

**A KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) STUDY OF  
BUNTUNGWA CLINIC CATCHMENT AREA IN MANSA, ZAMBIA,  
REGARDING WATER, SANITATION AND HYGIENE EDUCATION**

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by

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**Dissertation Submitted to The University of Zambia in Partial Fulfilment of the  
Requirements for The Award of The Degree of Master of Education In Adult  
Education**

**The University of Zambia  
Lusaka**

**March, 2009**

## DECLARATION

I hereby declare that the work presented in this dissertation and submitted to the University of Zambia in partial fulfilment of the award of a Master of Education Degree (Adult Education) has not been presented whether wholly or in part for any other study programme. The work is entirely the result of my own independent investigations. The various sources, to which I referred, have been acknowledged.

Signed:..........

Sitali Mubiana Kaiko

## CERTIFICATE OF APPROVAL

This dissertation by Sitali Mubiana Kaiko is approved as partial fulfilment of the requirements for the award of the Degree of Master of Education (Adult Education) of the University of Zambia

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## **Abstract**

The title of the study was: A Knowledge, Attitudes and Practices (KAP) Study of Buntungwa clinic catchment area in Mansa, Zambia, regarding Water, Sanitation and Hygiene Education. The purpose of the study was to assess the levels of knowledge, explore attitudes and practices (KAP) of residents of Buntungwa clinic catchment area in Mansa district of Luapula province in Zambia, with regards to water, sanitation and hygiene. Buntungwa clinic was established in the 1970s. At the time of this study, no KAP study had been undertaken in the area, although the health institution has been carrying out health education since its establishment. The study was conducted between May 2008 and February 2009.

The objectives of the study were;

- 1) to assess knowledge levels of Buntungwa clinic catchment area residents with regards to water, sanitation and hygiene;
- 2) to explore attitudes of Buntungwa clinic catchment area residents concerning water, sanitation and hygiene;
- 3) to explore practices of Buntungwa clinic catchment area residents concerning water, sanitation and hygiene; and
- 4) to establish factors that influenced knowledge, attitudes and practices among Buntungwa clinic catchment area residents with regard to water, sanitation and hygiene.

The methodology that was adopted for the study was basically descriptive. Data was collected using Questionnaires, Focused Group Discussions (FDGs) and Interviews. The questionnaires were administered on hundred (100) respondents; one from each of the 100 households, were selected using systematic sampling technique. Key informants were selected purposively. Data was analyzed using quantitative and qualitative procedures.

Major findings in terms of knowledge, attitudes and practice were: A large number of respondents had knowledge and positive attitudes, but could not put their knowledge into practice; secondly, another number of respondents had knowledge, though with negative attitudes; while other respondents did not have enough knowledge to influence their attitudes and practice. This level of knowledge, nature of attitudes and practices predisposed the community to water, sanitation and hygiene related diseases.

The following were the recommendations advanced in order to raise community members' knowledge and improve their attitudes and practices with regards to water, sanitation and hygiene. The Ministry of Health, Education, Local Authorities and other stakeholders should:

1. Give priority to health education and hygiene promotion by adopting the Participatory Hygiene And Sanitation Transformation (PHAST) approach.



2. Ensure that health and hygiene education focuses on garbage disposal, hand washing after latrine use and drawing water, water treatment, hand washing with soap or ash, signs and symptoms of diarrhoea and knowledge on ground water contamination.
3. Promote hand-washing with soap by identifying and encouraging other stakeholders such as NGOs so that they start soap making projects in the community in order to make soap available and affordable
4. Train neighbourhood health committees to lobby local authorities for sponsorship, construction and appropriate location of communal water points within the community. Priority should be given to residential areas with worst water problems and high densities of populations.
5. Ensure that water sources are designed so as to provide for easy drawing of water using the 20 litre container, which is also a standard measure for water treatment with chlorine. This should be done by Mansa Municipal Council.
6. Protect natural springs found in the community because natural springs can be a good source of drinking water during the hot-dry season.
7. Encourage the community members to engage in income generating activities so as to raise their economic status in order to enable them afford essentials necessary for carrying out positive sanitation and hygienic practices.

## **DEDICATION**

To my husband Michael Ngoma who sacrificed so much for my happiness. To my Mother and Father, without whom I would never have been. Above all to the God Almighty without whom I am nothing.

## ACKNOWLEDGEMENTS

I owe the success of this report to Dr. Emmy Mbozi for the high professional guidance, patience and commitment she consistently rendered to me during the entire process of the dissertation development. She was and continues to be my role model.

My gratitude also goes to the University of Zambia Directorate of Graduate Studies members of staff for all their efforts in making my study programme a success amidst the many challenges they faced at the institution.

Further, I would like to thank the office of the Permanent Secretary, Ministry of Health for granting me permission to undertake the study. I also remain indebted to the offices of the Provincial Health Director, the Town Clerk and the District Director of Health all of Mansa District in Luapula Province, for allowing me to conduct the study in their area of jurisdiction.

Lastly, but not least, my gratitude extends to Mr Ebby Mubanga and Mr Kennedy Kasimaba, and other people whose names have not been mentioned, but contributed in unique ways to the success of this study. Without these people's various contributions, the task of carrying out this whole work could have been an up-hill battle.

To all these people, May the Almighty God richly guide and bless them.

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### **List of Abbreviations**

CBoH	Central Board of Health
D-WASHE	District -Water Supply, Sanitation and Hygiene Education (Committee)
EHT	Environmental Health Technician
FDGs	Focus Group Discussions
JICA	Japan International Cooperation Agency
DFID	The Department for International Development
HIV	Human immune deficiency syndrome
KAP	Knowledge, Attitudes and Practices (study/studies)
nd	no date
NHC	Neighbourhood Health Committee
NRWSSP	National Rural Water Supply and Sanitation Programme
PHAST	Participatory Hygiene and Sanitation Transformation
SARAR	Self-esteem, Associative strengths, Resourcefulness, Action-planning and Responsibility
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNICEF	United National International Children's Fund
WASHE	Water Supply, Sanitation and Hygiene Education
WHO	World Health Organisation
V-WASHE	Village- Water Supply, Sanitation and Hygiene Education (Committee)
ZAMSIF	Zambia Social Investment Fund

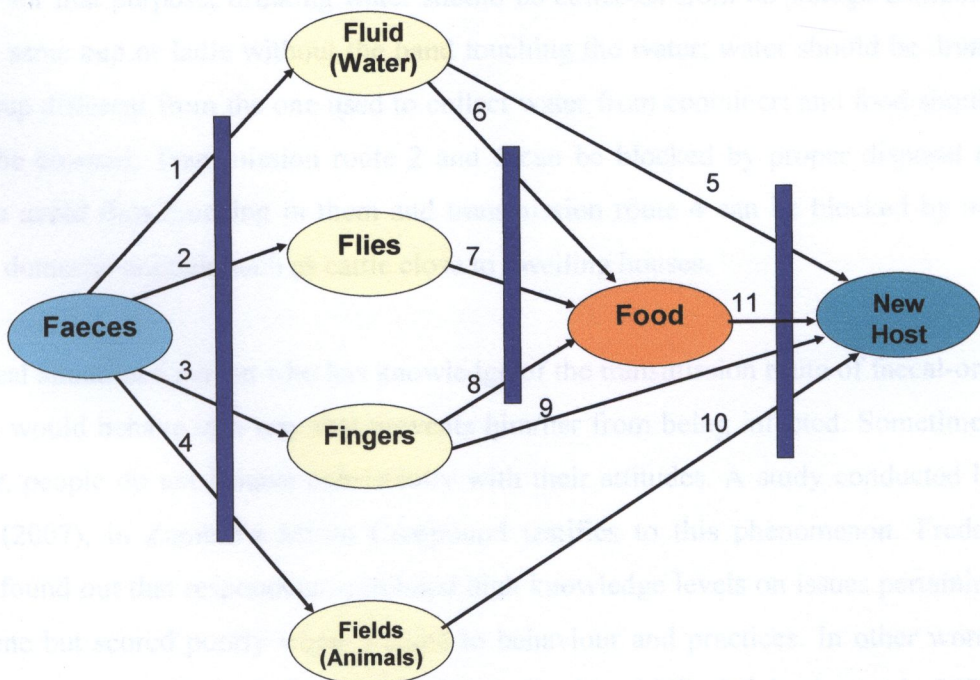
## CHAPTER ONE: INTRODUCTION

### 1.1 INTRODUCTION

Knowledge is an important factor in issues of water, sanitation and hygiene. Generally, knowledge is the awareness and understanding of facts, truths or information gained through experience or learning, or through introspection. Knowledge is important in that it influences attitude and behaviour. Attitude is a person's inner thoughts and feelings, while behaviour is, mostly, an outward expression of attitude (Steel 2000). For effective personal protection and disease control, a combination of knowledge, positive attitude and putting in practice what is learnt is crucial.

Therefore, a combination of knowledge, attitude and practice can serve as a barrier in the transmission of sanitation related diseases. The diagram below demonstrates oral faecal transmission and sanitation barrier.

Figure 1: Transmission of Diseases from Faeces



Source: Adopted from Batteson et. al. (1998).

The above demonstration (figure 1) shows that it would be difficult if not impossible for a person without such knowledge to adopt correct behaviours and be able to protect one self and others from diseases by limiting the transmission. With regards to the demonstration, transmission routes 1, 3, 8 and 9 can be blocked by proper hand washing with water and soap or ash after using the latrine; after cleaning the anal area of a child; before eating, cooking or handling food; and after handling animals. The above transmission routes can also be blocked by discouraging children from sucking dirty fingers. As for transmission routes 2, 4 and 9, they can be blocked by constructing improved latrines and using them properly at all times. It is therefore essential that faeces, including that of children are disposed off in latrines where flies cannot gain access. Proper disposal of faeces will also prevent contamination of water sources and exposure to domestic animals such as dogs.

Transmission routes 5, 6, 10 and 11 can be blocked by proper storage of drinking water and food. This implies that; drinking water should be stored in clean covered containers reserved for that purpose; drinking water should be collected from its storage container with the same cup or ladle without the hand touching the water; water should be drunk from a cup different from the one used to collect water from container; and food should always be covered. Transmission route 2 and 6 can be blocked by proper disposal of refuse to avoid flies breeding in them and transmission route 4 can be blocked by not keeping domestic animals such as cattle close to dwelling houses.

In an ideal situation a person who has knowledge of the transmission route of faecal-oral diseases would behave in a way that prevents him/her from being infected. Sometimes, however, people do not behave consistently with their attitudes. A study conducted by Freddy (2007), in Zambia's Misisi Compound testifies to this phenomenon. Freddy (2007) found out that respondents exhibited high knowledge levels on issues pertaining to hygiene but scored poorly when it came to behaviour and practices. In other words people may not put knowledge into practice (Freddy 2007; Michael et. al. 2004; Duncker 1999). Michael et. al. (2004) assert that people may know, for example, that they should wash their hands after using the latrine, know how to, and may even want to,

but they do not do so. This is so because behaviour is and can be influenced by a number of factors beyond attitude, including perceptions about self and others, monetary factors, social influences and convenience.

Hygiene education and promotion through the exchange of information ensure the greatest health impact on individuals and communities. Hygiene promotion is the mix between the population's 'knowledge, practice and resources' and 'agency knowledge and resources', which together enable risky hygiene behaviours to be avoided. A significant strategy with respect to sanitation and hygiene promotion in Zambia is the Water supply, Sanitation and Hygiene Education (WASHE) concept. The strategy was adopted in 1996 and is implemented in all the districts of the country (GRZ 2007). Its objective, among others, is to promote integrated development of water, sanitation and hygiene education so as to increase the health impact of water supply, sanitation and hygiene.

Knowledge Attitudes and Practices (KAP) studies are instrumental in hygiene education and promotion. In hygiene education and promotion, KAP studies are carried out for various purposes. For instance, a KAP study conducted in Bangladesh by Ahmed et. al. (2000) was aimed at providing base-line information of the target population concerning hygiene before hygiene education and promotion of project intervention; to identify specific indicators which would be used to monitor progress and to measure the project impact by comparing the base-line information with periodic monitoring data.

Another study was conducted in South Africa, by Duncker (1999). The objectives of this study were: (a) to develop a tool to determine the knowledge, attitudes and practices (KAP) regarding hygiene, water and sanitation in developing communities; (b) to pilot and revise the hygiene awareness package workshop and to assemble a hygiene awareness package for rural areas.

In Zambia, Freddy (2007) conducted a study that assessed the knowledge levels of the respondents with regards to poor environmental sanitation and personal hygiene. The

objectives of the study were to determine environmental health and personal factors which put children less than five years old at risk of contracting watery diarrhoea. The study was carried out in a peri-urban settlement of Misisi compound in the city of Lusaka. Very little, however, has been done with regards to KAP studies, in the rural areas of Zambia. In Buntungwa clinic catchment area of Mansa District in particular, no KAP studies had been conducted for many years, hence, the interest on the topic at hand and the area in question.

## **1.2 STATEMENT OF THE PROBLEM**

The Ministry of Health and local authorities provide hygiene education to mitigate water, sanitation and hygiene related diseases. Many resources have been pooled and continue to be pooled into the activities that are aimed at increasing knowledge, attitudes and practices of the Zambian communities with regards to water, sanitation and hygiene. One area, however, that does not receive much attention is the assessment of the levels of knowledge, attitudes and practices concerning water, sanitation and hygiene related issues.

The Buntungwa clinic serves a catchment area of 36 kilometres in radius. Ever since this clinic was established in the 1970s, hygiene promotion and education activities have been going on. Despite these efforts, the Buntungwa clinic catchment area has been experiencing a lot of water, sanitation and hygiene related diseases. For example, in 2007, the Health Information System of the Ministry of Health (HIMS) (2007) revealed that Buntungwa clinic was ranked second (2<sup>nd</sup>) in incidences of diarrhoea out of twenty-seven (27) clinics in the whole district. According to the HIMS (2007), out of 14,711 non-bloody diarrhoeas in the district, Buntungwa clinic reported 1,600 incidences giving it this second position. In addition to the reported high incidences of health related diseases, no studies have been carried out to assess the levels of knowledge regarding water, sanitation and hygiene related issues for many years.

The question, therefore, that needed to be answered in this study was: What were the levels of knowledge, attitudes and practices of the community in Buntungwa clinic catchment area with regards to water, sanitation and hygiene?

### **1.3 PURPOSE OF THE STUDY**

The study sought to assess the levels of knowledge, attitudes and practices with regards to water, sanitation and hygiene related issues of Buntungwa clinic catchment area in Mansa District, of Luapula Province.

### **1.4 CENTRAL OBJECTIVE OF THE STUDY**

To assess the levels of knowledge, attitudes and practices of the people living in the Buntungwa clinic catchment area regarding water, sanitation and hygiene issues.

### **1.5 SPECIFIC OBJECTIVES**

- 1) To assess knowledge levels of Buntungwa clinic catchment area residents with regards to water, sanitation and hygiene.
- 2) To establish attitudes of Buntungwa clinic catchment area residents concerning water, sanitation and hygiene.
- 3) To establish practices of Buntungwa Clinic catchment area residents concerning water, sanitation and hygiene.
- 4) To establish factors that influence knowledge, attitudes and practices among Buntungwa Clinic catchment area residents with regards to water, sanitation and hygiene.

### **1.6 MAIN RESEARCH QUESTION**

What were the levels of knowledge, attitudes and practices of the Buntungwa Clinic catchment area residents regarding water, sanitation and hygiene related issues?

### **1.7 SPECIFIC RESEARCH QUESTIONS**

- 1) What were the attitudes of Buntungwa Clinic catchment area residents concerning water, sanitation and hygiene?
- 2) What were the practices of Buntungwa Clinic catchment area residents concerning water, sanitation and hygiene?

- 3) What are the factors that influence knowledge, attitudes and practices among Buntungwa Clinic's catchment area residents with regards to water, sanitation and hygiene?

## **1.8 SIGNIFICANCE OF THE STUDY**

This study was important in that the findings might provide feed back to the Ministries of Health and Local Government and Housing concerning the levels of knowledge, attitudes and practices of the residents of Buntungwa Clinic catchment area with regards to water, sanitation and hygiene issues. This may enable concerned institutions to know whether their programmes on water, sanitation and hygiene education are successful or not. Consequently, interventions may be drawn up accordingly. In the same vein, this study was important in that the results revealed factors that posed a barrier to good sanitation and hygiene practices, a revelation that may help responsible authorities to come up with appropriate interventions to eliminate the identified barriers.

