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**ST.MARY'S UNIVERSITY  
SCHOOL OF GRADUATE STUDIES**

**PRACTICES AND CHALLENGES IN IMPLEMENTATION OF  
SANITATION AND HYGIENE PROJECT  
(THE CASE OF BECHO WOREDA IN OROMIA REGION)**

**BY  
BEHAILU SHEWAKENA**

**JANUARY, 2018  
ADDIS ABABA, ETHIOPIA**

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**APPROVED BY BOARD OF EXAMINERS**

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## ENDORSEMENT

This thesis has been submitted to St. Mary's University of Business School of Graduate Studies in partial fulfillment of the Requirement for the Degree of Master in Project Management.

\_\_\_\_\_,

\_\_\_\_\_,

\_\_\_\_\_

**Advisor**  
St. Mary's University, Addis Ababa

**Signature**

**Date**

January, 2018  
Addis Ababa, Ethiopia

## DECLARATION

I declare to the best of my knowledge that this thesis is my original work entitled “**practices and challenges in implementation of sanitation and hygiene projects** “in the case of Becho woreda in Oromia Region with excellent support and guidance of my advisor Dr.Tefaye Woldu. It is submitted for the degree of Master in **PROJECT MANAGEMENT** to school of Business St. Mary’s university post graduate program.

I additionally confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree

Behailu Shewakena

Declared by

Signature

Date

Student

.....,

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.....

## **DEDICATION**

This research is dedicated to the Ethiopia Kale Heywet Church Development Commission Integrated Water, Sanitation and Hygiene Program who has sponsored my studies throughout. May the almighty God reward Abundantly

## ACKNOWLEDGMENT

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## ***ABBREVIATION***

CSA	Central Statistical Agency of Ethiopia
CAWST	Centre for Affordable Water and sanitation Technology
CLTS	Community Lead Total Sanitation
CLTSH	Community Lead Total Sanitation and Hygiene
EKHDCDC	Ethiopia Kale Heywot Church Development Commission
FTIs	faecally transmitted infections
GTP	Growth and Transformation Plan
GO's	Government of Organizations
HEWs	health extension workers
H&S	Sanitation and Hygiene
JMP	Joint Monitoring Program
MNCH	Maternal, newborn and child health
NGO's	Non Governmental Organizations
PASDEP	Plan for Accelerated Sustained Development and to End Poverty
OWG	Open Working Group
OD	Open defecation
ODF	Open defecation free
PHAST	Participatory Hygiene and Sanitation Transformation
SDG	Sustainable Development Goal
SPSS	Statistical Package for the Social Sciences software
UNEP	united Nation Environment Program
UNW-DPAC	united nation Water Decade Program on Advocacy and Communication
UN	united nation
UNICEF	United Nations Children's Fund
WS, H&S	water supply, Sanitation and Hygiene
WHO	World Health Organization
WASH	Water, Sanitation and Hygiene
WSSCC	Water Supply and Sanitation Collaborative Council
KAP	knowledge, attitudes and practices

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## **ABSTRACT**

*Becho is one of the woreda in the Oromia Region of Ethiopia far-away about 80 km south west from Addis Ababa and it is part of the Debub Mirab Shewa Zone. It has had a problems relating to water supply, sanitation and hygiene. These problems when combined together could have public health implications for villagers who may be exposed to faecal pathogens. The purpose of this study was to investigate the community sanitation and hygiene practices and in implementation challenges of sanitation and hygiene projects and provide valuable remedial solutions for the improvement of the health of the community. By identified the current state of knowledge, attitudes and practices (KAP) of households regarding sanitation and hygiene as a means of determining necessary interventions for addressing environmental and public health improvements.*

*Another aim was to determine the challenges faced in improving the state of sanitation and hygiene. The impacts which poor sanitation and hygiene could have on environmental and public health were also addressed. Both qualitative and quantitative research methods were used in this study. This qualitative component included observations during 21 kebele's of selected community household's visits and two focus group discussions. The quantitative research data was gathered through conducting a questionnaire survey of 388 systematically selected households at a response rate of 100% and 11 employees from woreda health office and Ethiopian Kale Heywet Church Development Commission water, sanitation and hygiene program.*

*The results of the field observations and focus group discussion revealed that the practices of sanitation and hygiene in the village were not good in terms of usage of latrine; frequent cleaning of latrine, covering the hole, building house around and hand washing after use and before eat.*

*The questionnaire results of the research revealed that about 47.7% had no household pit latrine and 35.3 % of households did not have a latrine is protected from the inlets of animals, 93% of households did not have separate blocks or rooms of latrine for male and female , 46.9% families had not hand washing practices after visiting toilet and 67.2% of house hold did not have use water treatment and safe water storage .Households were generally inadequate knowledgeable about the causes of faecal-oral disease. They also have poor sanitation practiced and hygiene management. Knowledge about the health effects associated with the use of sanitation facilities and hygiene management.*

*Various recommendations for decrease sanitation and hygiene related problems were presented here. These include; the health extension workers and health educators should provide several trainings and make household visits to monitor the practice of covering the latrine hole. They should use the model farmers to provide trainings and share their experience to the other households.*

## **CHAPTER ONE: - INTRODUCTION**

### **1.1. BACK GROUND OF THE STUDY**

#### **1.1.1. Sanitation and Hygiene**

Sanitation refers to the promotion of hygiene and prevention of disease through the Provision of, and access to, safe water and adequate sanitation facilities; and good individual hygiene practices. There is high morbidity and mortality related to lack of water, poor sanitation and poor hygiene globally, with the developing countries bearing the greatest load. Sanitation related diseases debilitate and kill one million Africans every year (Enoh, 2010).The number of people without improved sanitation facilities globally stands at 2.6 billion, and of these 533 million are in sub-Sahara Africa (World Health Organization (WHO),United Nations Children’s Fund (UNICEF), 2010).

According to Evans, (2005) studied the first thing that comes to mind when talking about sanitation is a latrine. The term ‘sanitation, however; commonly covers a much broader area of activities. As many research literature’s indicates that access to Water supply and Sanitation in Ethiopia is amongst the lowest in sub-Saharan Africa and the entire world. Now a day this is major country problems that tackle the country to combating poverty from the nation (Evans, 2005).

According to the 2016 Health and Health related indicators of Becho Woreda of Oromia Regional State report, sanitation coverage in the woreda was 49.7 percent Urban, while only 25 percent rural. As result of the open field defecation practices, human excreta contaminate the surface soil and field, food and water sources. The exposed excreta provide breeding places for flies and other insects. Since people have living with have no adequate sanitation facilities and poor hygiene management practices (Becho Woreda Health office, 2016).

According to Cairn cross and Valdmanis (2006) acknowledged that sanitation refers to “excreta disposal but also Includes other environmental health interventions. The term sanitation therefore also loosely falls under the broader definition of environmental sanitation, which refers to arrangements which cover issues related to drainage of storm-water and effluents, flood management, collection and disposal of garbage and removal of human excreta.

The other Pandve (2008); Rautanen (2010) and Pandve (2008) further highlight that: “environmental sanitation involves not only the facilities which are provided by governmental authorities but also includes the attitude of the community. This is due to the fact that a better environment can result, if community members work towards the same goal”. “Sanitation is seen principally as the removal of human excreta or the availability of appropriate facilities for its disposal, for example; in tracking progress of the Millennium Development Goals (MDG’s) the term improved sanitation is used and it refers to connection of households to a private or sewer septic system (with a soak away), a pour flush latrine, a simple pit latrine, or a ventilated improved pit latrine”. Public latrines fail to provide an adequate solution to the community excreta disposal needs because of problems with inadequacies in their maintenance and inaccessibility at night by the elderly, disabled and young children. It should be noted that these inadequacies sometimes lead to open defecation or inappropriate excreta disposal which sometimes reach sensitive aqueous environments or pose risks of human contact. This therefore means that just having these public latrines constructed is not a clear cut solution to resolving sanitation problems. The ability to engage in good sanitation depends on the availability of water which is used for cleaning and elimination of wastes. Water availability therefore influences the type and functionality of the sanitation facilities which exist and as such it is not unusual for the two to be studied in relation to each other. There have been differences in opinion as to the combined effect of water and sanitation services on users (Hamner et al. 2006 and WHO/UNICEF 2000).

Globally around 2.5 billion people lack access to an improved sanitation facility; in Ethiopia only 32% of rural households use improved sanitation and similarly good hygiene practices. However, 65% rural population still uses unprotected water sources and 68% practices open defecation. Human and animal excreta which lead to contamination of the soil, surface water and ground water because of lack of sanitation facilities, and also Poor knowledge of the links between water, excreta and disease, and poor hygiene practices due to this diarrhea is among the leading causes of deaths of children under five years in the country. Poor hygiene and inadequate sanitation quickly spread diseases and millions of children who die each year from diarrheal and other water -related diseases (JMP, 2014 report).

Based on the definition of Esrey et al. (1991) in terms of hygiene, “it may refer to a practice which is either personal or domestic. Personal hygiene refers to the use of water for cleaning parts of the body and domestic hygiene refers to water used to clean items in the home such as food, utensils and floors. WHO/UNICEF, (2000), Poor hygiene would also be expected to have sanitary consequences.

Sanitation remains one of Africa’s major public health challenges. On average, half of the population in Sub-Saharan Africa does not use appropriate facilities. Poor sanitation causes millions of people worldwide to contract fecal borne illnesses, the most common being diarrhea. However, there are regional variations across the continent, with people living in rural areas less likely to have access to improved water and sanitation facilities.

### **1.1.2. OVERVIEW OF THE STUDY AREA**

Becho is one of the woreda in the Oromia Region of Ethiopia far-away about 80 km south west from Addis Ababa and it is part of the Debub Mirab Shewa Zone; Becho is bordered on the south by Kokir, on the west by Walisona Goro, on the northwest by Dawo, on the north by Ilu, and on the east by Tole. The major town in Becho is Tulu Bolo. According to the 2007 national census reported a total population for this woreda of 74,016, of whom 37,481 were men and 36,535 were women and around 12,336 households; 14,476 or 19.56% of its population were urban dwellers. With an estimated area of 426.72 square kilometers, Becho has an estimated population density of 176.4 people per square kilometer, which is greater than the Zone average of 152.8. The three largest ethnic groups reported in Becho were the Oromio (90.32%), the Amhara (6.87%), and the Slite (1.66%); all other ethnic groups made up 1.15% of the population. Oromiffa was spoken as a first language by 90.35%, 8.13% spoke Amharic, and 1.05% Slite; the remaining 0.47% spoke all other primary languages reported.

The majority of the inhabitants said they practiced Ethiopian Orthodox Christianity, with 95.17% of the population reporting they observed this belief, while 2.18% of the populations were Muslim, 1.46% was Protestant, and 1.09% observed traditional beliefs (A Map of Oromia Region, assess from Google Map).

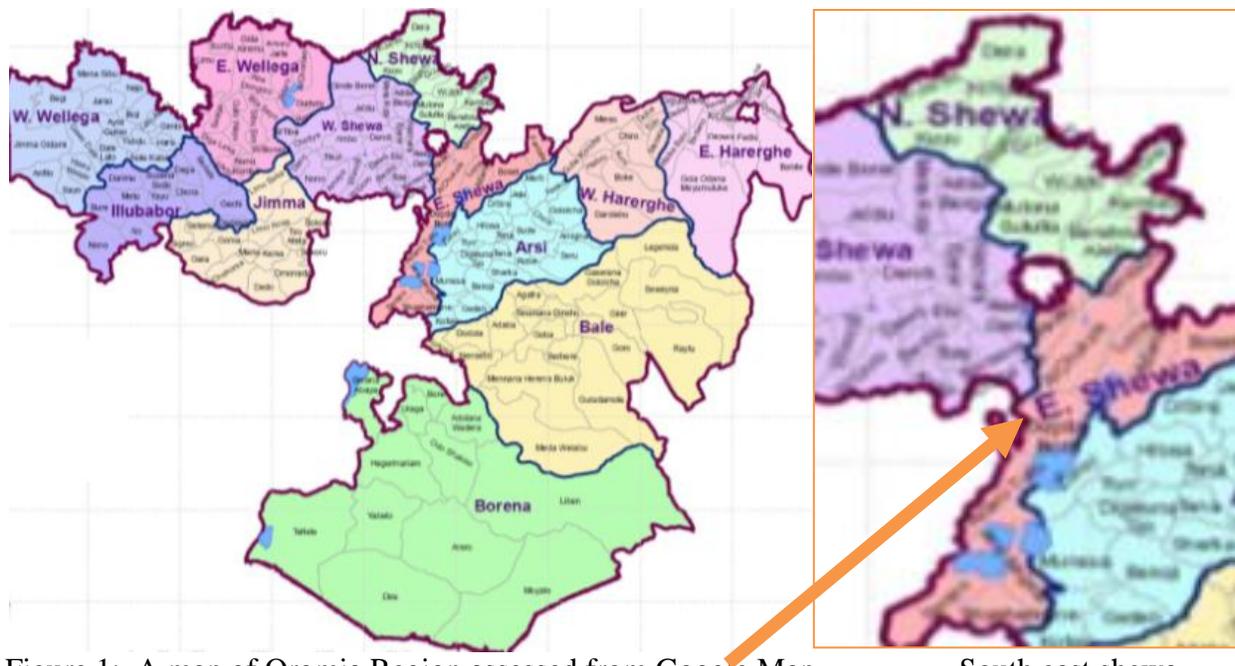


Figure 1: A map of Oromia Region assessed from Google Map.

South east shewa

## 1.2. STATEMENT OF THE PROBLEM

Inadequate sanitation and poor hygiene management have been found to be major problems in rural areas. According to Ethiopian one WASH national program report in August, (2013), the coverage of water, sanitation and hygiene is very low compared with other African countries as a result the prevalence of communicable diseases is well-known. While the government is committed to addressing this situation, however; still there are the challenges faced in improving the state of sanitation and hygiene. The impacts which poor sanitation and hygiene could have on environmental and public health have been also addressed. Accordingly excreta borne diseases such as Typhoid fever, shigellosis, Amoebiasis, Helminthes infections are very common and serious in all developing countries and the same is true in the studied Woreda. These diseases can easily be controlled if everybody uses a properly constructed and maintained Latrine system and by keeping proper hygiene's (Morgan, 2007).

According to the World Health Organization, no single type of intervention has a greater overall impact on the national development of public health than does the provision of safe drinking water and proper disposal of human excreta. Human feces are the primary source of diarrheal pathogens. Poor sanitation, lack of access to clean water, and inadequate personal hygiene are responsible for an estimated 90 percent of childhood diarrhea (WHO 1997). Although several

studies have been done in factors affecting implementation of sanitation and hygiene projects in the world but very little has been done at national level. However; there had not been conducted the same research in the previous time in Becho Woreda. For that reason, it needs to investigate and know the community sanitation and hygiene practices and the implementation challenges accordingly to be able to improve on the situation. The second point is that there had not much literature that guides to improve the bad behavioral sanitation and hygiene practices of the community and the mechanism alleviate the implementation challenges that affect sanitation and hygiene project in Becho woreda of Oromia Region. The study focuses on sanitation and hygiene related issues because many households in Becho Woreda still lack private toilet facilities, good hygiene management and have inadequate water treatment.

According to the Oromia Region report sanitation and hygiene coverage in the woreda was not more than 49.7 percent in the woreda town, while only 25 percent in rural. As the result of the open field defecation practices, human excreta contaminate the surface soil and field, food and water sources. The exposed excreta provide breeding places for flies and other insects and finally the health of human easily vulnerable to diarrheal and related diseases. Because of this to help improve public health, livelihood conditions and save lives, improving global access to drinking water and safe sanitation and proper management of hygiene is the only answer; while some improvements have been achieved in the past decade regarding access to safe water (Becho Woreda Health Office “sanitation and hygiene related indicators, 2016).

### **1.3. RESEARCH QUESTIONS**

The study could be answering the following questions:-

- 1) What condition of sanitation facilities and hand washing devices are present in households?
- 2) How do the communities use the sanitation facilities and hygiene management practices?
- 3) What are the major challenges related to implementation of sanitation and hygiene?
- 4) What extent the implementers carried out monitoring and evaluation of sanitation and hygiene projects?
- 5) What extent the government sanitation and hygiene policies and guidelines affect implementation of sanitation and hygiene projects in the study woreda?
- 6) What is the relationship exists between usage of latrine and family health?

