

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI – GHANA**

**EQUITY IN ACCESS TO WATER AND SANITATION SERVICES FOR
DISABLED PERSONS IN THE KUMASI METROPOLIS; THE 4AS THEORY
PERSPECTIVE**

By

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A Thesis submitted to the Department of Community Health, College of Health
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degree of

MASTER OF PUBLIC HEALTH

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgment has been made and references cited.

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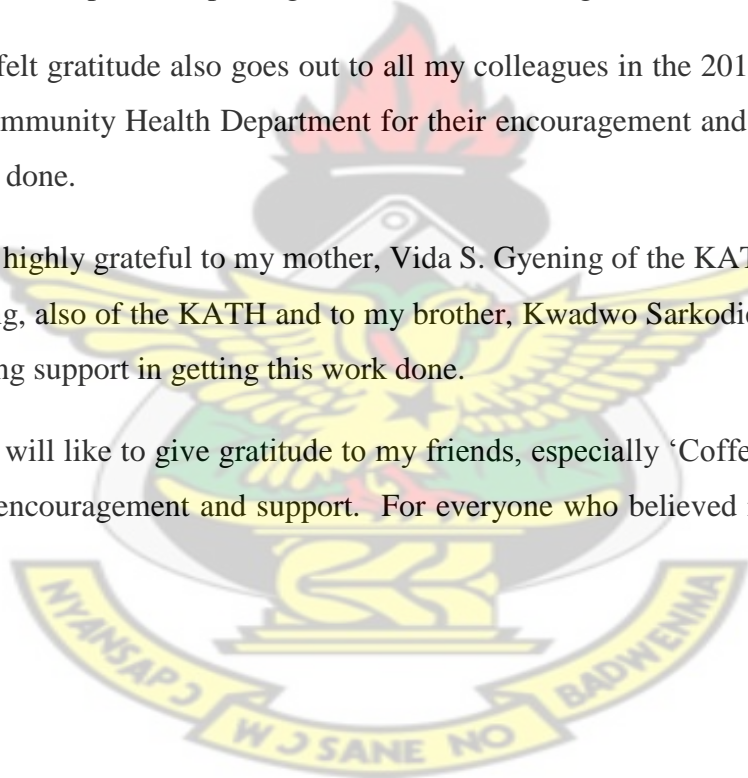
First and foremost, I will like to give thanks to the Almighty God, without whom nothing can be achieved.

I am also most grateful to my supervisor, Dr. Yaw Bio, the Director of KNUST Hospital, whose guidance, tutorship and supervision has made this work possible. I am also grateful to Prof. Kwabena Danso, a former Dean of the School of Medical Sciences, for his advice and great support. I will also like to give special thanks to all the lecturers of the Community Health Department of the School of Medical Sciences for their tutorship, and impacting me with the knowledge needed for this work.

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ABSTRACT

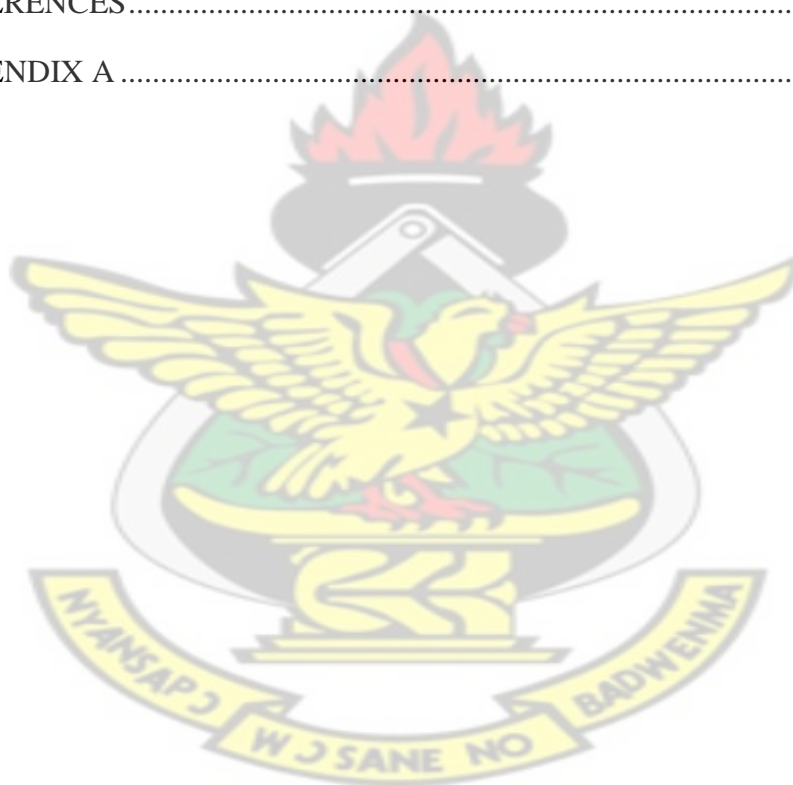
People living with disabilities can be found everywhere in the world. Since poverty and disability re-enforce each other, people living with disabilities are less likely to have resources to cater for their basic needs, chief amongst them being their health status to ensure their survival, than people living without disabilities. This results from the extra cost that the disabilities place on them, which may include the need to pay for assistive devices and special healthcare cost. The nature of impairments also tend to restrict certain activities that must be undertaken by disabled persons, including walking and bending, which subsequently restrict their ability to access vital water and sanitation services and facilities. In the quest of healthcare delivery agents to ensure an equitable system of health services in Ghana, in line with the 'Health for All' objective of the Ghana Health Service, there is the need to ensure the equitable distribution of all factors that contribute to health, key amongst them being the distribution of water and sanitation services, to all citizens of Ghana, irrespective of their socio-economic status, physical condition, religion, etc. The importance of water and sanitation in the attainment of a good health status can therefore not be overstated. This study therefore sought to find whether there is equity in access to water and sanitation services for persons living with disabilities in the Kumasi Metropolis. The study was a descriptive cross-sectional design, employing both qualitative and quantitative methods. The results of the study found that people living with disabilities have less access to water and sanitation services like good drinking water and toilets, than people living without disabilities, which affects their health negatively. The study also found that, in contradiction to other studies, people living without disabilities in the Kumasi Metropolis were largely sympathetic to people with disabilities, and felt that there should be equitable access to water and sanitation services for all the people of Kumasi. The study therefore recommended the involvement of all stakeholders, including persons with disabilities in the programming and designing of water and sanitation services and facilities since there must be equity in access to such key services for all citizens of Ghana.

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ABBREVIATIONS



AIDS	Acquired Immune Deficiency Syndrome
CHAG	Christian Health Association of Ghana
DFID	Department for International Development
DSW	Department of Social Welfare
ENT	Ear, Nose and Throat
EU	European Union
GHDS.....	Ghana Human Development Scale
GPRS	Ghana Poverty Reduction Strategy
GSS	Ghana Statistical Service
HIV	Human Immunodeficiency Virus
KATH	Komfo Anokye Teaching Hospital
KMA	Kumasi Metropolitan Assembly
KNUST	Kwame Nkrumah University of Science and Technology
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
NAD	Norwegian Association of Disability
NGO	Non-Governmental Organization
OPD	Out-Patient Department
PWDs	Persons living With Disabilities
SPSS	Statistical Package for Social Sciences
STI	Sexually Transmitted Infections
UESP	Urban Environmental Sanitation Program
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

DEDICATION

I dedicate this work to the Almighty God for His guidance and abundant grace, and to my mother, Vida S. Gyening, who's financial and moral support has made this work possible. I am also thankful to my siblings and friends for their huge support.

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CHAPTER ONE

INTRODUCTION

1.1 Background

People facing disability are a part of every community throughout the world today. Assessments have clearly shown a correlation between the poorest section of society and disability, with the prevalence of impairments found to be highest amongst the poorest section of society. With one out of every six poor people likely to have some form of impairment, almost every poor family is likely to contain a person with a physical impairment (WHO, 2008). Over a billion people are estimated to live with some form of disability of which approximately 80% live in developing countries (WHO, 2011). This corresponds to about 15% of the world's population. Between 110 million (2.2%) and 190 million (3.8%) of people, who are 15 years and older, have significant difficulties in functioning. Furthermore, the rates of disability are increasing in part due to ageing populations and an increase in chronic health conditions (WHO, 2011).

Economically as well as socially, disabled persons in developing countries are classified among the poorest of the poor. They are faced with a lot of barriers which have a great impact on them socio-economically. There are no official statistics available on the number of individuals in Ghana who have disabilities (Avoke, 2001; Agbenyega, 2002). However, WHO estimates put the number of disabled persons in Ghana between 7% and 10% of the population (WHO, 2010). Earlier surveys of individual districts by the Ghana Human Development Scale (GHDS) in 1993 and the Norwegian Association of the Disability (NAD) in 1998 and 1999 indicated that: the

three most prevalent types of disability are those related to visual impairment, hearing impairment and physical disabilities. The survey also found that the disability rate is the same for males and for females, it is higher in rural areas than in urban area and the rate is lowest in the 0 to 5 years age group and highest for persons who are 50 years of age or older.

Disability is a condition of significant impairment in relation to the usual standard of an individual. It may be physical, cognitive, mental, sensory, emotional, and developmental or any combination of the above. Disability can therefore be conceptualized as being a multi-dimensional experience for the individuals involved. This is because disability affects all aspects of the individual's life, including his or her social status, physical conditions, economic conditions, etc. It simply means handicapped or in most simple words, a person's inability to do certain things. An individual who is labeled and considered disabled suffers the often debilitating consequences of the label (Persuad, 2000). The social stigma attached to disabled persons often lead to discrimination and exclusion from such essential health services like clean water and good sanitation services. People with physical impairment have difficulty accessing and using existing water and sanitation facilities and are often excluded from the planning and implementation phases of new facilities.

The only way most disabled people will ever access their basic human needs and rights is through main-stream services and programs. But disabled women, men and children continue to be discriminated against and ignored by mainstream services and programs including access to water and sanitation (WaterAid, 2008). However, reducing the disability of people living with impairments through addressing their needs in accessing basic water and sanitation services has been long overlooked,

resulting in their continued isolation, poor health and poverty. Current water and sanitation facilities are not disability friendly and majority of disabled persons in society today lack access to these facilities. Although some specialist agencies have taken initiatives to address these groups' concerns over water and sanitation needs, there is much to be done to include them in water and sanitation activities and ensure they have adequate access.

The general importance of access to water and sanitation services as a basis for human health, welfare and productivity is well established. Estimates suggest that 88% of global cases of diarrhea (which kills around 2 million people each year) could be attributed to unsatisfactory water, sanitation and hygiene (WHO, 2004; UN/WWAP, 2003). Around 4000 people, mostly children, die everyday as a result of diarrheal diseases (Pruss-Ustun et al, 2008). According to the World Health Organization (WHO) and the United Nations International Children's Emergence Fund (UNICEF), this is the second leading cause of death among children under-5 globally; killing more children than malaria, measles and AIDs combined. Access to safe sanitation and clean water, coupled with improved hygienic behavior could have however prevented about 88% of these deaths. Hand washing with soap in particular has been shown to reduce diarrhea diseases by over 40%, making it on of the most cost-effective interventions for reducing child deaths. Hutton and Haller (2004) estimate global time savings associated with meeting the MDG targets for water and sanitation access to be around 20 working days per year. Interestingly they find that the majority of this saving would derive from more convenient access to sanitation facilities than from closer water access, though at the individual or household level this balance is likely to be highly variable.

The WHO/UNICEF Joint Monitoring Program for water and sanitation services estimates that 40% of the world's population (about 2.6 billion people) did not use a safe toilet, one that prevents human contact with human feces in the year 2008 (WHO/UNICEF, 2008). The report also estimates that 1.1 billion people have no option but to defecate in the open. Estimates show that the race to meet the MDG sanitation target is actually running in reverse. Sanitation and hygiene underpins the achievement of other MDGs, such as Goal number 2 to end poverty and hunger, Goal number 3 to achieve gender equity and Goal number 4, to reduce the Under-5 mortality rate by half by the year 2015. Current estimates suggest that the world is likely to miss the sanitation target and by 2015; there will be 2.7 billion people without access to basic sanitation. The % of the population using improved sanitation services in Ghana as at 2009 was only 13 (18% urban; 7% rural) (UNICEF, 2010).

However, the delivery of water and sanitation facilities to the most vulnerable and disadvantaged groups in society continue to pose a challenge, especially to persons with disabilities (PWDs). Traditional attempts to increase coverage of basic services such as water and sanitation have marginalized or excluded the needs of disabled people.

A person's environment also has a huge impact on the experience and extent of disability. Inaccessible environments create disability by creating barriers to participation and inclusion. Examples of the possible negative impact of the environment include:

- A deaf individual without a sign language interpreter
- A wheelchair user in a building without an accessible bathroom or elevator
- A blind person using a computer without screen-reading software.

Health is also affected by environmental factors, such as safe water and sanitation, nutrition, poverty, working conditions, climate, or access to health care. As the World Health Organization (WHO) Commission on Social Determinants of Health has argued, inequality is a major cause of poor health, and hence of disability (Rowland, 2008).

