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COLLEGE OF DEVELOPMENT STUDIES

CENTRE FOR FOOD SECURITY STUDIES

FOOD SECURITY STATUS, FOOD SAFETY AND WATER SANITATION AND HYGIENE KAP OF HOUSEHOLDS IN WOREDA TEN OF ARADA SUB-CITY, ADDIS ABABA, ETHIOPIA.

BY:

GASHAW ALEMAYEHU

ATHESIS SUMMTED TO CENTER FOR FOOD SECURITY STUDIES

NOVEMBER 2020
ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDIES
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MSC THESIS SUBMITTED TO COLLEGE OF DEVELOPMENT STUDIES CENTER FOR FOOD SECURITY STUDIES

PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN FOOD SECURITY

NOVEMBER 2020
ADDIS ABABA, ETHIOPIA

Declaration

I hereby declare that the thesis entitled '**Food security status, food safety and water sanitation and hygiene of households in Woreda ten of Arada sub-city, Addis Ababa, Ethiopia'** has been carried out by me under the supervision of Professor MogessieAshenafi, Center for food Security studies, Addis Ababa University. I further declare that this thesis is my original work and has not been submitted to any other university or institution for the award of any degree and all sources of materials used for the thesis have been duly acknowledged.

Name: **GashawAlemayehu**

Signature: 

Date: 

Supervisor's approval:

This is to certify that the above declaration made by the candidate is correct to the best of my knowledge as an advisor.

Approved by: Mogessie Ashenafi (Prof)		October 12, 2020
Thesis Advisor	Signature	Date

Examiners' approval

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Internal Examiner	Signature	Data
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Final approval and acceptance of this thesis is contingent upon the candidate's submission of the final copy of the thesis, incorporating all the comments by Examining Board, to the Council of Graduate Studies (CGS) through the Center Academic Committee (CAC) of the Center.

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Chairperson of the Center or Graduate Program Coordinator

Operational Definition

***Attitudes*:** Attitudes are emotional, motivational, perceptive and cognitive beliefs that positively or negatively influence the behaviour or practice of an individual. An individual‘s feeding or eating behavior is influenced by his/her emotions, motivations, perceptions and thoughts. Attitudes influence future behavior no matter the individual‘s knowledge and help explain why an individual adopts one practice and no other alternatives (Macías and Glasauer, 2014).

Food safety: Food safety refers to the conditions and practices that preserve the quality of food to prevent contamination and food borne illnesses. It includes the production, processing, preparation and handling of food to ensure that it is safe to eat (Griffith, 2000).

***Food security*:** When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2002).

***Knowledge*:** Knowledge is the understanding of any given topic. It refers to an Individual‘s understanding of food safety and nutrition, including the intellectual ability to remember and recall food safety and nutrition-related terminology, specific pieces of information and facts (Macías and Glasauer, 2014).

***Practices*:** Practices is defined as the observable actions of an individual that could affect his/her or others’ safety and nutrition, such as eating, feeding, washing hands, cooking and selecting foods (Macías and Glasauer, 2014).

ACKNOWLEDGMENTS

My greatest thanks and heart felt appreciation is to my advisor Prof. Mogessie Ashenafi for his guidance, valuable comments, encouragement and his patience during my ups and downs while undertaking this study. Without his encouragement, insight, guidance, and professional expertise, the completion of this work would not have been possible.

I would like to extend my thanks to the *Woreda* 10 administration productive safety net program facilitation office and data collectors. My special thanks also go to my sample respondents for their willingness, commitment and patience to answer all the questions during the study.

I would like to thank all the individuals, in general, who contributed, in one way or another, to the completion of my work.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

AACG	Addis Ababa City Government
ACF	Action contre la Faim (formerly Action Internationale Contre la Faim)
CDNANZ	Communicable Diseases Network, Australia and New Zealand
CSA	Central Statistical Agency
FAO	Food and Agricultural Organization
FSIS	Food Safety Inspection Service
HFIAS	Household Food Insecurity Access Scale
HFS	Household Food Security
HHs	Households
HHHs	Household Heads
HHS	Household Hunger Scale
HoA	Horn of Africa
IFPRI	International Food Policy Research Institute
KAP	Knowledge, Attitude and Practices
Kcal	Kilo Calorie
ORS	Oral Rehydration Solution
UNICEF	United Nations Children Fund
WB	World Bank
WFP	World Food Program
WHO	World Health Organization

ABSTRACT

Appropriate knowledge, attitude and practices (KAP) of food safety and water sanitation and hygiene (WASH) positively affect the food security status of HHs and enbles them to protect themselves from foodborne and waterborne illnesses. The objective of this study was to investigate the food security status and KAP of food safety and WASH of HHs in Arada sub-city, woreda 10, Addis Ababa, Ethiopia. A cross-sectional study on food security status, and KAP of food safety and WASH among HHs was conducted. Both qualitative and quantitative data were collected from a total of 351 randomly selected HHs for questionnaire and 10 key informant interview respondents. Data was analyzed by using STATA for windows version 14.2. Household food insecurity access scale (HIFAS), food safety KAP and WASH KAP were analyzed by descriptive statistics. The majority of the respondents (73.5%) were females and they handled household food and water related activities. Household food insecurity access measurements indicated that only 23% of the sample households were food secure. Of the food insecure HHs, 44.8% were mildly food insecure, 25.4% were moderately food insecure and only 6.8% were severely food insecure. Food handling knowledge, attitude and practice were 38.7%, 91.1%), and 31.8%, respectively. Personal Hygiene knowledge, attitude and practice were 48.9%, 92.4% and 23.8%, respectively. Water Sanitation knowledge, attitude and practice were 26.5%, 75.8% and 48.7%, respectively. Sample HHs had poor positive attitude about water network (23.15%) and have poor water practices (33.51%). The respondents have poor diarrheal cases knowledge (18.47%), attitude (70.37%) and practice (62.12%). They have poor knowledge about toilet (22.22%) and satisfactory attitude (50%) and satisfactory practices (51.91%). The respondents have poor hand washing practices (20%). They have poor shower practice (28.57%) and poor attitudes (25%). Related to the waste management they have poor attitude (23.95%) and practice (31.71%). About 7% of the HHs are food insecure and the HHs have lack of awareness and are not well informed about their responsibility to maintain the hygienic condition related to food handling, hand washing, waste disposal, toilets and showers at the HH level. The study recommends that, strengthen the safety net programe to reduce the number of severly and moderately food insecure HHs. Provide awareness training for HHs related to the proper food handling practices, water sanitation, waste disposal, toilets and showers at the household level and community at large by health extension workers.

Keywords; *Knowledge, attitude, practice, food safety, food security, WASH*

CHAPTER 1: INTRODUCTION

1.1. Background

Since the second half of the 1980s, food security issues have become very critical and different academic literatures and conceptual innovations were generated. Several national and local programmes in sub-Saharan Africa, made sustained growth in the 1990s (Maxwell and Smith, 1992). The widely accepted definition of food security by the Food and Agriculture Organization (FAO, 2002) is 'Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life'.

This broader definition of food security infers livelihood security at the household level including all members having physical and economic access to balanced diet, environmental sanitation, safe drinking water, basic health care and primary education (George, 1999).