Further, the results of the study have provided base line data that may be used to measure the impact of future projects or even workshops that may be carried out among the Buntungwa community. The findings of the study may also be used for comparative studies in future measuring levels of knowledge, and exploring attitudes and practices in other communities of Zambia. Finally, the findings of the study may provide guidance to policy makers to come up with policies that may have maximum health benefits to the Buntungwa community members as well as similar peri-urban communities in Zambia.

## **1.9 DEFINITION OF OPERATIONAL TERMS**

This section defines key operational terms used in the context of this study:

**Attitudes:** Feelings and emotions which are learnt through negative and positive experiences. Attitudes relate to personal feelings towards specific issues or things in general. Also refers to a person's response, which can be either favourable or un-favourable towards a person, object or idea. (Ornspein & Hunkins 2004).

**Excreta:** Refers to human faeces (Cairncross & Feachem 1998 )



<b>Hygiene:</b>	Things people do to stay clean and prevent the contracting and spreading of disease-causing germs (Curtis et.al. 2000).
<b>Hygiene education:</b>	Refers to the transfer of knowledge and skills regarding hygienic practices that promote health (Kann et.al. 2001).
<b>Health education:</b>	Is defined as the education that is directed towards individuals and communities in order to improve knowledge, attitudes, and behaviour so as to improve their health (Bundy & Guya 1996).
<b>Knowledge:</b>	The awareness and understanding of facts, truths or information gained through experience or learning, or through introspection (Forsyth 1987).
<b>Practice:</b>	Something done regularly as an established custom, habit or part of one's normal behaviour (Forsyth 1987).
<b>Sanitation:</b>	Is used in the narrowest sense of excreta disposal, excluding the environmental health interventions such as solid waste management and surface water drainage. Hence it refers to the system of disposing of human faeces in a safe and healthy way (Ferron et. al. 2000).
<b>water supply:</b>	Refers to the provision of water for domestic use, excluding provision for irrigation or livestock (Cairncross & Feachem 1998).

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 INTRODUCTION**

Studies that assess knowledge, and explore attitudes and practices (KAP) are used in many fields which include Education, Agriculture and Health. In health, KAP studies are employed in various sectors such as family planning, obstetrics, HIV and AIDs, water supply, sanitation and hygiene, and many other areas. This KAP study was employed to specifically assess the levels of knowledge and explore attitudes and practices with regards to water, sanitation and hygiene. Knowledge regarding water, sanitation and hygiene is usually communicated through health education and hygiene promotion sessions. This section of the dissertation serves the purpose of reviewing literature. The literature review is categorised into two sections, namely: literature review on water, sanitation and hygiene related to knowledge, attitudes and practices (KAP) studies and review of literature related to water, sanitation and hygiene.

### **2.2 KAP STUDIES IN WATER, SANITATION AND HYGIENE**

As earlier alluded to, this section confines itself to KAP studies on water, sanitation and hygiene. However, due to a dearth of information on KAP studies in Zambia, Freddy's (2007) study which is not a typical KAP study but has a component of knowledge assessment, is considered under this section. To this effect, the KAP studies reviewed include the study by Ahmed et. al. (2000) in Bangladesh, the study by Duncker (1999) in rural communities of South Africa and the study by Freddy (2007) in Zambia.

#### **2.2.1. KAP Study Objectives**

Various KAP studies have various objectives. In Bangladesh, Ahmed et. al.'s (2000) study first objective was to provide baseline information prior to commencement of project intervention on the target population in issues related to hygiene. The second one was to identify specific indicators, which would be used to monitor progress and to measure project impact by comparing the baseline information with periodic monitoring data. In the rural communities of South Africa, Duncker (1999) carried out a KAP study whose main objective was to develop a tool to determine the knowledge, attitudes and

practices of the people regarding water supply, hygiene and sanitation. This tool was to facilitate the development of a hygiene awareness workshop in order to carry out necessary revisions and finally, assemble a hygiene awareness package for rural areas.

In Zambia, Freddy's (2007) study objectives were to determine environmental health and personal hygiene factors which put children less than five years old in Misisi compound at risk of contracting diarrhoea. It was carried out in order to pave way for project intervention. The objective of this KAP study was to provide feedback to the relevant ministries who, for years, had been involved in the promotion of health and hygiene education. The study will also provide baseline information for future interventions.

All the KAP studies mentioned above suffered from two flaws. The first one by Ahmed (2007) being that the researchers focused their attention on mothers only. In particular, Duncker et. al. (1999)'s study focused on mothers of the household. Duncker and colleagues argued that mothers were the primary respondents because they were thought to be the most appropriate persons to answer the questions related to hygiene and health of the family and are responsible for general cleanliness.

While these works have, nevertheless, made valuable contributions to research, they lack a critical dimension in that issues of health are cross-cutting and should not have been confined to one group of people. Mothers cannot perform certain hygienic practices on behalf of all the family members. For instance, if it was the man who used the latrine, it was this man himself who was supposed to wash his hands. It is also a general trend in most cultures, particularly, here in Zambia that the male folk are entrusted with the responsibility to construct latrines. If men do not have knowledge of sanitation and hygiene, they may not see value in practicing good hygienic habits including making sure that their households have latrines. It is for this reason that this study took a different approach by focusing not only on mothers as the only primary source of information, but also to include men as well as the teenagers.

The second flaw in the other KAP studies was that the discussion on diffusion of innovations was left out. Rogers (1995) in the diffusion of innovations theory explains that there are several factors that enhance or constrain the adoption of new messages. Three of these factors were deemed relevant to this study. The first was 'relative advantage' which refers to the degree to which an innovation is perceived as better than the idea it supersedes. This may be measured in economic terms but social prestige, convenience and satisfaction are also important factors. The second is 'compatibility' which refers to the measure of degree to which an innovation is perceived as being compatible with existing values, past experiences, and the needs of potential adopters. The third is 'complexity'; which is the measure of degree to which an innovation is perceived as difficult to use and understand. Hence, new ideas or innovations that are simpler to use and understand are adopted more rapidly. Another factor which may hinder the adoption of new messages, though not provided for in Roger's theory of innovations, is the issue of 'easy availability' of resources. Some new messages may not readily be adopted due to lack of resources that might be required to implement the new knowledge.

It is important that factors that may hinder the adoption of new messages regarding good hygienic practices are identified. It is for this reason that one of the objectives of this study focused on identification of factors that either hindered or enhanced hygiene practices.

### **2.2.2. Problems Identified in KAP Studies**

Almost all the researchers in KAP studies under review encountered the problem of respondents reporting behaviours that they thought the researcher wanted to know. Similarly, respondents demonstrated behaviours that they thought the researcher wanted to observe. According to Freddy (2007), the respondents rated high on behaviours but the high prevalence of diarrhoea, dirty surrounding and dirty children observed during the study contradicted the reported and demonstrated data. This finding was critical to this study since this same problem could impact negatively on the validity of data. To counter this problem, the researcher made it clear to the respondents that their honest

responses were critical to the entire study. In addition the researcher triangulated several data collection methods.

A major issue raised in the literature was the gap between knowledge and practice. Duncker (1999) in South Africa found that the respondents did not put what they knew into practice. Freddy (2007) also found the same in Zambia. This means that both Freddy (2007) and Duncker (1999) agree that respondents' knowledge was received from health institutions that the respondents attended. The reason advanced for this gap was unavailability of resources to implement hygienic practices. These two scholars are of the opinion that failure to practise safe hygienic life-style was due to lack of adequate water. As a result, the respondents and their families neither bathed daily nor provided water for washing hands at the available latrines for use after using the toilet. Another reason for the disparity between knowledge and practice that Duncker (1999) advanced, was cultural taboo. Cultural taboos proved an obstacle to good hygienic practices because of the norms and values attached to the common use of the same latrine by men and women.

Moreover Duncker (1999) advanced yet another reason for the gap between knowledge and practices. The reason given for this disparity was poverty. Due to poverty, the respondents and their households could not afford the resources necessary for implementing the hygienic practices. In particular, the respondents could not afford to build latrines or buy disinfectants and or soaps. A study conducted by Ahmed et. al. (2000) in Bangladesh revealed that there was a relationship between poverty and good sanitation and hygienic behaviours. For example, people may not use soap to wash their hands at critical times because they may not afford to buy soap. People may know the value of washing their hands with soap but they would not put this knowledge into practice because of poverty. In line with Duncker (1999), Michael et. al. (2005) asserted that availability of water, soap, latrines and other essential and appropriate hygienic products and technologies are determinants of health behaviours. It is probably with this thought in mind that Freddy (2007) recommended that there was need for further research into identifying barriers to good hygienic practices. This study was an effort

into this task from which both the local authorities and the Ministry of Health could benefit.

Although the KAP studies reviewed above indicated that a number of issues in water, sanitation and hygiene education had been covered in previous research, more information was required in order to carry out targeted interventions. The challenge brought by the increased number of peri-urban areas such as Buntungwa clinic catchment area is proving to be a burden to local authorities and the Ministry of Health who are responsible for conducting community education. One of the ways to enable the local authorities contribute more effectively is to provide information to them from studies like this one. It is against this background that carrying out this study in an area designated as peri-urban such as Buntungwa clinic catchment area was necessary.

## **2.3 OTHER LITERATURE ON WATER, SANITATION AND HYGIENE EDUCATION**

Apart from KAP studies, there were other literature on water, sanitation and hygiene education which was deemed relevant to my study. This literature is categorised into four aspects: Importance of health education; the Participatory Hygiene Sanitation And Transformation (PHAST) as an appropriate educational methodology; the focus of health education and support services for practising good hygiene.

### **2.3.1 Importance of Health Education**

One set of literature reviewed in this study focused on the importance of health education. Health education, in particular, hygiene education is a crucial component of water and sanitation programmes. According to United Nations Educational Scientific and Cultural Organisation (UNESCO) (nd), hygiene education helps people to develop the knowledge, attitudes and skills needed to reduce their own and others' vulnerability to water and sanitation related diseases. According to the organisation, these include:

“knowledge of disease-causing agents (bacteria, viruses, worms, etc) and symptoms of harmful effects of water and sanitation related diseases; plus the specific conditions and behaviours that facilitate the transmission of such diseases and the specific conditions and behaviour required to prevent transmission:

Attitudes that individuals should and can take responsibility for personal, family and community health and that they should and can take action to reduce water and sanitation related diseases, and: Skills needed to adopt new behaviours, follow rules, encourage others to change unhealthy habits and see health information and services when necessary”

Marrielle (2003) agrees with the UNESCO (nd) that it is important that people know about risks to their health and how to avoid them. To this effect, Marrielle recommended that the focus on sanitation and water infrastructure must be combined with a broad agenda that included health education. The United Nations International Children’s Education Fund UNICEF (nd) is of the same view. As Marrielle and the (UNESCO), UNICEF pointed out that education and communication were important components of a hygiene programme, UNICEF further pointed out that all people regardless of their educational background have the right to know about the relationship between water, sanitation and hygiene and their health and that of their families. The knowledge about the causes of the diseases may help people to protect themselves and members of their families against diseases (Betteson et. al. 1998).

The importance of hygiene education is further stressed by the Sphere Project. The Sphere Project (2004), observed that simply providing sufficient water and sanitation facilities will not, on its own, ensure their optimal use or impact on public health, rather, necessary information, knowledge and understanding were necessary so that the concerned communities could prevent themselves from water and sanitation related diseases and to mobilise their involvement in the designing and maintenance of those facilities. It is for this reason that projects that did not include the comprehensive health and hygiene education component stood little chances of achieving their basic objective, which is health promotion (Cairncross et al. 1993).

Another organisation that emphasised the importance of health education is the World Bank. The World Bank (2003) contended that constructing water supply and sanitation facilities is not enough to improve health. Health education and hygiene promotion must accompany the infrastructure investment in order to realise their full potential.

Health promotion and education strategies are needed to change the behaviours so as to realise the health benefits of improved water supplies. Better hygiene and access to drinking water and sanitation will accelerate progress towards two Millennium Development Goals (MDGs). These are: (i) “reduce under five child mortality rate by 2/3 between 1990 and 2015” and (ii) “by 2015 halve the proportion of people without sustainable access to safe drinking water and basic sanitation”.

Literature on the importance of health education was deemed relevant to the study because it was mostly through the process of health education that communities acquired knowledge regarding hygiene. Furthermore, knowledge in these studies was seen as influencing good hygienic practices. To this effect, KAP studies strive to ascertain whether knowledge, attitudes and practices are in congruence or whether there are some disparities between knowledge, attitudes and practices due to some circumstances. This means that the current study went beyond acknowledging the need for the provision of knowledge. It also explored whether attitudes and practices were in line with this knowledge and to identify the underlying causes of the incongruence.

### **2.3.2 PHAST as an Appropriate Educational Approach**

Another aspect raised by the literature on health education referred to the approach and techniques used in the delivery of health education in communities. According to WHO (2001), health education in communities is more effective when participatory methods are used. Both WHO (2001) and UNESCO (nd) argue that the Participatory Hygiene And Sanitation Transformation (PHAST) approach was seen as an effective educational strategy in programmes aimed at improving water, sanitation and hygiene. The PHAST approach uses methods and techniques that stimulate the participation of people of any given community, regardless of their sex, age, educational or economic status in the development process. One of the premises of the PHAST approach is that: “...no lasting change in people’s behaviour will occur without health awareness and understanding. People must believe that better hygiene and sanitation will lead to better health and better living” (WHO 2001).



To ensure effective learning, the PHAST approach practitioners adopted the principles on learning from the Self-esteem, Associative strengths, Resourcefulness, Action-planning and Responsibility (SARAR) approach. One of the principles on learning states that sustainable learning takes place in a group context. This helps to produce a normative shift and eventually a change in behaviour that is sustainable because it is socially accepted and endorsed (Kawanga et. al. 2003).

According to Makhweyane & Dau (2001) the PHAST approach emphasises learning by doing. Specific participatory activities were developed for community groups to promote discussion on health issues, identify good and bad hygiene behaviours, and discover for themselves the faecal-oral contaminatory routes of diseases. Then they analyse their own hygiene behaviours in the light of the information and plan how to block the contamination routes. An important aspect of PHAST is that it does not only teach hygiene and sanitation concepts but also enables people to overcome constraints to behaviour change.

The effectiveness of the PHAST was evident in the countries in which it was piloted and implemented. This approach was successfully implemented, in the 1990s, in four pilot countries: Botswana, Kenya, Uganda and Zimbabwe. A recent study that was carried out elsewhere to determine the impact of PHAST before any change was made to the village water supply found out that the proportion of children with giardiasis (a diarrhoea disease) was 76% lower; and the proportion of children with enterobiasis (a diarrhoea disease) was 49% lower after the four months of PHAST period. The conclusion of the study was that the PHAST method can give significant disease reduction (68%) among children before any improvements to water supply (WHO 2001).

In Zambia a study conducted by Kawanga et. al. (2003) reported that through PHAST the Japanese International Cooperation Agency (JICA) project achieved and promoted sustainable water and sanitation in the peri-urban areas of Lusaka. The results were such that cholera reduced drastically from 70 per 10,000 in 1994 to 1 per 10,000 in 2000. Perhaps the most important results of PHAST, as revealed by WHO (nd), is that the

approach works to transform people that have the helpless mentality associated with ignorance and poverty into high self-esteem and confident people who engage in self-help activities in the absence of literacy or formal schooling.

What makes the PHAST approach an effective tool in improving sanitation and hygiene is that the whole process renders members of the community to be knowledgeable about the sources of the problems they face, as well as a lot of aspects concerning water, sanitation and hygiene. This, in turn, plays a part in attitude and behaviour change. The deep understanding and knowledge gained makes community members deeply committed and determined to solve their own problems. It also makes the community gain a sense of responsibility for their own activities concerning solving their own problems. When they recognise that the activities are achieving the results, they are deeply motivated to continue.

The process of transforming communities is a key aspect of the Freirian conscientisation process with a central argument that unless educators use participatory processes, community education is constrained. The Freirian conscientisation process was an educational technique started by Paulo Freire (Freire 1970). Participatory education, according to Freire (1970), enables people to develop their power to perceive critically the way they exist in the world with which and in which they find themselves. This is done through the democratisation of the content and teaching method. This process incites inquiry, creativity and critical thinking in the learner which impels the emergency of consciousness and constant unveiling of reality (Freire 2005). Participatory processes enable communities to discover their own reality and make linkages between their actions and their conditions of their lives, in this case between their actions and the resulting diseases.

The literature on the PHAST approach to community education in general and health education in particular was considered relevant to the study in that this study presumed that a possible factor enhancing high knowledge levels and good attitudes and practices in the studied community could be the training approach used by health educators or

vice versa. This entailed an exploration of the educational methods and techniques used in the provision of health and hygiene education. Participatory education requires establishing a democratic and horizontal relationship between the learner and educator in an educational situation.