An equitable system of health care delivery is a key objective of the Ghana Health Service. In evaluating this goal, it is important for our health system to ensure equitable distribution of all factors that contribute to the health status of an individual. Key to these factors is access to water and sanitation services. Equity in access to water and sanitation services must focus on the extent to which water and sanitation services are distributed according to need, irrespective of either socio-economic status, cultural status and of greater importance, physical conditions. Inequality in health care does not imply inequity in health care. It is also important for people to have access to water and sanitation services for reasons of survival, dignity, cleanliness, safety, privacy and provide a sense of self-esteem. Access to water and sanitation by disabled persons is therefore a good condition to study for evidence of inequity in the distribution of water and sanitation services.

The 4As model of access recognizes the inter-dependence between different dimensions of access so as to find the right mix between the four dimensions in order to enhance access to a product or service. Accessibility, availability, affordability and acceptability form the four dimensions of access in the 4As model. Accessibility refers to the degree to which a service is made easily and physically reachable by clients. Availability measures the extent to which the provider of a service has the requisite resources, such as personnel and tools, to meet the needs of the clients.

Affordability refers to how the charges of the provider's services relate to the ability and willingness of potential clients to pay for the services. Acceptability captures the extent to which the client is comfortable with the features and characteristics of a service and vice versa.

1.2 Problem Statement

Issues of the right of the disabled have received little attention recently, and the United Nations Convention on the rights of PWDs acknowledged that persons with disability have a right to equal access to facilities and services (UN, 2006). In Ghana, the Poverty Reduction Strategy (GPRS II) emphasized the pursuit of policies that result in the inclusion of the vulnerable and excluded and this led to the passing of the Disability Act (715) in 2006 which further emphasized on the rights of persons with disability. These efforts further strengthened the country's efforts to achieve the MDGs.

As enshrined in the laws of Ghana by the Persons with Disability Act 715, 2006, disabled persons are entitled to equal human rights and social amenities, just like all citizens in Ghana. However People with disabilities in Ghana are often regarded as unproductive and incapable of contributing in a positive way to society, and rather seen as constituting an economic burden on the family and the entire society, which leaves them in a vicious cycle of poverty. Disability and poverty are therefore interlinked in this way. They actually reinforce each other. A major contributing factor to the poverty of disabled people is their lack of access to sanitation and safe water. The Millennium Development Goals of poverty reduction, health and access to safe water and sanitation will be difficult to achieve equitably without addressing the access needs of disabled people. Many other vulnerable groups of people also

experience difficulties using water and sanitation facilities, such as frail, elderly people, pregnant women and people who are injured or sick, including people with AIDS.

Improving a disabled person's access to and use of the domestic water cycle could assist in restoring the social integration and dignity of the individual disabled person. It will reduce the burden of personal care placed on family members and release valuable time, enabling disabled people and their families to apply more effort to improving income and reducing poverty.

On the contrary, disabled people have less access to water and sanitation services when they should have equal access to these services just as people without disabilities. Despite the size of the problem, very little has been published on this subject to date, and people living with disabilities continue to be ignored by providers of water and sanitation services.

1.3 Rationale

Access to water and sanitation services, which are basic human rights, is key to the attainment of improved health status for people all over the world. However, lack of equity in access to water and sanitation services ensures that 'vulnerable' groups such as people living with disabilities are excluded from water and sanitation services, which lead to poor health outcomes, i.e. higher levels of morbidity and mortality due to deadly diseases like typhoid, malaria, cholera and diarrhea. This exclusion leads to loss of dignity and self-esteem of disabled people, hurting them emotionally and socially.

It is therefore important to find out the state of exclusion of disabled persons from water and sanitation services in the Kumasi Metropolis so as to improve the health status of disabled people in the Metropolis, and identify ways of addressing the problem of exclusion of disabled people from water and sanitation services.

1.4 Research questions

1. Which household attitude and practices prevent the disabled from having access to water and sanitation services?
2. What are the access difficulties of disabled people to water and sanitation in the Kumasi Metropolis?
3. Are there differences among disabled and non-disabled in terms of access to water and sanitation facilities?

1.5 Study objective

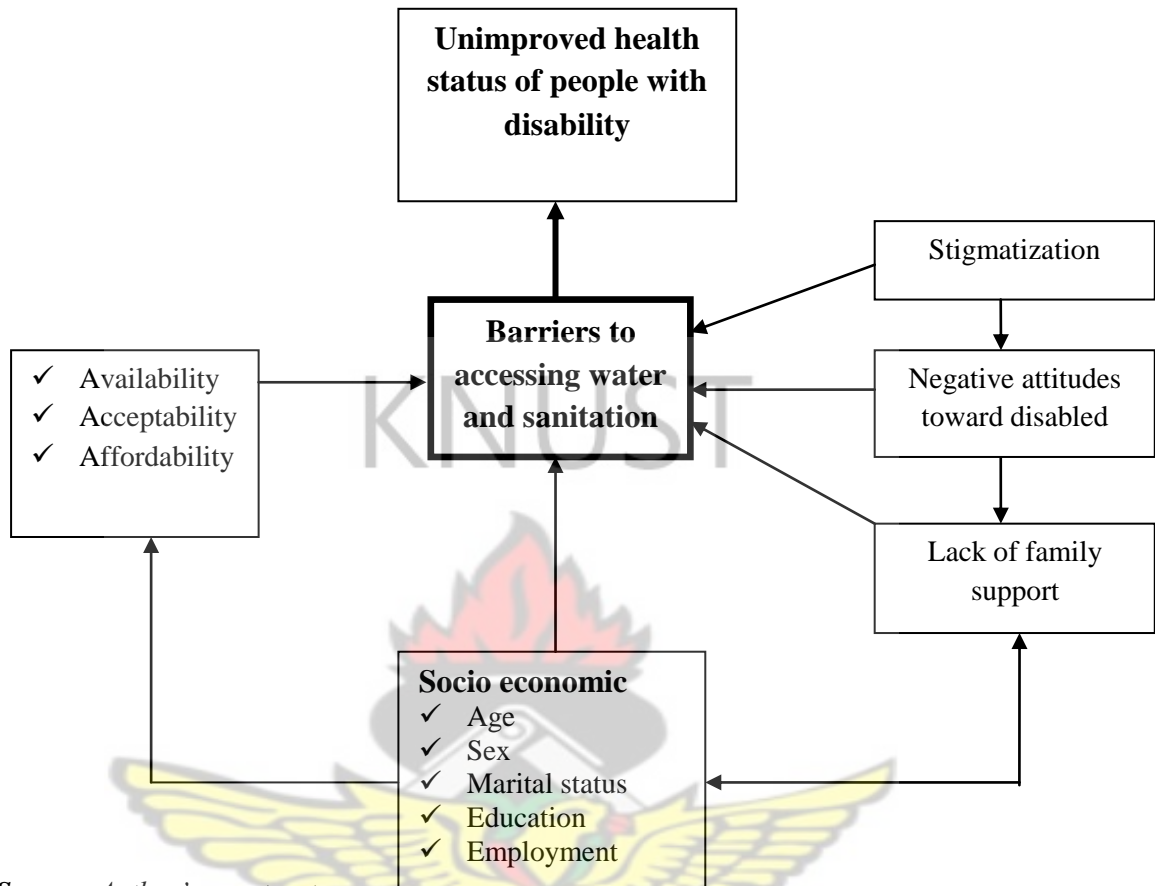
1.5.1 General Objective

To determine whether there is equal access to water and sanitation services between able persons and disabled persons with equal levels of need in the Kumasi Metropolis

1.5.2 Specific objective

1. To assess the household attitude and practices that prevent the disabled from having access to water and sanitation services
2. To determine the access difficulties of PWDs to water and sanitation in the Kumasi Metropolis
3. To determine the differences in access to water and sanitation among disabled and non-disabled in the Kumasi metropolis.

1.6 Conceptual Framework



Source: Author's construct

To ensure improved health status for people living with disabilities, there must be no exclusion or barriers in their access to all factors that contribute to health. Access to water and sanitation services are key factors among such factors. But these barriers do not just arise from 'space'. They come about as a result of how societies treat people with disabilities. Factors such as stigmatization, negative attitudes and lack of support, tend to isolate people with disabilities, thereby preventing them from accessing public services and facilities like water and sanitation services.

Also, people living with disabilities tend to have lower socio-economic status than people living without disabilities. This may include their educational levels, employment status, marital status, etc. This also contributes to create barriers in their access to water and sanitation services. All things being equal, a married disabled person is more likely to family support than a disabled person who is single.

Finally, and of vital importance, is the nature of the water and sanitation services themselves. To enhance access, such key services and facilities must be sited close to people, their designs must be such that they can be easily used by all sections of society and they must also come at a cost that everyone will be willing and able to pay for.

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CHAPTER TWO

2.0 REVIEW OF LITERATURE

Introduction

This chapter is intended to review related materials on the study. It deals with a review of water disability from the global, regional and national perspective. It will further look at the concept of access to water and sanitation from the perspective of the disabled. Structure related factors that influence access water and sanitation will also be discussed. Finally, literature on socio economic characteristics of PWDs including stigmatization and its effects on access to water and sanitation will be discussed.

2.1 Overview of disability

Disability is a development issue, due to its bi-directional link to poverty: disability may increase the risk of poverty, and poverty may increase the risk of disability (Sen, 2009). A growing body of empirical evidence from across the world indicates that people with disabilities and their families are more likely to experience economic and social disadvantages than those without disabilities. People with disabilities may have extra costs resulting from disability – such as costs associated with medical care or assistive devices, or the need for personal support and assistance – and thus often require more resources to achieve the same outcomes as non-disabled people (Zaidi&Burchardt, 2005). Because of higher costs, people with disabilities and their households are likely to be poorer than non-disabled people with similar incomes (Cullinan et al, 2010). Households with a disabled member are more likely to

experience material hardship – including food insecurity, poor housing, lack of access to safe water and sanitation, and inadequate access to health care (Van Brakel, 2008).

A recently adopted definition of disability is ‘the outcome of the interaction between a person with impairment and the environmental and attitudinal barriers he/she may face’ (WHO, 2001). The definition of impairment is ‘problems in body function as a significant deviation or loss.’ In other words, impairment alone does not automatically result in disability. For example, one person with a physical impairment, who has a suitable wheelchair, living in a house without steps and surrounded by accessible infrastructure, will be able to live a full and active life, and as a result be considered only moderately disabled. The same person without access to a wheelchair or other mobility equipment, living in a house on stilts, in an inaccessible environment, may be completely confined to the house, with no educational, social or employment opportunities, and thereby considered severely disabled.

Examples of attitudinal barriers are that social stigma and cultural beliefs about certain groups, particularly people with albinism, epilepsy or leprosy can result in social isolation and exclusion, which can have a more detrimental impact than the actual impairment. Disabled people are not a homogenous group, and have very different abilities and needs. Many are likely to have more in common with other groups they belong to, e.g. a disabled woman may have more in common with other non-disabled women than with disabled men, and people with different impairments may feel they have nothing in common with each other.

Definitions of disability vary between different countries and cultures. The category 'disabled' is unlikely to capture everyone with impairments. For example, many elderly people start to experience impairments, as their sight weakens, or their joints stiffen, but this is often considered a normal part of ageing and they are not considered 'disabled'.

2.1.1 Disability, Stigma and Prejudice

Society still holds biased stereotypes toward people with disability. The social model of disability indicates that the problem is with society's attitude toward disability and not with the person with disability. There are increased efforts to ensure that people with disability can easily access education, employment and social amenities. But the impact of this is that it has resulted in the provision of segregated services for those with disability and those without disability. According to the social model of disability, this segregation of services and limitation to access is not helpful for people with disability and the eradication of stereotypes and discrimination.

Globally, it is widely acknowledged that the greatest impediment to the lives of people with disabilities is prejudice, social isolation and discrimination (Despouy, 1991; Ingstad, 1995). Some cultures are more and others less tolerant of those with disabilities. In many, although not all cultures, there has historically been a great deal of stigma attached to having a disability. In various cultures, being born with or acquiring a disability has been interpreted as evidence of 'bad blood', incest, or divine displeasure (Helander, 1995).

This stigma and exclusion results from limited knowledge and understanding of the causes of their impairments and the resulting disabilities. In Ghana, people often

associate disability from birth with activities in a previous life. Those who have little contact or experience of interacting with people with impairments often have the most negative perception of them. As a result disabled people may be prevented from using public water and sanitation services for fear of "contamination" of water or "dirtying" the facility. Negative attitudes are also held by families who perceive a disabled person within their family as a financial and social burden.

Oliver-Commey (2001) noted in his study that a majority of Ghanaians, through these belief systems, labeled persons with disabilities as social misfits, social outcasts and in most cases treat them like animals. Superstition and the cultural belief system thus pose a consequential and ominous threat to inclusive education, because under such circumstances it is difficult for any interaction to occur between the 'normal' and the disabled.

Social stigmas often result in disabled persons facing limited access to education and other social services, as due to their impairment there is a perception that they do not need or will not benefit from education. We have seen evidence that this has a negative impact on their ability and opportunities to participate and influence crucial decisions concerning their basic rights, such as those related to the design and provision of water and sanitation services. Even the seemingly ordinary custom of where a latrine can possibly be sited makes it difficult for the physically impaired to use the facility.