Following the definition of food security by FAO (1996), food safety is getting more attention worldwide as it has a strong association between food and health. Food safety exists when the people have access to sufficient and healthy food and it is considered to be very important to improve food security at large. In fact, the Director General of FAO declared that, there could be no food security without food safety (FAO 2019). Simultaneously, due to growth of food trade across the globe, food safety has become a common issue among both developed and developing countries (IFPRI, 2003).

The issue of food safety is not only about producing safe food. It is also about safe consumption of food products (Kinsey, 2005). Therefore food safety education to retailers and consumers and application of quality control system during food production are of utmost importance.

Harmful agents in unsafe food, which occur naturally or contaminate foods at any point in the food production processes due to improper practices along the food chain may result in foodborne illness. Although food is considered as an agricultural product and/or trade commodity, food safety is an essential public health function. To be effective, food safety must be integrated along the entire food chain, from farm to table with responsibility shared among government, industry, distributors, retailers and consumers (IFPRI, 2003).

Africa has achieved a sound economic growth for the last 15-20 years. Nevertheless, stunting showed no reduction indicating the nutritional status of the region (WHO, 2012). According to WHO estimation, 50% of malnutrition is related to repeated diarrhea due to the consumption of unsafe water, inadequate sanitation and hygienic practices (WHO, 2008). This shows the diarrhea-malnutrition-diarrhea vicious cycle (Gleick, 2012).

In many parts of the world, inadequate sanitation systems exist and peoples across the globe practice open excretion without any services to prevent fecal waste from contaminating the environment (WHO-UNICEF, 2017). The sanitation services, in many low and middle income countries, are not properly delivered and cities confronted with the sanitation problem caused by rapid urbanization (WHO, 2018).

Therefore, this study aimed at assessing the food security status of the households, and evaluates the food safety and water sanitation and hygiene KAP of households in *Arada* sub-city *Woreda* 10, Addis Ababa, Ethiopia.

1.2. Statement of The Problem

Food safety is the scientific discipline applied towards preventing foodborne illness through proper handling, preparation and storage of food. So, it is progressively a very important public health issue and governments all over the world are increasing their efforts to improve food safety (FAO, 2002). All these efforts resulted from the rising of food safety problems and consumer concerns.

WHO (2015) indicates that almost one in 10 people are affected by foodborne illness each year. It is believed that about 420,000 deaths happened due to foodborne illness in 2010. Most of the victims were children less than five years old. Contaminated foods are causes of about 230,000 diarrheal deaths in a year. This information clearly depicts how much the foodborne illness influences is at the global level.

Foods are not prepared and processed for personal use only, but also for other consumers (CDNANZ, 1997). To prevent the incidences of food borne disease the food handling practices should be appropriate and suitable to food products (U.S.EPA, 1997), and the way consumers or food handlers handle food has effect on cross-contamination and pathogen multiplication.

Mainly raw foods, which are frequently prepared in the households, are strongly associated with foodborne pathogens such as *Campylobacter* spp., *Salmonella* spp., *Listeria* spp., and *E. coli* O157:H7 (Jones, 1998).

Improper water sanitation and hygiene contaminate food with fecal disease causing organisms, which cause diarrhea and possibly chronic intestinal infections (Humphery, 2009), which affect the absorption of nutrients. This reduces or undermines the resistance and response of the body to illness by decreasing immunity (Rodríguez et al., 2011) and loss of vital electrolytes. This causes the diarrhea → malnutrition → diarrhea vicious cycle.

The food security problems in the poorest communities cannot be resolved without achieving safe food and drinking water, sanitation and hygiene (WASH advocates, 2013). Therefore, the issue of food safety and water sanitation is highly interlinked to concepts of food security. In addition, the KAP of households on food safety and WASH influence the nutrition and food security of households. According to my observation *Arada* sub-city *woreda* 10 is the former area with prolonged existence housing and has a congested nature in its establishment. Due to this reason, the drainage system, communal toilet usage and waste management practices are poor. These situations may lead to the condition which may expose the households to foodborne and waterborne illness. In order to tackle these threats, problem of water and food safety need to be investigated. This study is intended to generate new information on the level of knowledge, attitude and practices of food safety and WASH in *Arada* sub-city, *woreda* 10.

1.3. Objective of the Study

General Objective

The main objective of this study was to assess the food security status, food safety and water sanitation and hygiene KAP of households in *Arada* sub-city, *woreda* 10, Addis Ababa, Ethiopia.

Specific Objective

The study addressed the following specific objectives to:

1. Assess the food security status of households.
2. Assess the food safety KAP of households in terms of food handling, personal hygiene and sanitation practices.
3. Evaluate the water sanitation and hygine KAP of households and the community, at large in *woreda* 10.

1.4. Research Questions

1. How many of the study households in the *Woreda* have adequate access to food and what is the level of food insecurity where family access to adequate food is weak?
2. What is the household food safety situation in the study community as measured by KAP?
3. What is the water sanitation and environmental hygiene condition in the community as measured by WASH KAP?
4. Why the food safety and WASH KAP level of households is poor?
5. What can be done to improve the current water sanitation and food safety through improved KAP?

1.5. Limitation of the Study

The limitation of the study arose from the absence of available research from previous time to make a valid comparison. Another drawback was that some of the households were not willing to disclose the information about their family income, age and food access. But, the problems were solved by convincing them as the personal informations will be protected as a secret and will be used only for the consumption of this research.

1.6. Scope of the Study

The study was specifically focused on food security status and the knowledge, attitude and practices related to food safety and water sanitation and hygiene of the households. The study was done particularly on households who lived in *woreda* 10 of *Arada* sub city from January to March on food security status, food safety and water sanitation and hygiene.

1.7. Significance of the Study

This research has several important contributions for policy makers, development practitioners, local governments and households to have a better knowledge, attitude and practices related to food safety and water sanitation and hygiene. Studying the food safety and water sanitation and hygiene of households through KAP will have a positive impact in the process of ensuring food security at the household level similar communities in Addis Ababa. It also investigated the food security status of households in relation to food safety and water sanitation and hygiene KAP of households in this woreda. It showed the possible way out to improve the poor food safety and WASH status of the households which can lead to foodborne and waterborne illnesses that influence the food security status of households. In addition, it also recommends the possible prevention mechanism of food contamination to improve food security status in *woreda* 10, Arada sub-city, Ethiopia.

CHAPTER 2: LITERATURE REVIEW

2.1. Concepts of food security, food safety and water sanitation and hygiene

2.1.1. Food security

The concepts of food security started at the first World Food Conference in 1974 in Rome. The definition of food security has been significantly changing from time to time. According to the current comprehensive definition of food security made by FAO (2000) food security is achieved when 'all people, at all times, have physical, economic and social access to safe and nutritious food to meet their dietary needs and food preferences to have an active and healthy life'. The pllars of food security were revised in the 2009 world summit on food security to include the fourth dimension – stability – to be used as a time indicator of the ability of food systems to cope natural or man-made shocks (FAO, 2009).

Ethiopia is one of the food insecure countries in the world. Huge number of the population of the country has been affected by chronic and transitory food insecurity (ADB, 2014). The food insecurity situation in the country is extremely associated with recurring food shortage and famine, which are linked to recurring drought. As it is indicated by FAO (2010), more than 41% of the Ethiopian population lives below poverty line and above 31 million people are undernourished.