**2.3.2 The Focus of Health Education on Water, Sanitation and Hygiene**

The third portion of literature reviewed in this study was the focus or content of health education on issues of water, sanitation and hygiene. Good hygienic practices which are a result of effective health education are known to prevent most infectious water, sanitation and hygiene related diseases (Esrey 1996) hence, health education should focus on such practices. (CARE 1997) provides us with a list of hygienic practices that bring the most beneficial and sustainable results in improving health. These are as follows: appropriate hand washing, safe excreta disposal, water treatment, safe refuse disposal and safe water sources.

Recent studies found that hand washing with soap had a significant reduction in the risk of diarrhoea (UNICEF nd; World Bank, nd). Table 1 below provides a summary of these studies:

Table 1: Summary of the Studies on the Impact of Hand Washing on the Risk of Diarrhoea

Author		Number of studies	Reduction in Diarrhoea risk
Huttley et. al. (1997)	hand washing	5	35%
Curtis & Cairncross (2003)	Hand washing with soap	19	44%
	Hand washing with soap	7	47%
Feutell et. al. (2005)	Hand washing with soap	5	44%

UNICEF (nd), further established that good hand washing practices were found to reduce other diseases such as pneumonia, trachoma, scabies, skin and eye infections and diarrhoeal related diseases such as cholera, dysentery and avian influenza (bird flu). After undertaking several studies on hand washing, Curtis and Cairncross (2003), estimated that hand washing with soap alone was able to prevent 0.5 to 1.4 million deaths

per year. Due to the above evidence, hand washing, therefore, plays an important part in the efforts to reach the Millennium Development Goals (MDGs) on: (i) health improvements and, (ii) access to effective use of water supply and sanitation services.

The cardinality of safe excreta disposal is stressed by Curtis and Cairncross (2003) who emphasize that safe disposal of excreta and refuse forms the first barrier to oral-faecal diseases, the result of which is improved health. To this effect, a well that is located at an appropriate distance from contaminatory sources such as pit latrines and refuse dumps yields safe water for domestic use. Users of such water are likely to enjoy better health than those who draw their water from sources that are not at an appropriate distance from sources of contamination.

With regards to water treatment, studies carried out by Benjamin et al (nd) established that treatment of water with chlorine at household level improved the microbiological quality of drinking water. Chlorine was found to be effective against most bacterial and viral pathogens. Therefore, people who practice treatment of water are likely to enjoy good health. To this effect, therefore, it is important that health education should focus on promoting behaviours that offer maximum disease prevention. A review of literature on water, sanitation and hygiene related diseases further revealed that there were four distinct mechanisms by which these diseases can be transmitted. Table 2 on the next page provides information concerning the diseases, their transmission mechanism and preventive strategies.

Table 2: Classes of Water, Sanitation and Hygiene Related Infections, their Transmission Mechanisms and Appropriate Intervention Strategies

No.	Category	Infection	Transmission Mechanism	Preventive strategy
1.	Feacal-oral (water-born or water-washed)	Diarrhoeas and dysenteries Amoebic dysentery Blantidiasis Campylobacter enteritis Cholera E. coli diarrhoea Giadiasis Rotavirus diarrhoea Salmonellois (bacillary dysentery) Yersinosis Enteric fevers Typhoid Paratyphoid Poliomyelitis Hepatitis A Leptospirosis Ascariasis Trichuriasis	Drinking water or eating food that is contaminated with pathogen	<ul style="list-style-type: none"> <li>• Improve quality of drinking water</li> <li>• Prevent casual use of other unimproved sources</li> <li>• Increase water quantity used</li> <li>• Improve accessibility and reliability of domestic water supply</li> <li>• Improve hygiene</li> </ul>

2.	<b>Water-washed:</b> <ul style="list-style-type: none"> <li>• Skin and eye infection</li> <li>• Other</li> </ul>	Infectious skin diseases Infectious eye diseases Louse-borne typhus Louse-born relapsing fever	Contact with infected person	<ul style="list-style-type: none"> <li>• Increase water quantities used</li> <li>• Improve accessibility and reliability of domestic water supply</li> <li>• Improve hygiene</li> </ul>
3	<b>Water-based</b> <ul style="list-style-type: none"> <li>• Penetrating skin</li> <li>• Ingested</li> </ul>	Schistosomiasis Guinea worm  Glonorchiasis Diphyllobothriasis Fasciolopsiasis Paragonimiasis others	Contact with water infested with pathogens  Drinking water or eating food contaminated by pathogen	<ul style="list-style-type: none"> <li>• Decrease need for contact with infected water</li> <li>• Control snail populations</li> <li>• Reduce contamination of surface waters by excreta</li> </ul>
4	<b>Water-related insect Vector</b> <ul style="list-style-type: none"> <li>• biting near water</li> <li>• breeding in water</li> </ul>	Sleeping sickness Filariasis Malaria River blindness Mosquito-borne viruses Yellow fever Dengue	Infected with pathogen through biting	<ul style="list-style-type: none"> <li>• improve surface water management</li> <li>• destroy breeding sites of insects</li> <li>• decrease need to visit breeding sites</li> <li>• use mosquito netting</li> </ul>

Source: Cairncross & Feachem (1983).

From the adult educators' perspective, the above listed diseases can be controlled through health education. Earlier in this chapter, literature indicated that the PHAST methodology through education on its own was able to reduce diseases before any improvements to water were made (WHO 2001; Borghi et. al. 2002; Michael et. al. 2003).

The focus of this study was to examine the knowledge levels, attitudes and practices of Buntungwa Clinic's catchment area residents to assess whether the messages of good hygienic practices as revealed in this literature review were being comprehended and sustained.

#### **2.3.4 Support Services for Practicing Good Hygiene**

The final set of literature reviewed in this section was relating to support services for practicing good hygiene. A review of literature on support services for practice of good hygiene revealed that improved water supply and sanitation reduce exposure to pathogens and disease whilst poor sanitation and contaminated water are causes of infectious diseases (Burger and Esrey 1995). With regards to the same subject, Curtis et. al. (2003) affirms that poor quality drinking water and sanitation conditions contribute to a high burden of diseases and a significantly large number of deaths every year. Irteza (nd) further explains that thousands of other people suffer from short term or prolonged illness, which prevents them from being productive members of society in general and their households in particular. UNICEF (nd), like Burger et. al. (nd) and Irteza (nd) asserts that improving access to safe water and sanitation leads to healthier families and communities. Burger and Esrey (1995) found that improved water supply saved women time formally spent on collecting water and led to more time being spent on learning and income generation. This, therefore, means that water and sanitation interventions can complement other interventions or compensate for undesirable conditions. The main point is that lack of appropriate support services can hinder practice even in the presence of knowledge and positive attitudes.

In spite of these important findings, there are some communities especially in the developing countries which do not have access to clean water and good sanitation. Sanitation in impoverished communities in developing countries is often very inadequate rendering community members unhealthy. According to Irteza (nd):

“Most households living in such communities lack financial means to improve their own sanitation facilities. At the same time, municipal authorities are often reluctant to improve sanitation facilities in impoverished communities. This results in decay in the environment and deterioration of the health of individuals”.

Investment in water and sanitation yields good returns for any nation. According to Irteza (nd) a study in Hasenpura in Pakistan established that investment in basic municipal services carry huge returns both for the community and for the government, which would have otherwise had to finance subsidised health care facilities for those who became ill because of poor sanitation and water supply. The end result of improved water and sanitation was that households had more discretionary funds available to them as their health related expenses had declined considerably.

However, health education has been found to be cost effective in comparison to other water and sanitation sector investments. The WEDC (2005) define cost-effectiveness as:

“...the monetary cost of providing a unit cost of effect (such as reduction in the number of diarrhoea cases) through some form of intervention. A cost effective analysis looks at whether results are achieved, if these results are the desired impact and whether that impact is achieved at the lowest possible cost”.

Several studies looking at cost effectiveness of hygiene education and promotion programmes were conducted to this effect. For instance, a study conducted by Borghi et. al. (2000) in Burkina Faso to establish the cost-effectiveness of the three-year hygiene promotion programme affirmed that the programme was cost effective as it reduced childhood diarrhoea at less than 1% of the Ministry of Health budget and less than 2% of the household budget and could be replaced at even lower cost. The WEDC (2005) reports of another study carried out in Zimbabwe, in two districts, to assess the cost-effectiveness of the community health clubs approach. The study revealed that the educational programme was successful in that hand washing with soap was increased in



the two districts by 6% and 37%, respectively and open defecation was reduced by 29% and 98%. The programme was also found to be very cost effective. In Niger, a hygiene education and promotion programme was found to be cost effective in that the cost of the programme was only 1.8% of the cost of constructing water supply services.

Literature on the importance of support services in the practice of good hygiene practices was reviewed in view of the fact that when people have knowledge about good hygiene practices they ideally engage in good hygiene practices. If they are not doing so, then it is important to discover the underlying causes. This, in fact was one of the objectives of the study.

## **2.4 ISSUES ARISING FROM THE LITERATURE REVIEW**

This section of the dissertation summarises salient issues arising from literature review.

The first issue was almost all the previous KAP studies focused on women as the primary sources of information. This study, however, sought information from men, women, as well as teenagers. The argument here is that people live in the same communities where issues of water, sanitation and hygiene affect them all. To this effect, the inclusion of both genders comprising adults and teenagers helped to capture information from all the stakeholders within the community whose knowledge, attitudes and practices constituted the data collected. Such kind of information is vital if problems regarding issues of water, sanitation and hygiene are to be holistically addressed.

The second issue concerned the omission, by previous studies, of the discussion on diffusion of innovations theory to explain the disparities between knowledge and practices. However, this study infused the discussion on the diffusion of innovations theory. The inclusion of this theory was necessary to provide an understanding of why new ideas can or cannot be adopted by certain people living in a community. It was further discovered that almost all the previous KAP study researchers encountered the problem of respondents reporting behaviours they did not practice, but thought would impress the researcher. In this study the researcher gained the confidence of the people

by explaining that their honest answers were needed. In addition, the researcher triangulated the data collection methods in order to maximise chances of gathering as much of data details as possible..

The third issue is that the previous studies did not put identification of factors that were a hindrance to good hygienic practices as part of their KAP study objectives. One of the objectives of this particular study was to identify the factors hindering good hygienic practices. This objective was necessary because identification of these factors led to the understanding of why respondents exhibited various levels of knowledge, attitudes and practices with regards to water, sanitation and hygiene issues.

The literature also revealed that the PHAST approach to community education was found to be the most effective educational strategy. This information helped to differentiate the type of educational strategies that were being used in the education of the Buntungwa clinic catchment area community from the PHAST approach. Furthermore, literature also revealed that the content of health education targeted behaviours that yielded maximum health benefits. This helped the researcher to focus attention on certain aspects on which respondents' knowledge was assessed and attitudes and practices were explored during the study. The last but not the least issue was that the combination of health education and support services for practising good hygienic behaviours complemented each other in issues of water, sanitation and hygiene. In fact, health education was found to be more cost effective than other water and sanitation sector investments. This information would guide stakeholders on how best they can provide community-based health and hygiene education in the most effective and sustainable manner.

## **CHAPTER THREE: METHODOLOGY**

### **3.1 INTRODUCTION**

This chapter outlines aspects of the methodology of the study. These include: research design, target population, study sample, data collection methods and instruments and data analysis and presentation.

### **3.2 RESEARCH DESIGN**

The study employed a mixed design: a case study and a survey. A case study is an in-depth study of a particular unit, in context and holistically. This unit can be a person, an institution or a residential area. In a case study, the units to be studied are purposively selected basing on the initial information surrounding that particular unit (Gosh 2002). With the Buntungwa case, it was learnt that the area had been for the past three decades experiencing a lot of water, sanitation and hygiene related diseases despite many years of health and hygiene education. Because of this kind of background, the Buntungwa clinic catchment area was purposively selected for this study in order to asses the residents' levels of knowledge, explore their attitudes and practices regarding water, sanitation and hygiene related diseases. This catchment area was divided into nine (9) zones and in each of these zones, there were many households.

A survey is a process by which facts are collected about the social aspects of a community's position and activities. This research design requires the use of sampling from a population (universe) which is being studied in detail (Gosh 2002). In this study, a survey design applied in that sampling procedures were used to select one zone out of nine and also in the selection of the one hundred (100) households from that selected zone. This was necessary because it was not feasible to firstly include all the nine zones in the study and secondly to involve all the households in the selected zone.

The survey design was used in this study because of its usefulness in capturing and describing the characteristics of a large population. It was also chosen because it made handling of a large sample of 100 households feasible. In addition, the design provided

for flexibility in that the questionnaire items were both closed and open ended making them quantitative and qualitative in nature. Furthermore, by asking many questions, direct and adequate information was collected from the sample population. Finally, the survey also allowed for the generalisation of the findings upon a larger population from which the sample was drawn. This generalisation may also be extended to other communities that have similar characteristics within the Buntungwa catchment area and beyond.

**3.3 TARGET POPULATION**

The population of the study comprised residents of Buntungwa clinic catchment area in Mansa District. This population included both male and female teenage and adult residents from all the nine zones of the catchment area. There were a total of about seven thousand nine hundred and twenty nine (7,929) households in the area. Teenagers were included because of the role they play in helping adults with household chores. The inclusion of both male and female adults was necessary because matters of water, sanitation and hygiene are a responsibility of both sexes.

**3.4 STUDY SAMPLE**

Buntungwa catchment area is divided into nine (9) zones and covers a wide geographical area of 36 kilometres in radius. Table 3 below gives a representation of the area and the number of households in each zone:

Table 3: Zones and Households

Zone	Number of Households
1. Suburbs	839
2. Dasto	1068
3. Chinanda	1725
4.Sumbu	2800
5. Fibale	1011
6. Masaba	225
7. Mwikula	109
8. Mfungausi	42
9. Chintende	110
Total	7,929

Including all the outlined households in the area was going to prove difficult due to time, financial and human resource constraints. To this effect, the sampling process was employed to arrive at a representative and manageable sample size. Four sampling techniques which were employed included; simple random for the selection of zones, systematic random sampling for selecting households, purposive sampling in the selection of key informants and typical case sampling for selecting focused group discussants.

To start with, simple random sampling procedure was employed to select one zone out of the nine. This was done by writing names of the nine zones on nine pieces of paper. These pieces of paper were put in a tin which was covered with a lid. Then, the tin was shaken so as to thoroughly mix the papers. This was meant to minimise any form of bias. An independent person picked one piece of paper from the tin. The name of the zone that was written on the piece of paper that was picked from the tin represented the zone from which the study sample was to be drawn. Zone two (2) was randomly selected. After knowing the number of the households in Zone 2 which was one thousand and sixty eight (1068), a sample size of one hundred households was decided upon. These were selected using the systematic random sampling technique and the formula for this technique is indicated below:

$$K = \frac{N}{n}$$

Where: K is the sampling interval  
N is the size of the population (in this case the population is from the selected zone which is 1068).  
N is the size of the sample (in this case the sample size is 100)

Zone two (2) was selected. Hence

$$K = \frac{1068}{100}$$

$$K = 10.6$$

$$K = 11$$

From the calculations above, the sampling interval was 11. This meant that the starting point was any house between the first house and the eleventh one and in this case the number 6 was randomly picked as the starting point. Therefore, every eleventh house from 6 was selected for the sample until a total of 100 households were arrived at.

Simple random sampling (lottery method) technique was used to select one zone out of the nine in order to remove all forms of biases. Later, the systematic random sampling procedure was used to evenly spread the sample throughout the entire zone. This avoided selected respondents from certain social clusters because people have a tendency to group themselves in religious, ethnic, socio-economic and other social patterns.

With Purposive sampling procedure, sixteen information-laden individuals working in offices related to water, sanitation and hygiene issues in Buntungwa clinic catchment area were selected. These included; the Buntungwa clinic Environmental Health Technician, Mansa District Environmental Health Officer, Chairperson of the D-WASHE committee, Mansa Municipal Council Water Engineer ( Deputy Director for water and sanitation), two Mansa Municipal Council District Health Inspectors, ten Buntungwa Clinic Neighbourhood Health Committee members. However, only five from the ten targeted Buntungwa Clinic Neighbourhood Health Committee members were interviewed. This meant that only eleven key informants out of the sixteen targeted participated in the study.

Typical case sampling procedure was applied to select the four focused group discussants. This is a procedure which involves one or more typical cases (individuals, families/households) to provide a local profile. The typical cases are carefully selected with the cooperation of local people or extension workers (Kombo & Tromp 2006). In this study, the local community leadership provided four lists of eight members each to constitute focused group discussion teams bringing the total number to thirty-two.