## **1.4. OBJECTIVE OF THE STUDY**

### **1.4.1. GENERAL OBJECTIVE**

The overall objective of the assessment study is to evaluate the community sanitation and hygiene practices and implementation challenges of sanitation and hygiene projects and provide valuable remedial inputs for the improvement of the projects in Becho woreda.

### **1.4.2. SPECIFIC OBJECTIVES**

- 1) To assess the conditions of sanitation facilities and hand washing devices in households.
- 2) To assess the gaps in knowledge in relation to usage of sanitation facilities and hygiene management
- 3) To investigate challenges related to implementation of sanitation and hygiene projects.
- 4) To evaluate the implementer's participation in monitoring and evaluation of sanitation and hygiene projects?
- 5) To review the government sanitation and hygiene policies and guidelines in the implementation of sanitation and hygiene project in the study woreda?
- 6) To analyze the relationship exists between the usage of latrine and family health in Becho Woreda.

## **1.5. SIGNIFICANT OF THE STUDY**

Up on the completion and dissemination, this study would have a trusted impact on the knowledge and orientation of the kebele sanitation and hygiene facilitators, the woreda health office, woreda WASH steering committee, EKHCCDC water, sanitation and hygiene program and the local community in altering the challenges in implementation of sanitation and hygiene, the situation of latrine use and improve the family health in the study area.

The education and training is concentrating on changing an individual behavior. The first significant step of H&S promotions are improve good hygiene practices and to end open defecation as an entry point even as changing sanitation behavior. However, in the country level regarding to sanitation and hygiene no further exploration has done in the previous year's therefore, this study will be contributed a significant impact or remedial solutions for WASH implementers , researchers and policy makers to improve the performance of hygiene and

sanitation. The study document may also serve as a secondary baseline survey reference to future researcher that may want to conduct a like or similar research in the kebele or the woreda. It will fill the research gap that is perceived currently.

## **1.6. SCOPE AND LIMITATION OF THE STUDY**

### **1.6.1. SCOPE OF THE STUDY**

The scope of the study was mainly focused in one woreda in south west shewa Becho Oromia Regional State and addressed small number of households in relation to challenges and practices in implementation process of sanitation and hygiene (S&H) projects and assessed the way of community sanitation and hygiene practices. However; the detail status of their family health and the other training approach part were not incorporated in the study. Because it needs more time, finance and a detail impact evaluation of sanitation and hygiene on the environment, design and quality of latrine construction as well as various health issues of a family.

### **1.6.2. LIMITATION OF THE STUDY**

The study admitted some challenges as imagined in the research. One of the challenges was that the vast area of the study woreda, it has (21) kebeles with very scattered settlement of the community and absent of transportation system covered each site, so it limited the sampling number of households. The other limitation of the study was also constrained by limited information based on the particular study area of the woreda and unwillingness of some households to give the needed data for fear of reporting and feeling of shame to expose the secrets of their latrines. The researcher has overcome these all challenges and limitations technically and efficiently and finally managed to complete the research process.

## **1.7. ORGANIZATION OF THE STUDY**

The study paper has organized from five chapters and the first three chapters (one up two three) are incorporated in this research proposal document and the next two chapters (four and five) were constructing in the research thesis document. Each chapter consists of the main research components and possibly outlined according to the university research guide line principles.

The first chapter is introducing about introduction and back ground of the research title it gave complete information about the research paper ,definition of operational research terms, research

study questions, objectives, significant of the study, scope and limitation. It could be gives clear information to the readers. The second chapter devoted on the literature review and addresses all the theoretical review, empirical review, conceptual frame work and study hypothesis, this part builds up using other researchers study paper for more clarification of this study paper and also supported to prove the research title and clearly stated the problems and full fill other researcher's gap.

The third chapter focused on the research design and methodology that the researcher have used during the study. The other one is data collection instrument, procedures of data collection, method of data analysis. This chapter will discuss all component part of the study design and methodology. The fourth chapter is the main part of the research, how the researcher has analyzed data and what the results of the research would be. It is clearly explained in this chapter. The fifth chapter is the last chapter of the research and it has contained the core part of the research study which deals about the final findings, conclusions and recommendations of the research. It is let know to the readers all about what the researcher wants to answers and contributing to the woreda health office, entire community in the study area and WASH implementers are draw on it from the result and the key terms in this research have used **sanitation**, hygiene, project implementation ,sanitation **practices and challenges**.

## **1.8. DEFINITION OF KEY TERMS**

**For the purpose of this study key terms were defined based on the message connotation**

**Sanitation:** -“The term sanitation is defined as the practices and principles of collection, reuse and disposal of human excreta and domestic wastewater” (Cave & Kolsky 1999; Elledge 2003).

**Hygiene:**-nurturing good hygiene practices, especially hand washing with soap or the practice of keeping yourself and your surroundings Clean, especially to avoid illness or the spread of preventable Diseases (Cave & Kolsky 1999; Elledge 2003).

**Implementation Challenges;** - The situations which are faced the implementation of sanitation and hygiene as to attain the project successfully Orlando L. 2001.Sustainable Sanitation.

**Sanitation Practices:-The community a day to day application and performing method of hygiene and sanitation measures to keep their health (WHO, 2006).**

## **CHAPTER TWO:-RELATED LITRATURE REVIEW**

### **2.1. Introduction**

The researchers has evaluated an extensive review of the WASH research literature, to both inspired the researcher objectives and a better articulated regarding, the challenges and practices in implementation of sanitation and hygiene projects.

Unsafe water and inadequate sanitation and hygiene in rural communities throughout the developing world are one of the world's most vital and timely challenges. According to the latest Joint Monitoring Program (JMP) of United Nations Children's Fund (UNICEF) and World Health Organization (WHO) basic and improved household sanitation coverage and good hygiene practices in Ethiopia is estimated to be at 63%. As a result it is estimated that around 37% of the population (over 35 million people) still don't have access to any form of toilet and therefore defecate in the open field. Within this there are disparities between the rural and urban context, with 43% of people living in rural area defecating in the open compared to 8% in urban areas. consistent with global trends in Ethiopia those lacking access to improved sanitation are those in the bottom poverty quintiles, with more than three quarters of the poorest quintile practicing open defecation compared to just 12% of the richest. The lack of access to improved sanitation and the practice of open defecation have significant socio-economic impact on the households without access and those living in communities where access to sanitation is low. While it is clear that access to latrines in Ethiopia is still low (UNICEF-WHO, Joint Monitoring Report, "Progress on Drinking Water and Sanitation, 2014).

### **2.2. THEORETICAL LITERATURE REVIEW**

Half of the world's population lives without access to clean water and basic sanitation. In fact, more people have access to cell phones than to a toilet. The billions of people who lack access to clean water, sanitation and hygiene (WASH) are vulnerable to sickness and disease (Wang, 2013). Safe disposal of excreta and hygiene behaviors are essential or the dignity, status and well being of every person, be they rich or poor, irrespective of whether they live in rural areas, small towns or urban centers.

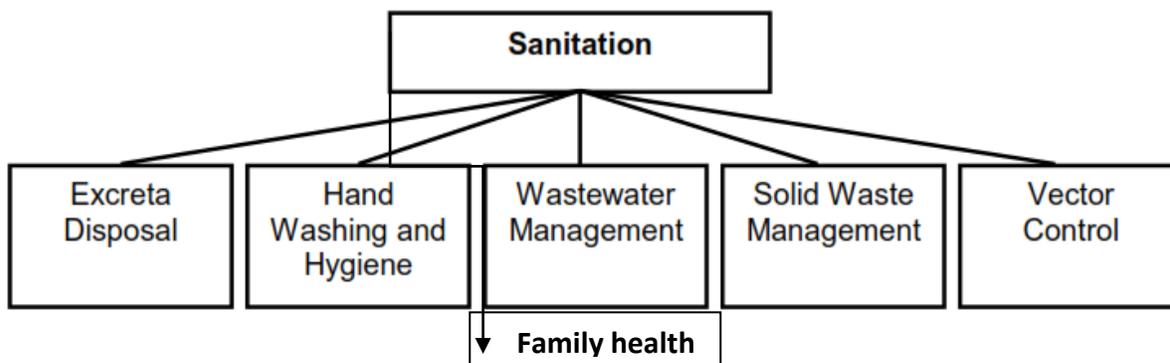
### **2.2.1. Theory of Sanitation and Hygiene**

Access to safe drinking water is a fundamental human need and human right for every man, woman and child. People need clean water to maintain their personal health and dignity. Health can be compromised when pathogens--microorganisms that cause disease such as bacteria, viruses, protozoa and helminthes--contaminate drinking water. The majority of the microorganisms that contaminate drinking water come from human feces. One gram of feces may contain 10 million viruses, one million bacteria, 1000 protozoan cysts and 100 worm eggs (WHO/UNICEF JMP, 2010).

Around 2.6 billion people lack access to adequate sanitation globally (WHO/UNICEF JMP, 2010). Inadequate access to sanitation facilities forces people to defecate in the open, thus increasing the risk of transmitting disease through fecal contamination. At any given time close to half the people in the developing world are suffering from one or more of the main diseases associated with inadequate provision of safe water ,sanitation and hygiene management, such as diarrhea, guinea worm, trachoma and schistosomiasis (UNDP, 2006). Diarrhea is one of the leading diseases that cause death and illness, killing 1.8 million people and causing approximately 4 billion cases of illness every year. Ninety percent of diarrheal deaths are children under the age of five, mostly in developing countries (UN-Water, 2009).

Sanitation is a system of interventions used to reduce human exposure to disease by creating a clean living environment and instituting measures to break the cycle of disease. These interventions usually involve hygienically managing human and animal excreta, solid waste, and wastewater; controlling disease vectors; and providing washing facilities for personal and domestic hygiene. Environmental sanitation requires that both behaviors' and facilities work together to form a hygienic environment (EAWAG & WSSCC, 2000).

the proper use of latrines and good management of hygiene can reduce the risk of diarrhea to almost the same extent as safe water supplies., but generally the greatest benefits occurs when improvements in sanitation and safe water supply combined together and education is given on hygiene practices. However there is another view that the efficiency of controlling diarrhea could depend on a single intervention and not because of combined effort (Charles, 2006).



**Figure 2: Theoretical frame work**

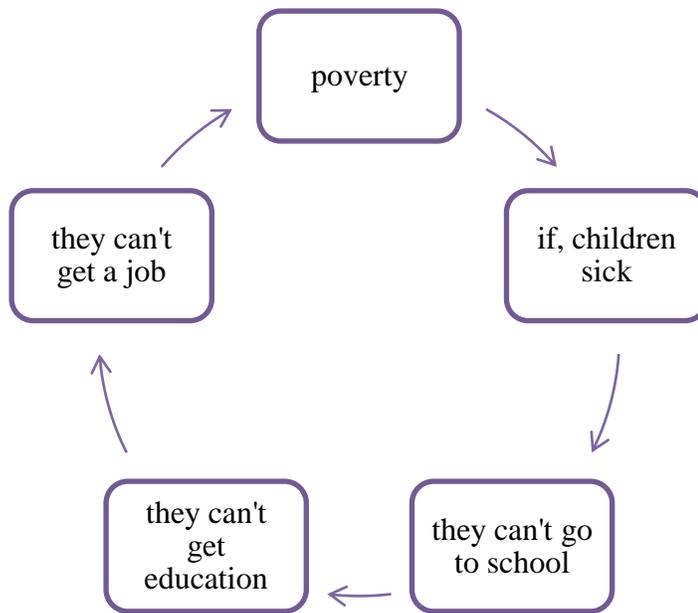
Charles P. (2006) Child hood diarrhea in Epidemiology and Ecology of Health and Disease.

### **2.2.2. THEORY OF WASH, POVERTY AND INEQUALITY**

Poverty and poor water, sanitation and hygiene (WASH) are directly linked. Being born into poverty means living in an environment where the community doesn't practice safe disposal of human waste. Poor sanitation practices can contaminate local water supplies and heighten the risk of contracting hepatitis A, cryptosporidium, schistosomiasis and cholera. Poor sanitation and high-risk hygiene behaviors confine the poor in a vicious cycle of poor health, environmental degradation, malnutrition, reduced productivity and loss of incomes.

Impoverished families in situations such as this cannot afford to purchase clean water and soap, and may not have the education available to them to know the cause of their illness. Poor WASH also leads to poverty. When a child becomes sick, they cannot attend school. When a parent suffers from a waterborne illness, they cannot work. A child who misses school doesn't get a full education and as a result, they are less likely to be employable. An adult who misses work cannot make a living wage, which means they will struggle to pay for medicine, school fees and food. Poverty leads to poor WASH. Poor WASH leads to poverty. This is the cycle of poverty that half of the world's population is struggling with.

Access to sanitation, namely the provision of facilities and services for safe management and disposal of human urine and faeces, safely managed sanitation services' means using an improved sanitation facility, which is not shared with other households and where excreta are safely disposed in latrine or treated off-site (Charles, 2006).



**Figure 3: Poverty cycle;**

Charles P. (2006) Child hood diarrhea in Epidemiology and Ecology of Health and Disease.

### 2.2.3. Illustrative Responses to Sanitation and Hygiene

The Water Supply and Sanitation Collaborative Council (WSSCC, 2010) gives the most comprehensive overview of responses to sanitation and hygiene at a global level. This section makes specific reference to East Africa. In Kenya, Uganda and Tanzania, the Participatory Hygiene and Sanitation Transformation (PHAST) approach to water and sanitation projects has been adopted to promote hygiene and sanitation improvements, and community management of water and sanitation facilities. PHAST introduced that hygiene behaviors' are particularly difficult to change because they relate to daily activities, the whole community shares them and they form part of the culture and traditions of the community. This is addressed by involving community groups in discovering the routes of water-borne diseases, analyzing their own behaviors in light of this information and then planning how to block contamination routes. PHAST also facilitates communities in deciding what they want from hygiene and sanitation projects, how these should be set up and paid for and how to ensure sustainability.

Another approach adopted in Kenya and Uganda to promote safe hygiene practices is the Personal Hygiene and Sanitation Education (PHASE), which targets school children. It aims to reduce diarrheal diseases linked to poor hygiene and to improve children's overall health and wellbeing by providing guidance on the importance of hand washing and other hygiene practices.

A multi-country study on sustainability of hygiene behavior involving selected countries in Asia and Africa, including Kenya, indicates that intensive hygiene promotion interventions, such as working with small groups and through personal contact, will have tangible and sustained impact on people's behavior (Cairncross and Shordt, 2004). The study further concludes that sustainability of the desired behavior is possible when hygiene is highly prioritized and adequate resources are committed to hygiene promotion.

## **2.3. EMPIRICAL LITERATURE REVIEW**

### **2.3.1. Challenges in Implementation of Sanitation and Hygiene**

During the project life cycle the project managers encounter problems which may adversely challenge the progress of the project in terms of time, budget and expected quality (Garashie 1999). The challenges of sanitation and hygiene for East Africa's urban poor are complex. A fundamental reason for the limited progress towards promoting sanitation and hygiene are that these Sectors are traditionally associated with cultural taboos or stigma (UN-Water 2004). According to Marshall (2004) sanitation is also a less attractive investment option for the private sector. Reasons for this include the long payback periods or return to investment compared to developments such as utility services. In addition the negative association with hygiene and faeces tackles is not attractive to international donors looking to financially support development projects. This negative association often results in sanitation and hygiene 'disappearing' when the stages of government policy making, planning and implementation come about (UN-Water 2004).

#### ***2.3.1.1. The Lack of Available Baseline Data***

A lack of human resources within the public sector and a limit to the technical skills available within the workforce .The water, sanitation and hygiene sector has human resource shortages in the areas of resource management, sanitation engineering, and quality control and examine technicians (Government of Timor-Leste & UNCT 2004).

#### ***2.3.1.2. The Policy Content***

The lack of government policies caused by the resource constraints and newness of the nation's governance because the particular challenges are identified with forming environmental policies

which enforce environmental impact assessment practices, so that natural resources are properly managed (Government of Timor-Leste & UNCT 2004).