Households without sufficient access to food are usually linked with other challenges related to food insecurity, such as poor health and a decline in productivity. In that case, the households will remain unable to produce adequate food, even in a good year due to the presence of chronic health issues and are unable to work with their full potential. The issue of food insecurity and its effect has led the developing agenda to focus only on the intervention issues in many developing countries given limited resources (IFPRI, 2009).

Ethiopia has shown a remarkable improvement on food security and nutrition with many challenges remaining. Even though, the population grows fast, Ethiopia's poverty rate has been falling from 30% in 2011 to around 24% in 2016 (World Bank, 2019). Despite Ethiopia's development and improvement in health and nutrition in the last 30 years, upgrading nutritional status of the people remains a big challenge. In 2016, 38% of children under five were stunted and 18 percent severely stunted (EDHS, 2016).

As World Food Programme (WFP, 2009) indicates, the concept of food security comprises four major components such as availability of food, access to food by individuals and households, utilization, indicating the household's ability to prepare and consume types of food that they prefer and to absorb the nutrients.

2.1.2. **Food safety**

Food safety is the broader term that comprises different aspects of food related to handling, preparation and storage to prevent the occurrence of health problems. Diarrheal diseases kill estimated two million people annually including many children in developing countries caused by both foodborne and waterborne illness. Food contaminants such as bacteria, viruses, chemicals or radioactive substances cause more than 200 diseases ranging from infectious diseases to cancer (WHO, 2002).

2.1.2.1. **Food safety problems**

Foodborne diseases are illnesses caused due to the consumption of unsafe food (WHO, 2008). These diseases are prevalent public health issues and result in high medical expenses (CDC, 2015). Food can be contaminated at any stage, from production to consumptionby by bacteria, viruses, parasites, chemical agents and toxins, which eventually cause foodborne diseases (WHO, 2008). Foodborne diseases are increasing worldwide, particularly in the developing countries, due to neglect of personal hygiene and food hygiene (SADAOC, 2002).

Most foodborne illness cases occur principally in homes (Redmond and Griffith, 2009; Knabel, 1995). Many consumers do not consider that the home is the source of foodborne illness (Worsfold and Griffin, 1997). Nearly two-third of households have seen foodborne illness symptom and, could have a foodborne illness caused by foods prepared at home (American dietetic association, 1999; Cody and Hogue, 2010).

2.1.2.2. **Factors that affect food safety**

Poor food hygiene knowledge frequently exposes to unsafe food handling practices resulting in foodborne disease. Osaili et al. (2011) showed that, food handlers had lack of knowledge of basic food hygiene including critical cooking and storage temperature of food, cross contamination and personal hygiene. It is the responsibilities of food handlers to produce safe food, and their knowledge, attitudes and practices should enable them prevent any foodborne

illness (Angelillo, 2000). In most cases, foodborne illnesses have been caused due to human handling errors (Jianu and Chis, 2012).

The value of food safety discipline and its relationship with food security are not recognized. In the definition of food security, food safety issues are considered as one of the elements to assure food security (FAO, 1996).

From the period of recognition of food safety problem, globally it is estimated that 600 million peoples fall illdue to foodborne disease and around 420,000 die every year. Among this 40% percent of the foodborne diseases, with a minimum of 125,000 deaths, occurs in children under 5 years of age (Havelaar et al, 2015). WHO (2002) introduced the Five Keys to Safer Food in 2001 to react to these growing threats. These keys are "keep clean, separate raw and cooked foods, cook thoroughly, keep food at safe temperatures and use safe water and raw materials".

2.1.3. **Water Sanitation and Hygiene (WASH)**

In Water Sanitation and Hygiene (WASH), each separate field of work is dependent on the presence of the other. Toilets need water for cleaning, water sources need toilets for keeping them from being contaminated, and clean water is needed for basic hygienic practices (UNICEF, 2016). Access to water and sanitation is one of the major challenges to overcome in the 21st century. WHO (2014) estimates that still 2.5 billion people, more than one third of the global population, live without basic sanitation facilities. The importance of water is not limited to public health, but also to general livelihoods and development; livestock production, crop production, industry, commerce and daily life depend on availability and access to water. Therefore, the water supply and the sanitation conditions directly affect food security and health and are vital resource components in the fight against hunger and malnutrition (ACF, 2005).

Different literatures show that, there is a link between child linear growth and household water, sanitation and hygiene (WASH) practices (Ngure et al., 2014). Previously it has been estimated that about 50% of child under-nutrition may be attributed to poor WASH practices (World Bank, 2008). Ingestion, by infants and young children, of high quantity of fecal bacteria from both human and animal sources from contact with household items, is common in many rural and low income environments. This leads to diarrhea which negatively affects the child's nutritional status (Dewey and Mayers, 2011).

2.2. Household Food Insecurity Access Scale (HFIAS)

The Food and Nutrition Technical Assistance Project (FANTA) developed the HFIAS in 2006 to provide measure food insecurity in developing countries with cross-cultural equivalency (Coates et al. 2007).

HFIAS questionnaire consists of nine occurrence questions that represent a generally increasing level of severity of food insecurity (access), and nine "frequency-of-occurrence" questions to determine how often the experienced condition occurred in the previous four weeks (30 days). Some of the nine occurrence questions inquire about the respondents' *perceptions* of food vulnerability or stress (e.g., did you worry that your household would not have enough food?) and others ask about the respondents' *behavioral responses* to insecurity (e.g., did you or any household member have to eat fewer meals in a day because there was not enough food?). The questions address the situation of all household members and do not distinguish adults from children or adolescents. All of the occurrence questions ask whether the respondent or other household members either felt a certain way or performed a particular behavior over the previous four weeks (Ballard, 2011).

2.3. Conceptual Framework

The way household food handlers clean food utinsils and kitchen surfaces, thoroughly cook food (including left-over food), store food at appropriate temperatures, and separate cooked food from raw food determined whether ready to eat food is safe. Because, household food handlers are exceedingly responsible for preparing food for the family, they should maintain their personal hygiene, particularly by strictly following hand washing rules. The water for washing and drinking purpose should be collected from safe source, stored in clean containers and, when necessary, disinfect it by boiling or adding the right concentration of bleach to avoid possible water-borne disease causing organisms. The WASH practice related to waste management, environmental hygiene, toilet and shower practices are also the critical aspects towards having a better food and water safety.

The status of food and water safety within the households are directly depends on their knowledge, attitude and practices. When the households have a better KAP about food and water safety, they become capable of preparing safe food for consumption. Accessing safe food

is one of the major requirements to achieve food security at household level. On the other hand, when households have a poor KAP about food and water safety, the malpractice will lead to microbial contamination of ready-to-eat food. This microbial contamination will make food and water totally unsafe for human consumption. If these contaminated foods are consumed by any household members, they will cause food and waterborne illnesses, such as diarrhea. If the problem of foodborne and waterborne diarrheal disease happen repeatedly, the infected person will loss important nutrients from the body, which, in turn, lead to malnutrition. Malnutrition weakens the immune system and makes children susceptible to infection by foodborne microbes resulting in diarrhea→malnutrition→diarrhea vicious cycle. This condition hampers the individual from living a healthy and active life, which is the ultimate goal of food security. The framework presents hereunder depicts the link between food safety, WASH and food security.