### **3.5 DATA COLLECTION METHODS AND INSTRUMENTS**

In this study, four data collection methods with their respective instruments were used. These included the survey questionnaire method with the questionnaire as the instrument, the unstructured interview method which used the unstructured interview guide, structured observation method where an observation checklist was used and the focused group discussion method with the focused group discussion guide.

#### **3.5.1. Survey Questionnaire:**

The survey questionnaire is a data collection method which uses a questionnaire to collect information from a large study sample of respondents from a specified population. A questionnaire is a form designed to collect information from a specified sample of respondents through a series of systematically compiled and organised questions (Sidhu 2003). In this study, a semi-structured questionnaire which is a specially designed form with closed and open ended questions was used to collect data from a study sample in Buntungwa clinic catchment area.

Open ended questions allowed for flexibility where respondents were free to express their own opinions rather than them selecting from pre determined responses only. The questionnaire was administered to the respondents by the researcher. The administration of this questionnaire was helpful enough to accommodate respondents who could not read and write. In addition, administering the questionnaire reduced questionnaire spoilage rate and loss.

#### **3.5.2. Unstructured Interview**

Unstructured interview is a method of data collection in which flexibility is exercised as the questions and answers are not predefined by the researcher. However, the researcher has some idea in mind of the topics to be covered and may use some topic lists as a reminder although there is minimal control over the order in which the listed topics are covered (Kombo & Tromp 2006). The un-structured interview method was chosen for the study because it enabled the researcher to ask further questions beyond what was already on the list thereby accommodating various personal views from different

respondents. In addition, it provided for clarification of meaning from received responses. The unstructured method used the interview guide. This interview guide constituted a list of topics that were explored in detail during the interview. The researcher posed a question based on the listed topics and the interviewee was allowed to answer and explain while the researcher noted down relevant points. The interview guide was used to collect data from key informants. These included Buntungwa clinic Environmental Health Technician, Mansa District Environmental Health Officer, Chairperson of the D-WASHE committee, Mansa Municipal Deputy Director for water and sanitation, two Mansa Municipal Council District Health Inspectors, Buntungwa Clinic Neighbourhood Health Committee members and Buntungwa Clinic Clinical Officer.

### **3.5.3 Focused Group Discussion (FDG)**

The focused group discussion is another data collection method used in this study. This method is applied on a group of participants which is specially constituted in terms of purpose, size, composition and procedures and is usually composed of 6 to 12 homogenous individuals who share certain characteristics which are relevant to the study. For example, members of this group can be similar in age, educational level, gender, profession and many more such as shared place of residence (Kombo & Tromp 2006). In this study, adults who shared the same residence were selected as focused group discussants. Typical case sampling procedure was used to select the four FDGs. The FDG was especially useful to gain insight of the discussants' opinions with regards to knowledge levels, attitudes, practices and factors that influenced good hygienic practices.

The FDG method used a focused discussion guide as the instrument for data collection. This guide is a list of points about a particular topic which the researcher uses to stimulate, control, explore in detail and sustain a discussion. In this study four focus groups were met at different times. During each session, a topic on water, sanitation and hygiene and factors that influenced good hygienic practices was introduced by the



researcher. Focused group discussions contributed to the item under discussion as the researcher took notes and tape recorded the discussions.

#### **3.5.4. Structured Observation**

This is a tool that provides information about actual behaviour of people. The focus is on a small number of specific behaviour patterns and only those appearing on the predefined checklist are recorded. Observation provides more accurate information. It gives an opportunity to the observer to obtain first-hand data rather than that which are filtered through the thoughts and opinions of others. Where this is done correctly, the process reduces biases and distortions. Observations mirror situations, as they really exist (Kombo & Tromp 2006; Sidhu 2003). Observation technique was chosen for the study because it provided information complimentary to the oral answers given by respondents through the questionnaire. It has been observed that respondents many times gave answers to impress the researcher.

A structured observation checklist was used as an instrument for capturing data.

The checklist is a list of items that serve as a guide to the researcher on what aspects to observe. In this study, what were being observed among Buntungwa clinic catchment area residents were practices regarding water, sanitation and hygiene. The researcher completed the checklist by observing for the availability and non-availability of certain facilities such as hand washing facilities near latrines (soap and water), appropriate water storage containers which were covered, presence of rubbish pits, presence of latrines and their appropriate location from water wells. The checklist also included items to observe for cleanliness of latrines and garbage around the houses.

### **3.6 DATA ANALYSIS AND PRESENTATION**

In this study data was collected and analysed using both quantitative and qualitative methods. Data collected using a questionnaire and an observation checklist were analysed quantitatively by means of the Statistical Package for Social Sciences (SPSS) and this was presented using bar graphs, tables, and pies charts. On the other hand, data that was collected through focused group discussions and unstructured interviews was

analysed qualitatively by categorizing the information into themes. The analysed data was then presented descriptively.

### **3.7 LIMITATIONS OF THE STUDY**

This study was characterised by a few limitations. Firstly, the study could not be extended to other health clinic catchment areas in Mansa district because there was very limited time available in which to conduct and conclude the study as dictated by the University calendar. Field work, data analysis and report writing had to be completed within nine (9) months.

Another limitation was that despite respondents being initially encouraged to give honest responses during the data collection sessions, some of them gave answers to impress the researcher. This might have affected the quality of information collected. However, this limitation was to some extent addressed by the researcher's use of triangulation data collection method which involved questionnaire, observations, focused group discussions and unstructured interviews.

The third limitation was that although both genders were involved in this study, the sampling was not proportionately done. Doing so could have added more information in order to understand practice disparities between male and female respondents. However, comparison between male and female respondents' practices was made on appropriate hand washing.

## **CHAPTER FOUR: PRESENTATION OF FINDINGS**

### **4.1 INTRODUCTION**

This chapter presents the findings of the study from the data that was collected through the questionnaire, unstructured interviews, structured observation and focused group discussions. However, before the findings are presented, biographical data for the 100 respondents, one from each household is briefly presented. As already mentioned in the previous chapter, the questionnaire was administered on these respondents from the selected zone in Buntungwa clinic catchment area. Teenagers and adults, both male and female from different socio-economic backgrounds were interviewed. In addition, unstructured interviews were held with eleven key informants. Four focused group discussions were held with selected members from the community. Structured observations were conducted to assess availability and non availability of facilities and their utilisation.

As earlier stated, the objectives of the study were to establish the knowledge, attitudes and practices and to determine the factors that influenced these aspects among members of Buntungwa clinic catchment area from the selected zone. In order to achieve these objectives, knowledge, attitudes and practices of the respondents were assessed and explored basing on the key factors that were perceived to have a major impact on health. Evan et. al. (2004) state that the key factors that have significant impact on health include sources of water supply, water storage, treatment of drinking water, hand washing at critical times, waste disposal, excreta disposal and ‘water, sanitation and hygiene’ related diseases.

### **4.2 BIOGRAPHICAL DATA**

The targeted population comprised a total of 100 households drawn from the selected zone. 100 respondents, one from each household, were interviewed. Out of 100 respondents, 29% were males and 71% were females. Sex was an important factor in this study because it provided for a comparison between males and females regarding attitudes towards appropriate method of hand washing. Another factor of importance to

this study was employment status of the heads of house holds. Out of 100 heads of households, 10% were in formal employment, 61% were informally employed while 29% were unemployed. Employment in this regard was a critical factor because it served to give a clear picture about the socio-economic status of households. Attitudes and practices are mostly influenced by people's socio-economic status in relation to their type of employment. Ahmed (2000) revealed that there was a relationship between poverty and good sanitation and hygienic practices. For example, people may not use soap to wash their hands at critical times because they may not afford to buy soap.

### **4.3 KNOWLEDGE, ATTITUDES AND PRACTICES**

In order to assess the respondents' knowledge and explore their attitudes and practices and also establish factors influencing these aspects, a number of questions were asked on various important issues related to water, sanitation and hygiene.

#### **4.3.1 Knowledge**

The assessment of respondents' knowledge was based on the knowledge they had about protected wells, appropriate distance between a water well and a pit latrine, appropriate water storage container, treatment of drinking water, covering of water, hand washing, garbage disposal, excreta disposal, water, sanitation and hygiene related diseases.

##### **a) Protected Wells**

The majority of the respondents exhibited little knowledge regarding protected wells. Only 20% of the respondents knew what a protected well was. In essence, a fully protected well is one lined with 23 concrete rings, has an apron and is covered. This prevents underground pollution from pit latrines, sewage and garbage dumps as well as pollution from surface water. Most of the respondents represented by 80% did not have sufficient knowledge pertaining to what a protected well was. These people thought that as long as a well had a concrete slab or an apron and had the opening covered, it was considered as being protected. When asked as to what the source of their water supply was, 45% of the respondents said they drew their water from protected wells. Meanwhile the water engineer and the health workers interviewed revealed that there

were very few protected wells in the community. However, the environmental health technician from Buntungwa clinic disclosed that the health centre had helped the community to construct sixteen (16) wells with only 3 rings in each well and this meant that these were not fully protected.

Below are pictures of two types of unprotected wells taken from the community. On the left is a well with a concrete slab and a cover, but the well was only lined with three (3) rings. On the right, is another unprotected well with no concrete slab and the pit is not lined with concrete rings.

Fig. 2: Pictures Taken From the Community Showing Unprotected Wells



#### b) Recommended Distance of Water Wells from Pit Latrines

The majority of the respondents expressed ignorance on the recommended distance of the water well from a pit latrine. Only 15% of the respondents gave the correct answer while 85% gave incorrect answers. It is for this reason that when respondents were asked whether they were satisfied or dissatisfied with their water sources and to give reasons for their responses, none of them mentioned or even hinted about the possible contamination of their water sources since the latrines were too close or were built on a higher side of the slope than the water wells. From the above, it was concluded that the respondents had low knowledge about ground water pollution was. Furthermore, they did not demonstrate adequate knowledge about the recommended distance between a water well and a pit latrine.

c) Appropriate Water Storage Containers

The finding of this study was that knowledge about the use of 20 litre plastic containers as the appropriate water storage facility was average. This meant that 50% of the respondents had knowledge about this water storage facility. A number of reasons were given for considering the twenty litre container as appropriate. The main ones were that children could not easily access and play with water because the container had a lid that could not easily be unfastened. In addition, the small mouth of the container reduced the chances of water being contaminated through dipping water scooping utensils.

d) Treatment of Drinking Water with chlorine

Respondents had enough knowledge about treatment of drinking water and when asked why water should be treated, 94% of them gave correct answers, prominent of which was to kill harmful bacteria that could cause cholera. Only 6% did not give the correct answers. The responses showed that the respondents had enough knowledge about cholera which they were very familiar with. According to the health practitioners, the Buntungwa clinic health catchment area had often been experiencing cholera outbreaks. Respondents in the study area had often experienced these outbreaks. Most of the respondents collected water from unsafe water sources.

e) Covering of Drinking Water

Concerning covering of water, 98% of the respondents gave correct answers as to why water should be covered. The main reason they gave was that covering drinking water prevented dirt and other things such as insects from contaminating the water. Only 2% did not give correct answers why water should be covered.

f) Hand Washing

Knowledge concerning hand washing was very high among the respondents. All the respondents gave the correct answer why it was important to wash their hands at critical times; which was basically to remove dirt and germs from the hands. Others further indicated that they wanted to be safe from contracting infectious diseases such as cholera.

g) Washing Hands by Pouring Water

Washing hands by pouring water is the most appropriate method recommended in the health sector because dirt runs down with the water. In this study, out of the 100 respondents, 60% gave correct reasons why they washed their hands using this appropriate method. The main reason given for using it was; to wash dirt away by avoiding washing in the same dirty water, and this prevented infecting other people with diseases. However, 30% of the respondents did not give correct answers.

h) Garbage Disposal

Most of the respondents (70%) answered correctly concerning waste disposal in a designated place hinged on appearance of the yard. They said that a yard that was littered with garbage did not look tidy especially to visitors. Only 30% of the respondents associated garbage littering with possible ground or field contamination.

i) Excreta Disposal

Although no technical answers were given, most of the respondents (72%) associated indiscriminate excreta disposal to the transmission of diarrhoea diseases and cholera in particular. Prevention of disease transmission was the main reason given for disposal of faeces in the latrine. However, 28% of the respondents' concern was the bad smell and bad appearance and that they feared to be labelled as being 'untidy' by their fellow community members. When asked whether children's faeces were harmful, 66% said "no" while 34% said "yes." It was then clear that most respondents did not know that children's faeces were as harmful as those of adults. Table 4 on the next page presents the findings regarding knowledge of respondents on aspects of ; protected wells, recommended distance of water wells from pit latrines, treatment of drinking water, covering of water and handy washing, run-to-waste method, waste garbage disposal, excreta disposal and children's excreta.

Table 4: Knowledge Areas Assessed and Number of Respondents with Knowledge in the Areas.

Assessment Area	Respondents with Knowledge		Respondents without Knowledge	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Protected wells	20	20	80	80
Recommended distance of water wells from latrines	15	15	85	85
Treatment of drinking water	94	94	6	6
Covering of drinking water	98	98	2	2
Hand washing	100	100	0	0
Run-to-waste method of washing hands (washing hands by pouring)	60	60	30	30
Waste/garbage disposal	30	30	70	70
Excreta Disposal	72	72	28	28
Children’s Excreta	34	34	66	66

k) Knowledge about Water, Sanitation and Hygiene Related Diseases

To assess the knowledge levels on water, sanitation and hygiene related diseases, the respondents were first asked to state if any of their family members had suffered from any of these: malaria, diarrhoea, bilharzia, acute respiratory infections, ‘scabies and skin diseases’, eye infections, and other diseases within the last three months. The respondents indicated that they and their family members suffered mostly from malaria, diarrhoea and eye infections as compared to the other diseases. Table 5 on the next page sheds more light on these findings:



Table 5: Diseases Suffered By Family Members in the Last Three Months As Indicated By Respondents:

Diseases	Number of respondents indicating diseases.
Malaria	74
Diarrhoea	55
Eye infections	34
Scabies	23
HIV& AIDS	8
Respiratory infections	7
Bilharzia	4

In order to test the respondents’ level of knowledge on disease prevention at household level, respondents were allowed to mention several ways of disease prevention. Out of the 100 respondents, 49% mentioned keeping clean, 48% said using safe drinking water, 28% stated the use of clean pit latrines, 49% said by following health advice, 30% mentioned washing hands and good personal hygiene, 63% indicated the use of mosquito nets while 21% mentioned environmental cleanliness.

Table 6: Disease Prevention

Preventive measures	Number of respondents indicating preventive measures
Use mosquito net	63
Keeping clean	49
Follow health advice	49
Use safe drinking water	48
Wash hands and personal hygiene	30
Use clean latrine	28
Environmental cleanliness	21

From the above responses, the knowledge level was average on malaria and low on other illnesses. A large proportion of respondents (63%) mentioned the use of the mosquito

nets for prevention of malaria. Less than half the number of the respondents mentioned other measures of protecting themselves from the illnesses. The least number of responses mentioned concerned environmental cleanliness.

As for knowledge concerning causes of diarrhoea, respondents were allowed to answer freely while the researcher was recording responses in the questionnaire appropriately. Table 7 gives a summary of the respondents’ responses on causes of diarrhoea.

Table 7: Causes of Diarrhoea

Causes of Diarrhoea	Number Of Respondents With Knowledge
Not washing hands before handling food	73
Unsafe water	75
Not washing hands after using the toilet	56
Eating unheated left over food	60
Flies	38
Improper disposal of faeces	25
Unnecessary hand shakes	1
Other cause: High temperatures	98

The finding on this aspect was that knowledge concerning most of the causes of diarrhoea was found to be very low amongst the respondents. Although most of the respondents mentioned ‘not washing hands’ (56%) and ‘eating unheated left over food’ (60%), very few were able to mention flies, improper disposal of excreta and unnecessary hand shakes as the other causes of diarrhoea.

When asked about other causes, almost all respondents (98%) mentioned hotness as one of the causes of diarrhoea. With regards to signs and symptoms of diarrhoea, almost all the respondents (98%); mentioned passing watery stool but faired very low on other signs and symptoms. Table 8 summarises the responses on the signs and symptoms of diarrhoea.

Table 8: Signs & Symptoms of Diarrhoea

Signs & symptoms of Diarrhoea	Number Of Respondents With Knowledge
Passing watery stool	98
Weakness and apathy	35
Fever	20
Dehydration	10
Vomiting	8

When respondents were asked about their sources of health messages, 85% cited health centres/clinics, 20% school, 47% community meetings, 40% radio, 6% posters, 16% family members, 15 % friends and 25% got their messages from village chiefs.