A striking feature of the S&H policy is that its key elements were formulated in brief and general terms, to such an extent that it seems the new approach of the SNNPR BoH was nowhere described in detail in accordance with the conventional manner of documenting a policy strategy. The health ‘ignition’ and ‘revitalization’ documents prepared by the BoH and the verbal statements made by its representatives refer to: ‘Low cost’ increasing coverage using local resources, without relying heavily on external Support. This included removing hardware subsidies to latrine construction and encouraging construction of latrines from locally available materials; And ‘Broad-based’ and ‘household-centered’: shifting from a service driven to a demand driven approach across the region. This required more focus on S&H education reaching people at village level. It included changing the features of S&H education from health institution-centered to household-centered, and using interactive dialogue based methods of communication (Bethel Terefe and Katharina Welle, The case study from the SNNPR Ethiopia, March 2008).

### ***2.3.1.3. The Hygiene Education Programs***

Studies have shown that the simple practice of hand washing with soap can reduce the risk of diarrheal diseases by 42-47% (Mooijman 2003). Therefore, the implementation of hygiene education programs in conjunction with sanitation technologies is critical to ensure a sustainable solution to community health problems.

Hygiene education programs are designed to demonstrate the link between sanitation, hygiene, health and economic prosperity so as to promote the importance of good hygiene practice to a community (UN-Water 2004).

The Aus AID Community Water Supply and Sanitation (CWSSP) program in Timor-Leste, have identified five key hygiene related behaviors’ which should be emphasized in hygiene education Programs (Dwan, 2006). These are to: Cover water containers to keep water clean; build latrines; practice hand washing; keep animals in pens; and clean up around the community - especially mosquito breeding sites.

Some approach like CLTSH concentrates on the whole community rather than on individual behaviors. Collective benefit from stopping open defecation can encourage a more cooperative

approach. People decide together how they will generate a clean and hygienic environment that benefits everyone to the purpose of blocking the spread of disease and enabling the environment. (Kamal Kar November, 2005). However; the researcher of this thesis absolutely against the idea of the pioneer of CLTS because sanitation and hygiene is needs an individual knowledge and commitment, it beyond constructing latrine and washing hands with soap.

#### ***2.3.1.4. Generating Behavior Change***

The difficulty associated with generating behavior change can be attributed to many factors such as change being too time consuming or expensive. In addition getting communities to change traditional practices takes large amount of time, resources and skills and often requires generational change. It relates to the importance that the educational approach is designed around the specific needs, wants and situation of the community (Curtis 2005).

Therefore; it is important that thorough studies are undertaken to understand the community's attitudes and traditional beliefs to defecation, anal cleansing, water quality and cleanliness (Dwan 2006).

Clearly speaking that, hygiene promotion requires careful planning, a large amount of resources and skills and should be able to stand alone as a solution to reducing morbidity and mortality within a community (Curtis 2005).

#### ***2.3.1.5. Geographic and Lack of Human and Technical Capacity***

Difficult areas in terms of provision or excreta disposal facilities, the peculiarities that can be encountered with excreta disposal can arise due to complications related to: rocky grounds, high water table, highly populated area not enough room for pit latrine, terminate damage, loose/sandy soils. However; it is critical that implementation observes appropriate steps so that the solutions are sustainable based on simple technologies which can be carried out by the communities and maintained and operated over the long term. There are several key factors which determine whether technology is appropriate for the specific situation or not.

In many developing countries a lack of capacity in terms of human resources inhibits development, particularly at a decentralized level. The multi-faceted nature of WASH means that a wide range of different disciplines and skills is required to improve sanitation and hygiene provision. While the water sector has tended to be 'dominated by engineers who feel comfortable

with technical problems and tend to lean towards technical solutions’ (Jenkins and Sugden, 2006), household sanitation ‘requires softer, people-based skills and takes engineers into areas Where they feel uncomfortable and unfamiliar’, Promoting behavior change at household level is an area ‘where most countries have few skills... and limited capacity. Most public agencies are unfamiliar with or ill-suited for this role’ (Evans, 2005).

#### **2.3.1.6. Monitoring and Evaluation**

Monitoring and evaluation has been recognized by many agencies and organizations as crucial processes to effective development projects. A USAID (1997) emphasizes in the Monitoring and Evaluation Capacity Building Study that although different processes monitoring and evaluation are closely linked and of equal importance. The capacity of monitoring as a tool relates to the accuracy and availability of information, requiring information for the identification and assessment of the problems and successes of a project (Cook 1997).

#### **2.3.1.7. Lack of Coordination**

The lack of clarity in some developing countries over who – or which institution(s) – is responsible for which of the functions. The most commonly adopted arrangement is that the institutional ‘home’ of sanitation is located within ministries of water. A second option can be to place sanitation within the remit of the ministry of health: a number of activities have a public health element, and there is a natural link therefore between hygiene and health (particularly preventative health). Another possibility might conceivably be a separate ministry for sanitation. Since, however, the range of water, sanitation and hygiene-related activities is so wide, searching for ‘the right institutional home’ may not be fruitful. Arguably more important is establishing links between institutions, e.g. via planning processes which bring together departments from several responsible ministries. Creating and linking budget lines across several responsible agencies may be an effective way of achieving coordinated policies. National WASH platforms, placed alongside but kept distinct from government, can help support joint planning by several agencies responsible for sanitation and hygiene, without joint implementation being necessary or appropriate, due to differing time-scales and skills requirements (Schaub-Jones et al 2006,).

### **2.3.1.8. Cultural Factors**

Indeed, beyond individual motivations, further potential barriers referred to in the international literature are cultural factors which make the intended beneficiaries of sanitation and hygiene promotion projects reticent or resistant to new facilities. Cultural difference arises from gender: variations in the perspectives of women and men on sanitation facilities are noted by many commentators. The views of adults and children vary too. Household circumstances are also diverse. Different ethnic groups may have varying beliefs and customs, while attitudes to sanitation and hygiene may vary substantially between urban and rural contexts (WSP, 2002).

### **2.3.2. Sanitation and Hygiene Practices**

#### **2.3.2.1. Utilization of Sanitation Facilities**

Improving water and sanitation facilities does not necessary lead to a decrease in water and sanitation related diseases. To bring about real improvement in health, the installation of facilities has to go hand in hand with their proper use and maintenance, hygiene promotion aims to ensure the proper use and maintenance of facilities by motivating people to change their behavior Proper latrine use is a behavior much beyond structures. Using a latrine, hand washing after latrine use, maintaining a latrine in an adequately sanitary state, is in many cases, more of factors of attitude and habit than existence of structures (IRC 2004).

The adoption of a particular latrine design is reliant on the economics and technical advantages of the option. However it has also been found that the adoption of particular technologies by the community is more widely influenced by cultural factors, local materials and ownership of the technology (Robinson 2002). Defecation and faeces have long been universally associated with cultural taboos, pollution and danger (Jenkins 1999), and these attitudes can restrict the prospect of project success. The feasibility of a sanitation system not only depends on the physical Parameters of water availability, soil and groundwater levels, but also the cultural and socioeconomic conditions of the community (IRC 1997).

Significantly the age of first exposure to latrines has been shown to influence the attitudes of an individual, where early age exposure promotes positive attitudes towards latrine adoption. These indicators are also important in aiding interpretation of cultural and social significance of latrines which influence the adoption of a system. These can be used as a tool to assess the awareness of

individuals in the community. This is important as successful implementation cannot occur if individuals are not aware of how a latrine is constructed, operated and maintained (Jenkins 1999).

### ***2.3.2.2 Proper Use of Latrine***

The construction of latrine is a relatively simple technology that is used to prevent the spread of infectious diseases. While household access is important, community sanitation coverage is even more important to improve health through the regular use of well-maintained sanitation facilities (Morgan, 2007).

Cultural values towards sanitation facilities are key elements affecting the continued latrine utilization, Odor and fly problems are often quoted as deterrents to use latrine facilities. The only available knowledge, attitude, and practice study undertaken by Ministry of Health in Ethiopia indicated that the major reasons for not using latrines were lack of superstructure, poor hygiene and poor maintenance of latrines (Kumie, 2005). The availability of such infrastructure, however, is not worth unless the readiness to use is guaranteed. Latrines act as direct, physical barriers between people and the harmful pathogens associated with faeces as they collect and control excreta to a designated, confined area (NWP et al. 2006).

As a result, the implementation of safe and hygienic latrine technology as widely accepted as dramatically reducing the risk of direct faecal contact which reduces the occurrence of disease. Vast amounts of literature exist relating to specifications and design of latrines. However; implementing the right technology for a project relates to having effective alternatives and making the correct choices for the individual situation (UN-Water 2004).

### ***2.3.2.3. Frequent Cleaning of Latrine and Environment***

Disease-causing agents transmitted through human excreta are viruses, bacteria, protozoa, intestinal parasites and the like. These disease agents affect more the people who are at lower living standard and cause economic and social damages. The existence of these disease causing agents when combined with the habit of carelessness and lack of clean, tidy and germ-free environments, the consequences to family health are tremendous (Haidar, 2009).

Communities can be trained in the ways they can clean and keep their environments tidy without ceasing. In order to enable the community to prevent the above-described diseases, the

community has to bring about behavior change. In order to effect this change, environmental health and health education are the important determinants. Therefore, the main concept shown in the table 1:1 below be given as training to the community to enable them to grasp the idea, and based on this build and use safe latrines (WHO, 2001).

*Table 1:1: Diseases Transmitted Through Human Excreta and Their Control Measures (Haidar, 2009 journal disease-causing agents and preventive measures).*

S.N	Disease causing agent	Type of disease	Preventive Measures
1	Virus	<ul style="list-style-type: none"> <li>• Hepatitis A</li> <li>• Polio etc</li> </ul>	<ul style="list-style-type: none"> <li>• Building and using properly latrine</li> <li>• Washing hands with soap after visiting latrine</li> <li>• Keeping water safe</li> <li>• Eating safe food</li> <li>• Not to use fresh as fertilizer</li> <li>• washing properly vegetables eaten raw</li> <li>• Eat properly cooked meat</li> <li>• Avoid Walking bare foot</li> <li>• Do not wash in polluted water and do not bathe in polluted water</li> </ul>
2	Bacteria	<ul style="list-style-type: none"> <li>• Shigellosis</li> <li>• Typhoid</li> </ul>	
3	Protozoa	<ul style="list-style-type: none"> <li>• Entameba histolytic</li> <li>• Guardia etc.</li> </ul>	
4	Intestinal parasites	<ul style="list-style-type: none"> <li>• Ascariasis</li> <li>• Hook worm</li> <li>• Tape worm</li> <li>• Bilharzias</li> </ul>	

#### **2.3.2.4. Hand Washing Practices**

Information on hand washing in Ethiopia is limited to a number of qualitative studies but compliance with the four critical times (as a basic minimum) is thought to be as low as 7%. The emerging picture suggests that there is a culture of hand washing before eating but with water only. The frequency of washing hands after defecation and after cleaning a child (after defecation) is also primarily with water only and generally not so widely practiced. Personal hygiene is a key to model household status but the availability of soap and water to enable hand washing at critical times remains a considerable challenge. Hand washing is very important in the fight against diseases linked to poor hygiene and poor sanitation. The celebration on 15th October, around the world, the World Hand washing Day, happened with the reminder that this simple practice can save lives. The celebrations consist of several activities highlighting the lectures on proper hand washing in schools, health facilities, communities, and days of cleaning, construction and promotion of proper use of latrines (Charles, 2006).

The Ministry of Health emphasizes the importance of hand washing as part of a set of measures that are needed to stop the spread of contagious diseases, as an additional means of defense, this

is cheap and easily available. Hand washing with soap or ash and clean water is one of the cheapest and most effective preventive measures against certain diseases (Ministry of Health, 2007).

### **2.3.2.5. Covering Latrines and Burying Excreta**

There are very important advantages of covering the latrine facility by the users or whenever the excreta is passed, it is good to bury it so that the agents and vectors will not carry it around and contaminate the households. Using properly constructed latrine and burying excreta in proper pit has some advantages like; helps to avoid direct contact with ,avoids pollution of soil, water, air, animals and vegetables by human excreta, helps to prevent contact of flies, rodents, and other insects etc with , avoids foul odor from the environment, hence helps to maintain beautiful surroundings (Gabre, 2009) .

We can see clearly the advantages of using properly constructed latrine and hand washing from the following chain of excreta /-borne diseases transmission.

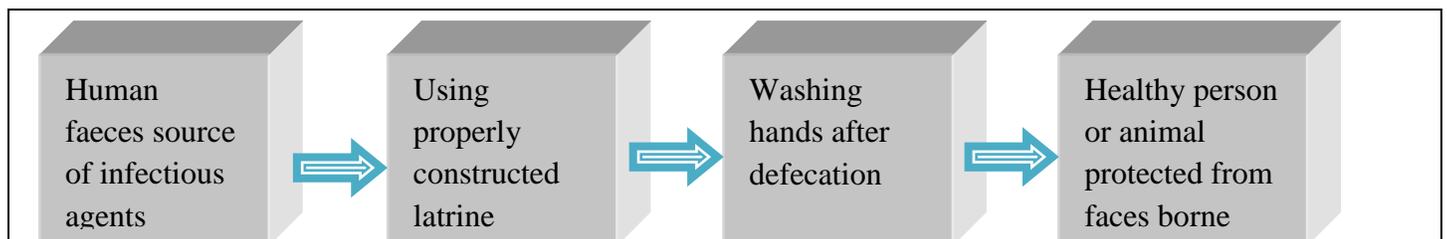


Figure 4: Advantages of using properly constructed latrine & hand washing

### **2.3.2.6. Building House around Latrine**

Building latrine using local resource: In order to avoid health risk and create convenience, the site should be at least 6 meters from living house, be sited at least 30 meters from any water source meant for human consumption and at lower gradient from water source and on the leeward side and the latrine should be built in a site where air circulation is not obstructed. If not possible to bail out when full, site should be prepared to build new one.

Latrine facility meant for public and institutions should be located in easily visible place to ensure that there is a path or road to bail out when full. Latrine location should not be water logged and exposed to flooding (Kumie, 2005):

### **2.3.3. Family Health Problems Related to Unsafe Latrines and improper Hand washing**

The following four are the transmission chain for most health problems of the people affected by the lack of proper latrine and proper hand washing.

#### ***2.3.3.1. By eating food without washing hands after visiting Latrine***

A person can touch while defecating, and can spread the disease organism, if he or she eats without washing hands (fingers), he/she contaminate the food contact items, eating plates cutlery, by shaking hands with people, hence diseases such cholera typhoid fever, intestinal pathogens (Ministry of Health, 2007).

#### ***2.3.3.2. By drinking contaminated water either for drinking or food preparation.***

When a person infected by different excreta-borne diseases agents defecates in open field, he contaminates the water by these agents. Healthy person can acquire the disease by drinking contaminated river water, by washing in contaminated water and contacting contaminated water. The diseases contacted are such as diarrhea, typhoid fever, bilharzias etc. (Ministry of Health, 2007).

#### ***2.3.3.3. Transmission by fly***

Flies breed in human excreta, animal dropping, and the like, which are decomposing organic matter. When people defecate in open field, flies carry pathogens from the human food and transmit such disease cholera, amebiasis etc. This happens when the fly rest on foodstuff, which is not covered, man eats this food and gets the diseases (Ministry of Health, 2007).

#### ***2.3.3.4. By walking barefoot on pathogens infested soil***

When a person infected by hookworm defecates on the field, he or she infests the field with infective stage of hookworm. When a healthy person walks bare foot on this infected soil, he encounters the hookworm disease. The infective stage of the hookworm enters into the body by penetrating the bare skin of the leg. In general not using latrine, and defecating anywhere in open field expose the people to such diseases as amebiasis, typhoid fever, shigellosis, cholera, hook worm, bilharzias, ascariasis, tapeworm etc. are spread from man to man and from animals to man (Ministry of Health, 2007).