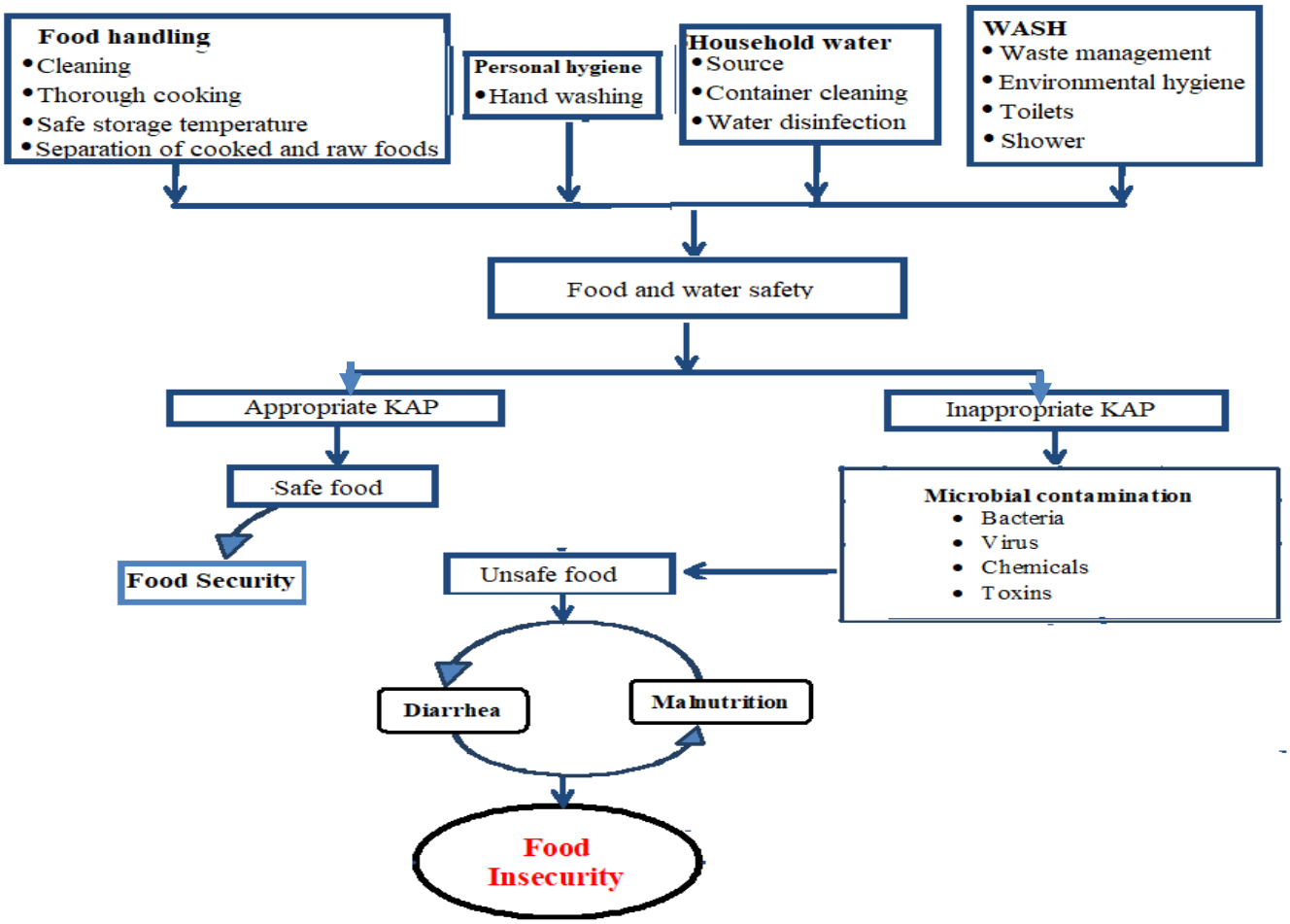

Figure 2. 1 Conceptual framework for food security, food safety and WASH linkage

Source: Developed by the author (2020)

CHAPTER 3: DESCRIPTION OF THE STUDY AREA AND RESEARCH METHODS

3.1. Description of the study area

The study was carried out in Addis Ababa the capital city of Ethiopia. The average altitude of the city is 2400 meters above sea level. According to the Addis Ababa City Government (2017), a city occupies a total area of 9.9 sq.km. According to CSA (2011/12), the population of Addis Ababa, in 2017, was close to four million. *Arada* is one of the ten sub-cities of Addis Ababa and has 10 *woredas.* It is located in the north central part of the city (Fig. 3.1). The neighboring sub-cities are to the north *Gullele,* to the west *Addis Ketema,* and*Lideta,* to the south*Kirkos* and to the east *yeka*. The total population size of Arada sub-city is 225,999 with 53% Female. The Population density per sq. m is 22,805 (AACG, 2017). The study area, *woreda* 10 is located around piazza.

Within *Woreda* 10, there are six *ketenas* and the garbage bins are available in all *ketenas* to collect the solid waste from the households. Households close to a garbage bin dumped their solid waste on it directly. But, others kept wastes within their residence and put them outside their compound for collection by waste collector who came two times per week on scheduled collection days. It was observed in all neighborhoods of the Woreda, during the period of this study, that environmental hygiene with respect to solid and liquid waste disposal was poor. Most Woreda dwellers lived in woreda-owned houses (customarily called *kebele bet*) with no enough space outside their residence and no fences. People threw out liquid wastes through the doors and put solid wastes everyday outside their compound, stacked in plastic bags and sacks. This practice always resulted in bad odor in the surrounding until waste was taken away by waste collectors. In addition, drainage systems within the Woreda were poorly constructed, old and mostly not efficient in removing liquid waste. Moreover, most of the households who lived in the *kebele bet* did not have their own toilet. At least five households shared a common latrine having four separate rooms constructed by the Woreda. It was observed that these latrines were not clean and no one took the responsibility to sanitize them. Even around the garbage bins solid wastes were scattered all over. The environment around the communal tap-stand, where some households collected drinking water, was properly cleaned. Mostly, females took the responsibility of collecting drinking water for the households.