Table 9: Sources of Health Messages

Sources of Health Messages	Number Of Respondents Indicating Their Sources Of Health Messages
Health centres/clinics	85
Community meetings	47
Through the Radio	40
Village chiefs.	25
School,	20
Family	16
Friends	15

Interviews with health workers revealed that no water and sanitation promotion activities had been carried out in the community for a long time. Sensitisation activities only took place when there was an outbreak of cholera and during the Chiefs’ village inspections for general cleanliness and up keep. Such inspections only took place once every year. From interviews, it was also revealed that the village WASHE committee was inactive.

At the time of the study, there were only approximately four members of V-WASHE. It was reported that most of them had left due to lack of motivation. They lacked the means to help them execute their activities and were not supported by health workers.

One health worker said the reason why they did not visit the V-WASHE committee frequently was because of inadequate staff at the health centre. The fact that came out here was that sanitation and hygiene promotion was not carried out continuously to sustain behavioural change.

#### l) Factors Influencing Respondents' Knowledge

A number of factors influenced knowledge of the respondents. The first one was lack of effective environmental health education. The fact that the respondents could not associate litter with ground water pollution and location of toilets close to wells with ground water contamination meant that the community was not adequately guided in technical details and received no education on these aspects. The mode of delivery of health education was not effective in that it was non-participatory; the health worker talked and the people listened. This education was given to people who had gone to the clinic to seek treatment or had escorted a sick relative. The same education was also organised in an environment which was not conducive to learning. Effective health education could lead to increased knowledge level in disease prevention. The second one was inadequate community based sanitation and hygiene promotion activities. The irregular promotion of water supply, sanitation and hygiene activities was inadequate to sustain community knowledge in these areas.

The third influencing factor was the inactive Village WASHE committee. The V-WASHE committees were expected to be conveyors of health messages at community level. Apart from giving hygiene education and promotion, V-WASHE committees checked whether community members had latrines which were clean, rubbish pits, among other things. Their inactivity contributed to the cited low knowledge levels. However, V- WASHE committee members could only continue their work with support from health workers through regular visits, provision of materials and training.

The fourth factor was the health education strategy. For most community members, the source of health messages was the clinic. However, this was usually inappropriate as it was targeted at the sick and subjects were picked at random, mainly on causes,

symptoms and prevention of specific diseases. In most cases, only the health worker was speaking with little participation from the audience. A better strategy was to conduct health education in the community on subjects relevant to the local situation using participatory methods.

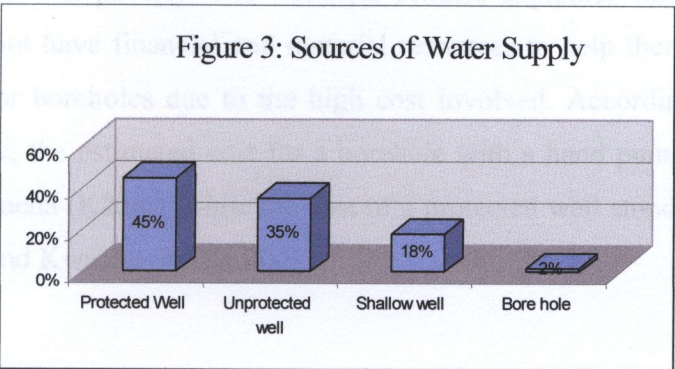
The other factor was lack of continuous support from the health centres. The lack of frequent visits by health centre staff to the community meant that there was a break in the flow of health information from the health care system to the community leading to lapses in the knowledge levels.

4.3.2 Practices

Respondents’ practices were assessed basing on what they actually did concerning the essential aspects of their knowledge and attitudes.

a) Drawing Water from Unsafe Sources

When asked about the type of water sources they drew their water from, 45% of the respondents mentioned protected wells, and only 2% said they drew their water from boreholes. The rest indicated that they drew theirs from unprotected sources (18% from shallow wells, and 35%from unprotected wells). Although most respondents said they drew their water from protected wells, the situation on the ground was that almost all of the respondents drew their water from unsafe sources. Earlier, it was discovered that most respondents thought of any well with a concrete slab and cover to be a protected well.





There was poor practice with regards to drawing of domestic water. Below are pictures of the most common wells which were being used in the community. On the left is a picture of a community member drawing water and on the right is a well with the container and rope for abstracting water lying on the ground.

Figure 4: Commonly Used Wells.



There were many factors which influenced the use of unsafe sources of water. The first one was non-availability of adequate protected wells in the area. According to the health practitioners, the health centre responsible for the community helped to construct only sixteen (16) wells and even these were not fully protected. They only had one ring. As already alluded to earlier, a fully protected well should have concrete rings lining the pit all the way down. According to the water Engineer, there were only three boreholes that were constructed under ZAMSIF programme which could be regarded as protected water sources.

The second factor was poverty. The technical officers explained that members of the community did not have financial and material resources to help them construct either protected wells or boreholes due to the high cost involved. According to the EHT of Buntungwa clinic, the estimated cost for a borehole with a hand pump was at Twenty-Two Million Kwacha (K22m), while the cost of a protected well stood at Four Hundred and Fifty Thousand Kwacha (K450, 000).



The third factor was: Inadequate water supply during the hot dry season. The EHT explained that the community had a problem with regards to water supply during certain periods of the year. Most water wells dried up during the dry season (from about July to early November). During this period, people woke up as early as 05:00hours to queue for water at the few wells that did not dry up. Still, they had to wait for some hours for water to re-collect after each person had drawn. According to the EHT, some residents were forced to draw water from the streams during the dry season. This was confirmed during the Focused Group Discussion. The FGD members disclosed that because of the scarcity of water during this period of the year, water for washing plates, clothes and bathing was collected from streams and unprotected springs. Below is one of the springs that did not dry up during the dry season. Although this spring provided water for the community members during the dry season, it was liable to contamination as water spillages ran right back into the spring.



Fig. 5: A Community Member (seated) showing the Researcher One of the Un-Protected Springs That Did Not Dry up during Hot Dry-Season.

The fourth factor was: Distance to safe water sources. 12% reported walking time of more than thirty minutes to get to a water source. FDG members disclosed that not every household had water well of their own. Some households drew water from their neighbours' wells. The FDG members, further, explained that some well owners charged a fee for drawing water from their wells. Water obtained in this way was likely to be used sparingly meaning that, some hygienic behaviours, like washing of hands by pouring more water were not likely to be done.

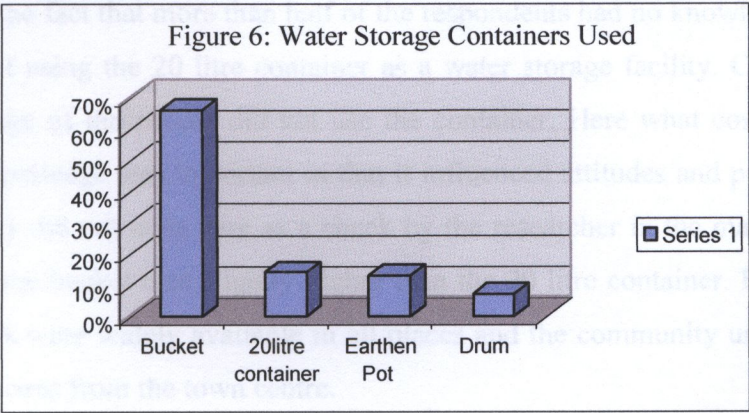


b) Digging Water Wells too Close to Pit latrines

Just like it was found that most of the respondents had little knowledge concerning the appropriate distance of the latrine from the water well, most of the water sources visited represented by 41% were found to be less than 30 metres from the latrine. There was poor practice concerning this issue. Two factors were found to be responsible for this poor practice. The first factor was inadequate technical knowledge on the standards and specification for constructing wells and latrines: This was evident as only 15% of the respondents gave the correct answer to questions regarding the appropriate distance between water well and a pit latrine. The second factor was inadequate space to build wells at appropriate distance from pit latrines and other sources of possible ground water contamination: This was partly due to the fact that the settlement was underdeveloped. The houses were too close together to allow for provision of social amenities like water supply and sanitation facilities in accordance with the approved standards.

c) Storage of Drinking Water in Inappropriate Containers

There was poor practice with regards to storage of drinking water. Only 14% of the households stored their water using an appropriate container contrary to the fact that 50% of the respondents claimed to know the benefits of storing water in the appropriate container (the 20 litre plastic container). 66% of the respondents said they stored their water in buckets, 14 % in 20 litre plastic containers, 13% in earthen pot and 7% in drums. The chart below summarises the findings about storage of water.





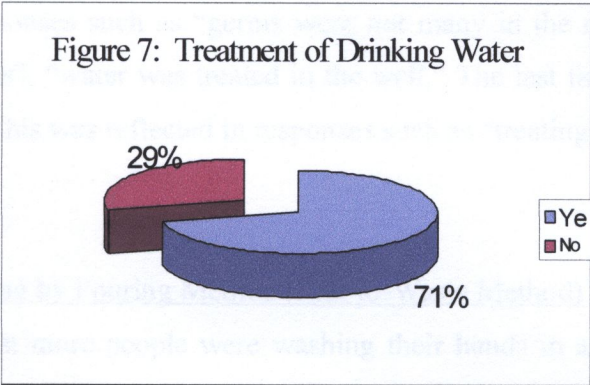
An appropriate container in this context refers to a small mouth container, which does not allow the dipping of utensils like cups, plates, pots and other utensils to collect water from it. This characteristic reduces the chances of the stored water from being contaminated by the utensils as well as fingers of the users while trying to get water from the storage container using the abstraction utensil. The 20 litre plastic container in this case is the appropriate container. Apart from having this characteristic, the 20 litre container makes it easy to treat water with chlorine as its content corresponds with the chlorine measurements for water treatment. Further, the 20 litre container has a tight fitting lead which prevents recontamination. Additionally, tightly closed containers reduce volutisation which makes chlorine disinfectant to provide residual protection for many hours to days.

The factors that predisposed respondents to storing water in inappropriate containers included negative attitudes and lack of knowledge regarding the benefit of the 20 litre container. Negative attitude as a factor was evident from the fact that most of the respondents preferred using the bucket to the 20 litre container. The preference could have arisen from the fact that drawing water from a well and pouring it into a 20 litre container was not easy. This was due to the container's narrow mouth which meant most of the water would be spilled.

Lack of knowledge regarding the benefit of the 20 litre container was as factor was evident from the fact that more than half of the respondents had no knowledge regarding the benefits of using the 20 litre container as a water storage facility. Consequently, a huge percentage of the people did not use the container. Here what comes out is that sometimes knowledge was important in that it influenced attitudes and practices. Issues of affordability did not arise here as a check by the researcher in the market and shops revealed that the bucket cost slightly higher than the 20 litre container. Besides, the 20 litre containers were widely available in all places and the community under study was only 10 kilometres from the town centre.

d) Treatment of Drinking Water

Regarding water treatment, 71 % of the respondents said they treated their drinking water with chlorine while 29% said they did not. Although a good percentage of respondents said they treated their water, it was doubtful whether they did so. This was so because most of the respondents stored their water in buckets. It was very difficult for anyone to know the exact amount of chlorine that could be put in the water in the bucket more especially that most of, if not all, buckets' capacity was not known.



Water treatment was not adequately practiced. What was on the ground was that the people said what they thought the researcher wanted to hear. For those who did not treat their water, many reasons were given. Table 10 presents the reasons.

Table 10: Reasons for Not Treating Water

Reasons For Not Treating Water	Number Of Respondents Cases (n=29)
No money to buy chlorine	13
Not used to treating water	6
The water was trusted as it was	6
Treated water tasted bad	1
Water was treated in the well by adding chlorine	1
Germs were not many in the cold season	1
Treating the water was a waste of time	1

Not having money to buy chlorine was mentioned more frequently than other reasons. However, a bottle of chlorine did not cost much. At the time of data collection the cost was One Thousand Kwacha (K1, 000=00), and one bottle of chlorine could be used to treat many litres of water. To this effect one of the Factors that influenced treatment of water was: perceptive poverty. The respondents perceived themselves as too poor to afford to buy chlorine. Another factor was; Inadequate hygiene promotion to be able to change peoples’ behaviour. In the reasons given some respondents put it very clearly that they were not used to treating water. The other factor was: Ignorance. This was reflected in the responses such as “germs were not many in the rainy season,” “water was trusted as it was”, “water was treated in the well,” The last factor in category was: Negative attitude. This was reflected in responses such as “treating of water was a waste of time”

e) Hand Washing by Pouring Method (Run-to-Waste Method)

The study found that more people were washing their hands in a basin as opposed to washing hands by pouring. Out of the 100 respondents, 43% of the respondents said they washed their hands by pouring water while 57% said they washed their hands in a basin. The reasons that were advanced for washing hands the way they did it are given in Table 11 below.

Table 11: Reasons Given For Washing Hands in a Basin and by Pouring Method

Reasons Given By Those Who Washed Hands From A Basin	Reasons Given By Those Who Washed Hands By Pouring
<ul style="list-style-type: none"><li>• Because they only have a basin</li><li>• Could not afford a jar</li><li>• Easier to use</li><li>• Easier to wash hands</li><li>• Fear to waste water</li><li>• Did not waste a lot of water</li><li>• That was what they know</li></ul>	<ul style="list-style-type: none"><li>• Avoided contracting diseases</li><li>• Avoided infecting others</li><li>• Because it was safe</li><li>• They were taught at the health centre</li><li>• Easier to clean</li><li>• Effective way of removing dirt</li></ul>

Meanwhile 60% of those who had knowledge regarding the benefits of washing hands by pouring was higher than the percentage of respondents who washed hands using the run-to-waste method which was represented by 43%.

One of the factors that were found to negatively influence hand washing using the appropriate method was inadequate hygiene promotion necessary for behaviour change. Most behaviour needed to be reinforced and sustained over time at least until they became social norms. The implication here was that hygiene promotion should have been continuous in order to sustain behaviour change. In Zambia, washing of hands by pouring method was a relatively new behaviour to most communities and the community under study in particular. It was imperative, therefore, that there was regular hygiene promotion to motivate the people to adopt this behaviour.

The other factor was scarcity of water especially in the hot-dry season: This negatively influenced the attitudes and, consequently, practices of the people. The FDG members made it clear that washing by pouring water was not economical on water. Responses elicited by the questionnaire too brought out this concern. The third factor was lack of knowledge regarding washing of hands by pouring water: As already mentioned, the study established that 30% of the respondents did not know about the technology. The last factor was the difficulty posed to use the method when one was alone: This was a hindrance to the adoption of the practice. If washing of hands by pouring method proved difficult (and the users suggested so), they were not likely to use the method. This was the finding that strongly came out here.

f) Hand Washing at Critical Times

As regards washing of hands at critical times, it was found that this practice was done mostly before eating (85%), after eating (75%) and after using the toilet (76%). The washing of hands before preparing food was quite low (20%), before drawing water (6%), after doing work (4%), after burial (4%) and always whenever hands were dirty. Table 12 gives a summary of these responses.

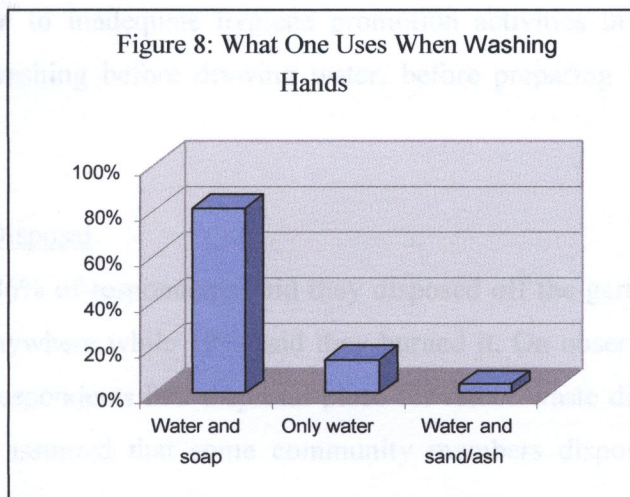
Table 12: Washing of Hands at Critical Times

Critical Times When Hands Should Be Washed	Number Of Respondents Indicating Critical Times When They Wash Hands
Before preparing food	20
Before eating	85
After eating	75
After going to the toilet	76
After disposal of children’s faeces	24
Before drawing water	6
After doing work	4
After burial	4
Always when my hands are dirty	5
Others	0

From the responses, it was clear that more respondents washed their hands before eating, after eating and after using the latrine. Washing of hands before preparing food, before drawing water, after disposal of children’s excreta, after work, after burial and whenever hands were dirty, was rarely done. Although a bigger percentage (76%) of respondents indicated that they washed their hands after latrine use, no hand washing facilities were observed near latrine facilities. This observation brought to light the fact that there was a possibility that a large number of respondents did not wash their hands after using the latrine. This was another situation where respondents said what they thought the researcher wanted to hear.