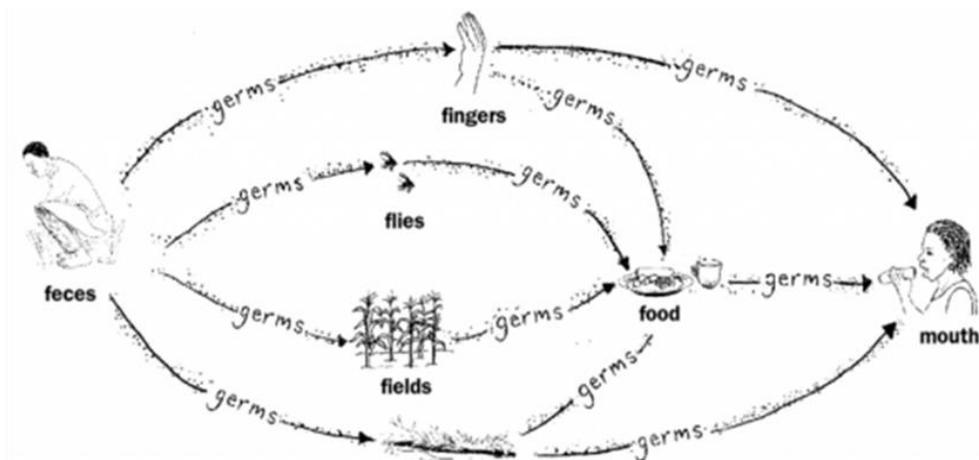


Figure 5: *The transmission routes for enteric pathogens (Schonning & Stenstrom 2004)*

## 2.4. CONCEPTUAL FRAME WORK

The conceptual frame work in Figure 6 suggests that, independent variables were conceptualized into family health. The independent variables of the study were usage of latrines; frequent cleaning ,covering the latrine hole, building house around, after use and before eat hand washing, house hold water treatment & food hygiene management. However the dependent variable was the status of family members' health. Their conceptual relationship is showed as follows:

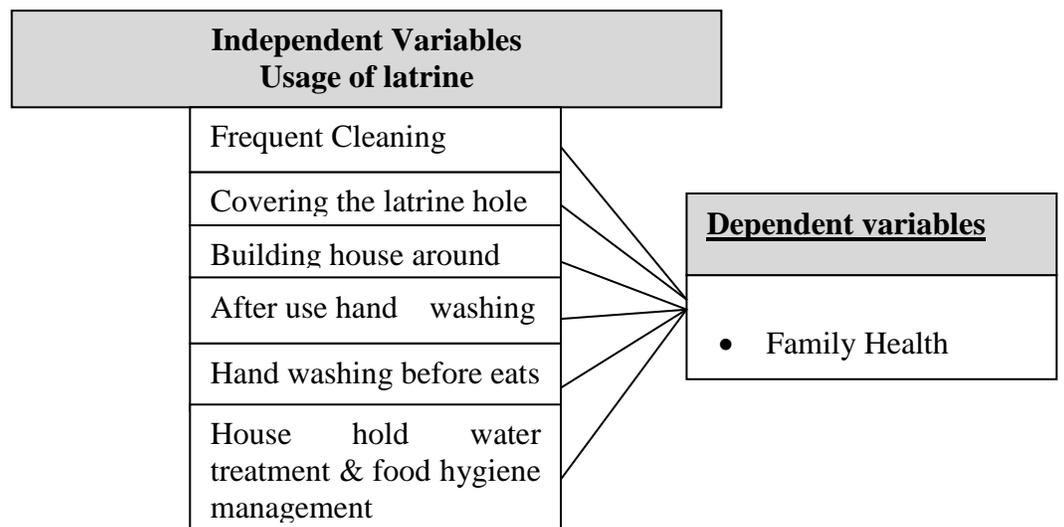


Fig 6: conceptual framework

## **2.5. Hypothesis of the Study**

There is no positive relationship between the accessibility of sanitation facilities, practices and functionality of latrine, effective hand washing and family health in Becho woreda of the study communities.

## **2.6. Summary of Literature Review**

In this literature review a great deal has been said about safe water supply, improved sanitation facilities and proper hand washing and its role in minimizing the possibility of harm diseases by causing agents which transmit different anti-health vectors and hosts. It has been noted that the proper use of latrines and hand washing can reduce the risk of diarrhea to almost the same extent as improved water supplies. However; in general truth, the greatest benefit takes place when improvements in sanitation, good hygiene management and safe water supply are implemented combined together and moreover education is a continuously activities given to the community for a basic change in community behavior.

In this literature review section, the importance of frequent cleaning of latrine , after latrine use hand washing habit, the practice of covering latrines and burying human excreta and the practice of building house around latrine are highlighted and their importance for family health problems alleviation is underscored.

It was known that the transmission of the disease causing agents from latrine can reach the consumers or households by different mechanisms including eating food without washing hands after visiting latrine, drinking contaminated water either for drinking or food preparation, transmission by fly, and walking barefoot on pathogens infested soils.

The second point that was discussed in the literature review is the challenges that resist the improvement of sanitation facilities and good practice of hygiene. Those factors are considerably alleviated by applying and going through the proper implementation process of sanitation and hygiene. To change the community behavior, a continuous awareness and education within the community is essential to ensuring the improved sanitation facilities and good hygiene practices.

## **CHAPTER THREE: - RESEARCH DESIGN AND METHDOLOGY**

### **3.1. Introduction**

The chapter presents the research design to be used in the study, study population, sample size and selection method, data collection and data analysis methods to be used.

### **3.2. RESEARCH DESIGN AND APPROACH**

The research was a descriptive research design. It utilized both qualitative and quantitative methods of inquiry. The quantitative aspects were used to capture quantifiable patterns and the qualitative aspect was be used to explore in-depth the issues at hand. The study was cross-sectional survey given that the issues involved concern more than one section of the study population. For example, the sanitation and hygiene implementers must see to the availability of sanitation facilities but the issue of utilization and the practices involved in this rest more with the households. Sanitation practices in the context of the study refers to latrines/toilet , hand washing devices, availability of water at hand washing devices, hand washing and cleaning the latrine. And implementation challenges refer to budget constraints, community culture, slow community behavioral change, training approaches and effectiveness of trainers. According to Abagi (1995) argues that descriptive research attempts to describe what was or what is in a social system. It is aimed at helping the research have an in depth study of the problem under study. The methodology for this research has been organized by attained both primary and secondary data. And also the questionnaires were designed by aligning the questions to the objectives and research questions of the study and referring to questionnaire examples from various guiding documents.

### **3.3. AREA AND POPULATION OF THE STUDY**

The study was conducted in Becho Woreda of 21 kebele's, woreda health office and Ethiopian Kale Heywet Church Development Commission water, sanitation and hygiene program. The study population included community household heads, WASH implementers staff (managers, coordinators, sanitation and hygiene trainers and supervisors). For confidential reasons, the names of individuals and kebele's have not been disclosed in the study.

### 3.4. SAMPLE SIZE AND SELECTION METHOD

The study woreda was selected through a purposive sampling technique among neighboring similar Woreda's of Illu and Dendi due to its valuable for the researcher. A total of 399 respondents participated in the study. The breakdown of this was 388 from community households, 6 from Becho Woreda health office and 5 from Ethiopia kale Heywot Church development commission (EKHCDC) - integrated water, sanitation and hygiene program staff and organized two focus group discussions (FGD) which had 8 household members in each group.

The employee of the two WASH implementers of woreda Health office and EKHCDC integrated water, sanitation and hygiene program staff were purposively selected due to the key position they holds. The eleven staff for the in-depth interviews was got from the selected two organizations and the unit of sampling is the employees; managers, coordinators, supervisors and facilitators of the project, which are about 30 (M=17 & F=13) and 25 (M=16, F=9) in number respectively. The samples were selected through simple random sampling technique used as samples and filled the questionnaire.

For the community households systematic sampling technique was used. Since; in applied systematic sampling survey for selecting the number of sample households some assumptions were consider like; the study due to the vast size of the woreda kebeles and scattered settlement of community households. Despite the fact that taking the samples from each 21kebele's were very necessity for getting reliable research. The total number of households in the village based on the 2007 Population and Housing Census was 12,336. Since the woreda health office availed the list of all households in each kebele's which the enumerators used for sampling purpose. The sample size used was calculated using a Slovene's sample size which is based on the following formula for large population sizes:

$$n = N / (1 + Ne^2)$$

**Where:**

n = no. of samples,

N = total population

e = error margin / margin of error (0.05)

Then: N= total population or households in the selected woreda were =12,336HHs

The calculations were made based on a confidence level of 95% a confidence interval and (error) of 5% or 0.05. A population size of 12,336 and the resulting sample size used in the survey were 399(388 households and 11 employees). Systematic random sampling and simple random sampling was then used to choose the households in the field and employees respectively in order to further reduce bias.

HENCE;

$$N=12,336/ (1+12,336*0.05^2)$$

$$12,336/ (1+12,336*0.05^2) =12,336/ (1+12,336* 0.0025)$$

$$12,336/ (1+30.84)=12,336/31.84$$

$$n=387.43\sim 388\text{HHs}$$

The number of households per each kebele (587) divided by the number of sample per kebele (587/18) getting 32. And selected a sampling interval of every subsequent 32<sup>th</sup> households on the list being selected (1<sup>st</sup>, 32<sup>th</sup>, 64<sup>th</sup>, 96<sup>th</sup> households etc) using systematic sampling by selecting a random number between 1 up to 32 and random sampling. Hence; for this study purpose only 388 households targeting in 21 kebele's to conduct the study out of the entire HHs of 12,336 in the woreda kebele as table 2:2 shows that the category, total population and the sample size of respondents.

*Table 2:2: summery of sample selection*

Category of respondents	Total population	Sample size
Community households	12,336	388
Project implementers woreda health office	30	6
Project implementers EKHDCD	25	5
<b>Total</b>	<b>12,391</b>	<b>399</b>

### **3.5. DATA COLLECTION METHODS**

As already stated that the study applied using both qualitative and quantitative data collection instruments and these included:

#### **3.5.1. Survey questionnaires**

The sample survey questionnaires constituted the main research instruments because it is easy to use on a large number of subject, 18 household heads from every 21 kebeles and 6 and 5

employees from Becho Boreda health office and Ethiopian Kale Heywet Church Development Commission water , sanitation and hygiene program. It has an advantage of facilitating collection of a lot of information in relatively short time and can be answered by respondents without explanation.

### **3.5.2. Observation checklist**

This comprised of items to be observed. Particularly the researcher used this method to observe the adequacy and utilization of the different sanitation facilities. The enumerators were more focusing on looking at the condition of latrine status; superstructure of latrine, cleanness ,latrine hole coverage condition, placement of hand washing , presence of water at hand washing device, compound sanitation , water and food utensils hygiene.

### **3.5.3. Focus Group Discussion (FGDs)**

These were group discussions with water, sanitation and hygiene committees (WASH COMs) from two selected kebele's. They were adopted so as to compliment the quantitative method by soliciting for explanations that cannot be quantified through sampling views.

## **3.6. Data Analysis and Management**

Quantitative data: After collection, survey data was edited and coded. This is where data was examined for errors and omissions and corrected where necessary and possible. In the coding process, data was organized into categories after which, numerals were assigned to each item before entering them into the computer. The first five objectives would be analyzed by using descriptive statistics after entering using SPSS programme, the computer was used to generate quantitative results including the percentages and frequencies. And shows with table and graphs. The 6<sup>th</sup> objectives were analyzed by using correlation statistic to describe the relationship between the independent intermediate and dependant variables.

Qualitative data: After collection, was coded and analyzed. Editing involved examining data for errors and omissions after which, corrections were done accordingly where possible. Coding involved organizing data into classes/categories in relation to the themes of the study. After this, interpretations were made before making conclusions. The qualitative data would be used wherever appropriate supplement the primary source information in areas related to the process.

## **3.7. Validity and Reliability**

### **3.7.1. Validity**

The study has purposive questions included in the questionnaire. All tools including the focal group discussion and questionnaires were pretested to identify and change any confusing, uncomfortable or offensive questions. Expert opinion was sought on the representativeness and suitability of questions and gave suggestions of corrections to be made to the structure of the research tools. This helped improve the content validity of the data that was collected.

### **3.7.2. Reliability**

The pre-testing aims at determining the reliability of the research tools including the wording, structure and sequence of the questions. This pre-testing includes 15 respondents from the target population. The respondents were easily selected. Since; statistically conditions were not necessary in the pilot study. The purpose was to refine the research tools so that respondents in the major study would have no problem in answering the questions.

## **3.8. Ethical Considerations**

Oral informed consent was obtained from all respondents in Becho Woreda health office, community households and Ethiopia Kale Heywet Church Development Commission water, sanitation and hygiene program. The research authorization letter was obtained from St.Marry's University School of Business and the researcher give high value and respects for ethical standards to prevent alongside the invention or misrepresenting of data. The purpose of this study is for academic incitement. The privacy of this information will be protected and confidential only to the purpose of the study.

## CHAPTER FOUR: DATA PRESENTATION, INTERPRETATION AND ANALYSIS

### 4.1. Introduction

The major findings of the study are presented in this chapter in relation to the objectives of the study. The presentation follows the order by which the specific objectives of the study are stated. The first fourfive objectives were analyzed by using descriptive statistic, which includes percentage and frequency. The 6<sup>th</sup> objective was analyzed by using correlation statistic to describe the relationship between the independent and dependent variables. Methods that involve graphical illustrations and frequency tables have been used in the presentation to reflect statistics that accompany explanations for better understanding.

### 4.2. Demographic Characteristics of Respondents

*Table 4:3: demography data of f respondents*

Table code	age of respondents			Remarks
1		Frequency	Percent	Age category for house holds
	14-19	27	7.0	
	20-34	153	39.4	
	35-60	208	53.6	
	Total	388	100.0	Age category for WASH Implementers
	20-34	7	63.6	
	35-60	4	36.4	
	Total	11	100.0	
2	the respondent's sex			sex for households
	male	185	47.7	
	female	203	52.3	
	Total	388	100.0	Sex for WASH implementers
	male	7	63.6	
	female	4	36.4	
3	main occupation of the head			Occupation for households
	Agriculturalist	377	97.2	
	Civil service	1	.3	
	NGO	10	2.6	
	Total	388	100.0	Occupation for WSH implementers
	Civil service	7	63.6	
	NGO	4	36.4	
4	Educational level			Educational level for households and including woreda municipality
	Never been to school	163	42.0	
	Pre-school/ Non-Formal	66	17.0	
	Some Primary	119	30.7	
	Finished Primary	33	8.5	
	diploma	5	1.3	
	first degree	2	.5	
	Total	388	100.0	Educational level for WASH implementers
	diploma	2	18.2	
	first degree	5	45.5	
	MSC/MA	4	36.4	
Total	11	100.0		

#### **4.2.1. Age of Respondents**

The researchers requested the respondents to indicate their age category in which they were. From the findings as in table 4:3.1, 7% of the respondents were between the ages of 14-19 years, 39.4% were between the ages of 20-34, 53.6% were of the age 35 above years. The same is true for WASH implementers 63.6% of the respondents were between the ages of 20-34. Based on the study it can be incidental that majority of the respondents were between the ages of 35-60 and 20-34, of those who are expected to spend most of their life span in the area of their home and work area of households and WASH implementers respectively.

#### **4.2.2. Respondents by Gender**

Table 4:3.2 is an indication of the gender content in the survey. The total number of male respondents for community was 185 (47.7) while the number of female respondents 203 or (52.3%) males, for woreda health office and EKHDCDC water, sanitation and hygiene program male respondents were 7(63.6%) and females respondents 4(36.4%). From the study it can be conclude that the number of female respondents in the community was higher than the number of male respondents. This also implies that females are spent their more time at home because still in Becho Woreda they are responsible for home care works. The woreda health office and EKHDCDC water, sanitation and hygiene program have more male employees than female.

#### **4.2.3. Main occupation of the head**

As table 4:3.3, shows that 97.2% of the community households earned the income and feeding their family from the farming activities and the same table shows 63.6% and 36.4% of WASH implementers from civil service and non-Governmental organizations respectively, this indicates that still no more private and non-governmental organization has not been involved in WASH intervention.

#### **4.2.4. Respondents Level of Education**

According to table 4:3.4, among 388 respondents; 163(42%) never been to attended school, 66(17%) pre-school, 119 (30.7%) have attended some primary school, 33(8.5%) respondents have completed primary school. And from the woreda town kebele, 5 respondents were graduated in diploma and the other 2 had graduated in degree program.

