORS INFLUENCING OPEN DEFECATION

29. Why do some residents prefer to ease themselves in open places, sometimes close to public toilets, instead of in the toilets? **(You can tick more than one answer)**

    01= to avoid paying for toilets fees

    02= because the public toilets are in a state of mess, resulting from smell, flies and spillage

    03= because of religious practice

    04= others (specify) ……

30. Does the choice of a place to defecate take into consideration whether one is a male, female or a child?

    01= Yes

    02= No

31. If yes to question (30) , Mention some of these considerations

    ……

    ……

32. Do members of this community have any cultural beliefs about faeces?

    01= Yes

    02= No

33. If 'Yes' mention some of these cultural beliefs

    ……

    ……..

34. . Do you have any religious beliefs and practices that determine where you defecate?

    01= Yes

    02= No

35. If yes, what are these religious beliefs and practices?

    ……

    ……

36. What are the implications of these religious beliefs and practices for choosing a place to defecate?

    …….

    …….

SECTION D: ALTERNATVES METHODS OF DEFECATION IN THE WA MUNICIPALITY

37. What options for going to defecate do your household members have access to in the absence of a toilet facility?

……..

38. Do household members all use the same defecation options?

01= Yes

02= No

39. Explain if No?

……...…….

……

……

40. Are there any special reasons for the use of the defecation options stated?

OPTION	REASONS

41. Are these options for defecation socially acceptable?

01= Yes

02= No

SECTION D: CONSEQUENCES ASSOCIATED WITH OPEN DEFECATION

42. Is there any link between open defecation and good health?

01= Yes

02= No

43. If 'yes' to (42) above, explain **(You can tick more than one answer)**

01= Open defecation promotes the spread of diseases

02= Open defecation spoils the beauty of the environment

03= Open defecation create discomfort for residents

04= Open defecation pollutes water sources and degrade the environment

05= Others (Specify)

……

44. How can open defecation promote the spread of diseases? **(You can tick more than one answer)**

01= Flies visit exposed faeces and pick germs onto our food

02= Wind blows dust with germs from faeces onto our food.

03= Rainwater washes germs from faeces into water sources to pollute them

04= others, (specify) ……

45. Name any disease that is spread as a result open defecation.

…….

……

……..

46. Aside, the health implications, what other consequences are associated with open defecation

……

47. Choose from the alternatives, the most effective ways of reducing open defecation in your community? **(You can tick more than one answer)**

    01= Intensify education on the effects of the practice

    02= Strict enforcement of existing sanitary laws

    03= Enactment of stiffer sanitary bye-laws to deal with offenders

    04= Provision of toilets in every household

    05= others,(specify) ……

APPENDIX B: INTERVIEW GUIDE FOR KEY INFORMANTS

(MUNICIPAL DISEASE CONTROL OFFICER-GHANA HEALTH SERVICE-WA)

This interview guide is to help complete a study **on the socio-economic and cultural influences of open defecation in the Wa Municipality**. The provision `of honest, objective and accurate answers would therefore be much valued and well appreciated. This is purely an academic exercise, please note that your confidentiality is highly assured, Thank you.

1. How will you assess open defecation situation within the Wa Municipality?

01= Excellent

02= Very good

03= Good

04= Bad

05= Very bad

06= other, specify

……..

2. Do you consider open defecation practices within the Municipality as constituting a public health problem?

01= Yes

02= No

3. If 'yes' to (2) above, what exactly is the problem?

……

……

……

4. Are there reported cases of diseases over the last five years associated with open defecation/faeces in the Wa Municipality?

01= Yes

02= No

5. If yes, to (4) above, what are those diseases?

Year	**Open defecation/faeces related diseases**	**No. of OPD reported cases**
2010	a.	
	b.	
	c.	
	d.	
2011	a.	
	b.	
	c.	
	d.	
2012	a.	
	b.	
	c.	
	d.	
	a.	

2013	b.	
	c.	
	d.	
2014	a.	
	b.	
	c.	
	d.	

6. Suggest possible ways of curbing open defecation within the Wa Municipality

……

……

……

APPENDIX C: INTERVIEW GUIDE FOR KEY INFORMANTS

(MUNICIPAL ENVIRONMENTAL AND SANITATION HEALTH OFFICER)

This interview guide is to help complete a study **on the socio-economic and cultural influences of open defecation in the Wa Municipality**. The provision `of honest, objective and accurate answers would therefore be much valued and well appreciated. This is purely an academic exercise, please note that your confidentiality is highly assured, Thank you.

1. How will you assess the sanitation situation within the Wa Municipality?

01= Excellent

02= Very good

03= Good

04= Bad

05= Very bad

06= other, specify

……

2. What are some of the common ways of waste disposal in the Municipality?

.....

.....

.....

3. Do you consider open defecation within the Metropolis as constituting a public health problem?

01= Yes

02= No

4. If 'yes' to (3) above, what exactly is the problem?

……

……

……

5. How would you assess the adequacy of toilet facilities in the Municipality?

01= very adequate

02= fairly adequate

03= adequate

04= not adequate

6. How many public toilets are in the Municipality?

……

7. What measures have the Municipal authorities put in place to ensure that faeces are not found indiscriminately within the Municipality?