When respondents were asked what they used to wash their hands with, more than half the number (67%) of the respondents said they washed their hands with soap and water. This was encouraging. Figure 8 is a graphical presentation of people’s washing hands using water and soap, water only and water and sand or ash.





However, the percentage of people who did not use soap was quite high (33%). The number could be higher than this given the fact that no soap was observed near latrines or in bath shelters for the purpose of hand washing. The truth was that most of the households could not afford soap. Interviews and Focused Group Discussion raised this concern. They said that the majority of the heads of the households could not afford to buy soap due to financial difficulties. This finding was complimented by the findings in the biographic data that only 10% of the heads of the household were in formal employment. The members of the FDGs further said that soap was mainly reserved for washing clothes and bathing.

Several Factors that were found to negatively influence washing of hands with soap at critical times were unearthed. The first factor was: Limited economic status of the community- given that only 10% of the heads of household were in formal employment. Hand washing required some minimum of investment into the purchase of soap. The second one was: Lack of knowledge concerning dangers of children's excreta- regarding this aspect as already found out, a large percentage (66%) of the respondents did not know that children's faeces could be as dangerous as adults faeces: Meaning that they too could transmit diseases. This misconception greatly negatively influenced the practice of washing hands with soap after handling children's excreta. Culture had to do with much of the belief that children's faeces were harmless. The third factor was: Lack

of motivation due to inadequate hygiene promotion activities in the community- in particular hand washing before drawing water, before preparing food, after handling children’ faeces.

g) Garbage Disposal

From the study, 86% of respondents said they disposed off the garbage in rubbish pits, 5% disposed it anywhere while 10% said they burned it. On observation, it was found that 68% of the respondents had a special place for refuse/waste disposal and 32% did not. It could be assumed that some community members disposed off their refuse indiscriminately.

The major factor behind this practice was mainly negative attitude. Most families could easily dig their own pits without having to pay someone to do it for them. The pit did not need any special resources like cement. In fact, at the time of data collection, the researcher found a number of community members digging pits. In addition, the researcher observed that there a number of recently dug up pits. Upon inquiry, it came to light that the people were preparing for the chief’s annual visit the following day. There was a rule that any one found not to have, among other things, no rubbish pit was fined a chicken.

h) Use of Latrines by Children

When asked if all the children of their household used the latrines/toilets, 54% of the respondents said “yes” and 46% said “no.” Some reasons were advanced towards the non use of latrines by children. Each respondent was allowed to mention as many reasons as possible. It transpired that all of the respondents who said children of their household did not use the latrine advanced the reason that the hole of the pit latrine was too dangerous to the children. Table 13 below summarises the reasons given why children did not use latrines.



Table 13: Reasons Given for Children Not Using the Latrine

Reasons Given By Respondents For Children Not Using The Latrine	Number Of Respondents
Too dark	4
Hole too dangerous	46
Too far away	8
Too many users	5
Dirty and smelly	17

For other reasons why children did not use the latrines or toilets, 8% of the respondents mentioned that the children were too young to use such facilities. Asked how the children’s faeces were disposed off, 81% said they disposed them into the latrines or toilets, 13% said they disposed them into the rubbish pit, and 5% said it was disposed through burying. In most cases, children below the age of five did not use latrines. Wherever children defecated, adults had the responsibility to ensure that the faeces were finally disposed off in a safe way. Although almost half of the respondents (46%) said the children’s faeces were deposited into the latrines, a small proportion (13%) of the community still disposed of children’s faeces inappropriately (into the rubbish pit). Disposal of faeces in a refuse pit is unhygienic as it led to fly and smell nuisances. It encouraged fly breeding and may thus promote faecal-oral infections. Children’s faeces should be deposited in the latrine because they were equally as dangerous as adults’ faeces and needed to be handled carefully to prevent transmission of faecal-oral transmission infections.

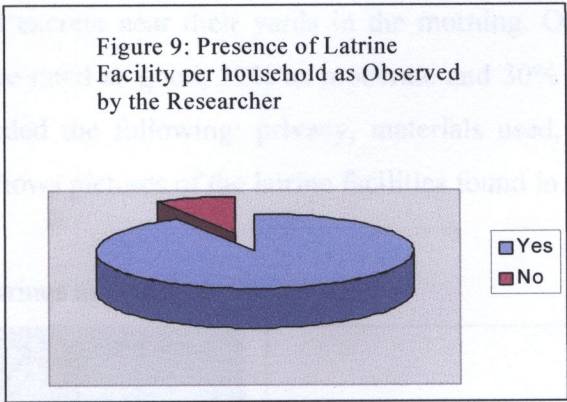
There were two main factors that were found to negatively influence the use of the pit latrines by children. The first one was the poor state of the pit latrines. Some pit latrines had big holes; some were dirty and had foul smell, while others were too dark inside. Darkness made it difficult for the children to use the toilets/latrines. It is a well known fact that most children do not like darkness. If a latrine is too dark children are not likely to go inside on their own. Refer to figure 9 (b) for a latrine that was too dark inside.



Similarly, if the hole of the pit was too big, children found it difficult to use such a latrine facility for fear of falling in. Further, if foul smelling and dirty latrine repelled children; it repelled the adults as well. Yet adults were supposed to help children use the latrines. Finally, a dark latrine predisposed the facility to soiling with faeces and urine since it was difficult to see. The second factor that negatively influenced the use of latrines by children was inadequate knowledge of parents on the harmfulness of children's faeces.

i) Presence of latrines

In order to conveniently use a latrine, it must be available. Out of 100 respondents, 94% said they had latrines compared to 6% who did not have. However, on observation it was found that the actual number of households without latrines was 8%. Reasons given for not having a latrine were that; latrines collapsed during the rain season; latrines were expensive to construct; and the latrine got filled up.



Half of the households that did not have latrines said they passed urine in their bath shelters while the other half said they used the neighbours' latrines. As for defecating, all respondents without latrines said they used their neighbour's latrines. For those who had latrines, the majority had ordinary pit latrines (94%) and only very few (6%) households had ventilated pit latrines. For those with latrines, there were a number of things that they did not like about them. These were summarised in the table 14 below:




Table 14: What Respondents Did Not Like About Their Latrines

What Respondents Did Not Like About Their Latrines	Number Of Respondents
Lack of privacy	46
Fly nuisances	54
Too dark	12
Hole too dangerous	30
Too far	16
Too many users	22
Dirty and smelly	34

This situation raised some concern. Dissatisfaction with latrine facility could lead users to shun them. In other words, when people were so dissatisfied with their latrine facilities, they would look for other alternatives. One alternative mentioned in this study was open bush or ground under the cover of darkness. The focused group members said it was common to find excreta near their yards in the morning. On observation, only 17% of the latrines were rated as good, 52% as moderate and 30% were rated as poor. The criteria used included the following: privacy, materials used, floor, lighting and ventilation. Figure 10 shows pictures of the latrine facilities found in the community.

Figure 10: Status of Latrines as Rated on Observation.



(a)

This latrine was rated as poor on observation. Made with temporal material, lack of privacy and difficult to keep the floor clean. Inadequate latrine facility.





(b)

This is a picture of a latrine that was rated as moderate. Made from temporal materials, provided some privacy, but too dark inside and difficult to keep the floor clean. Inadequate latrine facility.



(c)

This latrine was rated as good. Made of permanent materials. Though no door, but easy to clean. Adequate latrine facility.

The health workers ascribed the poor structures to economic hardship. It was explained that most residents could not afford to build decent latrines due to lack of funds. Sources of income in the area were limited, more than 60% were in the informal sector, mainly engaged in beer brewing and crushing of stones for sale.

Most of those that sold beer did not provide adequate latrine facility to their clients. This caused some of their customers to engage in filthy habits; the worst being the use of open ground and empty beer packs for defecating. These were dumped anywhere outside latrines at night. The packs were dubbed 'flying toilets'. Some members of the FDGs revealed that sometimes it was common to find human excreta dumped near their yards in the morning. Another interviewee attributed that kind of behaviour to negative attitude. It was mentioned that people had the knowledge but they had a negative attitude

and did not just care. The employment statuses of the heads of the households were such that only 10% were in formal employment, 61% were in informal employment and 29% had no employment.

**4.3.3 Attitudes**

The attitudes of the respondents were assessed on the same issues. Their knowledge was assessed with more emphasis on their preferences.

a) Protected Well

Although most respondents did not know what a protected well was like, most of them showed a positive attitude towards what they thought a protected well was. Out of the 100 respondents, 72 % preferred the ‘protected well’ as compared to 18% and 10% who preferred unprotected and shallow wells respectively. The main reasons advanced for the preferences are summarised in Table 15.

Table 15: Preferred Water-Wells and Reasons for Preferences

Preferred Well	Main Reason Advanced	Frequency	Percentage
Protected well	No germs could enter	72	72%
Unprotected well	It was nearby	18	18%
Shallow well	It was nearby and easy to draw water from	10	10%

b) Use of 20 litre Plastic Water Storage Container

Although it was established that most of the respondents had knowledge concerning the benefits of a 20 litre container, a high proportion still preferred to store their water in a bucket to doing so in any other container. Out of the 100 respondents, 51% preferred the bucket. Only 26% percent preferred the 20 litre plastic container, 14% preferred the earthen pot while 9% preferred using the drum. Table 16 gives the main reasons advanced for their preferences.

Table 16: Reasons for Using the Preferred Water Storage Container

Bucket	20 litre Containers	Earthen Pot	Drum
It was easier to clean inside	Children could not play with the water	It made water cool	It stored large quantity of water
It was easier to draw water	It had a small opening which reduced contamination		
It was easy to carry			
Bucket lids could not get lost easily			
Water was visible			

From these findings, it was clear that there was a negative attitude towards using the 20 litre container for storing water. The reasons for the preferences also demonstrated that those who preferred using the 20 litre water storage container also knew the benefits for using it.

c) Washing Hands by Pouring Water

Although 60% of the respondents knew that washing of hands by pouring water from a jar was the best method, only 46% liked washing hands by pouring water. 54% preferred washing hands in a basin. The reasons advanced for not wanting to use the pouring method for washing hands were; respondents only had a basin; they could not afford a jar; washing in a basin was easier; they feared to waste water, washing in a basin did not waste water; washing hands in a basin was what they knew. It transpired that more females preferred washing hands by pouring from a jar than males; similarly, more males preferred washing hands in a basin than females.

Table 17: Preferred Way of Washing Hands; Sex of Respondent -Cross Tabulation

Description	Male		Female		Total	
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
By pouring	13	44	34	47	46	46
In a basin	16	55	37	52	54	54
Total	29	100	71	100	100	100

It is surprising why more men than women preferred washing hands in a basin as in most *Zambian* societies the burden of drawing water was mainly done by females. If anything, the women folk should have been the ones economising on water. The fact that it came out here suggests that the men folk lacked knowledge regarding the benefits of washing hands by pouring method. Since most of the health messages were gotten from health centres, women benefited more than men because most of the times they were the ones who frequented the health facilities; to take a sick child, or a sick husband; to take a child for under five clinic and; to attend antenatal clinics. Another explanation could be that, generally, men liked to be served. Washing of hands by pouring water demands that there be someone, mostly a woman, to serve them. Where there is no one to offer the service men prefer to wash their hands in a basin. This disparity could also be attributed to gender attitudes between males and females towards general cleanliness. Females tend to be more conscious in this area than males.

d) Treatment of Drinking Water

Regarding attitudes towards water treatment, 89% of the respondents showed a favourable response towards treatment of water while 11% did not. This finding shows that most respondents had positive attitudes towards water treatment.

e) Covering Water

There was overwhelming evidence that all the respondents (100%) had a positive attitude towards covering of their drinking water. This is consistent with the earlier finding under knowledge, where it was also found that 98% of the respondents exhibited knowledge on the importance of covering drinking water.

f) Garbage Disposal

Regarding garbage disposal, most of the respondents preferred disposing off their garbage in a rubbish pit. 97% preferred the rubbish pit and only 3% preferred burning it or throwing it anywhere else. In general, most respondents showed preference for proper garbage disposal.

f) Facilities for Toilet Purposes

Regarding facilities for toilet purposes, preference was given to the pit latrine. 93% preferred the pit latrine, 1% preferred VIP (Ventilated Pit Latrine) and 2% preferred open ground. The fact that comes out here was that there were very few, if any, VIP latrines in the community. As such, almost all of the people had no idea of what a VIP latrine was. This influenced most respondents' preference regarding latrine facility.

g) Latrine Facility for Children to Use

When asked what they preferred their children to use among open bush, pit latrine and VIP latrine, 77% preferred pit latrine, 12% preferred open ground and 12% preferred VIP latrine. There was a positive attitude with regards to latrine use by children.

Factors Influencing the Attitudes

From the study, a number of factors influenced the respondents' attitudes. Firstly, it was the availability of water and sanitation facilities. In the absence of water and other sanitation facilities, it was difficult to maintain hygiene. People tended to rationalise their actions and preferences. They tend to form habits in the long run. For example, the FGD members said hand washing by pouring water was uneconomical given the scarcity of water in the area, especially during the dry season. The same thing could be said about adequate sanitation.

The second influencing factor was the lack of hygiene promotion activities in the community to promote the attitude change. According to the environmental health technician, hygiene promotion activities only took place during cholera out breaks. Other factors included lack of knowledge on specific subjects such as hand washing

using appropriate methods; use of appropriate water storage containers and technical information on ground water pollution and disease prevention, causes signs and symptoms and transmission in general.

#### **4.4 SUMMARY OF MAJOR FINDINGS**

Major findings of the study were that:

- Large proportions of people had knowledge and positive attitudes but had problems with practice. This was mainly due to low economic status of most of the community members. As a result, they could not afford the necessary facilities needed for performing the hygienic behaviours.
- Another good percentage of respondents had knowledge, but had negative attitudes. Positive attitudes can only be maintained if they are supported by the availability of enabling environment (facilities). The difficulties posed by inadequate water supply could not, for example support the use of appropriate method of washing hands. However the study established that females had positive more positive attitudes towards hand washing by pouring method than males did.
- A good percentage of the respondents did not have enough knowledge to influence their attitude and practice. Even in very impoverished communities, dangerous situations could be avoided, only if the community was enlightened and helpful technologies were embraced. For example, knowledge of ground water pollution could compel people to ensure that appropriate distances were maintained from latrines and wells. Moreover, they could realise maximum benefits of using 20 litre plastic containers.



## **CHAPTER FIVE: DISCUSSION OF FINDINGS**

### **5.1 INTRODUCTION**

The study aimed at establishing the level of knowledge, attitudes and practices of residents of Buntungwa clinic catchment area in Mansa District with regard to major water, sanitation and hygiene issues. This chapter discusses the findings of the study. It should be pointed out, however, that not every finding presented in the previous chapter has been discussed. This is so because the chapter seeks to bring out only salient findings.

### **5.2 ISSUES ARISING FROM FINDINGS ON KNOWLEDGE, ATTITUDES AND PRACTICES**

The findings in this study regarding knowledge, attitudes and practices indicated that a lot of respondents had knowledge and positive attitudes but could not put this knowledge into practice. This was mainly due to the low economic status of most respondents who could not afford the necessary facilities needed for performing the necessary hygienic behaviours. This finding was consistent with Ahmed (2001) who found that in Bangladesh, many people could not engage in hygienic behaviours because they could not afford the facilities that were needed to perform such behaviours. In the same study, it was clearly evident that there was a relationship among poverty, good sanitation and hygienic behaviours. On the same issue, Michael et. al. (2004) explicitly declared that socio-economic status of people was a common determinant of behaviour. On this point, the study on the Buntungwa community catchment area concluded that the prominent factor responsible for the disparity between knowledge and practice was poverty.

As a result of poverty, it was discovered that the Buntungwa clinic area residents could not afford conveniences that promote good hygienic practices such as adequate latrine facilities. Concerning latrine facilities, the Ministry of Local Government and Housing standards dictate that adequate latrines should satisfy certain requirements. An adequate latrine facility is one which;

- a) hygienically separates human excreta from contact with human, animals and insects, particularly flies;
- b) does not pollute drinking water sources;
- c) does not cause intolerable smells;
- d) ensures privacy for those using the latrine;
- e) is kept clean; (GRZ 2007).

From the Ministry of Local Government and Housing's specifications listed above, it is obvious that the community in question did not have adequate latrines. Most of the latrines had intolerable smells, and the respondents had put it clearly that they hated their latrines for that. This raised a concern because it meant that some residents of the Buntungwa clinic catchment area opted to use the open ground under cover of the night. This would prove even more fatal in a settlement like the one under study. This argument is supported by Roger's theory of innovations which states that people may reject innovation as a result of dissatisfaction with its performance and in its place adopt a better one (Rogers 1999). Cairncross and Feachem (1988:110) also confirmed that "A fouled and offensive latrine is not likely to be used and can be a major health hazard in itself."