The level of education from woreda health office employees and EKHDCDC integrated water, sanitation and hygiene program which 6 and 5 were sampled respectively who had graduated in different programs. Among those 11 respondents, 2 in diplomas, 5 in first degrees and 4 in masters program have been graduated. From the study for community households majority of the respondents 42% never been to attended school. This implies high literacy level in the community, thus which affects the implementation of sanitation and hygiene projects. Whereas the WASH implementer's majority of the respondents 45% had first degree, 36.36% Masters Level and 18.1% diploma, this shows that the organization have skill manpower to execute the project.

### 4.3. Accessibility of Sanitation Facilities and Availability of Hand washing Device with Water and Soap

Table 4:4: Accessibility of Sanitation Facilities and Availability of Hand washing Device with Water and Soap

Table code			Frequency	Percent
1	Latrine Vs culture	SDA	32	8.2
		DA	40	10.3
		MA	53	13.7
		A	83	21.4
		SA	180	46.4
		Total	388	100.0
2	available space for latrine construction	SDA	28	7.2
		DA	6	1.5
		MA	18	4.6
		A	60	15.5
		SA	276	71.1
		Total	388	100.0
3	Households have traditional pit latrine	SDA	85	21.9
		DA	100	25.8
		MA	90	23.2
		A	59	15.2
		SA	54	13.9
		Total	388	100.0
4	soil is suitable for digging latrine	SDA	59	15.2
		DA	79	20.4
		MA	133	34.3
		5A	69	17.8
		SA	48	12.4
		Total	388	100.0
5	building materials are accessible	SDA	16	4.1
		DA	15	3.9
		MA	60	15.5
		A	121	31.2
		SA	176	45.4
		Total	388	100.0
6	Separate blocks or rooms for male and female	SDA	250	64.4
		DA	111	28.6
		MA	3	.8
		A	12	3.1
		SA	12	3.1
		Total	388	100.0

#### **4.3.2. Available space for Latrine construction**

Before the decision to build a latrine is made, there are many things to consider. The key things to consider includes: type of latrine or toilet technology the households prefer to build, where (location/site) to build their latrine, preparing the place or site/location to build the latrine, digging and lining the pit, the covering slab (sanitation platform), size of squat hole, including a hand washing station, method of emptying/desludging, possible reuse of faecal sludge.

To make a decision for the above latrine construction requirements are adequate place is significant for construction of safe latrine. On tale 4:4.2 having sufficient available space for latrine construction in the study area based on the opinion of respondents shows that; 71.13% of them strongly agreed, 15.46% agreed, 4.6% moderately agreed, 1.6% disagreed, and 7.2% strongly disagreed. Since it could be generalized from the data, there are adequate spaces for latrine construction in every household. However; small households have a problem of space for latrine construction.

#### **4.3. 3. Households have Traditional Pit Latrine**

The respondents' opinion of the households have traditional pit latrine shows that 13.92% of them strongly agreed, 15.21% agreed, 23.2% moderately agreed, 25.77% disagreed, and 21.91% strongly disagreed with the sustained of households have traditional pit latrine according to the table 4:4.3. This implies that nearly half (47.68%) of the respondents have posed disagreement regarding the households have traditional pit latrine. Hence; still the sanitation coverage of the study area is not positioned in the right track.

This shows that in the study area community, some of the households (29.13%) have traditional pit latrine and the other 23.2% community have more or less simply some form of latrine without the proper use of it as the cleanliness and smartness of the latrines are concerned. This is most possible to be the breeding place for flies and other disease causing agents.

#### **4.3.4. The Soil is Suitable for Digging Latrine**

Toilet technologies used in rural, urban and peri-urban areas may be subject to some constraints. These may include: high water table in localities thereby making dug pits more susceptible to (or likely harmed by) infiltration. In such cases, dug pits are normally made shallow, certain areas are rocky thereby making the digging of pits difficult and/ or impossible, unavailability of good

quality wood planks for slabs fabrication, wood often used get rotten or attacked by termites, lack of knowledge on how to treat wood to prevent termite infestation, lack of knowledge on sludge disposal options and mechanisms, inadequacy of artisans to provide technical support during construction, this therefore presents some challenges during the selection and construction of a toilet, a major challenge to the sustainability of community-level sanitation interventions is in insufficient capacity to construct, manage, and maintain infrastructure (*GWP,2012*).

In the study area the respondents' opinion about soil is suitable for digging latrine, it shows that 12.4%, strongly agreed 17.9%, agreed, 34.3%, moderately agreed, 20.36%, disagreed and strongly disagreed 15%, the household members suggested that high water table in localities thereby making dug pits more susceptible to (or likely harmed by) infiltration according to the table 4:4.4. While, it indicates in the above graph, the majority of the respondents, 35.8% have disagreed to the positive statements that confirmed soil to construct toilet facilities as one of the main challenges that hinder households from owning and sustaining a toilet. This means that training people and building their capacity in different latrine design will sustain sanitation interventions thereby increasing household sanitation coverage. 30.15% respondents agreed the soil and subsoil have been suitable for construction of latrine and the remaining 34.28% were fairly agreed because the soil is very fragile and minimize the service time of the latrine.

#### **4.3.5. Local Building Materials are Accessible**

The respondents' opinion of the households have building materials for construction of traditional pit latrine shows that 45.36% of them strongly agreed, 31.1% agreed, 15.46% moderately agreed, 3.9% disagreed, and 4.12% strongly disagreed with the availability of local building materials for latrine construction according to the table 4:4.5. It was very in confidence prove by 76.55% and reasonably 15.46% respondents that there is sufficient availability of local building materials in their surroundings for construction of traditional pit latrine. While the mentioned some households have affected by unavailability of local building materials in their dwelling.

#### **4.3.6. Separate Blocks or Rooms for Male and Female are constructed**

To encouraging the use of latrine at household level, privacy is keep up by construction of latrine as independently for male and female. From the respondents' opinion of the households had

separate blocks or rooms for male and female of traditional pit latrine: 93.04% have disagreed, and only 3.09% have agreed with the idea of households' have separate blocks or rooms for male and female according to table 4:4.6. This implies that households those have latrine in the study area built a single traditional pit latrine without taking into consideration mainly the privacy of female. Because of this women are not prefer to use latrine regularly.

#### 4.4. Availability of Hand Washing Facilities, Water and Soap around latrine

This parameter was evaluated through study the hand washing facilities, the presence of water in the hand washing facilities' and soap or soap substitute materials together with hand washing facility in each household table 4:5 measures the opinion of respondents:

*Table 4:5: Availability of hand washing facilities around latrine*

Table code			Frequency	Percent
12.1	Hand washing facilities is located around latrine	SDA	85	21.9
		DA	100	25.8
		MA	90	23.2
		A	59	15.2
		SA	54	13.9
		<b>Total</b>	<b>388</b>	<b>100.0</b>
12.2	Water in the hand washing facilities' is always available	SDA	87	22.4
		DA	123	31.7
		MA	101	26.0
		A	29	7.5
		SA	48	12.4
		<b>Total</b>	<b>388</b>	<b>100.0</b>
12.3	Soap or soap substitute materials together with hand washing facility	SDA	87	22.4
		DA	161	41.5
		MA	73	18.8
		A	13	3.4
		SA	54	13.9
		<b>Total</b>	<b>388</b>	<b>100.0</b>

##### 4.4.1. Availability of Hand Washing Facilities around the Latrine

The summation of respondent's opinion 29.1% of the respondents had hand washing facilities and 47.7 % of the respondents had no hand washing facilities around their latrine. The remaining 23.2% of the respondents had moderately agreed for the positive statement of households had hand washing facilities around their latrine, this means they had more or less prepared and put hand washing facilities around the latrine (Table 4:5.1). This is despite the fact that households are required to have hand washing facilities near to the pit latrine for washing hands after visiting toilet. Since majority of respondents are without hand washing facilities, this leads to not recalling the critical hand washing time.

#### **4.4.2. Water at Hand washing Facilities**

From table 4:5.1 shows that 29.1% of respondents who had hand washing facilities around their latrine, only 19.9% had water available at the facilities table 5.2. In other terms 9% of households had hand washing facilities with no water. This implies that the application of hand washing practices had not well habited after visiting toilet in the study area.

#### **4.4.3. Soap or soap substitute materials with hand washing facility**

Soap or ash for hand washing was only 17.3% of households had put together with their hand washing facilities and there was indication to use after visiting toilet. And the remaining households had hand washing facilities but with no soap or ash based on table 4: 5.3.

#### **4.5. Usage of Latrine practices**

This was the second objective of the study. Through observations and interviewed study questions with researcher and data enumerators, the table 4:6 below presents the data regarding the usage of latrine in the sampled communities. from the 21 kebeles of 388 household respondents that were sampled by the study, the practice of community related to usage of latrine in terms of: Latrines in use is well habited by the families, latrine is protected from the inlets of animals, good super structure of house built on the latrine, door of the latrine house is functional, parents are model by proper covering of latrine, frequent cleaning latrine is developed in the family and floor of the latrine is dry-cleaned shows different results.

Table 4:6: Usage of Latrine practices

Table code			Frequency	Percent
1	Latrine in use is well habited by the families	SDA	30	7.7
		DA	82	21.1
		MA	62	16.0
		A	152	39.2
		SA	62	16.0
		Total	388	100.0
2	The latrine is protected from the inlets of animals	SDA	70	18.0
		DA	67	17.3
		MA	102	26.3
		A	87	22.4
		SA	62	16.0
		Total	388	100.0
3	door of the latrine house is functional	SDA	120	30.9
		DA	129	33.2
		MA	65	16.8
		A	28	7.2
		SA	46	11.9
		Total	388	100.0
4	Safe Cover for latrine drop-hole	SDA	38	9.8
		DA	110	28.4
		MA	73	18.8
		A	112	28.9
		SA	55	14.2
		Total	388	100.0
5	frequent cleaning latrine is developed in the family	SDA	69	17.8
		DA	68	17.5
		MA	145	37.4
		A	54	13.9
		SA	52	13.4
		Total	388	100.0
6	floor of the latrine is dry-cleaned	SDA	46	11.9
		DA	82	21.1
		MA	116	29.9
		A	90	23.2
		SA	54	13.9
		Total	388	100.0

#### 4.5. 1. Latrines in use is well habited by the Families

Traditional pit latrine use is well habited according the findings (about 55%) households, around 29% of the households in the studied area have not healthy habited usage of latrine; still they practiced open defecation in open fields, bushes and may be near to the house compounds. The other 16% of the respondents said latrine use by their family have moderately adapted based on table 4:6.1. It guides to conclude that those families have been infrequent practices of usage of latrine. If; they have easily accessible, use latrine. If, not they didn't worry about it they have defecated at anywhere. In general in the study area needs to focus to train the households who have not habited using latrine.

#### 4.5. 2. The latrine is protected from the inlets of animals

According to table 4:6.2 is concerning the presence of proper house/fence around the latrine ground that can be able to protect the inlet of animals, 16% of the respondents have strongly agreed, 22.4% have agreed, 26.3% have moderately agreed, 17.3% have disagreed and 18% have strongly disagreed with the positive statements suggesting about the existence of building around the latrine can be able to protect the inlet of animals. As it can be observed from the data, the proportions of the respondents who have disagreed with the existence of building latrine house around latrine can be able to protect the inlet of animals are almost one fourth of the total respondents. There are also a similar number of the other groups of respondents who have strongly disagreed to the same opinion. If we add the two together, the proportion would be 35.3%.

This reveals that still there is non-conducive latrine house in the study community. They may have some form of latrine near to their houses, but there is no proper housing to protect it from the entrance to animals and protection from high sun that often times affect the health of the family. According to the suggestions of the focus group participants were give emphasis on latrine house. This group has reached consensus that the health extension workers of the kebele or even the woreda are plan to educating and demonstrating to the families about the specifications and standards set aside by ministry of health regarding the distance of the latrine from residence houses or regarding the good superstructures needed.

The following picture has captured from the field observation and shows that the variation of household latrine superstructure in the study area. In the left side it has good superstructure and the right side one is with unacceptable superstructure. Both are with Hand washing facilities.



Status of Hand washing facilities



Latrine without door

### **4.5.3. The door of the latrine house is functional**

Regarding to the latrine door functionality the respondents' opinion of the households have shows that 64.18% of the respondents were disagreed on the idea of latrine door functionality. And only 19.1% of the respondents have agreed the functionality of the door. It implies that the greater part of the household's latrine door couldn't be performing well. It means that, it can't be able to protect the inlet of animals (table 4:6.3).

### **4.5.4. Safe Cover for Latrine drop-hole**

The respondents said that whether their latrine mouth/hole is covered properly or not after every use, according to the findings 14.2% of the respondents have very excellent awareness concerning the proper covering of latrine hole and they had very properly covered their latrine hole. The 28.9% of respondents were properly covered the latrine hole again. However 18.8% reasonably agreed, 28.4% disagreed and 9.8% strongly disagreed with the practice of covering the latrine hole after use by every user, according to table 4:6.4.

Then, the majority of them, 38.2%, admitted that there is not conscious to cover or improper covering and careful deed of covering the hole of the toilets as many of the family members were forget it due to low awareness or carelessness to do so. And the other 18.8 household members were more or less covered the hole. This displays an improper covering of the hole and possibility of breeding to flies and other vectors in or on the mouth of the latrine hole and spread to the family house.

Such practice is therefore makes the families victims of diseases and render them at risk of viruses, protozoan, bacteria and others that can cause numerous improper management of sanitation and hygiene related health problems. The improper covering of the latrine, which can be improved with a simple action, will then remain the potential source of destruction to family health knowingly or unknowingly to them. This is also confirmed by the focus group discussion.

### **4.5.5. Frequent cleaning of Latrine**

Based on table 4:6.5, Households were responsible for keeping the latrine clean, in the respondents' opinion of latrine cleaning shows that 13.4% of them strongly agreed, 13.9% agreed, 37.4% moderately agreed, 17.5% disagreed, and 17.8% strongly disagreed with the existence of frequent cleaning practice of household latrines. The majority of the respondents

have posed disagreement regarding the existence of the practice of frequent cleaning of household latrines. Thus, according to the 35.3%, there is an infrequent practice of cleaning household latrines among the targets of this study. This shows that in the study area community, some of the households have simply some form of latrine without the proper use and managing of it as the cleanliness and neatness of the latrines are concerned.

**4.5.6. The floor of the latrine is dry-cleaned in each day**

Cleanness was defined as lack of feces or and urine in and around the latrine. According to the variable mentioned above the cleaning of latrine is influence positively or negatively the cleanness of the latrine floor. Based on the respondent’s opinion on table 4:6.6, shows that 13.9% have strongly agreed, 23.2% have agreed ,29.9% have moderately agreed, 21.1 disagreed and 11.9% have strongly agreed for the idea of the floor of the latrine is dry-cleaned in each day. This implies that almost the same result is encountered with cleaning of latrine. The lack of frequent proper cleaning of the latrine floor is the result of latrine cannot dry or clean. About 32.9% of respondents have a filthy floor of latrine. This is most likely to be the breeding place for flies and other disease causing agents.

**4.6. Households that have child-friendly feces disposal facility**

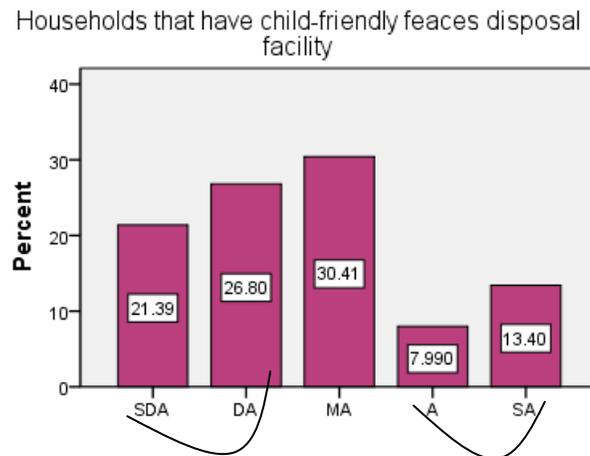


Figure 7: Child-friendly feces disposal facility

Figure 7, shows that by sum up the results of respondent’s opinion about, 21.39% of respondents have knowledge and good practices of safe disposal of children’s stool and 30.41% of the respondents have gloomy information about safe disposal of children’s stool. However; the others majority 48.2% of the respondents do not have knowledge and practices of proper

disposal of the children’s stool. This contributes to the high occurrence of diarrheal and other water-borne disease on the family and other surrounding communities. For the reason that children are simply defecated at anywhere they need without the help of their families.