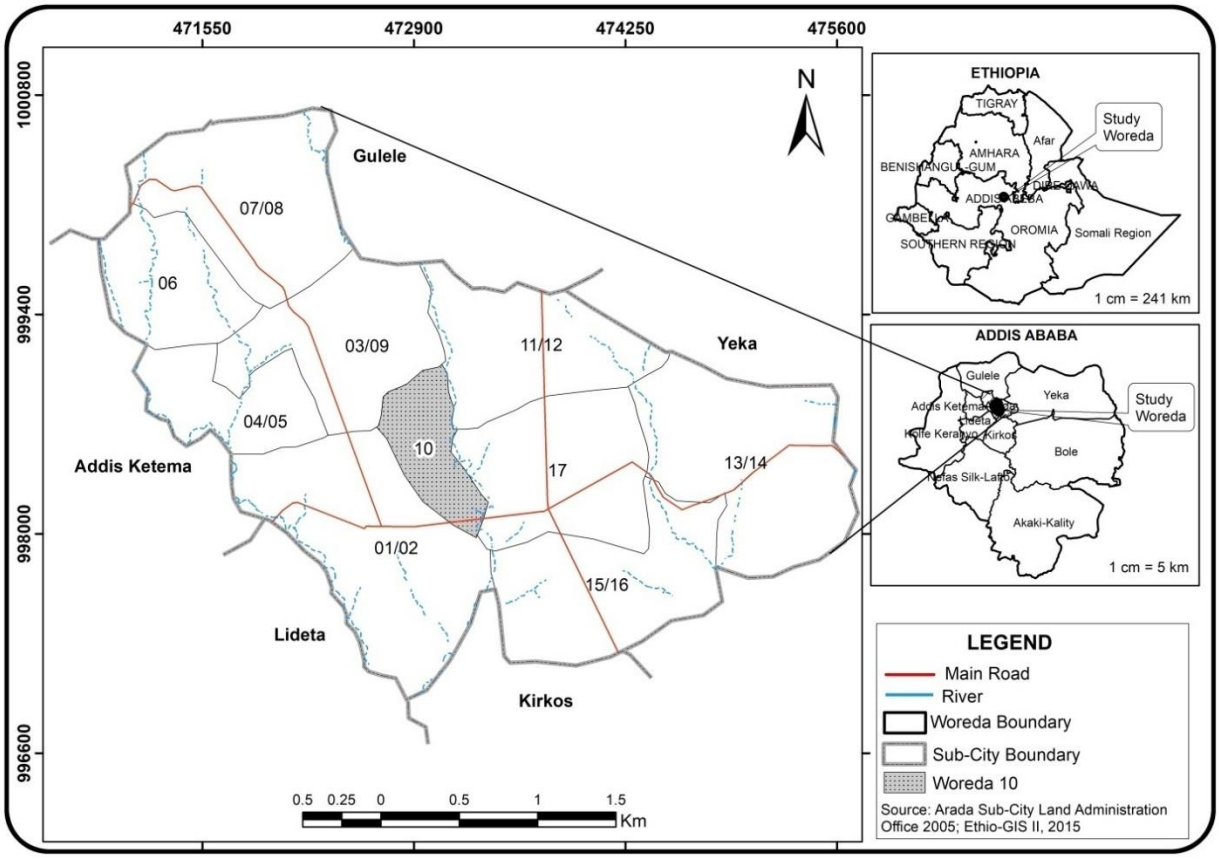

Figure 3. 1 Map of *Adara* Sub-City, *woreda* 10.

Source: *Arada* sub-city land administration office 2005: Ethio-GIS II, 2015

3.2. Research design and approaches

A cross-sectional study was conducted on food security, and KAP of food safety and water sanitation among households in *Arada* sub-city *woreda* ten. Both qualitative and quantitative data were collected from a group of participants with varied characteristics and demographics. The study was conduct from January to March, 2019.

3.2. Source population

All households who lived in *Arada* sub-city *woreda*10 were the source population.

3.3. Study population

Sampled hosueholds who lived in *Arada* sub-city *woreda* 10 during the study period were studied.

3.3.1. Inclusion criteria

Selected households, both male- and female-headed, who lived in *Woreda* 10 participated in the study.

3.3.2. Exclusion criteria

Those households who were not lived in *Woreda* 10 were out of the study.

3.4. Source of Data

The study used both primary and secondary data sources. The primary data was collected through household survey (structured questionnaire), interview and personal observation from the selected households in *woreda* 10. Secondary data was gathered from recorded documents from job creation and food security administration office of *woreda* 10. The data was collected directly by the researcher and enumerators.

3.5. Sampling Techniques

A census was conducted to obtain the list of households in purposively selected *woreda*10, *Arada* sub-city, for logistic reason. In addition, secondary data from *woreda* 10 food security administration and job creation office was collected. Households were selected using random sampling method. The selected *woreda* has six "*ketenas*" of which the samples were selected from all "*ketenas*" by random sampling.

There were 2885 households who were living in *woreda* 10 of during the study period consisting of 1429 male-headed and 1456 female headed households. Random sampling was made according to Yamane (1967) as the population was finite and the population size was known. The original sample size and the corrected sample size (5%) was determined at 95% confidence level.

3.6. Sample Size Determination

Yamane (1967) formula was used to determine sample size:

$$n = \frac{\mathrm{N}}{1 + N(e)^2}$$

Where **n** is sample size, **N** is the population size, and **e** is the level of precision.

$$n = \frac{2885}{1 + 2885(0.05)^2}$$

$$\underline{n = 351}$$

So, in this case the representative sample size for our study is 351.

3.7. Tools and techniques of data collection

A structured questionnaire was developed for food safety KAP based on Macías and Glasauer, (2014) and for WASH KAP based on ACF international (2015). HIFIAS questionnnaire was used to collect data on household food insecurity access scale (Coates et al., 2007). The questionnaires were designed in English language but, for the purpose of easy communication with respondents, they were translated into the Amharic language. The overall data collection activities were carried out by the researcher and other trained enumerators. The primary data was collected by using pre-designed questionnaires and secondary data was collected from food security administration office and job creation office in *woreda* 10.

To get the deeper information the researcher has conducted an interview from 10 randomly selected key informants in *Arada* sub-city, woreda 10. Because, this structured questionnaires is very flexible and make the participants relaxed to respond for every questions. The interview was managed by the researcher by raising questions focusing on 'why they are not properly practicing the food safety and water sanitation and hygienic measures at the household level?' The questions are purposively prepared to know the real reasons of the households for why they are not doing things in a safe manner during handling, cooking and storing food products. In addition to these, it is also very important to know about waste disposal, toilet shower usage.

3.8. Data quality managements

For data quality management, questionnaires pre-tested on about 5% of the study population to make sure that the respondents are clear with all the information provided. Completed questionnaires were collected on daily basis and the necessary comments were given to the data collectors and supervisor focusing on the observed gaps. Data was collected from 351 households and the response rate of the study participants was 100%.

To validate the accuracy of data entry, randomly selected 5% of the questionnaires were thoroughly checked and descriptive statistics, including results from cross-tabulations and

frequency distributions were examined before performing statistical analysis. Daily supervision was done by the researcher to check the completeness and reliability of the data. Collected data were entered in STAT version 14.2 and then cleaned before analysis.

3.9. Study variables

3.9.1. Dependent variables

The dependent variables were food security status of households, food safety and water sanitation and hygiene related knowledge, attitude and practices of households.

3.9.2. Independent variables

Socio-demographic status of respondednts, health extension program training status of household heads, availability of hygiene facilities, food preparation, personal hygiene and waste disposal mechanisms constituted the independent variables.