In the Ghanaian setting, any child born with any defect is seen as a violation of such traditional belief systems and the family will forever suffer from ambivalent reactions (Avoke, 2001). Other study by Agbenyaga (2002) indicates that disability is also seen in Ghana as a result of witchcraft, sorcery, 'juju' and magic.

Attitudes towards the disabled reflect underlying cultural beliefs about the causes of disability. In a study by Tesfu and Magrath (2006) in Ethiopia to assess Water and sanitation access for people with motor disabilities, several respondents believed their disability was caused by ‘devil spirits’, and the idea that disability is a result of a curse on the parents, due to past misdemeanors, is also widespread. This encourages parents to deny birth defects, and perpetuates ignorance about the true causes of disability. In the study, nine out of 32 interview respondents had had polio according to medical information, but none of them mentioned this as a cause of their disability. Instead, they mentioned accidents, devil spirits or other diseases.

2.2 Social impact of disability

The social impacts of disability include economic, political, psychological and social factors. Specifically, social impacts are those consequences of disability that are mostly experienced at the individual, family and community level. These include poverty, issues of access as well as social exclusion. These social impacts further affect how individuals and communities cope with disability.

(i) Family

Families living and caring for a person with disability experience both positive and negative impacts. Disability can bring about a sense of cohesion and closeness within the family and community as awareness on how to cope with disability increases. But disability can also be a source of family strain between spouses and also between parents and children. According to the Medscape website, families with special-needs

children are predisposed to divorce and tension because of the psychological and emotional strains that disability can bring about (Medscape, 2011).

(ii) Risk of Poverty

Widely quoted UN statistics suggest that one in five of the world's poorest people have a disability, and 82% of disabled people in developing countries live below the poverty line (European Commission, 2003). Poverty is both a cause and a consequence of disability. Disabled people are more likely to be poor because of inadequate medical treatment, lack of education or employment, discrimination and isolation. At the same time, poor people are more likely to be disabled because of poor nutrition, hygiene and sanitation, poor health care, hazardous living and working conditions and lack of education. Disability impacts the whole family, through increased treatment costs, increased workload of carers (usually women and girls) resulting in reduced income, and general reduction in well-being (DFID, 2000; Tesfu&Magrath, 2006).

Although there is still limited research that examines the links between poverty and disability, the evidence base is growing. A recent review of the literature confirmed that individuals and households affected by disability are more likely to be below the poverty line, and that being disabled increases the risk of becoming poor. It found that poor people themselves see disability as a key cause of poverty and describe disabled people as among the most excluded, 'poorest of the poor'. Results from a study by Gooding (2006) indicates that disabled people on average fare worse in relation to employment, material wealth, education, health, access to development assistance and poverty relief, and in social well-being.

In a study by Burchardt (2005), disability increases the risk of a person's slide into poverty. Results from this research indicate that 14 percent of those studied had a disability slid into poverty. Families or individuals with disability slid into poverty twice as fast as those that had not experienced a disability. Poverty as a social impact of disability is mainly due to a loss of paid employment. Even though there are provisions against discrimination, disabled persons still have difficulty gaining meaningful employment and hence could not attain a high socio economic status.

(iii) Social exclusion

Social exclusion as a result of disability means a lack of belonging in a given social context. A person with disability may face limitations in interacting with colleagues at work, fellow students and also family members. This may be as a result of his pushing these people away or from the stereotypes and societal attitudes toward disability. The impact of exclusion is that a person with disability may lack social support and social skills, such as communication, to cope with the disability.

2.3 Water and sanitation services

Situation and trends

Current rates of progress towards the MDG sanitation target are inadequate and in 2008, 1.1 billion people (17% of the world's population) with no access to toilets, latrines and other forms of improved sanitation, had no other choice than to defecate in the open, resulting in high levels of environmental contamination and exposure to the risks of microbial infections, diarrheal diseases (including cholera), trachoma, schistosomiasis and hepatitis. The vast majority of those without access to basic sanitation (87%) live in rural areas. Access to improved sanitation is particularly low

in the WHO African and South-East Asia regions where more than half of all people remain unserved with adequate sanitation (WHO/UNICEF, 2010).

The use of improved sanitation facilities is particularly low in Sub-Saharan Africa at 31% overall – even so, the disparity between urban and rural areas is striking. Disparities are also particularly apparent in Latin America & the Caribbeans, Southern Asia and Oceania. Seven out of ten people without improved sanitation live in rural areas. There are significant disparities between rural and urban areas with regards to sanitation. Rural areas continue to have a lower percentage of population using improved sanitation and a higher number of people without improved facilities.

Of the approximately 1.3 billion people who gained access to improved sanitation during the period 1990-2008, 64% live in urban areas. However urban areas, though better served than rural areas, are struggling to keep up with the growth of the urban population. Worldwide, 87% of the population gets their drinking-water from improved sources, and the corresponding figure for developing regions is also high at 84%. While 94% of the urban population of developing regions uses improved sources, it is only 76% of rural populations (WHO/UNICEF, 2010).

Children also bear a disproportionate share of the costs of inadequate water and sanitation access, as they are most vulnerable to diseases associated with contaminated water and poor sanitation. The majority of deaths from diarrheal disease occur in children: around 4500 child deaths per day globally (WHO, 2007). The elderly and sick, including HIV sufferers, are also likely to be particularly vulnerable to infection and their care may require greater supplies of water, so the costs of caring

for these household members may be increased by poor water and sanitation access (Wegelin-Schuringa & Kamminga, 2006).

Open defecation

By far the great majority of people practicing open defecation live in rural areas, but this number is declining. However, partly because of rapid increases in the urban population, a growing number of people in urban areas defecate in the open. The proportion of the world population that practises open defecation declined by almost one third from 25% in 1990 to 17% in 2008 . A decline in open defecation rates was recorded in all regions. In Sub-Saharan Africa, open defecation rates fell by 25 per cent. In absolute numbers, the population practising open defecation increased, however, from 188 million in 1990 to 224 million in 2008. In Southern Asia, home to 64% of the world population that defecate in the open, the practice decreased the most – from 66% in 1990 to 44% in 2008 (WHO, 2009).

Shared sanitation

Shared sanitation facilities as defined for MDG monitoring purposes are facilities of an otherwise improved type that are either public or shared between two or more households and it's most prevalent in urban areas. Often densely populated urban areas do not have sufficient space to construct private sanitation facilities and people rely on public or shared facilities. Among the different regions, using a shared facility is most common in urban Sub-Saharan Africa (31%), and particularly in Ghana. In 1990, 249 million people in urban areas used shared facilities as compared with 145 million in rural areas. Those numbers have now almost doubled to 497 million in urban areas and risen to 254 million in rural areas, representing a worldwide increase of 4% (Howard & Bartram, 2003).

Unimproved Sanitation

A tenth of the world population uses unimproved sanitation facilities. Unimproved sanitation facilities are unsatisfactory in terms of public health, although existing facilities may be upgraded in various ways to prevent human contact with excreta. Globally the proportion of the rural population using unimproved sanitation facilities is more than fourfold that in urban areas. This is despite the decrease in the use of unimproved sanitation facilities in rural areas of the developing regions from 23% in 1990 to 20% in 2008.

Gender disparities

For families without a drinking-water source on the premises, it is usually women who go to the source to collect drinking-water. Surveys from 45 developing countries show that this is the case in almost two thirds of households, while in almost a quarter of households it is men who usually collect the water (WHO, 2009). In 12% of households, however, children carry the main responsibility for collecting water, with girls under 15 years of age being twice as likely to carry this responsibility as boys under the age of 15 years. The real burden on children is likely to be higher because, in many households the water collection burden is shared, and children – though not the main person responsible – often make several roundtrips carrying water (Hutton & Haller, 2004).

Socio economic disparities

The richest 20 % of the population in Sub-Saharan Africa is almost five times as likely to use an improved sanitation facility as the poorest quintile. The poorest 20% is around 16 times more likely to practice open defecation than the richest quintile and PWDs are more likely to belong to this group. Still, even among the richest quintile,

4% practice open defecation. The richest quintile of the population in Sub-Saharan Africa is more than twice as likely as the poorest quintile to use an improved drinking-water source. The benefits of piped water on premises are enjoyed mostly by the wealthiest (WHO/UNICEF, 2010).

2.3.1 Role of water in livelihoods

To understand the role of water in livelihood, it is important to look beyond the individual level to the household unit. Of interest are both the distribution of water-related costs and benefits within and between households, and the relationship between household water use profiles and different livelihood strategies. Within households, the costs of poor access to water and sanitation are typically highly gendered with women bearing the majority of time costs for collection of water, and the indirect costs associated with caring for sick members of the household. Between households, the costs of inadequate access to water are likely to be particularly striking for female-headed households. They may face particular difficulties if access to water is tied to land rights which are not easily available to women; according to UN-Water (2006) this may be a major reason for the high levels of poverty among female-headed households.

Water can be regarded as just one of a range of inputs to the household economy and a key factor affecting levels of vulnerability. Nicol (1999) argues that a broader understanding of household water supply and use is key to effectively incorporating a poverty reduction agenda into WSS sector policy and programming. Benefits extend far beyond health to include multiple and different small-scale productive uses, but water alone is generally not enough to improve income. The potential poverty impact

of improved Water Supply and Sanitation (WSS) access depends on the availability of other livelihood assets e.g. land, labour, livestock, credit, local markets which can be combined to generate increased income in cash or kind (Moriarty et al, 2004). Understanding water as a livelihood issue implies rethinking the traditional narrow focus on health impacts. Outside urban areas water quantity is often more important than water quality and this has important implications for technology choice and scheme design including, where appropriate, development of multiple use systems and services. Important questions surround the definition of ‘basic’ services and trade offs associated with investing in higher levels of service.

2.4 Barriers to accessing water and sanitation by disabled persons

Lack of sanitation keeps people poor, unhealthy and unable to improve their livelihoods. Disabled people have the least access to these services, which compounds their isolation, poor health and poverty. In the drive to meet development targets such as the Millennium Development Goals of poverty reduction, improved health and access to sanitation, service providers recognize the need to target the poorest sections of society. It is therefore apparent that to provide more equitable access to basic services, the needs of disabled people need to be considered and addressed. Barriers to accessing water and sanitation come in the form of infrastructure, technical barriers, social barriers and financial barriers. They exist in the natural environment, like long distances to water sources, rough terrain, rivers with soft or rocky banks and uneven slopes to reach the water. These all impede access for those with physical impairments, especially in rural areas.

2.4.1 Infrastructural barriers

Physical infrastructure barriers include steps to reach a water source, slippery floor surfaces and apron walls. In the household, narrow doorways, water storage containers without handles or placing containers out of reach, making it difficult for disabled people to access water.

Reports from the study by Tesfu and Magrath (2006) in Ethiopia indicate that even for those who have access to latrines, the designs are inappropriate for the motor disabled, since they cannot accommodate crutches or wheelchairs. Out of the 18 respondents with latrine access, five cannot always use them and resort to open defecation or use potties. Others struggle to use the latrines by crawling. Since latrines are overused and dirty, this poses a health risk.

In times of acute water scarcity, people queue for long hours at water points. Water for use by disabled people can become a low priority, partly due to the belief that they do not get so dirty due to their limited physical activities (Jones & Jansz, 2008).

In a study in Ethiopia to investigate the water and sanitation access for people living with motor disabilities, one of the respondents reported *“I moved to Butajira to get an education. I stay in a rented house. The latrine is shared with several people, and the design is totally inappropriate for me. I use a wheelchair, but because the latrine entrance is raised, I have to get off my wheelchair, and crawl into the dirty toilet. The latrine blocks are also raised, making it even harder for me to use the latrine “*

In the same study, another respondent reported *“During the rainy season I get even dirtier every time I go anywhere. But my worst experience is with the toilet. I live at a church and use the school toilet next door. It is used by many students, so it is very*

dirty. I have to crawl into the dirty toilet and all the muck gets onto my clothes. I find it really difficult using the toilet because of the design. The latrine is raised above the floor level, so it is hard to get my legs in the right position. I use my hands to support my body. So as you can see, I need a lot of water for bathing after using the toilet.”

In a study to determine the access to water and sanitation facility by disabled persons in Ghana, 92% of the respondents believed PWDs face difficulties accessing toilets. 75% said their difficulty was mainly with the design of the facilities such as KVIP latrines, and that toilets were too small, dark and narrow (Drafor& Jones, 2008).

2.4.2 Technical barriers

Despite the policy provisions, there is an acute lack of appropriate and available information to enable implementers to adapt water and sanitation facilities in a way that addresses the challenges faced by disabled people.

Lack of knowledge about available water and sanitation infrastructure designs and technology has a direct impact on disabled people's access to water and sanitation services and also raises safety issues. The natural environment and a lack of proper planning mean the approach paths to water and sanitation services are often slippery, narrow or uneven, making it hard to pass, especially for people using a wheelchair. The lack of support or handrails makes accessing water and sanitation services hazardous for the physically impaired. Often the height of the wall surrounding a well or a tap also determines whether a physically impaired person can use it or otherwise.

This is especially true in public water and sanitation facilities, which do not consider the wide range of users who will try to access these services. For example, most

schools do not have toilets that are friendly to the physically impaired, which discourages children with different impairments from attending school and hinders their ability to pursue higher studies, often compounding their marginalization within society. Lack of knowledge of designs and available technology often results in latrines and water points being built without consideration for different users' needs.