#### 4.7. Solid waste disposal system

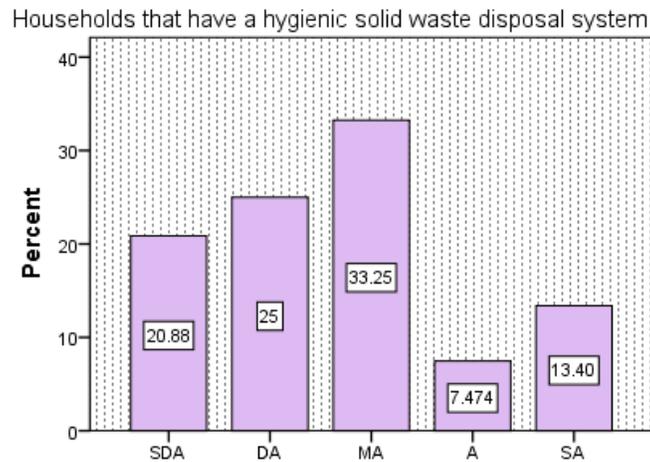


Figure 8: Hygienic solid waste disposal system

Figure 8 indicates that 45.9% of the total 388 respondents said that they through the house hold wastes to the nearby of their home, farmyards or leave them in the compound. And the 20.8% of the respondents have used a hygienic solid waste disposal system and have pit garbage near to their home.

The disposal of solid waste is a problem. These problems continuous to grow with the growth of population and development of industries, disposal of waste in open pits has become routine in majority of households, semisolid or solid matters that are created by human or animal activities, and which are disposed, because they are hazardous or useless are known as solid waste. Most of the solid wastes, like paper, plastic containers, bottles, cans and others.

The result of this analysis proves that, almost the majority of the respondents have not a good practice of safe hygienic solid waste disposal. In other words the household’s were custom a bad habit leaving or thrown wastes everywhere on the ground. It creates a favorable condition for breeding for vector disease such as flies, mosquito’s and etc. Figure 8 below shows the answers of the respondents.

## 4.8. Hygiene Practices

This analysis has focused on the house hold hand washing practices by using soap and water only before any contact of edible food items and after contact of feaces or visiting of latrine by considering the household questionnaire age ranges.

### 4.8.1. Hand washing before eat by using water plus soap and water only

#### 4.8.1.1. Hand washing before eats by using water plus soap

Table 4:7: Before eat hand washing with water and soap

Table code			Frequency	Percent
1	families who are above 14 years have a normal practice of hand washing behavior before eating with water and soap	SDA	67	17.3
		DA	99	25.5
		MA	84	21.6
		A	67	17.3
		SA	71	18.3
		Total	388	100.0
2	Between 4-13 years have a normal practice of hand washing behavior before eating with water and soap.	SDA	98	25.3
		DA	103	26.5
		MA	86	22.2
		A	63	16.2
		SA	38	9.8
		Total	388	100.0

As it is shown here in table (4:7.1 and 4:7.2) based on the respondents' opinion, the families who are above 14 and between 4-13 years; for the positive question of hand washing practices before eating food using water and soap is shows that; strongly agreed 18.3%, 9.8%, agreed 17.3%, 16.2%, moderately agreed 21.6%, 22.2%, disagreed, 25.5%, 26.5% and strongly disagreed 17.3%, 25.3% respectively. The greater number of respondents have disagreed on the positive statement of before eat hand washing by using water and soap.

#### 4.8.1.2. Hand washing before eat by using water plus soap and water only

Table 4:8: Before eat hand washing with water only

Table code			Frequency	Percent
1	families who are above 14 years have a normal practice of hand washing behavior before eating with water only	SDA	114	29.4
		DA	71	18.3
		MA	58	14.9
		A	139	35.8
		SA	6	1.5
		Total	388	100.0
2	between 4-13 years have a normal practice of hand washing behavior before eating with water only	SDA	96	24.7
		DA	77	19.8
		MA	94	24.2
		A	99	25.5
		SA	22	5.7
		Total	388	100.0

On the other hand the families who are above 14 and between 4-13 years based on the respondents' opinion, hand washing practices before eating food with water only it shows that in table (4:8.1and8.2), strongly agreed 1.5%, 5.7%, agreed 35.8%, 25.5%, moderately agreed 14.9%, 24.2%, disagreed, 18.3%, 19.8% and strongly disagreed 29.4%, 24.7% with the practice of the habit of washing hands with water only before eating among the household members respectively. This guides us 47.7% of families above 14 and 44.50% of families between 4-13 years have a practice of hand washing using soap and soap substitute materials before intake of any food.

#### **4.8.2. Hand washing after visiting Latrine by using Water plus Soap and Water only**

##### **4.8.2.1. Hand washing after visiting Latrine by using Water plus Soap**

Table 4:9 : Hand washing after visiting toilet with water and soap

Table code			Frequency	Percent
1	Above 14 years have a normal practice of hand washing behavior after visiting toilet with water and soap.	SDA	83	21.4
		DA	99	25.5
		MA	62	16.0
		A	107	27.6
		SA	37	9.5
		Total	388	100.0
2	Between 4-13 years have a normal practice of hand washing behavior after visiting toilet with water and soap.	SDA	40	10.3
		DA	93	24.0
		MA	72	18.6
		A	101	26.0
		SA	82	21.1
		Total	388	100.0
3	Below 4 years were washing their hands by the help of their mother/attendant after visiting toilet.	SDA	62	16.0
		DA	73	18.8
		MA	90	23.2
		A	121	31.2
		SA	42	10.8
		Total	388	100.0

On Table (4:9.1and 4:9.2) as regards to hand washing after latrine visit who are above 14 and between 4-13 years shows that; strongly agreed, 9.5%, 21.1% agreed, 27.6%, 26%, moderately agreed, 16% ,18.6%, disagreed, 25.5% ,24% and 21.4% ,10.3% strongly disagreed with the existence of hand washing after defecation with water and soap or substitute materials. This proves that there is a total of 46.9% and 34.3% in the study communities are improper hand washing practices after latrine visit by using water and soap or soap substitute materials for both mentioned groups of age above 14 and between 4-13 respectively. Comparatively the age groups between 4-13 have good practice of hand washing after toilet visit. In general this disclose that

there is not proper practice of hand washing in the study area that could have resulted in the deterioration of personal and family healthfulness due to faeco-oral transmission of disease-causing agents to the family members.



Plate 2: Hand washing after visiting toilet

#### 4.8.2.2. Hand washing after visiting Latrine by using Water only

Table 4:10 : Hand washing after visiting toilet with water only

Table code		Frequency	Percent
1	Above 14 years have a normal practice of hand washing behavior after visiting toilet with water only.	SDA	22.9
		DA	22.7
		MA	14.2
		A	34.5
		SA	5.7
		Total	100.0
2	Between 4-13 years have a normal practice of hand washing behavior after visiting toilet with water only.	SDA	26.5
		DA	31.4
		MA	18.8
		A	21.1
		SA	2.1
		Total	100.0

On table (4:10.1 and 4:10.2), shows that the same scenario of hand washing practices after visiting toilet with water only, the respondent's opinion seeing that, those are above 14 and between 4-13 years strongly agreed 5.7%, 2.1%, agreed 34.5%, 21.1%, moderately agreed 14.2%, 18.8%, disagreed 22.7%, 31.4% and 22.9%, 26.5% strongly disagreed with the subsistence of hand washing after defecation with water only. However; still there are large numbers of the communities couldn't use soap or soap substitute materials like ash when washing their hands for both before and after events. Washing hands only with water alone is not enough to stop the transmission of diarrhea.

**4.8.2.3. Below 4 years were washing their Hands by the help of their Mother/Attendant after visiting Toilet.**

Table 4:9.3 shows regarding to children below 4 years are washing their hands by the help of their mother/attendant after visiting toilet in the study area it revealed based on the field result confirmed. The 42.5% of families were helping their children whenever they visiting latrine, 23.2% infrequently helps and 34.3% did not help their children after visiting toilet.

**4.9. Household Water and Food safe handling/management Practices**

Having safe drinking water and basic sanitation is a human need and right for every man, woman and child. People need clean water and sanitation to maintain their health and dignity. Having better water and sanitation is essential in breaking the cycle of poverty since it improves people's health, strength to work, and ability go to school. Due to this fact the following table and discussion have explained the status of household water and food management practices in the study area.

**Table 4:11:Household water and food safe Handling/management practices**

Table code		Frequency	Percent	
1	house hold use safe water storage and collection container separately	SDA	10	2.6
		DA	22	5.7
		MA	107	27.6
		A	139	35.8
		SA	110	28.4
		<b>Total</b>	<b>388</b>	<b>100.0</b>
2	Cleanliness of water storage, food management and placement are good	SDA	4	1.0
		DA	20	5.2
		MA	114	29.4
		A	215	55.4
		SA	35	9.0
		<b>Total</b>	<b>388</b>	<b>100.0</b>
3	Use of house hold water treatment and safe water storage at household level is improved	SDA	49	12.6
		DA	212	54.6
		MA	105	27.1
		A	22	5.7
		<b>Total</b>	<b>388</b>	<b>100.0</b>
4	Condition of water at the sources is well managed	SDA	4	1.0
		DA	30	7.7
		MA	93	24.0
		A	196	50.5
		SA	65	16.8
		<b>Total</b>	<b>388</b>	<b>100.0</b>
5	Covering of water containers to keep water clean is always made by families	SDA	4	1.0
		DA	20	5.2
		MA	98	25.3
		A	240	61.9
		SA	26	6.7
		<b>Total</b>	<b>388</b>	<b>100.0</b>

#### **4.9.1. House hold use safe Water storage and Collection Container separately**

Households go through a lot of work to collect, transport and treat their drinking water. Now that the water is safe to drink, it should be handled and stored properly to keep it safe. Sometimes, the quality of stored water becomes worse than the actual source water. This indicates that the household's handling and storage practices may be unhygienic and may cause people to get sick from their water.

Safe storage means keeping water in a suitable place using a clean and appropriate container. It also means drinking water from the container in a way so that people don't make each other sick. The respondents' opinion of household safe water and food handling management practice shows that 28.4% of them strongly agreed, 35.8% agreed, 27.6% moderately agreed, 5.7% disagreed, and 2.6% strongly disagreed with the existence of the habit of house hold safe water and food management practice among the household members according to table 4:11.1. The summation of strongly agreed and agreed more than half of the respondents, 64.2% have agreed to the positive statement that shows the household's might possibly have achieved use safe water storage and collection container separately. This implies that there was proper house hold use safe water storage and collection container separately. However; still some households need to improve proper household safe water management practice in the study area that could have resulted in the worsening of house hold water contamination results that create water born diseases in the family because of using the same container.

#### **4.9.2. Cleanliness of water storage, food management and placement are good**

The food we prepare and the utensils in which we prepare food and water using containers have direct relation to our health. If the food utensils and food equipment for preparing food and water using containers are not maintained in clean conditions, they are likely to be the multiplying media for disease causing agents. Therefore when using these utensils and equipment, we can easily be exposed to the risk of disease. From this point of view the respondents opinion for cleanliness of water storage, food management and placement are good at household level is 9% have strongly agreed, 55.4% have agreed, 29.4% moderately agreed, 5.2% have disagreed and 1% strongly disagreed. This implies that only 6.2% of the respondents have not cleanliness of water storage, food management and placement at their home. Hence, in

order to prevent food and water borne diseases, they have to apply the preventive basic principles regarding the cleanliness of water and food utensils and placement (table 4:11.2).

#### **4.9.3. Use of house hold water treatment and safe water storage at household level is improved**

Household water treatment and safe storage (HWTS) is an essential component of a global strategy to provide safe water to the 884 million people who currently live without it and the millions more who suffer from contamination of their improved water sources.

Health can be compromised when pathogens (microorganisms that cause disease) contaminate drinking water. This contamination can occur at the source or within a piped distribution system. Even unhygienic handling of water during transport or within the home can contaminate previously safe water. For these reasons, many of those who have access to improved water supplies through piped connections, protected wells or other improved sources are still, in fact, drinking contaminated water (WHO, 2007).based on the reference of this concepts, in the study area the respondents' opinion, the families who have using and apply household water treatment technology and safe water storage shows that; no respondents opinion for strongly agreed, 5.67% have agreed, 27% have moderately agreed, 54.5%, have disagreed and 12.63% have strongly disagreed according to table 4:13.3.

This accompany that there was not proper practice of household water treatment and safe storage in the study area. Since; the majority of the respondents, 67.27% have disagreed for the positive ideas of “use of household water treatment and safe storage at household level “. The 27.06% of families were more or less applied house hold water treatment technologies and only 5.67% of respondents have frequently treated their drinking water. The main advantage of household water treatment and safe storage (HWTS) is that it can be used immediately in the homes of poor

#### **4.9.4. Condition of water at the sources is well managed**

We find our drinking water from different places depending on where we live in the world. Three sources that are used to collect drinking water are: Ground water – Water that fills the spaces between rocks and soil making an aquifer, Surface water – Water that is taken directly from a stream, river, lake, pond, spring or similar source and Rainwater – Water that is collected and stored using a roof top, ground surface or rock catchment. The intention of this study have not found out which source type is suitable or safe for human consumption but to find out in the study

communities whatever the source they used, how are they managed the condition of water at source. According to table 4:11.4, 16.8% of respondents have agreed, 50.5% have agreed, 24% have moderately agreed, 7.7% have disagreed and only 1% strongly disagreed.

From this data, the result shows that more than 90% of the respondents can be properly managed the water source and easily minimized water contaminants at source level. The remaining around 10% of respondents has water source which is open to the water contaminants.

#### 4.9.5. Covering of water containers to keep water clean is always made by families

Covering of water containers can protected the entrance of water contaminates. As table 4:11.5 shows that 6.7% of respondents have strongly agreed, 61.9% have agreed, 25.3% have moderately agreed, 5.2% have disagreed and only 1% strongly disagreed.

From this data, the result shows that more than 90% of the respondents were appropriately covered the water containers.

#### 4.10. Family Members' Health Status

Table 4:12 : Family Health

Table code			Frequency	Percent
	There are rare sanitation and hygiene related health problems in the last two years	SDA	38	9.8
		DA	110	28.4
		MA	79	20.4
		A	110	28.4
		SA	51	13.1
		Total	388	100.0
	The family members are happy and vigorous because of healthiness	SDA	38	9.8
		DA	110	28.4
		MA	74	19.1
		A	112	28.9
		SA	54	13.9
		Total	388	100.0
	The family's clinical cost is very minimal	SDA	67	17.3
		DA	99	25.5
		MA	84	21.6
		A	67	17.3
		SA	71	18.3
		Total	388	100.0

This is the dependent variable of the study that has assessed the family health from different points of operationalized. The respondents were asked if the health of the family is at its good status in the last two years instant. As it is displayed in table 4:12 shows, 13.1% have strongly agreed, 28.4% agreed, 20.4% moderately agreed, 28.4% disagreed and 9.8% have strongly disagreed to the safeguarding of good family health in the study households. It shows that the

majority of the respondents have disagreed with the perception that the health of the family is at good health condition. Meaning, they have witnessed a poor health status in the families studied. This is obviously so as we see the emphasis the respondents made on the existence of poor to very poor health status of the family. The focus group discussed has also resulted in supportive idea that the families in the area had complaints of sicknesses due to sanitary and hygienic problems. They said that most of the time the diagnosis of their sicknesses are bacterial, protozoan, worms, typhoid and other related diseases as what the doctors often tell them.

Pertaining to the result of good sanitation and hygiene practices had impact on family health with preventing from hygiene and sanitation related diseases and improved environmental sanitation. Conversely; 38.2% of the respondents have disagreed with rare sanitation and hygiene related health problems in the last two years. The negative result of poor sanitation and hygiene practices on family health is encounter. For then due to the health problems of the households the family members could not happy and vigorous because of the same percent of respondents (38.2) has disagreed for the positive statement of the family members are happy and vigorous because of healthiness. In conclusion 42.8% of respondents have disagreed on the affirmative statement of the family's clinical cost is very minimal.