Indicators used to quantify KAP

Total KAP percentage among respondents was calculated as in Macías and Glasauer (2014)

$$Percent\ of\ knowlege = \frac{\text{Sum of correct responses given by all respondents}}{\text{Total number responses given by all repondents}}\ \text{X}\ 100$$

Total positive attitude among respondents was calculated as

$$Percent\ of\ positive\ attitude = \frac{\text{Sum of positive responses given by all respondents}}{\text{Total number responses given by all repondents}}\ \text{X}\ 100$$

Similarly, appropriate practice was calculated as

$$Percent\ of\ appropriate\ practices = \frac{\text{Sum of appropriate responses}}{\text{Total number responses given by all repondents}}\ \text{X}\ 100$$

3.10. Techniques of data analysis

As the nature of the problem and the data collected, the study used both qualitative and quantitative data analysis techniques. The responses from key informant respondents and personal observations were described and narrated to support the quantitative data. The quantitative data were organized by Excel spread sheet and analyzed by using STATA for windows version 14.2. HIFAS, food safety KAP and WASH KAP were analyzed by descriptive statistics. The analysis and results were interpreted and presented based on the objectives of the study.

3.11. Ethical consideration

Verbal informed consent was obtained from sampled households in *woreda* 10. Confidentiality regarding respondents' details and anonymity of respondents were maintained. Written consent was obtained from the *woreda* ten food security office. Interview was carried out only with full consent of the person being interviewed. Each respondent were assured that the information provided by her/his will be kept confidential and would be used only for the purpose of this research.

CHAPTER 4: RESULTS AND DISCUSSIONS

4.1. Socioeconomic and Demographic Characteristics

The majority (65%) of the respondents was between 20 and 40 years old and most of the respondents (73.5%) were female. About 43% of respondents were either divorced or single. About 70% of the households had two or less children while about 9% had five or above children, of which 80% were under 18 years old, Around 45% of the respondents were daily laborers and about 21% could not read and write. About 76% of respondents had monthly income of ETB 1500 or less (Table 4.1).

Table 4. 1 Socio-economic and demographic status of the respondents.

		No.	%
Age	20-30	95	27.1
	31-40	135	38.5
	41-50	85	24.2
	>50	36	10.3
Sex	Male	93	26.5
	Female	258	73.5
Marital Status	Single	93	26.5
	Married	205	58.4
	Divorced	53	15.1
Number of children/household	Two and less	244	69.5
	Three and four	76	21.7
	Five and above	31	8.8
Children age group/household (years)	<5	208	33.12
	>5-10	118	18.79
	>10-18	179	28.50
	>18	123	19.59
	Total	628	100.00
Religion	Christian	257	73.4
	Muslim	75	21.4
	Others	18	5.1
Occupation	Government	41	12
	Private	148	43.2
	Daily laborer	154	44.9
Education	Can't read and write	73	20.9
	Can read and write	223	63.7
	>Diploma	54	15.4
Income	500-1000	148	42.2
	1001-1500	117	33.3
	1501-2000	48	13.7
	>2000	38	10.8

5.2. Household food insecurity access (HFIAS)

Households in the study area experienced food insecurity in different forms. About 40% did not at all worry about sufficiency of food for the household in the last 30 days or experience it very rarely. A high proportion of households experienced food insecurity in different ways; some reduced the quality (70%) or quantity (48%) of food they ate because of lack of resources. Others (10%) experienced hunger from one to ten times in the last 30 days because there was no food to eat (table 4.2).

Table 4. 2 Mean values of food insecurity experiences of participant households (351) in the past four weeks.

Household food insecurity experience	Occurrence	Frequency		
		Rarely	Sometimes	Often
Anxiety and uncertainty	212 (60.4%)	212 (100%)	-	-
Reduced quality of food	245 (69.8%)	224 (91.4%)	17 (6.9%)	5 (2%)
Reduced quantity of food	168 (47.9%)	158 (94.1%)	10 (6%)	0
Hunger	34 (9.7%)	32 (94.1%)	2 (5.9%)	0

Rarely (1 or 2 times), sometimes (3 to 10 times), Often (more than 10 times)

About 23% of the study households were free of anxiety or uncertainty about food availability in the household or experienced them rarely in the last 30 days and, thus, were considered as food secure (Table 4.3). About 45% of the sample households were considered as mildly food insecure. Households who frequently had to compromise quality of food they ate were considered as moderately food insecure (25%). The small proportion of households who experienced hunger (7%), though rarely, were considered as severely food insecure. The level of food insecurity in our study was comparable to that reported from Damot Galle Woreda in Wolayta zone (Adimasu et al., 2019), much lower than that from Boset Worede, Arsi zone (Getachew et al., 2018), but higher than that from Jima Zone (Kalkidan et al., 2016) and West Oromia (Wondu, 2020).

Table 4. 3 Food security status of the study population.

Food security category	Food security status (%)
Food secure	23%
Mildly food insecure	44.8%
Moderately food insecure	25.4%
Severely food insecure	6.8%

(Detailed data is given in annex 1).

5.3.Food safety knowledge, attitude and practice

In most part of Ethiopia, sauces are the major components of traditional meals. They are legume-based, vegetable-based or meat-based. If contaminated, they allow multiplication of various kinds of microorganisms, including those that cause diseases, and, thus, have to be kept at low temperatures to avoid microbial growth (Mogessie, 1996, 2000). Most microorganisms which are usual contaminants in kitchen environments can also spoil sauces which are kept at ambient temperatures for over 12 hours (Mogessie, 1997). Uncleaned kitchen utensils and environments can be sources of contamination to cooked foods (Muleta and Mogessie, 2000).

Food safety of households was measured with respect to knowledge of avoiding contamination, thorough cooking, cold storage of perishable foods and cleaning of raw fruits and vegetables. Attitude towards implementing food safety measures was assessed in terms of perception on susceptibility to severity of foodborne diseases, perceived benefits of taking the appropriate safety steps, and perceived difficulty of implementing such measures. Food safety practice was assessed in terms of how food was prepared in the household from the perspective of safe food preparation.

5.3.1. Knowledge of food safety issues

Food handling: This was assessed with regards to separation of raw from cooked foods, thorough cooking, cold storage of perishable foods, and washing raw fruits and vegetables (Table 4.4). About 97% or respondents have very good knowledge (>97%) of signs of thorough cooking (FSIS, 2012) and washing raw fruits and vegetables (Zander and Bunning, ND). Thorough cooking should go to the point of boiling and is essential to kill bacteria and ensure food safety (Mogessie Ashenafi. 2012). Most respondents (76%) also had good knowledge of separating cooked foods from raw foods. Raw foods are usually contaminated with various groups of microorganisms and are possible sources of contamination to cooked foods. About 58% of mothers in Vietnam separated cooked from raw foods (Takanashi et al., 2009) Lower knowledge (33%-63%) was noted on cooling of perishable and leftover foods. To avoid possible illnesses from left over foods, they should be kept in cold places and reheated during serving (FSIS, 2012). Knowledge regarding personal hygiene was notably low (32.3%), particularly in identifying the key moments of handwashing (16%). Good personal hygiene

practices are essential to prepare safe food and food handlers should wash hands often to keep food safe (Voca, 2014).

Knowledge of treating unsafe water was also low (27%). The two dependable methods of choice to disinfect water before use are boiling or adding disinfectants in the right concentration (CDC, 2020). Total knowledge of respondents regarding food safety issues was 57%. This level was similar to that reported from Saudi Arabia (Ahmed, 2018) but much lower than that reported from Palestine (Zyoud et al, 2019). Food safety knowledge is very important to make households handle foods more safely (Shapiro et al., 2011).