A study in Uganda by Kiwanuka (2002), reports that disabled children attending primary school have difficulty opening the doors and closing them once inside. Door locks are often too high to reach and limited space inside the latrine restricts movement. Taps are often too high, making hand washing and self-cleaning problematic. Children who crawl find the floor too dirty, especially as they often crawl with bare hands. Where the water source is not close by, users find it difficult to carry water to the latrine for washing.

2.4.3 Financial barriers

Financial difficulties within families and communities hinder water and sanitation access in general, and especially for those households who have to make additional investments to ensure access. Even though it often costs only marginally extra to ensure that services are disabled-friendly, it is generally the last in the list of priorities for families and communities that are already financially challenged. The low income of many people in resource poor settings and the competing expenditure demands within a household mean few resources are allocated to sanitation. When a poor family has to choose between food and sanitation, the latter receives low or no priority. For the poorest of the poor, incurring extra expense for a disabled member of the household is often out of the question. Although with sufficient technical knowledge low-cost options are possible, our experience shows that all too often

without external support or cost-sharing options, modifying water and sanitation services is too great a financial burden on families with disabled members. Even when technical knowledge is present, the financial burden is often further compounded by a lack of locally available and affordable materials, to construct and maintain appropriate infrastructure. Imported materials and technologies are often too expensive, difficult for communities to access and in the long run unsustainable (WaterAid, 2008).

At the household level, families are faced with the challenge of spending more on the healthcare of disabled children and this has a consequence on their ability to provide the needed water and sanitation facilities. In Bangladesh, research indicated that 57% of families with disabled children reported that they incurred extra direct costs almost every month for specialized child care, medicine, or health care. The direct cost of treatment and equipment for affected families varied from five days' to one year's worth of normal income, with the average being four months' worth. A child with severe impairments was found to be three times more expensive to raise than a child without disabilities (Chowdhury, 2005).

There is a common misconception that making services accessible to people with a variety of different needs is costly. The increased benefits to careers and society as a whole, of a wide range of people having independent access to water and sanitation services are also often overlooked. Despite sanitation's public benefits and society's overall responsibility to address disability amongst its members, limited resources are allocated at the community level to meet disabled people's needs and thus ensure universal water and sanitation access. Without providing user-friendly latrines for differently-able people, achieving open defecation free status in a community is not

possible. For sanitation outcomes to be achieved at the community level, inclusion and investment in all groups is essential (WaterAid, 2008).

KNUST



CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

The study is a descriptive cross-sectional design, employing both qualitative and quantitative methods. Data were collected at the individual level and at the level of service providers, including Health and Water Bureaus and disability organizations.

3.2 Study area

The study was undertaken in the Kumasi Metropolis. Kumasi is the capital city of the Ashanti region and the second largest city in Ghana. The metropolis is bounded in the north by Kwabre, Bosomtwe and Atwima Kwanwoma districts to the south; on the east is the Ejisu district and the Atwima district is on the west of the metropolis. The Kumasi metropolis is the largest of the twenty-seven (27) political divisions (metropolis, municipality, districts) in Ashanti Region. It has an estimated population of 1,430,241 with an annual growth rate of 3.4 percent. This is probably applicable to the night since daytime population which includes traders from the rural areas, and adjoining communities is estimated to be above 2 million. This population is distributed in about seventy-six (76) communities in the metropolis.

Kumasi is a cosmopolitan city. It has members of most ethnic groups from the West African sub-region. However, the indigenous Asante people are predominating. Even though the migrant communities maintain their language and cultural identity, the Asante Twi is universally spoken and understood. The city of Kumasi is about 300km from the nation's capital, Accra. It covers a land size of about 150 square kilometers

in size. The Metropolis rises northwards to the Mampong scarp at about 350m above sea level. The physical feature of the Metropolis is of an original plateau, which is as a result of erosion over the years, has become a dissected upland.

Structure of Health Care System in Kumasi

Aside from its clinics, the health system in Kumasi has three levels. The top level consists of one tertiary hospital (KATH), while secondary care hospitals (regional and district) make up the second level, and health centers make up the third.

Some of the sub-metro government hospitals serve as regional sites for different medical services, such as ear, nose and throat (ENT) surgery or sexually transmitted infections (STI) care. The medical superintendent based at each sub-metro hospital is supported by a staff of sector specialists. Some of the most critical personnel include: a health administrator, who oversees the hospital's administrative services; a disease control officer, who oversees epidemiological considerations; a Director of Nursing Services, who plays an important role in the delivery of clinical services care of hospital patients, and a public health nurse, who oversees maternal and child care, both for the hospital and the entire sub-metro district. The Kumasi Metro Health Directorate oversees all sub-metro district hospitals. In addition to these sub-metro district hospitals, there are also quasi-governmental, private and mission hospitals, which offer similar levels of care to the government hospitals. There are also several clinics, maternity homes, laboratories and other health care providers. Private facilities are under the jurisdiction of the Regional Health Directorate. There are also 122 outreach stations in Kumasi, located throughout the five sub-metro areas

(KMHD, 2008). Hence, most Kumasi residents are geographically situated well within the vicinity of a health care facility (KMHD, 2008).

Health facilities in Kumasi include teaching hospitals (1); Quasi, -government health institution (4), CHAG institutions (3), MCH clinics (2), Community clinic (1) and Government/public hospitals (5). Majority of the health institutions in the metropolis are privately owned with about 13 out of the over 180 private health institutions being industrial clinics.

Even though HIV/AIDS is not part of the first ten causes of OPD attendance in the Metropolis, it is known to underlie some of the conditions presented at OPD. Malaria forms majority of cases presented to the OPD with severe malaria forming 2.8% of malaria cases and 1.5% of all cases.

Uncomplicated malaria and diarrhea are the highest causes of admissions in the Metropolis. Severe malaria forms 9.9% of malaria cases and 6.4% of all admission cases in the metropolis. This correlates with the most common presentations at OPD attendance. HIV/AIDS-related condition is the fourth most important cause of mortality in the Metropolis. Even though it does not appear as one of the causes of hospital attendance or admissions, it is an underlying factor of most other presentations which thus present as opportunistic infections.

Non-governmental organizations

Other private individuals and Non-Governmental Organizations are involved in Social Welfare Services. Majority of them have not registered with the Department of Social Welfare making it very difficult to monitor their activities. Their activities are mainly

on the mentally retarded and the orphans.

The centers for mental rehabilitation in private hands are:

- (iv) Rhema Rehabilitation Centre
- (v) Cheshire Home at Edwenase
- (vi) Garden City Special School

The orphanages include:

- i. King Jesus Charity Home at Boadi
- ii. Sisters of Charity at Mbrom

Water and sanitation

Water coverage in the Kumasi Metropolis is estimated by the Ghana Water and Sanitation Agency to be 33% while sanitation coverage in the metropolis is approximately 28%, as at October, 2009. Water is very essential for the survival of humanity; the provision of treated water to the inhabitants of the city is a civic responsibility of the city administration. The presence of good treated water is essential for good health and the elimination of some water borne diseases.

Water Supply Network and Status

The supply of water to the Kumasi Metropolis is from two surface water treatment plants; Owabi and Barekese head works located 10km and 16km respectively from Kumasi. The supplies of water from these head works serve Kumasi metropolis as well as other surrounding communities outside the metropolis. The Owabi headwork

is operating at full capacity whereas the Barekese head works have a potential for further expansion to increase production. The treated water is stored in:

- A circular ground level storage reinforced concrete reservoir of capacity 4500m³ located at Suame
- A rectangular ground level storage reinforced concrete reservoirs of capacity 9000m³ located at Suame
- A reinforced concrete water tower with a capacity of 300m³ located at Suame
- 500,000 gallon capacity reservoir located at KNUST.

Sanitation

Most residents in the Metropolis (about 38%) still use public toilets for which they pay between GHC 0.30 and GHC 1.00 per visit depending on the type of facility. Another 25% use household water closet facilities. The unhygienic bucket latrine system caters for 12% of the population, 8% rely on sewerage (Asafo, 4BN, KATH, KNUST, Ahinsan and Chirapatre Housing Estates); whilst 10% use pit latrines (KVIP/Traditional) and 6% use indiscriminately. The above scenario represents an improvement of the situation following the successful implementation of the IDA/GOG financed Urban Environmental Sanitation Project (UESP) from 1996 – 2002.

Many government offices, schools and private institutions still require improved sanitation facilities. Interventions are yet to be made in the industrial sector. Effluent from the breweries, leachate from sawmills and waste oil spillages from the vehicle service centre at Suame are discharged into receiving waters without treatment.

Solid waste management generation and distribution

The current domestic waste generation in Kumasi based on the projected population of 1,610,867 (Statistical Service, 2006) is 1000 tones daily.

Collection Methods, Service Coverage and Transportation

This service is delivered by the private sector under various conditions. Two types of collection are employed for this service delivery. They are;

- **House-to-House Solid Waste Collection**

Zoomlion Company Limited, Aryetey Brother Company Limited (ABC), Waste Group Ghana Limited (WGG), Sak-M Company Limited (SAK-Mo Meskworld Limited (ML) and Kumasi Waste Management Limited (KWML), are the contractors responsible for the delivery of these services. About 33% of the population enjoys this service but payment for the service is irregular. It is on franchise basis for a monthly fee of GHC 1.00 to GHC 5.00 per house. No cost is attributed KMA under this scheme. However the impact of the services as well as its efficiency is affected by the scattered nature of the service area.

- **Communal Solid Waste Collection**

Zoomlion Company Limited, Kumasi Waste Management Limited (KWML), Waste Group Ghana Limited (WGG), Meskword (ML) and Aryetey Brother Company Limited (ABC) are the contractors involved in delivering this service. The total quantities collected are weighed at the disposal site and payment is based on a rate of GHC 9.00 per tonne. The Communal Collection System entails the location of metal containers (skips) at designated sites known as transfer stations, which are shared by a number of houses within that community. When the skips are full, they are

transported and emptied at final disposal site by skip loading trucks. Where there are no containers, households deposit their refuse indiscriminately.

The Central Government through the Ministry of Local Government Rural Development and Environment has been assisting KMA in the payment of the contractors, which stands at about 2 billion per month representing an average of 600 tons of collected waste per day. In the event of the central government withdrawing the assistance, KMA would be faced with the challenge of having to mobilize funds if the arrangement is to be sustained.

Current Disposal Operations

A well-engineered sanitary site is in use at Dompase where, refuse is placed compacted and covered at the site. A weight bridge is also available and attached to a control room where the refuse is weighed and inspected before being accepted into the landfill. A maintenance bay and offices are also at the site. Heavy-duty equipment are available for spreading of waste, compaction and covering. Grading and gravelling of access roads are other vital activities at the landfill site.

Laws and regulations

The existing bye-laws are outdated particularly in terms of penalties. Its enforcement has also been weak.

Challenges in water supply

- Frequent power outages affecting production
- Bottlenecks in the distribution network
- Low water production capacity

- Delays in the payment of bills by Government departments.
- Leakages from pipe lines

3.3 Study population

The study population consisted of disabled and normal persons above eighteen (18) years. The study also included staff of providers of water and sanitation services as well as disability organizations.

3.4 Sampling and sample size

The sample will be selected in two (2) stages. Firstly, a cluster sampling of five (5) communities in the Metropolis and a systematic random sampling was used to select the households. A random sampling technique was employed in situations where there was more than a single disabled person in the household. Administrative records, from the disability centers was used where necessary to trace respondents.

The total sample size for the study is estimated as follows:

$$n = \frac{Z^2 pq}{d^2} \text{ (Kirkwood and Sterne, 2003),}$$

Where, n = the desired sample size, z = the standard normal deviation 1.96

p = proportion of disabled persons = 10%

q = 1.0-p, d = degree of accuracy desired at 0 .05

$$n = \frac{(1.96)^2 (0.10) (0.90)}{(0.05)^2}$$

$$n = 138$$

10% of non respondent effect would be used to comprehend the sample size, thus

$$0.10 * 138 = 14$$

$$n = 138 + 14 = 152$$

A randomly sampled non-disabled population of 200 was also recruited as part of the study.

3.5 Data collection and tools

The data collection technique for the quantitative method was interviews and the tool employed is structured questionnaires (open ended and closed). Qualitative data will be obtained using semi-structured interviews, focus group discussions (FGDs) and interviews with key informants using tape recorders and interviews guides as data collection tools.

3.6 Data handling and analysis

All questionnaires and interview results from the field was checked for completeness and internal errors during data collection. Questionnaires will then be sorted, numbered and kept in files labeled per facility from which the participants were recruited. They were then be kept in a cabinet under lock and key. Data was coded before entering with SPSS software.

Qualitative data was analyzed using Atlas.ti. Audio-recorded data from interviews of respondents was transcribed verbatim and translated into English. A preliminary analysis of interviews was done, and used for validation of results and further exploration using focus group interviews. Data from health worker interviews and focus group discussions were also audio-recorded and transcribed verbatim and translated into English.

Quantitative data was analyzed using STATA 11. Variables were inspected for skewness and those that demonstrated significance divergence for normality were transformed. Multivariate logistic regression was used to estimate the influence of the independent variables on the odds of accessing water and sanitation services.