In broad the majority of the respondents have disagreed with the notion that the health of the family is at best condition. Meaning, they have witness a poor health status in the household families. This is obviously so as we see the emphasis the respondents made on the existence of poor to very poor health status of the family. The focus group discussed has also resulted in supportive idea that the families in the area had complaints of sicknesses due to sanitary problems. They said that most of the time the diagnosis of their sicknesses are bacterial, protozoan, worms, typhoid and other related diseases as what the doctors often tell them.

#### **4.11. Challenges in implementation of Sanitation and Hygiene project**

A data obtained from the respondents of implementer organizations from Becho woreda health office and EKHCDc integrated water, sanitation and hygiene program, the Implementation challenge of Sanitation and hygiene projects has showed in the table and analyzed as follows;-

Table 4:13 : Availability of funds , education materials, approaches, facilitators, behavioral changes and culture

Table code		Frequency	Percent	
1	Budget allocation for sanitation and hygiene project was sufficient	SDA	3	27.3
		DA	6	54.5
		MA	2	18.2
		<b>Total</b>	<b>11</b>	<b>100.0</b>
2	used well organized education materials for sanitation and hygiene training	SDA	5	45.5
		DA	1	9.1
		MA	3	27.3
		A	1	9.1
		SA	1	9.1
<b>Total</b>	<b>11</b>	<b>100.0</b>		
3	communities have quick behavioral change after education received	SDA	4	36.4
		DA	6	54.5
		MA	1	9.1
		<b>Total</b>	<b>11</b>	<b>100.0</b>
4	Trained facilitators were involved in the hygiene and sanitation execution	SDA	4	36.4
		DA	1	9.1
		MA	5	45.5
		SA	1	9.1
		<b>Total</b>	<b>11</b>	<b>100.0</b>
5	education and training approach was very participatory	SDA	4	36.4
		DA	2	18.2
		MA	4	36.4
		SA	1	9.1
		<b>Total</b>	<b>11</b>	<b>100.00</b>
6	community culture has no difficulties for improvement of sanitation facilities and good hygiene management	SDA	4	36.4
		DA	3	27.3
		MA	2	18.2
		A	2	18.2
		<b>Total</b>	<b>11</b>	<b>100.0</b>

#### 4.11.1. Budget allocation for Sanitation and Hygiene project

A data obtained from implementer's organization, Becho woreda health office and EKHCD C integrated water, sanitation and hygiene program ; from table 4:13.1, 27.27% of the total strongly disagreed, 54.55% disagreed, and 18.18% were moderately agree budget allocation has been sufficient for implementation of sanitation and hygiene projects. From the study it can be concluded that greater percent of the respondents think that availability of funds had challenge on the implementation of sanitation and hygiene projects. It guides to generalized funds has been inadequate for implementation of sanitation and hygiene projects from the share of the national budget and external funds. As per the discussion with woreda health office head; there have no WASH implementers in their woreda apart from EKHCD C integrated water, sanitation and hygiene program.

#### **4.11.2. Training Materials**

Based on table 4:13.2 on the respondent's opinion as regarding to using well organized education materials and disseminate, guide lines and IEC resources of sanitation and hygiene to communities and facilitators to be 54.5% disagreed while 18.1% agreed on the ideas and the 27.27%, moderately agreed. This implies that using well organized education materials and disseminate, guide lines and IEC resources of sanitation and hygiene to communities and facilitators could not be satisfactory.

#### **4.11.3. Community Behavior**

According to the WASH implementer organizations; Becho woreda health office and EKHDCDC integrated water, sanitation and hygiene program, the respondents were giving a different opinion for the affirmative question of communities have quick behavioral change after or immediate health education received. As shows from the table 4:13.3, very small number of respondents (9.09%) were moderately agree on successfully changed the community behavior without experiencing some challenges. These challenges are often a result of the factors that influence behavior and intentions. These factors can come from inside a person or they can be factors that are in the surrounding around them. However; the majority of respondent's opinion (90.91%); still their community health promoters or health educators become frustrated because they are unable to convince people to change their attitudes or behaviors. they tend to blame the people for not changing instead of looking at the possible reasons why they find it difficult to change. getting people to change the habits of a lifetime is difficult, takes time and requires resources and skill". With regards the promotion of hand-washing with soap, while past approaches utilized hygiene education (teaching why hygiene practices such as hand-washing are necessary, and how to practice them) to affect behavior change, it is now understood that knowledge about germs is insufficient to change behavior, due to time or financial costs as well as social attitudes to hand-washing. Unlike hygiene education, hygiene promotion builds on the understanding of community attitudes, knowledge, practices and desires.

From the result we can be concluded that, greater percent of the respondents think that communities have not quick behavioral change after education received. It may be taking a long-term period. This is one of the biggest challenges that affect the implementation of sanitation and hygiene projects in the studied area.

#### **4.11.4. Effectiveness of Trainers**

Effective trainers: related to the efficiency of trainers, both of the WASH implementer organizations respondents were replied as the table 4:13.4 that, 9.091% have strongly agreed, 45.45% have moderately agreed, 9.% have disagreed and 36.36% have strongly disagreed with the positive statements suggesting about trained facilitators were involved in the hygiene and sanitation training. Effective trainer is a knowledgeable about the content and may use facilitation skills and teaching methods to promote effective learning. This implies that more than the majority of respondents were arguing effective trainers couldn't be as needed involved.

#### **4.11.5. Training Approach**

Training Approach: - Based on the respondents' opinion, the WASH implementers of Becho woreda health office and EKHDCDC integrated, water, sanitation and hygiene program were answered for the positive inquiry of the sanitation and hygiene training approach is very participatory the result shows that; strongly agreed 9.091%, 36.4%, moderately Agreed, 18.18% disagreed and 36.4%, strongly disagreed. This implies that the respondent's summary of disagreed resulted 54.5%, hence; the sanitation and hygiene training approach is not participatory. Because the Minister of Health policy in Ethiopia has been cascade to implement community lead total sanitation and hygiene (CLTSH) approach. Community lead total sanitation and hygiene (CLTSH) approach is alert on triggering people by calling disgrace words for the community rather than teaching and train them (Table4: 13.5).

#### **4.11.6. Community Culture**

The respondents' opinion obtained from implementers organization for the issue of community culture is not complexity for improvement of sanitation facilities and good hygiene management based on table 4:13.6 shows that 18.18% of them agreed, 18.18% moderately agreed, 27.27% disagreed, and 36.36% strongly disagreed. The greater part of the respondents (63.63%) has disagreed regarding the social behavior and a norm found in the studied area is negatively affected the achievement of sanitation and hygiene project, and the remaining did not consider culture is not be a factor of hindering the implementation of sanitation and hygiene project.

## 4.12. Monitoring, Evaluation, Coordination and Community Participation

### 4.12.1. Monitoring, Evaluation, Coordination

Table 4:14: Monitoring, Evaluation and Coordination

	N	Mean	Std. Deviation
monitoring and evaluation	11	2.0519	.52010
Total	11		

Source: Field Data

In the study area that has assessed the monitoring, evaluation and coordination attainment of the sanitation and hygiene implementer organizations in different variables of operational zed in table 4:14 shows that ,the standard deviation of the given variables figure is (.52010) with a reduction of distance from the central mean (2.0519) is (1.53) which indicates that all variables of related to monitoring, evaluation and coordination in the study area is at it was not found in a good status attainment. The implementer organization of sanitation and hygiene project had poor monitoring, evaluation and coordination system in the studied woreda. This is obviously so as the researcher see the emphasis the organization made on in attention of monitoring, evaluation and coordination on sanitation and hygiene projects.

### 4.12.2. The Community Participation in Sanitation and Hygiene Project

communities were involved during project planning, implementation monitoring and evaluation of sanitation and hygiene project

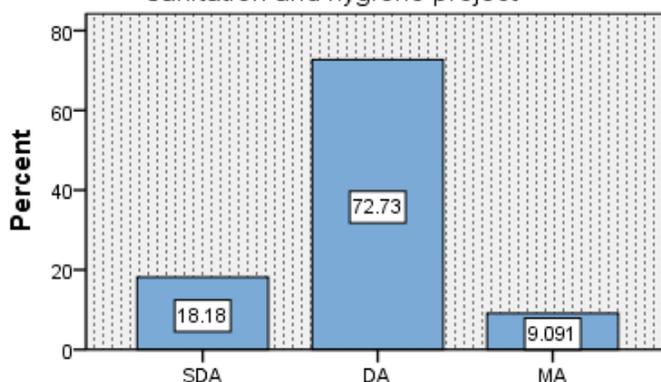


Figure 9: Community involvement in project implementation

The above graph 9 indicates that, the analysis of community participation in the implementation of sanitation and hygiene in different part of the project. Based on the analysis, only 9.09% of respondents assumed that the community is involved in each stage of the project implementation.

While, the majority 81.8% of the respondents were disagree with the idea of communities are involved in all the implementation process of the sanitation and hygiene project. This generalized that the households do not willing to participate in the planning, monitoring and implementation of sanitation and hygiene projects and it contribute to influence the sustainability of the project in the studied area. On top of the above point; participatory planning, implementation, monitoring and evaluation for sanitation and hygiene (SH) projects makes it possible for: communities to make their own decisions about sanitation and hygiene strategies, communities to feel a sense of project ownership, development organizations to better understand local community wishes and priorities.

#### 4.12. 3. National Policies and Implementing Frameworks, Strategies and Plans

Table 4:15: National policies and implementing frameworks, strategies and plans

scale	Opinion of respondents	Frequency	Percent	Description	
1	Valid	SDA	5	45.5	Very insignificant strategic plan frame work
2		DA	3	27.3	insignificant strategic plan frame work
3		MA	2	18.2	Moderately significant strategic plan frame work
4		SA	1	9.1	Very significant strategic plan frame work
		Total	11	100.0	

Source: Field Data

According to the respondents of the woreda health office and Ethiopia kale heywet church integrated water, sanitation and hygiene program indicates that the respondents were answered 45.5%, very insignificant National Policies and implementation frameworks, Strategies and Plans, 27.3% insignificant National Policies and implementation frameworks, Strategies and Plans, 18.2% moderately significant strategic plan frame work, 9.1% very significant strategic National Policies and implementation frameworks, Strategies and Plans was formulated.

This shows that 72.85% of respondents were disagreed on National Policies and implementation frameworks, Strategies, Plans and guide lines that could not sustain effective sanitation and hygiene project implementation. And only 9.1% respondents were appreciating the policy and strategic plan as table 4:15.

The government has taken adequate steps to solve sanitation and hygiene problems and encouraging for improvement of National Policies and implementation frameworks, Strategies and Plans to increase sanitation coverage and good hygiene management. Since; Policy and supporting legislation is essential to provide a clear vision and to establish basic principles and objectives to guide sanitary improvements.

### 4.13. Correlations of the Study Variables

Table 4:16:Correlations of the study variables

		family health	
Spearman's rho	Sanitation and Hygiene practices	Correlation Coefficient	.835**
		Sig. (2-tailed)	.000
		N	388

\*\* . Correlation is significant at the 0.01 level (2-tailed).

In this section, the major purpose is to evaluate the pre-assumed relationship of the study variables. To obtain this the researcher has used Spearman's rho Correlations by the use of Statistical Package for Social Sciences (SPSS).

As it is shown here in table 4:16, The independent variable of the study was sanitation and hygiene practices (Frequent cleaning, covering the latrine hole, building house around, effective hand washing, house hold water treatment & food hygiene management) were correlated at figure 0.835\*\* with independent variable of family health status. The positive numbers hear are meant statistically that the relationship that existed between the variables were directive or non-inverse. If; it means that the families habited proper use of latrine and effective hand washing, good manage and frequent cleaning, covering the latrine hole, building house around, good handling of house hold water treatment & food hygiene management then the family health has also become improve in a good conditions. The reverse of this is also true. The correlation coefficients or numbers of coordinates is almost closer to 1.As it has been analyzed that there is strong, positive and significant relationship between the two specific grouping variables under the independent variables of the study and the status of family member's health under the dependent variable. Due to this significant relationship, the study hypothesis that says:

“There is no relationship between the usage of latrine and family health in Becho woreda of the study kebele's” Is here via rejected.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1. INTRODUCTION**

The major findings of the study are presented in this chapter in relation to the objectives of the study. The presentation follows the order by which the specific objectives of the study are stated. Methods that involve graphical illustrations and frequency tables have been used in the presentation to reflect statistics that accompany explanations for better understanding.

### **5.2. Summary Major Findings**

#### **5.2.1. Accessibility of Sanitation Facilities and Availability of Hand washing Device with Water and Soap**

The community households sampled from the rural areas also indicated fair availability of sanitation facilities especially the latrines superstructure and cleanness's were good. However; through observation, it was clear that the facilities in the rural areas were not in good condition. As those some of the doors that had been short in the entrance to ensure privacy had been broken and some had been completely removed.

Through interviews about the same issue of availability of sanitation facilities and materials, households were asked to state the types of sanitation facilities present in their respective home.

The studied findings had some positive results and the other foremost has been negative results:

In the study area households have sufficient available space and local building materials but the soil structure is not suitable for latrine construction, it can be easily collapsed. However; small households have a problem of space for latrine construction. Even if; land is not an issue some of the households only (29.13%) have traditional pit latrine and the other 23.2% community have more or less simply some form of latrine without the proper use of it as the cleanliness and smartness of the latrines are concerned this is most possible to be the breeding place for flies and other disease causing agents. Households those have latrine in the study area built a single traditional pit latrine without taking into consideration mainly the privacy of female. Because of this women are not prefer to use latrine regularly. Generally latrine facilities were not accessible to the study area.

### **5.2.2. Availability of Hand Washing Facilities, Water and Soap around latrine**

This is in spite of the fact that; households are required to have hand washing facilities near to the pit latrine for washing hands after visiting toilet. Since majority of respondents who had some form of latrine are without hand washing facilities, this leads to not recalling the critical hand washing time.

### **5.2.3. Usage of Latrine practices**

This was the second objective of the study. The usage of latrine practices in the sampled communities from the 21 kebeles of 388 household respondents the majority have been infrequent practices of usage of latrine. They have defecated at anywhere. In general in the study area needs to focus to train the households who have not habited using latrine. Even if; those households who have some form of latrine, still the condition of latrine is non-conducive latrine house in the study community. There is no proper housing and door to protect it from the entrance to animals and protection from high sun that often times affect the health of the family.

The majority of the respondents had not the existence of the practice of frequent cleaning of household latrines. Some of them have done an infrequent practice of cleaning household latrines among the targets of this study. This shows that in the study area community, some of the households have simply some form of latrine without the proper use and managing of it as the cleanliness and neatness of the latrines are concerned this created a filthy floor of latrine. And also an improper covering of the hole and possibility of breeding to flies and other vectors in or on the mouth of the latrine whole and spread to the family house. Such practice is therefore makes the families victims of diseases and render them at risk of viruses, protozoan, bacteria and others that can cause numerous improper management of sanitation and hygiene related health problems.

the other point is the practice of child feces disposal was that the majority 48.2% of the respondents do not have knowledge and custom of proper disposal of the children's stool. This contributes to the high occurrence of diarrheal and other water-borne disease on the family and other surrounding communities. For the reason that children are simply defecated at anywhere they need without the help of their families.

#### **5.2.4. Solid waste disposal system**

The result of this analysis proves that, almost the majority of the respondents have not a good practice of safe hygienic solid waste disposal. In other words the household's were custom a bad habit leaving or thrown wastes everywhere on the ground. It creates a favorable condition for breeding for vector disease such as flies, mosquito's and etc. Figure 8 below shows the answers of the respondents.