Table 4. 4 Food safety Knowledge among the study population

Knowledge	
Food handling	Frequency
Reason for Separation of raw and cooked foods	265(75.5%)
Signs of thorough cooking	343(97.7%)
Kinds of perishable foods to be stored in a cool place	221(63%)
Reasons for avoiding eating leftovers not kept in a cool place	114 (32.5%)
Washing raw fruits and vegetables before eating	339 (96.6%)
Food handling Knowledge level	**73.1%**
Personal Hygiene	
Action for preventing food poisoning from germs from feces	172 (48.9%)
Key moments for hand washing	55 (15.7%)
Personal hygiene knowledge level	**32.3%**
Water Sanitation	
Treating unsafe water	93 (26.5%)
Water Sanitation Knowledge level	***26.5%***
Total knowledge	**57.1%**

(Detailed data on knowledge of food handling, personal hygiene and household water sanitation is given Annex 2 a, b, and c)

4.3.2. Attitude on food safety issue

Food handling attitude was assessed with regards to perceived susceptibility to getting sick from contaminated food, perceived severity of the disease if it is contracted, perceived benefits of following the methods to keep food safe, perceived barriers which make implementing safety methods difficult and perceived self efficacy which build confidence in one self to implement the methods that make food safe (Table 4.5). These perceptions are important because they positively or adversely affect putting methods into practice what a person is already aware of.

Over 90% or respondents showed positive attitude towards following appropriate food handling practices and importance of maintaining good personal hygiene, particularly hand washing. A smaller proportion (76%) of respondents had good attitude in water sanitation issues. It was worth noting that the majority of respondents were against boiling unsafe water before using mainly because they perceived that taste of boiled water was not as acceptable and also boiling water required fuel (charcoal). Total positive attitude among respondents could be considered as high (86.6%). This was much higher than the rate reported from Palestine (Zyoud et al, 2019), Debarq, Ethiopia (Henok, 2019) or Saudi Arabia (Ahmed et al., 2018).

Table 4. 5 Food safety attitude among the study households.

Attitude	
Food handling perceptions	Frequency
Susceptibility: Likely to get sick from eating contaminated food?	327 (93.2%)
Severity: Seriousness illness from eating contaminated food.	325 (92.6%)
Benefits: Good to cold store perishable foods, re-heat left-overs, clean wash fruits and vegetables	333 (94.9%)
Barriers: Not difficult to re-heating left-overs or clean wash fruits and vegetables, or store perishable food in cool place.	302 (86.1%)
Food handling attitude	***91.7%***
Personal Hygiene perceptions	
Susceptibility: Likely to get stomach ache or diarrhea from not washing hands	317 (90.3%)
Severity: Serious to get diarrhea from oneself not washing hands.	329 (93.7%)
Benefits: Good to wash hands before preparing food or before feeding a child/eating	337(96%)
Barriers: Not difficult to wash hands before preparing food or before feeding a child/eating	319 (90.9%)
Self efficacy: Confidence in washing hands properly?	319 (90.9%)

Personal hygiene attitude	**92.4%**
Water Sanitation perceptions	
Susceptibility: Likely that oneself or one's child to get diarrhea from using unsafe water	317 (90.3%)
Severity: Serious to get sick from using unsafe water	317 (90.3%)
Benefits: Good to boil water before drinking or using it	315 (89.7%)
Barriers: Not difficult to boil water before drinking or using it	154 (44.1%)
Self efficacy: Confidence in boiling water before drinking or using it	227 (65%)
Water sanitation attitude	**75.8%**
Total positive attitude	**86.6%**

(Detailed data on respondents' attitude in food handling, personal hygiene and household water sanitation is given Annex 3 a, b, and c).

2.3.3. Practice of food safety issues

Food safety practice was evaluated with respect to actions taken to clean food utensils and kitchen surfaces, cold storing perishable foods, frequent and appropriate hand washing and appropriate storage of water and disinfecting unsafe water (Table 4.6). Although most respondents had good knowledge of food handling and had high positive attitude towards appropriate food handling, all these were not translated into practice.

Only about 45% of the respondents appropriately cleaned kitchen surfaces and utensils or 31% stored perishable fresh foods in cold place. Key informant respondents indicated that, always they are not made the detergents available to clean the kitchen materials and utensils. Although over 90% or respondents had positive attitude towards hand washing, only 36% practiced appropriate hand washing. According to the key informant respondent's response, they did not give emphasis to the basic material (detergents) to be used for proper hand washing practices inside home and around toilet. Appropriate hand washing required washing one's hands with soap and water under running water. A relatively higher proportion of respondents (68%) cleaned their water storage containers using water and detergent, and also smoked them using olive splinters. Although about 22% of respondents boiled unsafe water, none used bleach to achieve disinfection. They do not know how much it is serious the consequences of storing the cooked and row foods together. Total level of appropriate practice of food safety was 38%. Food safety practice observed in our study was much lower than that reported from Hanoi, Vietnam (Takanashi et al., 2009) and Palestine (Zyoud st al., 2019), but slightly higher that that reported from Egypt (Allah et al., 2017).

Table 4. 6 Food safety practice among the study households.

Practice	
Food Handling	Frequency
Appropriate cleaning of kitchen surfaces and utensils after preparing dinner	158 (45%)
Appropriate storing of perishable fresh foods	108 (30.8%)
Food handling practice level	**37.9%**
Personal Hygiene	
Appropriate hand washing	125 (35.6%)
Hand washing practice level	**35.6%**
Water Sanitation	
Appropriate storage of water	237 (67.5%)
Appropriate actions to make water safer to drink	39 (11.1%)
Water sanitation practice level	**39.3%**
Total appropriate practice	**37.6%**

(Detailed data on respondents' practice in food handling, personal hygiene and household water sanitation is given Annex 4 a, b, and c).

4.4 Knowledge, attitude and practice of WASH

Globally, there are concerns of household and school sanitation and hygiene problems in rural or urban settings in developing countries (Sibiya and Gumbo, 2013). Such problems are responsible to huge proportion of child mortality due to diarrhea (WHO/UNICEF, 2009). Approximately 85% of diarrhea among under-five year old children is due to unsafe water and sanitation (Liu et al., 2016). Prevention of diarrhea requires access to safe drinking water, adequate sanitation, and promotion of good personal and environmental hygiene.

4.4.1. Knowledge

Respondents' knowledge of signs of safe water safety was based on absence of germs, turbidity, bad taste, or any smell (Table 4.7). Although 55% of respondents considered absence of germs as major sign, average knowledge of respondents on water safety was low (25%). Most claimed that water became not good due to turbidity, average knowledge on this was as low as 10.5%. Respondents' knowledge of causes of diarrhea, determined as bad water or dirty hands, was only 14%. Of the six different steps to do to prevent diarrhea, less than 40% of respondents

identified any one of the steps, and total knowledge of prevention of diarrhea was low (16.7%). Knowledge of how to prepare oral rehydration solution (ORS) was also only 12%. Mean knowledge of WASH among the study households was only 20%. This proportion was comparable to the 22% mean knowledge reported from south India (Veerapu et al., 2016), lower than the 42% reported from North Ethiopia (Abera Aregawi, 2020) and the 91% from Malaysia (Mohamed et al., 2016). The findings in this study indicated the need for sanitation and health education to achieve a functioning water and sanitation system (WRC, 2001).