3.7 Pre-testing

Questionnaires and interview guides were pre-tested in the Obuasi Metropolis to check for clarity, consistency and acceptability of the questions to respondents. Following this, the necessary corrections will be made and questionnaires finalized for the actual field work.

3.8 Ethical consideration

Ethical clearance for the study was obtained from the School of Medical Science, Kwame Nkrumah University of Science and Technology (KNUST). The participant's capacity to consent was considered. There was full disclosure or discussion of relevant information/ questions. Also participants who cannot read were informed about the study by translating the information into their local language for adequate comprehension.

3.9 Study limitations

The cross-sectional study design did not permit an investigation of the cause-effect relationship between the various factors and access to water and sanitation services. Recall bias of study participants could also not be excluded. Due to the issues of stigma and the sensitivity of issues surrounding disability, participants may not reveal the real extent to which certain factors prevent their access to water and sanitation services. There may also be issues of social coercion which can also lead to information bias. Some questionnaires and interviews were conducted in the "twi" language and there is the potential of misinterpretation of the questions by research assistants which could lead to information bias.

CHAPTER FOUR

4.0 RESULTS

Introduction

The findings for the study are presented in this chapter. Out of the 355 questionnaires administered, 352 merited inclusion for analysis (152 for disabled and 200 non-disabled) as the rest were not responded to and or ineligible for the study. The presentation of the findings is in tables and figures that are preceded by a narration. It is organized by the background of the respondents, attitudes of non-disabled towards the disabled in community, access to water and sanitation services, and differences between the disabled and non-disabled in terms of their access to water and sanitation services.

4.1 Socio-demographic characteristics

Table 4.1 presents the socio-demographic characteristics of respondents involved in the study.

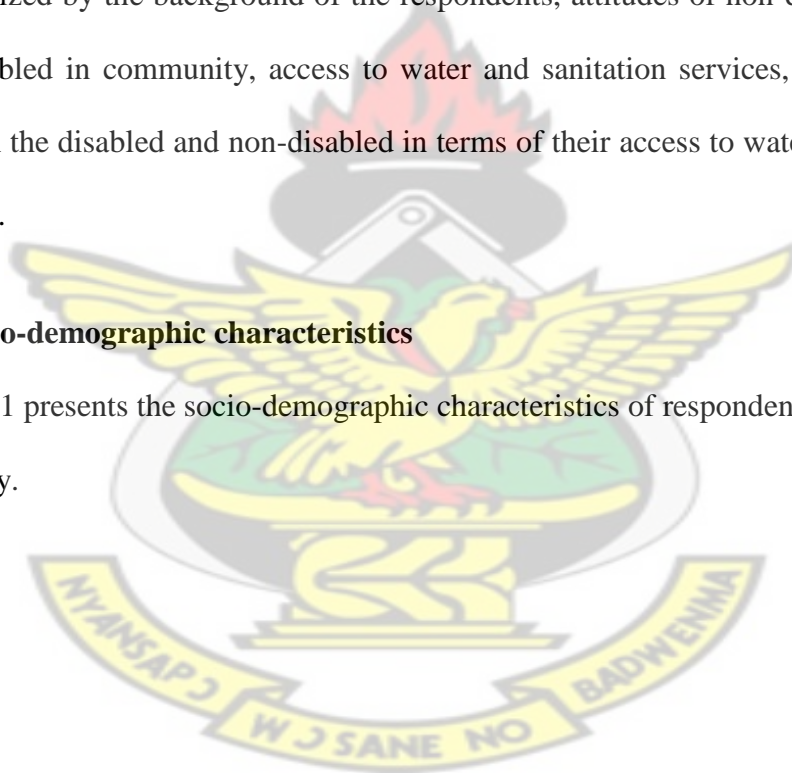


Table 4.1: Summary of socio-demographic characteristics of respondents

Variables	Disabled		Non- disabled	
	Frequency	Percentage	Frequency	Percentage
Age				
– <24	18	11.8	32	16.0
– 24 – 34	79	52.0	85	42.5
– 35 – 44	46	30.3	43	21.5
– >44	9	5.9	40	20.0
Sex				
– Male	96	63.2	113	56.5
– Female	56	36.8	87	43.5
Marital status				
– Single	85	55.9	84	42.0
– Divorced	13	8.6	12	6.0
– Widowed	6	3.9	9	4.5
– Married	48	31.6	75	37.5
Education level				
– No formal education	45	29.8	21	10.5
– Primary	23	15.2	33	16.5
– JSS/Middle	51	33.8	76	38.0
– Senior Sec. /Technical	27	17.9	58	29.0
– Tertiary	5	3.3	12	6.0
Occupational status				
– Employed	43	28.5	138	69.3
– Unemployed	108	71.5	61	30.7
Monthly income				
– Less than GHS 100	24	55.8	24	17.9
– GHS100 – GHS 300	10	23.3	79	58.9
– > GHS 300	9	20.9	31	23.1

Source: Author's field data, 2013

As shown in table 4.1 above, majority of the disabled respondents were from 24 to 44 years. About 12% were less than 24 years and 5.9% were above 44 years. Majority of the disabled respondents were males representing 63.2% of the respondents whiles 36.8% were females. With respect to their marital status, majority were single (55.9%) whiles 48 (31.6%) were married. Respondents with no formal education represented 29.8% of the disabled respondents whiles 33.8% had junior secondary education. Only 5 (3.3%) had tertiary education. With respect to employment, One

hundred and eight non-disabled respondents constituting 71.5% were not employed and majority of those who were employed were earning less than GHC 100.00. Only 9 (20.9%) earned more than GHC 300.00 monthly. This to some extent indicates a low level of socio economic status among this group.

The results showed much variation in some socio-demographic characteristics of the disabled and non-disabled respondents. Majority of the non-disabled respondents were between the ages of 23 and 35 (42.5%) while 16% were below 24 years. Majority of respondents from this group were males with 43.5% being females. Eight-four respondents representing 42% were single while 75 (37.5%) were married. On educational level, majority had junior secondary education with 29% having senior secondary education. Twelve respondents (6%) had tertiary education, which was a bit higher than among the disabled group. Majority of respondents (69.3%) from this group were employed as compared to the disabled group where the majority were unemployed. Among those employed, 58.9% were earning GHC100.00 to GHC 300.00 with 23.1% earning more than GHC 300.00. This indicates that respondents with employment from the non-disabled group earned higher than those from the disabled group.

4.2 Attitudes towards the disabled

Table 4.2 shows a summary of mean responses on respondent's attitude and perceptions towards the disabled in society. Responses were rated on a likert scale of (1=strongly agree; 2=agree; 3= neutral; 4=disagree; 5 = strongly disagree).

Table 4.2: Attitudes and perceptions towards the disabled

Variable	N	Mean	SD
My heart goes out to people in wheelchairs.	200	2.39	0.65
I feel sympathetic toward people who are visually disabled.	200	2.34	0.56
I assume that people with disabilities deserve special consideration.	200	1.35	0.55
I am more understanding of physical or sensory disabilities than emotional ones.	200	1.89	2.73
People who look or act differently scare me.	200	4.32	0.61
I sometimes think that people who claim to have emotional problems are faking it.	200	4.36	0.27
I believe disability is as a result of a biological malfunction	200	2.98	1.15
I sometimes feel that people with disabilities have been punished by God for something they did.	200	4.24	0.32
I tend to talk with people with disabilities in a different tone of voice.	200	3.86	0.73
I tend to be more patient with people with disabilities.	200	1.98	2.88
I get angry more quickly at people with disabilities.	200	3.12	0.97
People with disabilities should be provided with special water and sanitation facilities	200	1.13	3.02

Source: Author's field data, 2013

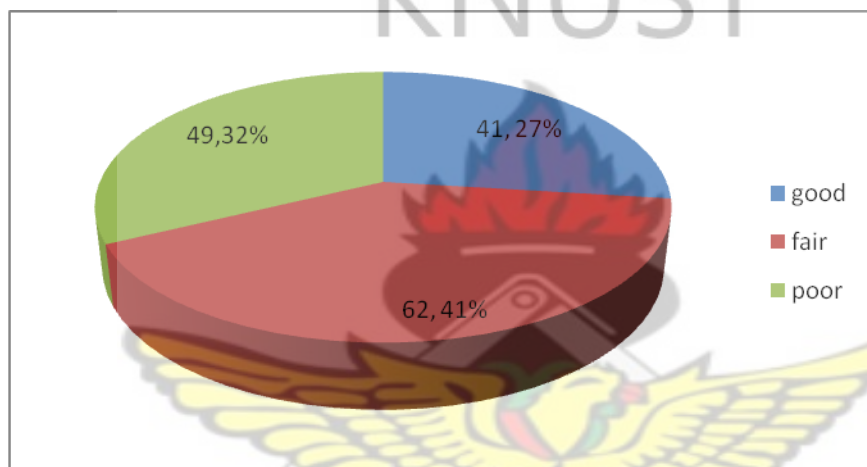
Generally, the mean responses from the non-disabled respondents showed a positive attitude and perception towards the disabled. Most of the respondents felt sympathetic towards people with disability (mean =2.34) and were of the view that people with disability deserved special consideration (mean =1.35). However, more than 50% of respondents agreed that disability is as a result of a biological malfunction (mean = 2.98) and majority also disagreed that disability is a punishment from God as a result of something they did (mean = 4.24). Majority of the respondents agreed that they are

more patient with people with disabilities (mean =1.98) and that people with disabilities should be provided with special water and sanitation facilities (mean = 1.13).

Figure 4.1 presents views of disabled respondents on the attitude of the household towards them

Attitude of household towards disabled

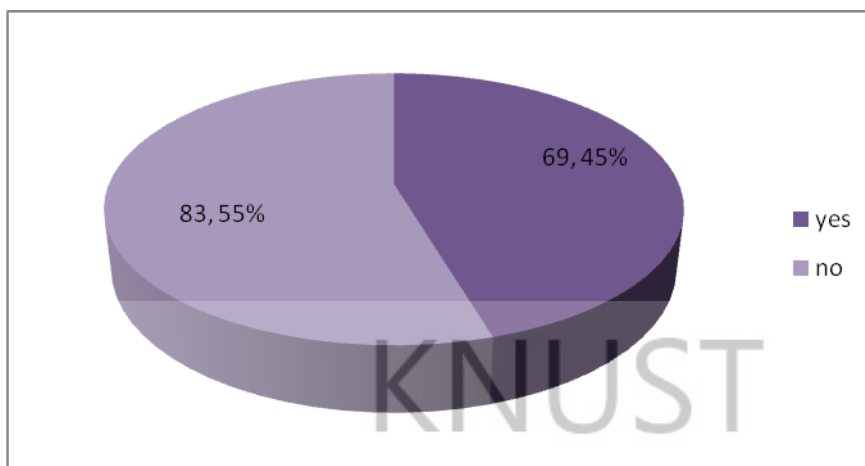
Figure 4.1: General attitude of households towards disabled respondents



Source: Author's field data, 2013

Majority of the respondents indicated that their household and families treated them fairly (41%), Figure 1. Forty-one respondents also held the views that the attitude of their families towards them was good. However, 49 respondents constituting 32% viewed the attitude of their households towards them as poor. the support given to the disabled in the household is shown in figure 2.

Figure 4.2: Any form of support from family or partner



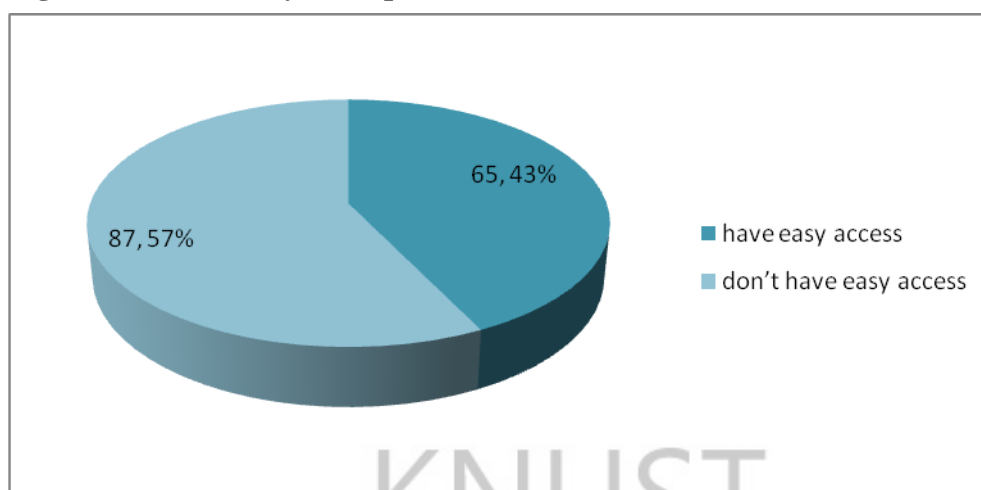
Source: Author's field data, 2013

As shown in Figure 2, majority of the respondents (55%) had no form of support from their families or partners. Forty-five percent had support from their families. The various forms of support cited included encouragement (31%), financial support (25%), physical assistance (19%), material support (14%) and support in all activities (11%).

4.3 Access to water and sanitation

Summary responses from the disabled respondents studied on access to water and sanitation service in terms of cost and geographic access is presented in figure 4.3 below.