……

……

8. Do you have some figures to buttress the open defecation rates in the Wa Municipality?

01= Yes

02= No

9. If yes what are they?

……..

10. What are the major difficulties you encounter in your effort to ensure appropriate human waste disposal practices in the Municipality?

……

……

……

11. What suggestion do you have as a way of curbing open defecation practices within the Municipality?

…..……

……

12. What are some of the sanitation bye-laws enacted by the Municipal Assembly to punish people who defecate openly?

……
……
……

APPENDIX D: INTERVIEW GUIDE FOR KEY INFORMANTS

(REGIONAL DIRECTOR: COMMUNITY WATER AND SANITATION AGENCY)

This interview guide is to help complete a study **on the socio-economic and cultural influences of open defecation in the Wa Municipality**. The provision `of honest, objective and accurate answers would therefore be much valued and well appreciated. This is purely an academic exercise, please note that your confidentiality is highly assured, Thank you.

1. How long has the Community Water and Sanitation Agency being in the Wa Municipality?

…….

2. What is the core mandate of the Community Water and Sanitation Agency?

……

……..

2. Has the mandate mentioned in 2 above has been achieved within the Municipality

01= Yes

02= No

3. How would you assess sanitation within the Wa Municipality?

01= Excellent

02= Very good

03= Good

04= Bad

05= Very bad

06= other, specify.....

4. In your opinion, what are the serious sanitation problems identified within the Wa Municipality? List them in order of their magnitude

……

……

5. How would you describe the open defecation situation in the Wa Municipality?

……

……

6. Are there statistics of open defecation rates within the Municipality for the last five years?

01= Yes

02= No

7. If yes, what are these statistics?

01= 2010……

02= 2011……

03= 2012…….

04= 2013……

05= 2014……

8. What measures are put in place by the agency in the Municipality to curb open defecation?

……

……

……

9. Has the agency implemented the concept of Community Led Total Sanitation (CLTS) within the Municipality? (If No, go straight to Q11)

01= Yes

02= No

10. If yes, mention the names or areas within the Municipality where these projects are being implemented?

……

……

11. How effective is the Community Led Total Sanitation (CLTS) programme in curbing open defecation within the Wa Municipality?

……

……

12. In your opinion, what are the causes of open defecation in the Wa Municipality?

…….

APPENDIX E: INTERVIEW GUIDE FOR KEY INFORMANTS

(**RELIGIOUS LEADERS**: ISLAM AND CHRISTIANITY)

This interview guide is to help complete a study **on the socio-economic and cultural influences of open defecation in the Wa Municipality.** The provision `of honest, objective and accurate answers would therefore be much valued and well appreciated. This is purely an academic exercise, please note that your confidentiality is highly assured, Thank you.

1. What defecation preferences do community members have? List them

……

……

2. What do community members consider when choosing a place to defecate?

……

……

3. How does your religious group view human excreta?

01= Good

02= Bad

03= others, specify……..

4. Does this view influence the choice of a place to defecate?

……

……

5. Do you have any religious practices that require the use of specific types of facilities for defecation?

01= Yes 02= No

6. What are these practices if yes, to question 5 above

……

……

7. What types of facilities do they require?

……

……

8. Does your religion require specific locations for citing of a toilet facility?

01= Yes

02= No

9. If yes, what are these specifications?

……

……

10. Does your religion encourages or supports open defecation?

01= Yes

02= No

11. If yes, to 10 above, what biblical or Quranic verses supports your answer?

……

……

12. If no, give reason(s)

……

……

APPENDIX F: INTERVIEW GUIDE FOR KEY INFORMANTS

(TRADITIONAL LEADER)

This interview guide is to help complete a study **on the socio-economic and cultural influences of open defecation in the Wa Municipality.** The provision `of honest, objective and accurate answers would therefore be much valued and well appreciated. This is purely an academic exercise; please note that your confidentiality is highly assured.

1. What are some of the major sanitation challenges in your community?

……

……

2. What accounts for these sanitation challenges mentioned above in question1?

……

……

3. Traditionally, how do you view human excreta?

……

……

5. Does your view concerning faeces determine where to defecate?

01= Yes

02= No

6. Are there any beliefs that are common in this community with regards to human excreta?

01= Yes

02= No

7. If yes, what are they?

……

……..

8. Are the beliefs specific to some particular people?

01= Yes

02= No

9. How do these beliefs relate to one if he is a man, a woman or a child?

……

……

10. Do these beliefs influence a person's choice of a place to defecate?

01= Yes

02= No

11. traditionally, is open defecation an acceptable practice?

01=Yes

02= No

12. In your opinion, suggest some traditional measures that can be put in place to curb open defecation within the Municipality?

……

……

13. In your opinion, suggest ways of curbing open defecation within the Municipality?

……

……