#### **5.2.5. Hand washing before eat by using water plus soap and water only**

In the study communities there were improper hands washing practices after latrine visit by using water and soap or soap substitute materials for both mentioned groups of age above 14 and between 4-13. Comparatively the age groups between 4-13 has good practice of hand washing after toilet visit. In general this disclose that there is not proper practice of hand washing in the study area that could have resulted in the deterioration of personal and family healthfulness due to faeco-oral transmission of disease-causing agents to the family members. In general still there are large numbers of the communities couldn't use soap or soap substitute materials like ash when washing their hands for both before and after events. Washing hands only with water alone is not enough to stop the transmission of diarrhea. Only small number of households was practically applied washing hands after using latrine. Soap or ash for hand washing was only 17.3% of households had put together with their hand washing facilities and there was indication to use after visiting toilet. But the remaining households had not used soap or ash during they wash their hands. This implies that the application of hand washing practices had not well habited after visiting toilet in the study area.

#### **5.2.6. Household Water and Food safe handling/management Practices**

In the study area regarding to household water treatment the majority of the respondents, 67.27% have disagreed for the positive ideas of "use of household water treatment and safe storage at household level. However; 90% of the respondents could have got water from properly managed source and they could be easily minimized water contaminants at source level. The other 10% of respondents had water source which is open to the water contaminants.

In conclusion 90% of the respondents were appropriately covered the water containers, food management and placement at their home. Still some households need to improve proper household safe water management practice in the study area that could have resulted in the worsening of household water contamination results that create water born diseases in the family because of using the same container.

### **5.2.7. Family Members' Health Status**

In broad the majority of the respondents had various health problems; This is obviously so as we see the emphasis the respondents made on the existence of poor to very poor health status of the family. The focus group discussed has also resulted in supportive idea that the families in the area had complaints of sicknesses due to sanitary problems. They said that most of the time the diagnosis of their sicknesses are bacterial, protozoan, worms, typhoid and other related diseases as what the doctors often tell them.

### **5.2.8. Challenges in implementation of Sanitation and Hygiene project**

Based on the research result the first challenge face the implementation of sanitation and hygiene project is funds have been inadequate for implementation of sanitation and hygiene projects from the share of the national budget and external funds. As per the discussion with woreda health office head; there have no WASH implementers in their woreda apart from EKHDCDC integrated water, sanitation and hygiene program. The second challenge is inadequate organized education materials and lack of skilled facilitators and guide lines of sanitation and hygiene were not satisfactory. The third challenge is that communities could not quick behavioral change after education received. It had taken a long-term period. This is one of the biggest challenges that affect the implementation of sanitation and a hygiene project in the studied area. The fourth challenge is that the training approach it is not participatory. Because the Minister of Health policy in Ethiopia has been cascade to implement community lead total sanitation and hygiene (CLTSH) approach. Community lead total sanitation and hygiene (CLTSH) approach is alert on triggering people by calling disgrace words for the community rather than teaching and train them.

The fifth challenge is the community culture; the greater part of the respondents (63.63%) has confirmed that the social behavior and a norm found in the studied area are negatively affected the achievement of sanitation and hygiene project. The 6<sup>th</sup> challenge is the implementer organization had poor monitoring, evaluation and coordination system and the households do not willing to participate in the planning, monitoring and implementation of sanitation and hygiene projects and it contribute to influence the sustainability of the project in the studied area. On top of the above point; participatory planning, implementation, monitoring and evaluation for sanitation and hygiene (SH) projects makes it possible for: communities to make their own decisions about sanitation and hygiene strategies, communities to feel a sense of project ownership, development organizations to better understand local community wishes and priorities. The seventh and the last challenge is National Policies and implementation frameworks, Strategies and Plans. The government has taken adequate steps to solve sanitation and hygiene problems and encouraging for improvement of National Policies and implementation frameworks, Strategies and Plans to increase sanitation coverage and good hygiene management. Since; Policy and supporting legislation is essential to provide a clear vision and to establish basic principles and objectives to guide sanitary improvements. The relationship that exists between the study variables is very significant and strong.

### **5.3. Conclusions**

Although the households in Becho Woreda a combination of sanitation facilities and hand washing practices, there is generally inadequate coverage of sanitation facilities in the community of the District and this is particularly worse-off live in rural there. Challenge with creating awareness and increasing the quantity of the facilities saying that it required relatively large budgets to set of contacts. This leads to unhygienic conditions and greatly increases the risk of cross contamination and infection. Land availability becomes a problem if latrines need to be replaced so frequently (after every 1 to 5 years). In addition, the few sanitation facilities are poorly utilized which is a result of many factors including housholds background and culture, regarding personal hygiene and limitation in implementation of sanitation and hygiene policies. For instance, key informant interviews and physical observations revealed poor disposal of solid waste especially where pit garbage were ignored but disposed solid materials /waste just outside the garbage.

The cleanliness of the available sanitation facilities is not at its best. This forms part of the reasons why some of the households ignore using the facilities and instead opting for the bushes around the home. This exposes the families to illnesses related to poor sanitation and hygiene as evidenced by the cases of they said that most of the time the diagnosis of their sicknesses are bacterial, protozoan, worms, typhoid and other related diseases as what the doctors often tell them.

Generally, all the issues mentioned regarding sanitation and hygiene depend on the utilization and management. They have the power to come up with appropriate policies and programs, design working strategies and they own the resources to change all that may not be right with the households' sanitation and hygiene for the better.

#### **5.4. Recommendations**

For the future improvements of good sanitation and hygiene practices and enhancing the family health in the studied area and reduce the implementation challenges, the researcher has been forwarded the following recommendations:

There is need to develop sanitation programs under which the challenges should be undertaken right from the root rather than attempting to handle the resultant unlikable consequences. WASH implementers need to prioritize the aspect of sanitation and hygiene. The justification of inadequate financial resources is not genuine enough to explain the low coverage of the sanitation facilities in the community. It is therefore strongly recommended that a separate budget is put aside and strictly the Becho woreda health office seeking and encourage potential donors to solve budget problems in the sector.

Proper planning for the communities' carrying capacity needs to be considered. The Woreda health office itself should conduct regular monitoring and evaluation of household sanitation and hygiene standards as part of its regulatory roles. Households which do not meet the standards should be punished under community bylaws until they upgrade to desirable and acceptable sanitation standards.

Regular cleaning of the latrines and urinal sanitation facilities should be ensured especially in the morning and evening hours of the day. Regular maintenance should also be ensured by the

household members to avoid possible break-down of the facilities which would comparatively make repairs more costly than maintenance.

Households should be encouraged and facilitated by health extension workers to put wall painting, word curving and clay portraits that depict hygiene and sanitation messages. This can be installed in such a manner that there are not easily removed. There is need to train children with suitable sanitation and hygiene strategies while they are still at school and higher level. This will ensure that by the time they come out, they are already acquainted with sanitation and hygiene issues, strategies for their promotion and the roles they have to play.

For the scaling up of sanitation and hygiene activities effectively, Becho Woreda should go for "joint action plan" with all the organizations working or believing in sanitation and hygiene model by including governmental agency such as village development group, NGOs, INGOs. The health sector has a strong role to play in improving sanitation in woreda through policy development and the implementation of sanitation and hygiene programs and develop/introduce national guideline and a strategic national action plan for sanitation and hygiene implementers.

Finally the researcher encourage other researchers those who are interesting to explore this research. Since this study couldn't fully addressed all issues related to the research topic and objectives because of the wide and broad scope of the research the reason of time and financial constraints from its inception to completion.

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**APPENDIX I: SURVEY QUESTIONNAIRE FOR HOUSEHOLDS**  
**ST.MARY'S UNIVERSITY COLLEGE SCHOOL OF GRADUTE STUDIES**  
**MASTERS OF PROJECT MANAGEMENT (PM)**

Survey questionnaire on practices and challenges in implementation of sanitation and hygiene project: the case of Becho woreda in Oromia Region; to be filled by community households.

Dear respondents.

The purpose of this questionnaire is to enable me to carry out a research study in partial fulfillment of the requirement for masters of degree in project management.

The research focus on Practices and Challenges in implementation of sanitation and hygiene projects in Becho woreda.

The questionnaires used to collect data from respondents regarding Practices and Challenges in implementation of sanitation and hygiene. I kindly request your assistance in responding to the questionnaires below, any information you present will be kept absolutely confidential and only used for academic purpose, that is your name or other identification will not be reported along with your answers to the questions. Your cooperation and prompt response will be appreciated.

Many thanks  
Behailu Shewakena  
(Graduated students)

**Demographic characteristics of the respondent:**

Please properly fill the following tables of opinion regarding the variables of this study.

Your opinion should fall in one of the five levels of opinion: 1. strongly disagree (SDA) 2. Disagree (DA) 3. Moderately agree (MA) 4. Agree (A) 5. Strongly agree (SA).

***Put this [√] mark under the opinion that matches your opinion for all questions given below:***

**Respondent Information**

No	Question	Coding
<b>I</b>	<b>Demographic characteristics:</b>	
A	Age of respondent	1. 14-19 <input type="checkbox"/> 2. 20-34 <input type="checkbox"/> 3. 35 > <input type="checkbox"/>
B	What is the respondent's gender? <i>[answer this question by observation only]</i>	1. Female <input type="checkbox"/> 2. Male <input type="checkbox"/>
C	What is the main occupation of the head of the household?	1. Agriculturalist <input type="checkbox"/> 2. Civil service <input type="checkbox"/> 3. NGO <input type="checkbox"/> 4. Other specify <input type="checkbox"/>
D	Educational level of the respondents	1. Never been to school <input type="checkbox"/> 5. diploma <input type="checkbox"/>
		2. Pre-school/ Non-Formal <input type="checkbox"/> 6. first degree <input type="checkbox"/>
		3. Some Primary <input type="checkbox"/> 7. second degree <input type="checkbox"/>
		4. Finished Primary <input type="checkbox"/>

### Questioner for Households Sanitation & Hygiene practices

1	Sanitation practices	Linker scales				
		1	2	3	4	5
		SDA	DA	MA	A	SA
1.1	<i>Accessibility of sanitation facilities and availability of hand washing device with water and soap, (OBSERVE: if; there is no a pit, jump question 1.1&amp;1.2)</i>					
1.1.1	Latrine is culturally acceptable					
1.1.2	Households Have enough available space for latrine construction					
1.1.3	Households have access traditional pit latrine					
1.1.4	The soil is suitable for digging latrine					
1.1.5	local building materials are accessible					
1.1.6	Separate blocks or rooms for males and females are constructed					
1.1.7	Hand washing facilities(HWF) is located around the latrine					
1.1.8	Water in the hand washing facilities(HWF) is always available					
1.1.9	Soap or soap substitute together with hand washing facility is presented					
1.2	<b>usage of latrine practices</b>					
1.2.1	Latrines in use is well habited by the families					
1.2.2	The latrine is protected from the inlets of animals					
1.2.3	The door of the latrine house is functional					
1.2.4	Safe Cover for latrine drop-hole is properly the HHs used					
1.2.5	The habit if, frequent cleaning of latrine is habited in the family					
1.2.6	The floor of the latrine is dry-cleaned in each day					
1.2.7	Households that have child-friendly feces disposal facility					
1.2.8	Households that have a hygienic solid waste disposal system					
2	<b>Hygiene practices</b>					
2.1	<b>After latrine use hand washing</b>					
2.1.1	The families who are above 14 years have a normal practice of hand washing behavior after visiting toilet with water and soap.					
2.1.2	The families who are above 14 years have a normal practice of hand washing behavior after visiting toilet with water only.					
2.1.3	The families who are between4-13 years have a normal practice of hand washing behavior after visiting toilet with water and soap.					
2.1.4	The families who are between4-13 years have a normal practice of hand washing behavior after visiting toilet with water only.					
2.1.5	Children below 4 years were washing their hands by the help of their mother/attendant after visiting toilet.					
2.2	<b>Before eat hand wash</b>					
2.2.1	The families who are above 14 years have regularly a normal practice of hand washing behavior before eating with water and soap.					
2.2.2	The families who are above 14 years have regularly a normal practice of hand washing behavior before eating with water only.					
2.2.3	The families who are between4-13 years have a normal practice of hand washing behavior before eating with water and soap.					
2.2.4	The families who are between4-13 years have a normal practice of					

	hand washing behavior before eating with water only.					
<b>2.3</b>	<b><i>Household water and food safe Handling/management practices</i></b>					
2.3.1	The house hold use safe water storage and collection containers are separately					
2.3.2	Cleanliness of water storage , food management and placement are good					
2.3.3	Use of house hold water treatment and safe water storage at household level is improved					
2.3.4	Condition of water at the sources is well managed					
2.3.5	Covering of water containers to keep water clean is always made by families					
<b>3</b>	<b>Impact on family health</b>					
3.1	There are rare sanitation and hygiene related health problems in the last two years like (vomiting, fever, infections, typhoid, cholera , ascariasis, hook worm, hepatitis A &B, and bilharzias,) etc.					
3.2	The family members are happy and vigorous because of healthiness					
3.3	The family's clinical cost is very minimal					
3.4	The home and surrounding environment is free from sanitary problems					

## APPENDIX II: Questioner for WASH Implementers.

Survey questionnaires for project implementers of sanitation and hygiene project: the case of Becho worda; to be filled by worda health office and EKHDCDC water, sanitation and hygiene program; managers, expertise, supervisors, health extension workers and beneficiary communities.

Please properly fill the following tables of opinion regarding the variables of this study.

Your opinion should fall in one of the five levels of opinion: 1. *strongly disagree (SDA)* 2. *Disagree (DA)* 3. *Moderately agree (MA)* 4. *Agree (A)* 5. *Strongly agree (SA)*.

Put this [√] mark under the opinion that matches your opinion best regarding all questions given below:

No.	<i>Measurement factors</i>	Likert scales				
		<i>SDA</i>	<i>DA</i>	<i>MA</i>	<i>A</i>	<i>SA</i>
3	<b><i>Implementation challenges of Sanitation and hygiene projects</i></b>					
	Availability of funds , education materials, approaches, facilitators, behavioural changes and culture					
3.1	There was sufficient Budget allocation in the worda to implement sanitation and hygiene projects					
3.2	Have used well organized education materials and disseminate, guide lines and IEC resources of sanitation and hygiene to communities and facilitators					
3.3	The education and training approach was very participatory					
3.4	Trained facilitators were involved in the hygiene and sanitation execution					
3.5	The communities have quick behavioural change after education received					
3.6	The community culture has no difficulties for improvement of sanitation facilities and good hygiene management					
4	<b><i>Monitoring , evaluation &amp; coordination</i></b>					
4.1	Appropriate monitoring and evaluation carried out in every hygiene and sanitation project according to the schedule					
4.2	Inter-sectoral collaboration among all actors are good to: support ,facilitate ,monitor , evaluate and improve hygiene and sanitation program					
4.3	The monitoring and evaluation findings being used to create and enabling environment for scale up and sustainability of sanitation and hygiene					
4.4	Provided uninterrupted and adequate technical support for sanitation and hygiene intervention					
4.5	The communities were involved in implementation process of sanitation and hygiene project.					
4.6	appropriate quality control, supervision and follow-up of the project is constantly carry out					
4.7	Conduct base line, mid -term and end term evaluation on results and impact of hygiene and sanitation really mandatory to the office.					
4.8	Proper harmonization has done among hygiene and sanitation implementers at all level.					
5	<b><i>National policies and implementing frameworks, strategies and plans</i></b>					
5.1	The Government has taken adequate steps to solve sanitation and hygiene problems in the Becho worda					
5.2	The national sanitation and hygiene implementation policy is supportive for improvement of sanitation coverage and good hygiene management					
5.3	Prepare and disseminate hygiene and sanitation guide lines to facilitators and communities					

### **APPENDIX III: Ideas for Focus Group Discussion**

Dear members of focus group discussion, the following ideas are prepared to lead you in your free discussion. You may give other views you may have that you think will add good idea to your discussion.

1. What do you see in your kebele regarding the healthful living and latrine and environmental sanitation?
2. Do you think there is frequent cleaning of latrines?
3. Whose responsibility is it to clean the latrines?
4. Do the household members have habit of after latrine use hand washing?
5. Are the latrines holes properly covered by wood or other materials?
6. Do the community building house or barriers around the latrine?
7. What is the general status of family members' health in your kebele?
8. Do you think households that have a hygienic solid waste disposal system?
9. What other factors do you think reason hindrance in implementation of sanitation and hygiene projects?

Do you have any questions or comments?

For further information please contact me with the following address:

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{Mobile: +251-911-17-00-47}

Thanks