Figure 4.3: Summary of responses on access to water and sanitation services



Source: Author's field data, 2013

As shown in figure 4.3, majority of the disabled respondents indicated that they do not have easy access to water and sanitation. The reasons cited for not having easy access to water and sanitation included not having any support from family (20%), structures not friendly to them (14%), long distance to source (21%) with inability to afford water and sanitation services being the most cited (45%).

4.3.1 Access to water

Table 4.3 presents responses on issues relating to access to water among the disabled involved in the study.

Table 4.3: Access to water among the disabled

Variables	Number of respondents	Percentage
Is water readily available for consumption(<i>n</i>=150)		
– Yes	63	42.0
– No	87	58.0
Sources of drinking water for household* (<i>n</i>=172)		
– Pipe borne	103	59.9
– Borehole	52	30.2
– Rain water	17	9.9
– Surface water	-	-
Source of water for other purposes * (<i>n</i>=163)		
– Pipe borne	87	53.4
– Borehole	35	21.5
– Rain water	41	25.1
– Surface water	-	-
Where access water? (<i>n</i>=152)		
– Home	63	41.4
– Neighbor's house	51	33.6
– Public source	38	25.0
If source not at home, time spent to source (<i>n</i>=84)		
– <30mins	25	29.8
– 30mins- 1hrs	47	56.0
– >1hr	12	14.2
Rating of distance from residence to source (<i>n</i>=99)		
– Very near	13	13.1
– Near	19	19.2
– Normal	23	23.2
– Far	27	27.3
– Very far	17	17.2
Do you fetch water yourself? (<i>n</i>=151)		
– Yes	69	45.7
– No	82	54.3
Difficulty in fetching water (<i>n</i>=137)		
– Yes	72	52.6
– No	65	47.4
Do you pay for assistance in fetching water? (<i>n</i>=78)		
– Yes	13	16.7
– No	65	83.3

Source: Author's field data, 2013

As indicated in table 4.3, most of the respondents indicated that water for consumption was not readily available (58%). The most cited source of drinking water among the respondents was pipe borne (59.9%). Other sources included borehole (30.2%) and rain water (9.9%). Majority had water from their homes (41.4%), 51 (33.6%) from their neighbor's house while 38 (25%) had water from public sources. Among those who did not have water from their homes, 25 (29.8%) spent less than 30 minutes to get to the source of water while 12 (14.2%) spent more than an hour to the source of water. Twenty-seven (27.3%) of those who fetched water from other sources felt the distance was far while 17 (17.2%) perceived the distance as very far. Eighty-two respondents representing 54.3% of the total respondents were not fetching water themselves. However, 83.3% of this group did not pay for assistance in fetching water. Seventy-two respondents representing 52.6% indicated that they have difficulty in fetching water for household consumption.

In the qualitative study, some respondents disclosed their difficulty in accessing and transporting water for various uses. A participant in a wheel chair disclosed;

“My disability is not making life easy for me at all. I have to go to about 5 houses away to fetch water with a small container. If I go and there is no one I have to wait because I can't fetch water from the well myself. And putting the water on the foot rest back home is not easy for me”.

4.3.2 Access to sanitation facilities

Responses on access to toilet facilities among disabled are presented in table 4.4 below.

Table 4.4: Distribution of respondents by access to toilet facilities

Variables	Number of respondents	Percentage
Type of toilet facility in household(<i>n</i>=151)		
– Flush toilet	85	56.3
– Pit latrine	31	20.5
– Public toilet	15	9.9
– KVIP	7	4.6
– Other	13	8.6
Have difficulty in using toilet?(<i>n</i>=152)		
– Yes	79	52.0
– No	73	48.0
Location of toilet(<i>n</i>=147)		
– In compound	45	30.6
– Inside building	82	55.8
– Outside dwelling	20	13.6
Rating of privacy and cleanliness of facility(<i>n</i>=152)		
– Good	33	21.7
– Fair	55	36.2
– Poor	64	42.1
Is toilet facility shared?(<i>n</i>=149)		
– Yes	118	79.2
– No	31	20.8
Views on sharing of facility(<i>n</i>=117)		
– Happy	14	12.0
– Unhappy	77	65.8
– Normal	26	22.2

Source: Author's field data, 2013

As shown in table 4.4, majority of the respondents (56.3%) use flush toilet in their homes. Thirty-one (20.5%) use pit latrines, 7 (4.6%) use KVIP whiles 15 (9.9%) use the public toilet. Majority of the respondents indicated that they have difficulty in using the toilet facility. This was cited by 79 respondents constituting 52%. Most of the respondents had their household toilet facilities located within the compound whiles 20 (13.6%) used toilet facilities outside their compound. Majority of the respondents shared their toilet facilities with others in the household (79.2%).

Seventy-seven (65.8%) of respondents were however not happy with sharing of the toilet facilities.

Some respondents disclosed their difficulties in using the toilet. Some difficulties cited included; difficulty in climbing toilet because there are no support structure (32%), toilet too far from my room (21%), don't always get someone to hold my hand (9%), have difficulty in moving from room to the toilet (26%) and difficulty in opening door to toilet (12%).

In the FGDs, a respondent in a wheel chair disclosed;

“I find it very difficult using the toilet in this house. I have to get out of my wheelchair and crawl to use the pit latrine. I always soil myself anytime I use the toilet but I have no option. I have been talking to the landlord to put a structure on it for me but he hasn't done it” (female, 41 years).

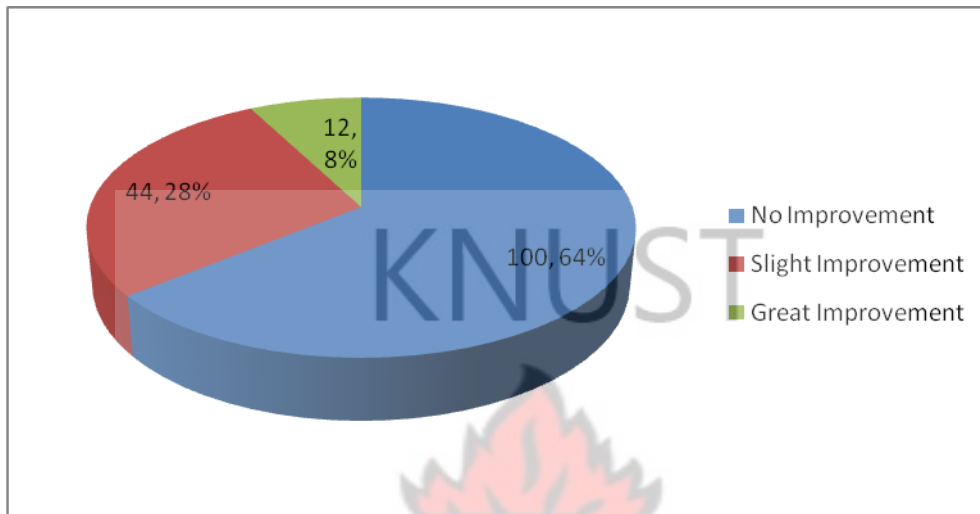
Another respondent using clutches indicated;

“There is not toilet facility in this house. The public toilet is also a bit far from here and moving with my clutches to that far is not easy for me. Even when am there, using the toilet too is a problem because it wasn't made with some of us in mind” (male, 36 years).

As shown in figure 4.5, majority of the respondents (64%) indicated that there has been no improvement in the water and toilet facilities in their household to support them. Only 12 (8%) stated that the toilet and water facilities have been greatly improved to support them. Some of the improvements in structures cited included raising the walls of the well in the house; erecting a stand post to provide support

when fetching water from the tap and changing the door of the toilet to make opening easier.

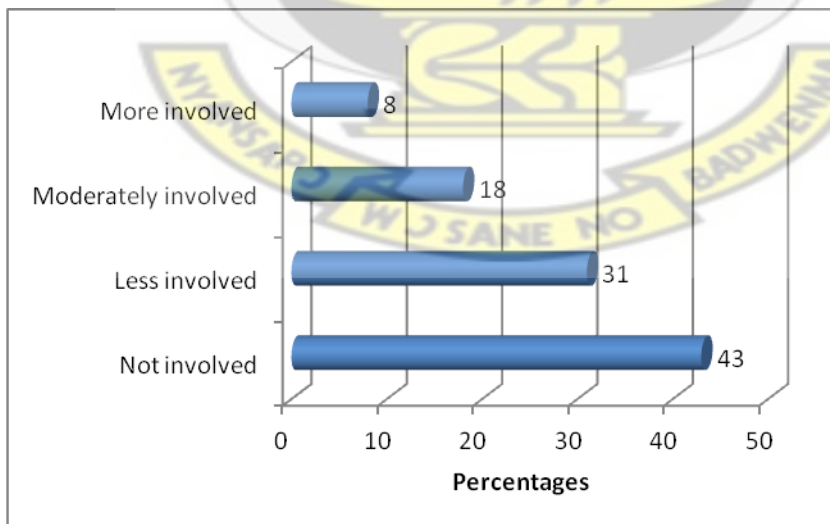
Figure 4.4: Improvement in the toilet and water facilities



Source: Author's field data, 2013

The level of involvement of the disabled in issues of water and sanitation in their household and communities is described in figure 4.6 below.

Figure 4.5: Level of involvement in water and sanitation issues



Source: Author's field data, 2013

As shown in figure 4.6, the disabled were not mostly involved in issues of water and sanitation in their household and communities. Forty-three percent of respondents indicated that they are not involved in water and sanitation issues. 31% were less involved with only 8% being more involved in water and sanitation issues.

Table 4.5 Difference in access to water and sanitation services among disabled and non-disabled

Variables	Disabled	Non-disabled	p-value
Availability of water for consumption			
– Readily	63 (42.0)	125 (62.5)	0.069
– No readily	87 (58.0)	75 (37.5)	
Difficulty in fetching water			
– Yes	72 (52.6)	21 (12.5)	0.017
– No	65 (47.4)	175 (87.5)	
Difficulty in using toilet facility			
– Yes	79 (52.0)	5 (2.5)	0.002
– No	73 (48.0)	195 (97.5)	
Able to pay for water and sanitation services			
– Yes	49 (32.2)	137 (69.2)	0.000
– No	103 (67.8)	61 (30.8)	

Source: Author's field data, 2013

As shown in figure 4.5, there were differences among disabled and non-disabled with respect to access to water and sanitation. Although most non-disabled indicated that water for consumption was readily available as compared to the disabled (62.5% versus 42.0%), the relationship between disability and availability of water for consumption was not statistically significant. Comparatively, most of the disabled experienced difficulties in fetching water as compared to the non-disabled and this relationship was statistically significant. (52.6% versus 12.5%; $p=0.017$).there was a significant relationship between disability and difficulty in using toilet facility.

Almost all non-disabled respondents expressed that they have no difficulty in using toilet facility as compared to 48% among the disabled group. Ability to pay for water and sanitation was also significantly much lower among the disabled than the non-disabled group (32.2% versus 69.2%; $p=0.000$).

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CHAPTER FIVE

5.0 DISCUSSION

Introduction

This chapter discusses the major findings of the research on the access to water and sanitation services among persons living with disabilities and people living without disabilities in the Kumasi Metropolis of the Ashanti Region. The discussion is made under household attitude and practices towards the disabled, access to water and sanitation among disabled persons and differences between non-disabled persons and disabled persons in terms of access to water and sanitation in the metropolis.

5.1 Background characteristics of respondents

The study results indicated a low level of socio-economic status among the disabled respondents as compared to the respondents from the disabled group. Among the disabled, majority were males and aged from 24 to 44 years. Majority were single with 31.6% being married. More than 25% and only 3.3% had no formal education and tertiary education respectively as compared to 10.5% and 6% among the non-disabled population.

Evidence from this study indicates that disabled persons represents majority of the uneducated and the unemployed in society. One hundred and eight non-disabled respondents constituting 71.5% were not employed and majority of those who were employed were earning less than GHC 100.00. Only 9 (20.9%) earned more than GHC 300.00 monthly. Among the non-disabled population however, majority (69.3%) were employed and 23.1% were earning more than GHC 300.00 whiles

58.9% were earning from GHC 100.00 to GHS 300.00. This indicates that the disabled are more likely to have difficulty in paying for social amenities such as water and sanitation. The results is consistent with a study by Gooding (2006), which indicates that disabled people on average fare worse in relation to employment, material wealth, education, health, access to development assistance and poverty relief, and in social well-being. Similar to this study results, the study by Tesfu and Magrath (2006) in Ethiopia also reported that, there was widespread agreement that **lack of jobs** was the most important practical problem faced by the disabled. None of the respondents were employed in the formal sector, and less than half of the adults did piece work or petty trading.

The burden of accessing water and sanitation services among disabled is further deepened by extra costs of health care resulting from their disability. According to (Zaidi, Burchardt, 2005), people with disabilities often require more resources to achieve the same outcomes as non-disabled people as a result of having extra costs resulting from disability – such as costs associated with medical care or assistive devices, or the need for personal support and assistance. Cullinam and others (2010) also reiterated that because of higher costs, people with disabilities and their households are likely to be poorer than non-disabled people with similar incomes. Households with a disabled member are more likely to experience material hardship – including food insecurity, poor housing, lack of access to safe water and sanitation, and inadequate access to health care (Van Brakel, 2008).