The second facility that people lacked which affected their hygienic practices was safe water sources. As already presented in the findings, the most common source of water supply for the community was the open hand dug wells. These sources of water were unsafe because they were exposed to various forms of pollution. Cairncross and Feachem (1988) highlighted the means of water pollution as follows:

- Polluted ground water: which can result from location of the well too close to pit latrines, soak-away, or refuse dumps, whose effluence may extend up to 15 metres in a typical soil;
- Seepage water from the surface: which can result from water entering through the top few metres of the well lining if it is not sufficiently water-tight near the surface;

- The vessel used for drawing water: unless the vessel is permanently made to hang in the well and never taken home or put on the ground;
- Rubbish thrown in the well: especially by children who play near the well;
- Surface water: which may be washed straight into the well especially where the ground surface has sunk as is often the case when the well has no adequate lining;
- Spilt water: if there is no head wall, or if people stand on the head wall to draw water, water, which has splashed against their feet, can fall back into the well.

The third issue arising from poverty which hindered good hygienic practice was lack of conveniences such as soap for hand washing. Regarding good hygienic practices, it is imperative that all the people wash their hands with soap and water at critical times. Hand washing with soap is one of the most important barriers to many of the infectious diseases (Ferron et. al. 2001; Curtis & Cairncross 20003; Fuetell et. al. 2005 and Huttley et. al. 1997). Residents of the Buntungwa clinic catchment area had positive attitudes regarding hand washing with soap. However, as mentioned earlier, due to poverty, these people could not afford to buy soap which was necessary for this practice, hence the gap between their knowledge and practice.

The point here is that the above practices predisposed residents of the community to diseases. This did not only endanger the lives of the people but also put strain on the individual households' budgets as well as that of the government in the procurement of curative medicines to treat water related diseases (GRZ 2007).

Due to the practices that predisposed people to diseases and due to the burden of diseases on the individual households and the government, it is important that education aimed at imparting knowledge on the construction of good latrines and maintenance of the existing ones as well as encouraging their usage, be intensified in the Buntungwa clinic community. This community could also be supported by government by constructing adequate latrines and safe water sources. In order to raise the socio-economic status and bridge the gap between residents' knowledge and practice which

was negatively affected by poverty, the Government, Non-Governmental Organisations, the local authorities and residents themselves should work together on programmes aimed at addressing poverty both at individual household and community levels.

### **5.3 THE LAG BETWEEN KNOWLEDGE AND PRACTICES**

One of the major findings of the study was that respondents exhibited negative attitudes towards issues they showed knowledge about. The factor which was identified to be behind this kind of behaviour was lack of adequate and appropriate water supply sources in the community. This was one of the reasons why residents resorted to negative attitudes of not putting into practice what people knew. These people were forced to wash hands using unhygienic and dangerous methods in their attempt to economise on water. Males were found to be more affected than females in this regard. Such a practice predisposed the community to oral faecal diseases. According to Cairncross et. al. (1988) faecal-oral related diseases can be transmitted from one person to another through contaminated hands. If people wash their hands in the same water in a basin, they are likely to transmit oral-faecal related diseases to each other. Washing of hands by pouring water is a technology that needs to be encouraged in any community. This practice lets the dirty run off from the hands, hence the term 'run-to-waste' method. The water should be discarded. In this way the method acts as a barrier against the transmission of faecal-oral diseases from one person to another (Batteson et. al. 1998).

Regarding this finding, it can be declared that many times knowledge which is not well supported is not enough to bring about practice. This discovery was not unique to Zambia alone. Michael et. al. (2004) observed that sometimes knowledge alone may not be enough to influence behaviour. The fact that people knew what they should do, why and how they should do it does not guarantee that they will behave in consistence with that knowledge. They further acknowledged that there were a number of other factors that could cause discrepancies between knowledge and behaviour.

In South Africa, Duncker (1999) in his study in some rural communities also observed that one of the factors that caused the gap between knowledge and practice was lack of

adequate water supply. He found that the respondents could not practice safe hygienic life styles due to lack of adequate water supply. Duncker (1999) further explained that although the people knew that daily baths and provision of water for washing hands at the latrine facilities so that hands could be washed each time one made use of the facility, were hygienic, they did not do so, mainly due to lack of adequate water supply.

This study established that the Buntungwa community experienced inadequate water supply especially in the dry season. Therefore, protecting water sources such as springs which were found in this area was necessary in order to mitigate problems of inadequate water supply and its effect on hygienic practices. Protected natural springs can be a source of safe and adequate water to many communities. It is also cheaper since there is no need to pump up the water using any technological means, a venture which would demand more financial investments on the part of government. Furthermore, helping the community construct deep wells that do not dry up during the dry season would go a long way in remedying the situation.

Another hygienic practice which residents developed a negative attitude towards was the use of the 20 litre container, a practice that needed to be encouraged in the community as it was found to be inadequately used. As already stated in the previous chapter, the 20 litre container does not only protect the water from external contamination but also provides for easy measuring and treatment of the water with chlorine. This argument is supported by Benjamin et. al. (2001). However, the ease with which water can be poured into the container given the most common type of water sources obtaining in Buntungwa clinic community raises a challenge for using this facility. As some respondents observed, it was not easy to pour water into the 20 litre container due to its small mouth. Most of the water would be wasted as the person pouring it would not easily do so. This actually was the main reason that was found to negatively influence the attitude and practice of using this appropriate water storage container. Although this posed a predicament, several alternative ways could be implemented in order to encourage the use of this water storage facility.

Firstly, the community members could be encouraged to use improvised funnels when pouring water into the 20 litre containers. These funnels can easily be made at home using empty plastic bottles by cutting off the bottom. This could be the cheapest way of obtaining and using funnels. Secondly, more communal bore holes fitted with hand pumps could be constructed in the community. Drawing water from a hand pump using a 20 litre container could be very convenient because the water outlet allows water to get into the container through its narrow mouth. Last but not the least, since the Buntungwa clinic community is located close to the town centre which is served with piped water, water pipes could be extended to this community. Once tap water reached this community, the use of the 20 litre container would be accepted. This would address the negative attitudes associated with the usage of the 20 litre container which is an appropriate water storage facility. In this vein, Rogers (1999) in the theory of innovations argues that when people find it easy to use an innovation, they are likely to adopt it.

As already stated above, the 20 litre container facilitated the process of water treatment at home using chlorine. Treatment of water at home was crucial given the unsafe water sources which were obtaining in the Buntungwa community. For example, the open nature of wells and the use of some container tied to a rope, where both the rope and container were kept on the ground, exposed both the well and the water drawing utensils to contamination. Further, water contamination could also be as a result of people not having the habit of washing their hands before drawing water.

As the situation was, treatment of water in an open well was an impossible undertaking without any guarantee of safety. Attempting to treat water in a well could be hazardous in that it would difficult to estimate the amount of water in the well and also the amount of chlorine to be added (Cairncross et. al. 1999). This meant that water treatment at home was necessary as the only sure way of guaranteeing safety; especially that most of the water sources were unsafe.

## **5.4 ISSUES LINKED TO LOW KNOWLEDGE**

Regarding knowledge in terms of appropriate distance of water wells from latrines, disease prevention, signs and symptoms of diarrhoea, the study found that residents of Buntungwa clinic catchment area had low knowledge. Part of this finding was not unique to this study in Zambia and Mansa district in particular. In Bangladesh, Ahmed et. al. (2001) also found that respondents had low knowledge levels on causes of diarrhoea. Only 3% of their respondents were able to give the correct answer to the meaning of diarrhoea and most respondents did not know the causes.

Due to low knowledge in terms of appropriate distance of water wells from latrines, disease prevention, signs and symptoms of diarrhoea, it is not surprising that the Health Information System of the Ministry of Health (HIMS) (2007), revealed that the Buntungwa clinic, was ranked second (2<sup>nd</sup>) in incidences of diarrhoea out of twenty seven ( 27) catchment areas in the district. According to the HIMS (2007), out of 14,711 non-bloody diarrhoeas in the district, Buntungwa had 1,600 incidences giving it the second position in the entire district. This revelation clearly indicated that the prevalence of diarrhoea cases put a strain on the government's financial, material and human resources in the treatment of this disease. To this effect, measures to eradicate this barrier to behaviour change needed to be instituted. The study established that the factor for this low level of knowledge was as result of ineffective health education approaches. Literature on health education acknowledged the effectiveness of the Participatory Hygiene And Sanitation Transformation (PHAST) in the dissemination of knowledge and skills concerning water, sanitation and hygiene.

The PHAST is known to use methods and materials that stimulate the participation of people of any given community regardless of their sex, age, educational or economic status in water, sanitation and hygiene programmes. It also believed to deepen the knowledge and understanding of concerned community members regarding water, sanitation and hygiene issues. In recognition of this assertion, the GRZ/UNICEF Master Plan of Operations 2002-2006 stipulated that one of the strategies for Community WASHE components was "...to increase popular participation through PHAST

approaches” (Page14). Kawanga and Chakamisha (2003) in their evaluation study on the PHAST methodology in Zambia concluded that the PHAST was an effective tool in improving sanitation and hygiene in that the whole process rendered the community members knowledgeable about the sources of the problems they faced, as well as a lot of other aspects concerning water, sanitation and hygiene.

## **5.5 SUMMARY OF DISCUSSION**

This study, like Ahmed’s (2007) study established that peoples’ socio-economic status was one of the factors that hindered good hygienic practices. However, specific to this study it was found that the Buntungwa clinic catchment area community could not afford to construct adequate latrine facilities according to the Ministry of Local Government and Housing specifications. Furthermore, the community could not also afford to put up safe water sources as well to procure necessary commodities such as soap for hand washing due to poverty. This study like other KAP studies confirmed the fact that there was a close relationship between poverty and poor hygienic practices.

Concerning knowledge and practice, the study found out that people had sound knowledge about certain hygiene practices. However, due to non availability of necessary facilities, such as adequate water supply, members of the community resorted to negative attitudes towards practices whose knowledge they had. For example, despite residents knowing advantages of using the 20 litre container in water treatment, they shunned its use because it was found not to be convenient when drawing water. This was because much of the water would be lost through spillage in an attempt to fill up the container. Provision of adequate water supply in order to help residents adopt hygienic practices which were only dependent on certain provisions was what was lacking but necessary. This was one of the unique findings to this particular study. The other one was that respondents had low knowledge about disease prevention hence the area reporting many cases of preventable diseases such as diarrhoea.

Poor hygienic practices predispose people to disease outbreaks which in the long become a burden to individual households as well as the government in the treatment of



water sanitation and hygiene related illnesses. To this effect, the Government and the Local authorities should devise means and strategies specifically aimed at addressing such problems at community level. These strategies should focus on rendering various forms of support and health education through the use of effective approaches and means.

## **CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS**

### **6.1 INTRODUCTION**

This chapter comprises two sections: conclusion and recommendations. The conclusion addresses the most significant issues which the study unearthed while the recommendations were made based on the critical findings of the study.

### **6.2 CONCLUSION**

The study sought to establish the level of knowledge, nature of attitudes and practices of Buntungwa clinic catchment area residents with particular referencing to water, sanitation and hygiene. This study was cross-cutting and inclusive in nature in terms of gender and age as it did not discriminate between males and females and adults and teenagers. In order to fully understand and address them, issues of health need a holistic approach and the involvement all key stakeholders. This made this study different from other KAP studies some of which only focused on mothers of households.

Furthermore, the study was different in that it included a discussion on the diffusion of innovations theory in order to explain the adoption of new ideas in understanding the discrepancy between knowledge and practice. In addition still, unlike other KAP studies, this study identified factors that proved to be a barrier between knowledge and practice with respect to water, sanitation and hygiene issues. This was beneficial because problems of water, sanitation and hygiene cannot be solved without fully identifying their root causes. However, certain findings in this study such as respondents reporting behaviours that they did not actually practise were similar to those in other previous studies.

With reference to the respondents' knowledge, it was generally discovered that a large number of the respondents had low knowledge regarding water, sanitation and hygiene to influence their attitudes and practices. It was also revealed in this study that the deficiency in terms of knowledge levels was attributed to factors which included; lack of sufficient health education and hygiene promotion coupled with ineffective educational

strategies. The educational strategies were ineffective due to the use of non participatory process. Health education in communities should use approaches that stimulate the participation of all community members. Previous literature had recommended the effectiveness of such approaches. Another notable major finding in this study was that though a substantial number of respondents had sufficient knowledge, they had negative attitudes which affected practice. This was attributed to non availability of an enabling environment with necessary facilities such as adequate water supply to support the use of appropriate practices. Finally, it was also discovered that a lot of respondents had knowledge and positive attitudes but could not put their knowledge into practice. On this point the study concluded that the most prominent factor responsible for this disparity was poverty.

In conclusion, the study yielded vital information needed by various stakeholders who are charged with the responsibility of addressing water, sanitation and hygiene problems. In this regard this study will serve as a baseline resource whose findings on respondents' knowledge, attitudes and practices can be used on future projects in the Buntungwa clinic catchment area and beyond.

### **6.3 RECOMMENDATIONS**

Based on the issues raised from previous KAP studies, literature review and the findings of this study, the following are the recommendations:

1. From this study, it has been clearly established that ineffective health education approach was one of the main factors responsible for low levels of knowledge among respondents. It is therefore strongly recommended that the Ministry of Health, Education and Local Authorities adopt the Participatory Hygiene and Sanitation Transformation (PHAST) approach in carrying out hygiene promotion and behaviour change programs.
2. Since most of the respondents did not engage in good hygienic behaviours due to non affordability of essential commodities and facilities necessary for carrying out these behaviours due to high poverty levels, the government should adequately

empower the community residents. This should be through equipping community members with survival and income generating skills in order to help them raise funds for personal use as well as to enable them participate in community-driven projects. Where possible, loans and grants should be given to needy but well organised communities. However, the awarding of these financial facilities should be on condition that the community's priority is given to activities aimed at improving water, sanitation and hygiene: improvement of latrine facilities, protection of water wells and buying water treatment necessities like chlorine.

3. A latrine that is designed and constructed in a way that enhances people's dignity, safety, health and wellbeing, is of paramount importance in that it is likely to be used by all community members, hence creating a barrier to excreta related diseases through direct and indirect routes. It is, therefore, recommended here that the Ministry of Health and the Mansa Local authorities should educate the community on the design and construction of the latrines or educate the community on ways in which the traditional latrines can be improved. A traditional pit latrine can be improved by:

- Plastering the floor to make it easier to clean and less likely to absorb urine and faeces because hookworms thrive in such environments. Where plastering with cement is not possible, a layer of fresh soil should be added to the floor at regular intervals;
- Ensuring that the 'toilet hole' is covered with a tight lid to prevent flies from entering, or putting bundles of burning leaves in the pit to kill flies once every week;
- Putting a concrete lining of one metre from the top of the pit going downwards so as to reduce chances of the toilet collapsing;
- Pouring ash and soil in the pit to kill germs and absorb fluids, thus reducing smell and fly nuisance;
- Pouring a cup of kerosene once per week into the pit in order to kill insects such as mosquitoes.

4. Since hand washing with soap at critical times was not being practiced by most respondents and their households due to non affordability of soap, it is recommended that the Ministry of Health should intensify health education and promotion of this practice. Other stakeholders, such as NGOs should be also be encouraged to engage in activities such as soap making, selling and use projects. Locally made soap could be sold to community members at a cheaper price to make it affordable.
5. Hand washing by pouring water is the appropriate method of washing hands, but most respondents showed a negative attitude towards the method largely due to the difficulties they encountered in using it. Therefore, it is strongly recommended that the Ministry of Health should make available and affordable hand-washing facilities that provide for ease of washing hands using running water such as a bucket fitted with a tap and mounted on a stand. The Ministry of Health should further educate the community on the importance of washing hands using soap and running water.
6. Chlorination of water is a tested method that is effective against most bacterial and viral pathogens. A 20 litre plastic container provides for easy treatment of domestic water by chlorine and prevents its recontamination. Its tightly fitting lid reduces volutisation of chlorine rendering it to provide residual protection for hours to days. Since the study found out that water treatment was not practiced by most respondents and that very few households collected and stored their water in 20 litre containers, the Ministry of Health and relevant Non-Governmental Organisations (NGOs) like Society for Family Health (SFH) must ensure that chlorine and 20 litre containers are made available within the community. The Ministry of Health and relevant NGOs should further educate the community on the need for treatment of drinking water using chlorine and the need for storing of water in the 20 litre plastic containers.
7. Since pouring water drawn from a well in a 20 litre container proves to be difficult, a situation which made most respondents develop negative attitudes towards the using the container, government through the Ministry of Local Government should see to it

that the water sources are designed in such a way that they provide for ease drawing of water using the 20 litre container. This implies that the water sources should be either bore holes fitted with hand pumps or piped water fitted with taps for easy collecting of water using the 20 litre container. Alternatively, households should be encouraged to use funnels which allow for ease pouring of water into a narrow mouth of the 20 litre container. This will act as a motivator in the use of the 20 litre containers for water collection and storage.