5.2 Household attitudes and practices towards the disabled

Attitudes and perceptions towards the disabled in society have been known to have consequential impact on their inclusion in society and subsequent access to basic

social amenities including water and sanitation. It is widely acknowledged globally, that the greatest impediment to the lives of people with disabilities is prejudice, social isolation and discrimination (Despouy, 1991; Ingstad, 1995).

The study results indicated a generally positive attitude and perception towards the disabled. Most of the respondents felt sympathetic towards people with disability (mean = 2.34) and were of the view that people with disability deserved special consideration (mean = 1.35). However, more than 50% of respondents agreed that disability is as a result of a biological malfunction (mean = 2.98) and majority also disagreed that disability is a punishment from God as a result of something they did (mean = 4.24).

Inconsistent with evidence from this study however, Oliver-Commey (2001) indicated that majority of Ghanaians, through belief systems, labeled persons with disabilities as social misfits, social outcasts and in most cases treat them like animals. This perception however, has negative consequences on social inclusions and could hamper equal access to water and sanitation among disabled and non-disabled. The positive perceptions among non-disabled in this study was also inconsistent with a study by Tesfu and Magrath (2006) in Ethiopia to assess Water and sanitation access for people with motor disabilities, where several respondents believed their disability was caused by 'devil spirits'. It is also incongruent with the study by Agbenyaga (2002) which indicates that disability is also seen in Ghana as a result of witchcraft, sorcery, 'juju' and magic. This could be as a result of increased level of education among the populace and continual efforts by stakeholders to demystify perceptions towards the disabled to enhance more social inclusion of the disabled in society.

Majority of the respondents in this study also agreed that they are more patient with people with disabilities (mean =1.98) and that people with disabilities should be provided with special water and sanitation facilities (mean = 1.13). This could however be a positive yardstick for removing barriers to water and sanitation services among disabled in Ghanaian societies.

5.3 Access to water and sanitation services among the disabled

Disabled people have been noted to have the least access to these services, which compounds their isolation, poor health and poverty. In the drive to meet development targets such as the Millennium Development Goals of poverty reduction, improved health and access to sanitation, service providers recognize the need to target the poorest sections of society to ensure equity in access to these facilities.

5.3.1 Access to water

Evidence from this study indicated that majority of the disabled could not easily access water and sanitation services (57%). Respondents' reasons behind their difficulty in access to water and sanitation included no family support, structures not being user friendly, long distances to source of water and sanitation and services not being affordable to them. This indicates that previous provisions for water and sanitation facilities in the metropolis had not totally considered putting in place structures to make access easier for people with disability.

This study looked at access to water and sanitation among the disabled in three perspectives; availability, affordability and acceptability. The results indicate that water for consumption was not readily available for majority of the disabled involved in this study (58%). Pipe borne was the most cited source of drinking water and

33.6% fetched water from their neighbor's house and 25% from public source. Some respondents (14.2%) spent more than an hour to the source of water and 27.3% of those who fetched water from other sources felt the distance was far while 17 (17.2%) perceived the distance as very far. The respondents in the qualitative study also disclosed the difficulties they have to endure to fetch water for consumption. Reports of difficulty in accessing water among the disabled in this study are consistent to a study by Kiwanuka (2002) in Uganda. Respondents in that study reported that taps are often too high, making hand washing and self-cleaning problematic. Respondents who crawl due to their disability find the floor too dirty, especially as they often crawl with bare hands and where the water source is not close by, users find it difficult to carry water to the bathrooms for washing Kiwanuka (2002).

Majority of respondents who fetch water themselves disclosed their difficulties in fetching water for household consumption. An underlying question from this outcome is how much do we prioritize water for use by the disabled in the society? Revelations from this study indicate that the disabled in our communities are not being given special preferences in terms of water and sanitation and the current sources and distance to source of water is not making access easy among the disabled. These situations however could worsen in times of water scarcity, a situation which is most common in this part of the sub-region. According to Jones & Jansz (2008), water for use by disabled people can become a low priority, partly due to the belief that they do not get so dirty due to their limited physical activities. However, results from an Ethiopian study indicate that disabled persons even get dirtier especially during rainy

season and need to have regular access to water as much as the non disabled do (Tesfu and Magrath, 2006).

5.3.2 Access to sanitation

The disabled respondents in this study further revealed their difficulties in accessing sanitation facilities. However majority of those who had access could also not utilize because of structural barriers. Some difficulties cited included; difficulty in climbing toilet because there are no support structure (32%), toilet too far from my room (21%), don't always get someone to hold my hand (9%), have difficulty in moving from room to the toilet (26%) and difficulty in opening door to toilet (12%). This was consistent with reports from the study by Tesfu and Magrath (2006) in Ethiopia which indicate that even for the disabled who have access to latrines, the designs are inappropriate for the motor disabled, since they cannot accommodate crutches or wheelchairs. Out of the 18 respondents with latrine access, five cannot always use them and resort to open defecation or use potties.

This clearly indicates that sanitation facilities in households in the metropolis are not disabled friendly and tender to hamper easy usage by the disabled. However, WaterAid (2008) reiterated the essence of incorporating the needs of the disabled when designing sanitation facilities. According to WaterAid (2008), without providing user-friendly latrines for differently-able people, achieving open defecation free status in a community is not possible. If sanitation outcomes are to be achieved at a community level, then inclusion and investment in all groups is essential (WaterAid, 2008).

The inability of households to redesign water and sanitation facilities to make it more disable friendly could also be attributed to lack of knowledge on appropriate technologies to use in the design. Redesigning could also be costly and the average households might not be able to afford it. Report on experiences by WaterAid (2008) on redesigning of water and sanitation facilities indicates that all too often without external support or cost-sharing options, modifying water and sanitation services is too great a financial burden on families with disabled members. They added that even when technical knowledge is present, the financial burden is often further compounded by a lack of locally available and affordable materials, to construct and maintain appropriate infrastructure. Imported materials and technologies are often too expensive, difficult for communities to access and in the long run unsustainable (WaterAid, 2008).

Although majority of the respondents use flush toilet in their homes, 20.5% used pit latrines, 4.6% use KVIP while 9.9% use the public toilet. Some respondents 13.6% also used toilet facilities outside their compound and almost 80% of them shared their toilets with others in the household. This revelation further buttresses the fact that toilet facilities are built for both the disabled and non-disabled with no special provisions made for the disabled persons. Evidence from this study is consistent with the study by Drafor and Jones in 2008 to determine the access to water and sanitation facility by disabled persons in Ghana. In their study, more than 90% of the respondents believed PWDs face difficulties accessing toilets and 75% said their difficulty was mainly with the design of the facilities such as KVIP latrines, and that toilets were too small, dark and narrow (Drafor& Jones, 2008). However, the disabled need latrines more than others since open defecation is tiring and dangerous, due to

the risk of falling, and exposure to dirt and to wild animals. Just under half of the respondents have no access to latrines.

Despite access difficulties, majority of the respondents (64%) indicated that there has been no improvement in the water and toilet facilities in their household to support enhance their usage. This goes to confirm that much attention is not given to making water and sanitation facilities accessible to the disabled in the household. This could also be as a result of inadequate involvement of the disabled in the design of water and sanitation facilities. This was evident in this study as 43% of respondent indicated that they are not involved in water and sanitation issues. Few who responded positively to improvement in water and sanitation facilities cited raising the walls of the well in the house; erecting a stand post to provide support when fetching water from the tap and changing the door of the toilet to make opening easier.

5.4 Difference in access to water and sanitation services among disabled and non-disabled

This study further sought to assess the difference in access to water and sanitation facilities among the disabled and non-disabled. This was access in terms of availability, usability and affordability of household water and sanitation facilities. The results indicate that there are significant differences in terms of ease of fetching water and using toilet facility, and the ability to pay for water and sanitation services. According to the study results, 58% of disabled respondents as compared to 37.5% of the non-disabled disclosed that water was not available.

The percentage of respondents who had difficulty in fetching water and using toilet facility were also significantly higher among the disabled than the non-disabled (Table. 4.5). This indicates that with all other factors kept constant among these two groups, their disability made it difficult for them to use water and toilet facilities in the household. As discussed earlier in this chapter, most sanitation facilities were designed without the disabled in mind and redesigning is much expensive without the appropriate technologies. This clearly indicates that access will be easier for the non-disabled than the disabled.

Ability to pay for water and sanitation was also significantly much lower among the disabled than the non-disabled group (32.2% versus 69.2%; $p=0.000$). As discussed earlier, a higher proportion of the disabled in our communities are unemployed and represent the class with lower socio-economic standards but have to pay equally for the same usage of water and sanitation. Gooding (2006) also indicated that disabled people on average fare worse in relation to employment, material wealth, education, health, access to development assistance and poverty relief, and in social well-being. Cost of water and sanitation will obviously be more affordable to the non-disabled than the disabled.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

This chapter presents the conclusions of the results and discussions of the study, it also make recommendations based on the findings and for further research.

6.1 Conclusion

From the results and discussions of the study, it can be concluded that majority of the disabled in society have positive perceptions towards the disabled and believe that the disabled should be provided with special water and sanitation facilities. This is however a positive precedence for redesigning water and sanitation facilities in households to enhance access and usage by the disabled.

Majority of the disabled could not easily access water and sanitation services and respondents' reasons behind their difficulty in access to water and sanitation included no family support, structures not being user friendly, long distances to source of water and sanitation and services not being affordable to them. The study also found significant differences between the disabled and non-disabled in terms of their acceptability, affordability and availability, with the disabled being at the disadvantage in all these dimensions. Some difficulties with using toilet facilities cited included; difficulty in climbing toilet because there are no support structure, toilet too far from room, don't always get someone to hold my hand, have difficulty in moving from room to the toilet and difficulty in opening door to toilet.

The study also identified that not much improvement has been made to the existing water and sanitation facilities in the respective households.

6.2 Recommendations

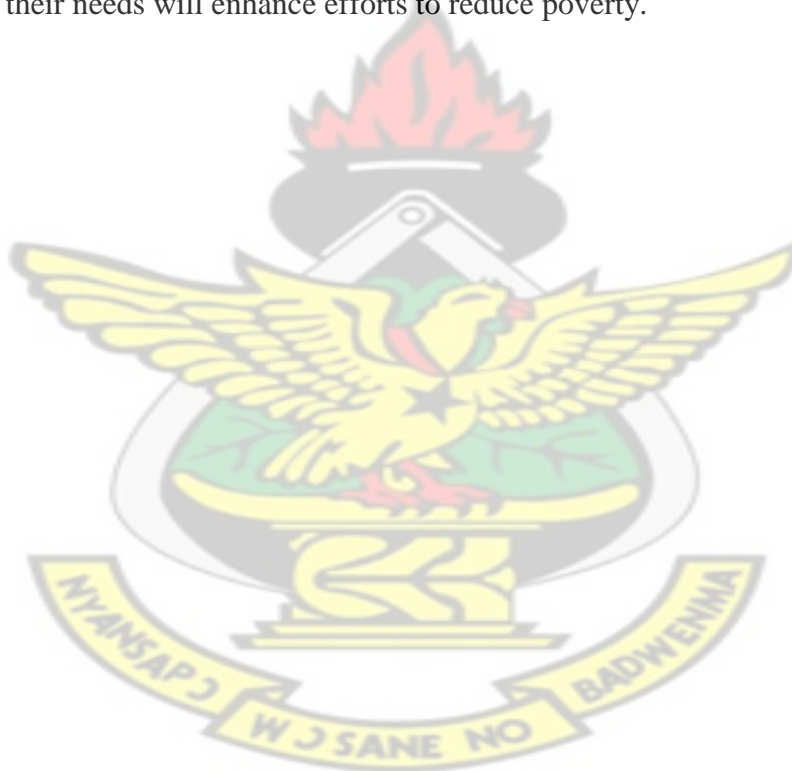
Based on the outcome of the study, the following recommendations are made to stakeholders and for further studies;

- (i) People with Disabilities (PWD) should be involved in programming and policy advocacy activities in the water and sanitation sector. This could be achieved through consultation of PWDs during design, implementation and monitoring of programmes, either directly or via support organizations;
- (ii) There should also be increased employment of PWD by government agencies, NGOs and private sector in water and sanitation and Health sectors;
- (iii) Inclusive design should be incorporated into water and sanitation and Health programming to ensure broader accessibility. Cost-benefit analysis should account for future costs of modifying existing ‘general’ designs. Inclusive design could involve:
 - (a) Consultation between engineers and PWDs; Development of simple, low cost, inclusive designs of water taps, latrines, hand basin, shower etc;
 - (b) Training of engineers, water and sanitation promoters and households with PWDs on the needs of PWDs and on construction of inclusive design facilities;

- (iv) Education and campaigns to address misguided beliefs and attitudes relating to disability, in order to improve prevention, diagnosis and treatment of PWDs and to combat all forms of social exclusion.

Recommendation for further research;

There should also be improved data collection and further research by government and NGOs to assess the scale of the problem of disability in Ghana, and encourage greater recognition of the needs of PWDs. Since PWDs are often among the poorest, meeting their needs will enhance efforts to reduce poverty.



REFERENCES

- Agbenyega, J. S. (2002). The need for transitional services for students with intellectual disabilities in Ghana. *Unpublished honours thesis*. Faculty of Education, Clayton, Monash University
- Avoke, M. (2001). Some historical perspectives in the development of Special Education in Ghana. *European Journal of Special Needs*, 16, 29-40.
- Braveman P & Gruskin S (2002). Defining equity in health.
- Chowdhury, J. (2005) Disability and Chronic Poverty: An Empirical Study on Bangladesh. *MPhil Thesis*, Oxford University
- Cullinan J, Gannon B, Lyons S (2010). Estimating the extra cost of living for people with disabilities. *Health Economics*
- Despouy L (1991). Human Rights and Disability. United Nations Economic and Social Council. Doc. E/CCN.4/Sub.2/1991/31. NY: United Nations.
- DFID (2000). Disability, Poverty and Development. *Issues Paper*. Department for International Development: UK.
<http://www.dfid.gov.uk/Pubs/files/disability.pdf>
- Drafor & Jones, H. (2008). Access to water and sanitation facility by disabled persons in Ghana: findings of a KAP. 33rd WEDC International Conference. Accra
- Gooding, K. (2006) Poverty and blindness: a survey of the literature. Sightsavers, UK.
- Helander E. (1995). Shared Opportunities: A Guide on Disabled People's Participation in Sustainable Human Development. Geneva: UNDP, Inter-Regional Programme for Disabled People.

Howard.Gand.BartramJ.,*Domestic water quantity, service level and health*
Geneva,.WorldHealth.Organization, 2003.

Hutton G,,HallerL.,*Evaluations of the costs and benefits of water and sanitation
improvements at the global level* .Geneva, World.Health Organization,,2004

Ingstad B, Whyte S. (eds). 1995. Disability and Culture. Berkeley: University of
California Press

JMP Report (2010). Progress in drinking water and sanitation.Joint Monitoring
Program by WHO and UNICEF.<http://www.ssinfo.org>

Jones, H &Jansz, S (2008).Disability and Sanitation.*Soap and Toilets Briefing Note 3*.
WaterAid

Jones, H. et al (2004). Delivering Water and Sanitation Services to Disabled People.
WEDC

Jones, H. et al (2005) *Water and Sanitation for Disabled People and other Vulnerable
Groups - Designing services to improve accessibility, WEDC*

Moriarty, P., Butterworth, J. & van Koppen, B. (2004) Beyond Domestic: Case
Studies on Poverty and Productive Uses of Water at the Household Level.
IRC Technical Paper 41. IRC: Delft.

NadiraPersaud (2000). *Labeling: Its Effects on Labeled Students*.ISEC 2000.York
University, North York, Ontario

Nicol, A. (1999) A Poverty-Reduction Approach to Water, Sanitation and
Hygiene Programmes.
WaterAid Briefing Paper, WaterAid: London.

Oliver-Commey, J. O. (2001). The disabled child in Ghana: Whose fault and who
cares? Accra: Ghana University Press.

- Pruss-Ustun A., R. Bos, F. Gore & J. Bartram (2008). Safer Water, Better Health: Costs, Benefits and Sustainability of interventions to Protect and Promote Health. Geneva: WHO
- Rowland W (2008). Library services for blind: an African perspective. *IFLA Journal*; 34:84-89.
- Sen A (2009). The idea of justice. Cambridge, The Belknap Press of Harvard University Press.
- Tania Burchardt (2005). The education and employment of disabled young people. The London School of Economics. London
- Tesfu, M. & Magrath, P. (2008). Equal access for all? Issues for people with HIV and with disabilities in Ethiopia. *Paper presented at 33rd WEDC Conference*. Accra, Ghana.
- UN (2006). Convention of the right of persons with disabilities. *United Nations General Assembly*. New York
- UNICEF (2011). At a glance: Ghana. United Nations International Children's Emergency Fund. Retrieved August 08, 2011; from http://www.unicef.org/infobycountry/ghana_statistics.html
- UN-Water (2006) Gender, Water and Sanitation: A Policy Brief. UN-Water: New York.
- WHO (2007). The world health report 2007: a safer future: global public health security in the 21st century. World Health Organisation: Geneva.
- WaterAid Mali (2008) All people, one goal, all access: Water and sanitation access for people with disabilities.

WaterAid Nepal (2008) Creating user-friendly water and sanitation services for the disabled: the experience of WaterAid Nepal and its partners. Nepal

Wegelin-Schuringa, M. and Kamminga, E. (2006) Water and sanitation in the context of HIV/AIDS: the right of access in resource-poor countries. *Health and Human Rights* 9(1): 152-172.

WHO (2009). Report from MSCI and DHS survey in 45 countries in sub Saharan Africa. Geneva

WHO (2011). Disability and health. World Health Organisation. Retrieved August, 08, 2011; from <http://www.who.int/mediacentre/factsheets/fs352/en/index.html>

WHO/UNICEF (2010). Progress on sanitation and drinking water: 2010 update. Geneva

WHO/UNICEF (2009). Diarrhea – Why Children are still dying and what can be done, 2009

Van Brakel WH (2006). Measuring health-related stigma—a literature review. *Psychology, Health & Medicine*. 11:307-334.

Zaidi A, Burchardt T (2005). Comparing incomes when needs differ: equivalization for the extra costs of disability in the UK. *Review of Income and Wealth*. 51:89-114

APPENDIX A - QUESTIONNAIRE

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF COMMUNITY HEALTH

Name of interviewer _____
Name of community _____
Date _____

NB: Introduction of study and interview / Consent requested

A. Socio-demographic characteristics

- 1) Age years
- 2) Sex i. Male = 1 ☐; ii. Female = 2 ☐
- 3) Religion i. Christian = 1 ☐; ii. Moslem = 2 ☐;
iii. Traditional = 3 ☐; iv. Other = 4 ☐;
- 4) Marital status i. single = 1 ☐; ii. Divorced = 2 ☐;
iii. Widowed = 3 ☐; v. Married = 4 ☐;
- 5) Educational Level i. No formal education = 1 ☐; ii. Primary = 2 ☐;
iii. JSS/Middle = 3 ☐; iv. Senior Sec. /Technical = 4 ☐;
v. Tertiary = 6 ☐;
- 6) Occupational status i. Employed = 1 ☐; ii. Unemployed = 2 ☐;
- 7) If employed, how much do you earn monthly?
i. Less than GHC 100 = 1 ☐; ii. GHC 100 – GHC 300 = 2 ☐;
iii. > GHC 300 = 3 ☐

B. Attitudes and practices towards disabled persons
(Please tick options 1 – 5)

	1	2	3	4	5
8. My heart goes out to people in wheelchairs.	SA	A	U	D	SD
9. I feel sympathetic toward people who are visually disabled.	SA	A	U	D	SD
10. I assume that people with disabilities deserve special consideration.	SA	A	U	D	SD
11. I am more understanding of physical or sensory disabilities than emotional ones.	SA	A	U	D	SD
12. People who look or act differently scare me.	SA	A	U	D	SD
13. I sometimes think that people who claim to have emotional problems are faking it.	SA	A	U	D	SD
14. I believe disability is as a result of a biological malfunction	SA	A	U	D	SD
15. I sometimes feel that people with disabilities have been punished by God for something they did.	SA	A	U	D	SD
16. I tend to talk with people with disabilities in a different tone of voice.	SA	A	U	D	SD
17. I tend to be more patient with people with disabilities.	SA	A	U	D	SD
18. I get angry more quickly at people with disabilities.	SA	A	U	D	SD
19. People with disabilities should be provided with special water and sanitation facilities	SA	A	U	D	SD

20. Have you come into contact with a disabled person?

i. Yes 1 ☐; ii. No = 2 ☐

21. If yes how? (Tick all that apply)

	YES = 1	NO = 2
i. I have gone to school with people with disabilities	<input type="checkbox"/>	<input type="checkbox"/>
ii. I have a friend or friends with obvious disabilities	<input type="checkbox"/>	<input type="checkbox"/>
iii. I have a family member with an obvious disability	<input type="checkbox"/>	<input type="checkbox"/>

22. I myself have a disability.

i. Yes 1 ☐; ii. No = 2 ☐

IF NO, SKIP TO 33

23. My disability is: (tick all that apply)

	YES = 1	NO = 2
i. Behavioral (such as impulse control or addiction)	<input type="checkbox"/>	<input type="checkbox"/>
ii. Emotional (including depression, anxiety disorder or schizophrenia)	<input type="checkbox"/>	<input type="checkbox"/>
iii. Learning (such as ADD, ADHD or dyslexia)	<input type="checkbox"/>	<input type="checkbox"/>
iv. Mental (including memory loss or other cognitive impairment)	<input type="checkbox"/>	<input type="checkbox"/>
v. Physical (paraplegia, hemiplegia, quadriplegia, loss of function)	<input type="checkbox"/>	<input type="checkbox"/>
vi. Sensory (visual, hearing, tactile impairment)	<input type="checkbox"/>	<input type="checkbox"/>

24) How would you describe the attitude of your household towards you?

i. Good = 1 ☐; ii. Fair = 2 ☐; iii. Poor = 3 ☐

25) How would you describe the attitude of your community towards you?

i. Good = 1 ☐; ii. Fair = 2 ☐; iii. Poor = 3 ☐

26) Is your family aware of your impairment?

i. Yes 1 ☐; ii. No = 2 ☐

27) If no why?

.....

28) If yes, do you receive any form of support from your partner or family?

i. Yes = 1 ☐; ii. No = 2 ☐

29) If yes state (*tick all that apply*)

	YES = 1	NO = 2
i. Encouragement	<input type="checkbox"/>	<input type="checkbox"/>
ii. Financial support	<input type="checkbox"/>	<input type="checkbox"/>
iii. Physical assistance	<input type="checkbox"/>	<input type="checkbox"/>
iv. Support me in all activities	<input type="checkbox"/>	<input type="checkbox"/>
v. Material support	<input type="checkbox"/>	<input type="checkbox"/>

30) Do you have easy access to water and sanitation services?
 Yes = 1 ☐; No = 2 ☐

31) If no why? *Tick all that apply and rank*

	YES = 1	NO = 2
i. Long distance	<input type="checkbox"/>	<input type="checkbox"/>
ii. I can't afford it	<input type="checkbox"/>	<input type="checkbox"/>
iii. The structures are not friendly	<input type="checkbox"/>	<input type="checkbox"/>
iv. I don't have anyone to support me	<input type="checkbox"/>	<input type="checkbox"/>

32. How will you describe the current water and sanitation facilities in your home/ community?

i. Disable friendly = 1 ☐; ii. Not disable friendly = 2 ☐; iii. No idea = 3 ☐

C. Access to water and sanitation

33. Is water readily available for your consumption?

i. Yes = 1 ☐; ii. No = 2 ☐

34. What is the source of drinking water for your household?

i. pipe borne = 1 ☐; ii. Borehole = 2 ☐;

iii. Rainwater = 3 ☐; iv. Surface water (river, dam, stream) = 4 ☐

35. What is the source of water used for other purposes such as washing and bathing?

i. pipe borne = 1 ☐; ii. Borehole = 2 ☐;

iii. Rainwater = 3 ☐; iv. Surface water (river, dam, stream) = 4 ☐

36. Where do you access water?

i. Home = 1 ☐; ii. Neighbor's house = 2 ☐;

iii. Public source = 3 ☐; iv. Unprotected dug well
= 4 ☐

IF i SKIP TO 42

37. If not at home, how long does it take to fetch water and back? mins

38. How will you rate the distance from your residence to the facility?

i. Very near = 1 ☐; ii. Near = 2 ☐; iii. Normal = 3 ☐

iv. Far = 4 ☐; v. Very far = 5 ☐

39. Do you fetch this yourself?

i. Yes = 1 ☐; ii. No = 2 ☐

40. If no, do you have anyone who assists you in fetching water for your household?

i. Yes = 1 ☐; ii. No = 2 ☐

41. Do you have to pay for his/her service?

i. Yes = 1 ☐; ii. No = 2 ☐

42. What type of toilet facility do you use?

i. Flush toilet = 1 ☐; ii. Pit latrine = 2 ☐

☐

iii. Public toilet = 3 ☐; iv. KVIP = 4 ☐

☐

i. Other (please specify).....

43. Are you able to use the toilet?

i. Yes = 1 ☐; ii. No = 2 ☐

44. If no why?

.....
.....
.....

45. Where is this facility located?

i. In compound = 1 ☐; ii. Outside dwelling = 2 ☐

☐

46. How will you rate the privacy and cleanliness of the facility?

i. Good = 1 ☐; ii. Fair = 2 ☐; iii. Poor = 3 ☐

47. Do you share these facilities?

i. Yes = 1 ☐; ii. No = 2 ☐

48. If yes, with how many people?

49. What is your view on sharing toilet with other people?

- i. Happy = 1 ☐; ii. Neutral = 2 ☐; iii. Unhappy
= 3 ☐

50. Has there been any improvement in the toilet and water facilities to make it easily accessible to people with disabilities?

- i. None = 1 ☐; ii. Slight improvement = 2 ☐; iii. Great improvement
= 3 ☐

51. How involved are you in issues of water and sanitation in your household?

- i. Not involved = 1 ☐; ii. Less involved =
2 ☐; iii. Moderately involved = 3 ☐; iv. More
involved = 4 ☐

THANK YOU!