8. Since the Buntungwa clinic catchment area was an unplanned settlement, it is recommended that the Ministry of Local Government should advocate for the construction of communal water points which can reduce the cost of operation and maintenance for individual household. To achieve this, the Ministry of Health should sensitise and encourage neighbourhood committees to lobby local authorities for the sponsorship and location of water points.
9. An increase in the quantity of water is of paramount importance in the prevention of faecal-oral diseases. It is recommended here, therefore, that priority in the construction of communal water points is given to areas with the highest water problems where wells dry up easily during the dry season. In addition, the springs that did not dry up during hot-dry season must be protected so that they could be safe sources of water supply. A spring can be protected by building a box of brick, masonry, or concrete around it so that water flows directly out of the box into a pipe without being polluted from outside.
10. All in all, however, the study was significantly critical as it brought out issues on people's knowledge, attitudes and practices in terms of water, sanitation and hygiene which if left un attended to could impact negatively on their health and lives. Therefore, stakeholders from the Ministry of Health, Mansa Local Authorities and Buntungwa clinic catchment area residents need to make good use of such important findings.

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## APPENDICES

### Appendix 1: Questionnaire

NO.	QUESTION	CODES	GO TO
Q.1	Permission received to continue	Yes (1) No (2)	
Q.2	Sex of the respondent	Male (1) Female (2)	
Q.3	Employment of the head of the household	Formal (1) Informal (2) None (3)	
Q.4	What is the main source of drinking water for members of your household?	Shallow well/scoop well (1) Protected well (2) Unprotected well (3) Borehole (4) River or dam (5) Pond (6) Other (specify: _____) (7)	
Q.5	What is the round trip walking distance of this source from your household	Over 30 minutes (1) 30 minutes (2) 15 minutes (3) 10 minutes (4) Less than 10 min (5)	
Q.6	(a) Which of the following water sources would you prefer to draw water from?	Shallow well/scoop well (1) Protected well (2) Unprotected well (3) Borehole (4) River or dam (5) Pond (6) Other (specify: _____) (7)	
	(b) Give reasons for your preference	.....	
Q.7	What is the recommended distance of water well from a pit latrine?	.....	
Q.8	What is a protected well? (allow respondents to describe it)	.....	
Q.9	Where do you and your household store your water at the house?	Drum (1) Earthen pot (2) Bucket (3) 20 litre Plastic container (4) others (specify): _____ (5)	

Q.10	(a) Which one of the above containers do you think is the best for storing drinking water?	Drum Earthen pot Bucket 20 litre Plastic container others (specify): _____	(1) (2) (3) (4) (5)	
	(b) give reasons for your answer to Q 9	.....		
Q.11	(a) Is your water storage container covered?	Yes No Sometimes	(1) (2) (3)	
	(b) if the answer to Q.11 (a) is <b>No</b> and <b>Sometimes</b> , give reasons	.....		
Q.12	How do you prefer your drinking water to be stored	In a covered container In an open container	(1) (2)	
Q.13	Why should drinking water be always kept covered (let respondent explain)	..... ...		
Q.14	(a) Which container do you prefer to store your drinking water in?	Drum Earthen pot Bucket Plastic container (budiza) others (specify): _____	(1) (2) (3) (4) (5)	
	(b) Give reasons for your answer to Q.14 (a)	.....		
Q.15	Do you treat your drinking water?	Yes No	(1) (2)	
Q.16	(a) If yes to Q.15: How do you treat your drinking water?	Boiling Filtering Chlorinating	(1) (2) (3)	
Q.17	Why do you think drinking water should be treated?	.....		
Q.18	If you don't treat your water, give reasons why?	.....		
Q.19	When do you wash your hands? (Multiple responses possible)	Before preparing food Before eating	(1) (2)	

		After eating After going to the toilet After disposal of children's faeces Before drawing water After doing work After a burial Always when my hands are dirty Others(specify):	(3) (4) (5) (6) (7) (8) (9) (10)	
Q.20	Why do you think hands should always be washed at critical times?	.....		
Q.21	What do you use for washing your hands?	Only water Water and soap Water and sand /ash / soil Other (specify):	(1) (2) (3) (4)	
Q.22	(a) Of the following, which one do you think is the best for washing hands?	Only water Water and soap Water and sand /ash / soil Other (specify):	(1) (2) (3) (4)	
	(b) Give reasons for your answer to Q.22 (a)	.....		
Q.23	How do you wash your hands?	Poured water from a jar In a basin Other (specify)	(1) (2) (3)	
Q.24	(a) Which way of washing hands do you prefer?	Pour water from a jar In a basin Other (specify)	(1) (2) (3)	
	(b) Give reasons for your answer to Q.24 (a)	.....		
Q.25	What do you do after handling children's faeces?	Wash hands with only water Water and soap Water and sand /ash/soil Others:	(1) (2) (3) (4)	
Q.26	(a) Where do you dispose off your garbage?	Refuse pit Anywhere Burning it Composting Other (specify)	(1) (2) (3) (4) (5)	
	(b) give reasons for disposing garbage in the way you have chosen in Q.26 (a)	..... ...		

Q.27	Where do you prefer to dispose off your garbage?	Refuse pit Anywhere Burning it Composting Other (specify)	(1) (2) (3) (4) (5)	
Q.28	(a) Do you have a toilet/latrine?	Yes No Under construction	(1) (2) (3)	
	(b) If No to Q.28 (a) what is the reason for not having toilet/latrine?	Expensive to construct Pit collapsed during rains Too many users I don't like to use it Dirty/smelly Lack of privacy/anonymity Others(specify):	(1) (2) (3) (4) (5) (6) (7)	
Q.29	Since you do not have a toilet/latrine, where do your family members usually pass urine	Bush Bath shelter No response	(1) (2) (3)	
Q.30	Since you do not have a latrine, where do you and your family members usually pass stool?	Bush Others No response	(1) (2) (3)	
<b><i>If the family has a latrine/toilet continue to question 33</i></b>				
Q.31	Which type of toilet do you have? (fill in according to your observation)	Pit latrine Ventilated Improved Pit latrine (VIP) Others (specify):	(1) (2) (3)	
Q.32	Which of the type of latrine would you prefer to have?	Pit latrine Ventilated improved pit latrine (VIP) Others (specify):	1) (2) (3)	
Q.33	What don't you like about your toilet/latrine?	Flies No privacy Too dark Hole too big Too far away Too many users Dirty / smelly Hole too dangerous Others (specify):	(1) (2) (3) (4) (5) (6) (7) (8) (9)	
Q.34	Which of these would you prefer the children to use?	Latrine/toilet Open ground/bush Bath shelter Other (specify):	(1) (2) (3) (4)	

Q.35	(a) Do all the children of your household use the latrine/toilet?	Yes No	(1) (2)	
	(b) if your answer is 'No' to Q.35 (a) what are the reasons?	Too dark Hole too big Too far away Too many users Dirty / smelly Hole too dangerous Other (specify): _____	(1) (2) (3) (4) (5) (6) (7)	
Q.36	How do you dispose of children's faeces?	Into toilet Into rubbish pit Around yard By burying Others	(1) (2) (3) (4) (5)	
Q.37	(a) Do you think children's faeces are harmful?	Yes No	(1) (2)	
	(b) Give reasons for your answer in Q.37 (a) above	..... ..		
Q.38	Has any member of your household suffered from any of the following diseases in the last three months? (Multiple answers allowed without prioritising)	Malaria Diarrhoeal diseases Bilharzia AcuteRespiratory Infection Scabies & skin diseases Eye infections HIV/AIDS Other (specify): _____	(1) (2) (3) (4) (5) (6) (7) (8)	
Q.39	How do you protect yourself as well as members of your household from the above diseases?	Keeping clean Use safe drinking Use clean latrine Follow the health advice Wash hands and personal hygiene Use mosquito nets Environmental cleanliness	(1) (2) (3) (4) (5) (6) (7)	
Q.40	What can cause you to have diarrhoeal diseases?	Not washing hands before food Unsafe water Not washing hands after toilet Eating left over food / Not covering food Flies Improper disposal of faeces Other (specify): _____	(1) (2) (3) (4) (5) (6) (7)	
Q.41	What are the signs and	Passing watery stools		

	symptoms of diarrhoea?	frequently Loss of appetite Weakness and apathy Vomiting Fever Dehydration Sunken eyes Dryness of skin Others (specify):	(1) (2) (3) (4) (5) (6) (7) (8) (9)	
Q.42	What is the source of your hygiene education messages?	Health centres and clinics School Community meetings Posters Radio Family Friends Village chiefs	(1) (2) (3) (4) (5) (6) (7) (8)	

**THANK YOU VERY MUCH**



## Appendix 2: Observation Checklist

No.	Observation	codes		Go to
01	Appropriate water storage container	Yes No	(1) (2)	
02	Water storage facility covered?	Yes No	(1) (2)	
03	Garbage around the house	None Much Little None	(1) (2) (3) (4)	
04	Is there a special place for refuse	Yes No	(1) (2)	
05	Status and cleanliness of the toilet facility	Poor Moderate Good	(1) (2) (2)	
06	Hand washing facility near latrines	Yes No	(1) (2)	
07	Soap near latrines	Yes No	(1) (2)	
08	Recommended distance and position of latrine from water source?	Yes No	(1) (2)	

### **Appendix 3: Unstructured Discussion Guide for Focused Group Discussions (FDGs)**

#### **Focused Group Discussion Objectives:**

1. To collect information on Buntungwa residents' knowledge regarding water sanitation and hygiene
2. To collect information on Buntungwa residents' attitudes regarding water sanitation and hygiene
3. To collect information on Buntungwa residents' practices regarding water sanitation and hygiene
- 4 To establish factors that influence Buntungwa clinic's catchment area residents' knowledge and practices regarding water, sanitation and hygiene

#### **Proceedings:**

- Self introductions
- Explain the objectives of the discussion
- Explain the procedure
- Get verbal, written and recording consent

#### **General Questions:**

1. What is your own assessment of the knowledge levels of Buntungwa clinic catchment area residents regarding water sanitation and hygiene?
2. What do you think are the factors influencing knowledge regarding water, sanitation and hygiene?
3. What do you think are the attitudes of Buntungwa clinic catchment area residents regarding water sanitation and hygiene?
4. What do you think are the factors influencing attitudes regarding water, sanitation and hygiene?

5. What do you think are the practices of the residents in Buntungwa clinic catchment area?
6. What do you think are the factors influencing practices regarding water, sanitation and hygiene?

THANK YOU FOR YOUR PARTICIPATION

#### **Appendix 4: Unstructured Interview Guide for:**

Buntungwa clinic Environmental Health Technician, Mansa District Environmental Health Officer, Chairperson of the D-WASHE committee, Mansa Municipal Deputy Director for water and sanitation, two Mansa Municipal Council District Health Inspectors.

#### **Interview Objectives:**

1. To collect information on Buntungwa residents' knowledge regarding water sanitation and hygiene
2. To collect information on Buntungwa residents' attitudes regarding water sanitation and hygiene
3. To collect information on Buntungwa residents' practices regarding water sanitation and hygiene
- 4 To establish factors that influence Buntungwa clinic's catchment area residents' knowledge and practices regarding water, sanitation and hygiene

#### **Proceedings:**

- Introductions
- Explain the objectives of the interview
- Explain the procedure
- Get verbal and written consent

#### **List of Points to be Covered:**

- Own assessment of the knowledge levels of Buntungwa clinic catchment area residents regarding water sanitation and hygiene
- Factors influencing knowledge regarding water, sanitation and hygiene
- Attitudes of Buntungwa clinic catchment area residents regarding water sanitation and hygiene
- Factors influencing attitudes regarding water, sanitation and hygiene

- practices of the residents in Buntungwa clinic catchment area
- Factors influencing practices of residents in Buntungwa clinic catchment area

THANK YOU

## **Appendix 5: Unstructured Interview Guide for Neighbourhood Health Committee Members**

### **Interview Objectives:**

1. To collect information on Buntungwa residents' knowledge regarding water sanitation and hygiene
2. To collect information on Buntungwa residents' attitudes regarding water sanitation and hygiene
3. To collect information on Buntungwa residents' practices regarding water sanitation and hygiene
4. To establish factors that influence Buntungwa clinic's catchment area residents' knowledge and practices regarding water, sanitation and hygiene.

### **Proceedings:**

- Introductions
- Explain the objectives of the interview
- Get verbal and written consent

### **List of Points to be covered:**

- Own assessment of the knowledge levels of Buntungwa clinic catchment area residents regarding water sanitation and hygiene
- Factors influencing knowledge regarding water, sanitation and hygiene
- Attitudes of Buntungwa clinic catchment area residents regarding water sanitation and hygiene
- Factors influencing attitudes regarding water, sanitation and hygiene
- practices of the residents in Buntungwa clinic catchment area
- Factors influencing practices of residents in Buntungwa clinic catchment area

THANK YOU



**UNIVERSITY OF ZAMBIA**  
**DIRECTORATE OF RESEARCH AND GRADUATE STUDIES**  
**HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE**

Telephone: 290258/291777  
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E-mail: [Director@drgs.unza.zm](mailto:Director@drgs.unza.zm)

P.O. Box 32379  
Lusaka Zambia  
Your Ref:  
Our Ref:

**FROM:** Vice Chairperson, HSS Research Ethics Committee

**TO:** Mubiana Sitali Kaiko

**DATE:** May 6<sup>th</sup>, 2008 **UNIVERSITY OF ZAMBIA LIBRARY**

**SUBJECT:** Knowledge, Attitudes and Practices of a selected community  
in Mansa towards water, sanitation and hygiene


ACC. No. 00278608

CALL No.

The HSS Research Ethics Committee considered your proposal captioned above on 24<sup>th</sup> April, 2008.

I'm pleased to inform you that the Committee agreed to approve your project proposal. Consequently, you may now proceed with your research with ethical clearance from the Research Ethics Committee.

Please note that you will be expected to fill in a Progress Report Form which you will receive from the Secretariat every six months.

  
Augustus Kapungwe (PhD)  
Vice-Chairperson  
HSS Research Ethics Committee

UNIVERSITY OF ZAMBIA  
ASSISTANT DIRECTOR  
RESEARCH

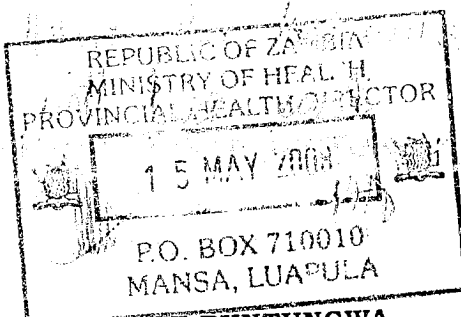
06 MAY 2008

GRADUATE STUDIES  
P.O. BOX 32379, LUSAKA

*The VC Buntingwa Please to the she is the*

4th March, 2008

Mrs. Mubiana S. K. Ngoma  
UNZA Student No. 526004569  
University of Zambia  
P.O. Box 32379  
LUSAKA



**RE: PERMISSION TO CONDUCT A RESEARCH STUDY AT BUNTUNGWA CLINIC CATCHMENT IN MANSA DISTRICT**

I refer to your request on the subject above.

My Ministry, under the current National Health Strategic Plan has prioritised Environmental health including access to safe water and domestic hygiene as an important intervention for improving community health.

Therefore your study on knowledge, practices and attitudes of Buntungwa residents towards sanitation and hygiene is in line with the Ministry of Health, National Health Strategic Plan 2006- 2010.

In this regard, I grant you permission to work with Buntungwa Clinic staff during your study.

Since your study is community-based and may require participation of other relevant community development structures, it is important that you obtain relevant authority from the local administration leadership in Mansa, including the Provincial Health Office.

It is also in the interest of your study that requisite ethical clearance is obtained from the University of Zambia, Ethics Clearance Committee prior to commencement of fieldwork.

Please submit your final study protocol and field data collection tools to my office through the Provincial Health Director before starting your fieldwork.

May I again remind you of the need to submit to my office, through the Provincial Health Office, the final study findings so that they are used to inform policy and action.

ORIGINAL SIGNED

BY

Dr. K. Miti

Permanent Secretary

MINISTRY OF HEALTH



C.C Dr. E. Bwalya  
Provincial Health Director  
Luapula Province  
**MANSA**