Table 4. 7 WASH Knowledge among the study population

Knowledge	(%)
Signs of safe water	25
Reasons for water not to be good	10.5
Causes of diarrhea?	14.1
Ways of preventing diarrhea	16.7
Method how to prepare ORS	12
Total WASH knowledge	**19.9**

(Detailed data on respondents' knowledge of WASH is given in Annex 5 a)

4.4.2. Attitude

A large proportion of respondents perceived that water can transmit diseases (70%), feel bad when someone littered wastes from container (89%), or were willing to pay for garbage collection (72%). However, low positive perception was observed regarding toilets (56%), shower cabins (35%), number of waste collectors (22%) and drainage system (34%). Total positive attitude of respondents was 54% (Table 4.8). Positivee attitude to WASH was lower (49%) in North Ethiopia (Abera Aregawi, 2020), and higher (59%) in South India (Veerapu et al., 2016) and 92% in Malaysia (Mohamed et al., 2016).

Table 4. 8 WASH attitude among the study population

Attitude	%
Water can transmit diseases	70.4
Satisfaction with privacy, safety and cleanliness of toilet	55.7
Happy with water pressure, cabin design and privacy of shower provided on the plot	34.5
Enough communal waste collectors in the neighborhood	22.4
Bad feeling about littering of wastes out of container	89.2
Willing to pay for the garbage collection	71.5
Happy with the drainage system	33.9
Total positive attitude	**53.9**

(Detailed data on respondents' attitude towards WASH is given in Annex 5 b)

4.4.3. Practice

WASH practices were examined from the perspective of water availability, diarrhea, toilets and disposal of excreta, showers, solid and liquid waste disposal. About 32% of respondents had under-five children with diarrhea in the family in the last 15 days (Table 4.9). Low appropriate practice among respondents was observed with regards to removal of solid waste from neighborhood (25%) and emptying household waste collection bin in communal waste collectors (47%). Key informant respondents indicated that, they consider as there responsibility is only puting wastes outside their compound to make it available for waste collectors. Even they do not think about the possible health problems when they are regularly practicing inappropriate wase disposal practices. This implied that waste was not properly disposed from inside house and neighborhood, which would, consequently result contamination of the environment. A large proportion of respondents (78%) observed that people of all age groups defecated in the open, thus contaminating the environment with feces. Feces is source of disease causing microbes which can easily be picked by insects and rodents (Ercumen et al, 2017). Hands of children and adults can also be contaminated from soils that come in contact to feces (Gil et al, 2014). Unwashed hands, flies and rodents can bring disease causing organisms to household kitchens. They eventually contaminate food and water and cause diarrhea. Mean practice of respondents was 63%, which was higher than that reported from elsewhere (Abera, 2020; Veerapu et al., 2016).

Table 4. 9 WASH practice among the study population

Practice	Ocurrence
Sometimes not enough water for the family	205 (58.4%)
<5 children in the family with diarrhea during these last 15 days	112 (31.9%)
Visit clinic or give ORS when someone from family has diarrhea	243 (69.2%)
Seen people of all age categories practicing open defecation	273 (77.8%)
<5 children who defecate on a potty	307 (87.5%)
Dispose excreta in toilets	325 (92.6%)
Take shower less than once per week	228 (65%)
Take showers inside home or toilet	275 (78.3%)
Solid waste taken away from the neighborhood	88 (25.1%)
Garbage disposed in in a bin inside the house	225 (64.1%)
Empty bin in the communal waste collectors	165 (47%)
Total appropriate practice	**63.4%**

(Detailed data on respondents' practice in WASH is given in Annex 5 c)

Observation by researcher

The researcher also observed that there was evidence of feces in 36% of the shower cabins, and in 53% of cases, hand washing facilities were more than five meters away from latrines, in 22% of the hand washing facilities soap and water was not available, 25% had only water available and about 58% of toilets were clean (data not given).

Food handling practice

During my observation on the household's kitchen focusing on their utensils and kitchen surfaces, I have tried to thoroughly observe the cleaned materials and the disposed foods into rubbish bin to see how they are properly cleaned and how the households use the garbage bin inside their home respectively. Therefore, I have observed that, in some of the household's kitchen the cleaned materials like plates, cooking pots, water glasses, sauce stirring sticks, and refrigerators were not properly cleaned. soot finger prints were clearly seen on the water glasses, stew leftovers were observed on supposedly cleaned sauce stirring sticks, fat residues were noticed on washed plates, cooking pots, inner part of refrigerators were unclean. These problems arose from improper cleaning of utensils without detergents and not cleaning inner

part of refrigerators regularly. Moreover, some households scrapped remaining pieces of foods into uncovered garbage bins inside the house. A swarm of flies were observed around the bins as they were major breeding sites for flies.

In households with refrigerators, perishable foods were not properly stored. Some households kept raw meat alongside fresh fruits and vegetables on the same shelf. Others stored raw meat on the top shelf and the cooked foods in the lower shelf. This kind of storage in refrigerators exposes cooked foods to contamination from raw meat. Raw foods should always be stored at the bottom shelf.

Personal hygiene practice

Some household members, while washing their hands after visiting the toilet, they opened taps with contaminated hands, properly washed their hands with soap and running water, and closed the contaminated taps using their washed hand, thus re-contaminating their hands. It is important to disinfect the taps before attempting to close them or to use soft paper to close them. The same action was observed when they used jug to wash their own hands.

Household water sanitation practice

Although half of the respondents said that they boiled water to make it safer to drink, the researcher could not find a separate container to store boiled water at least for an emergency use.

Water hygiene related practices

In households that used containers for storing drinking water at home, they used jugs to fetch water from the containers for cooking activities. But, these jugs were not properly cleaned and, sometimes, they were used for hand washing purposes.

Despite the fact that, a few households declared that, they regularly cleaned the water tank in the plot from which they collected water for household use. However, water in some households, collected from tank, when checked by pouring into glass, was found to be unclean or turbid. This was indicative of the fact that the water tank was not cleaned regularly.

Toilets practice

The majority of respondents said that latrine on their plot was easy to clean. Observations confirmed that there was no sign of excreta in the latrines. However, there was a strong foul odor from urine possibly because users urinated on the floor and outside of the toilet hole.

Shower practice

Some households used bucket and jug to carry water to the toilet for showering. They took back the bucket and jug to their house without disinfecting them and continued to use them for household purposes. The possibility for the bucket and jug to be contaminated by fecal matter is high. Every kitchen utensil should be properly cleaned after use outside the home.

Waste management practice

Some households threw wastes outside the house. Discarded plastic bottles, fruit peels and solid and liquid wastes were seen around the fence of their house.

Most improper practices arose from lack of knowledge on food and water safety. A functioning water and sanitation system should be supported by complementary sanitation and health education component (WRC, 2001).

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

This study showed that, based on the household food insecurity accesses scale measurement, only less than a quarter of the sample households were food secure. The remaining households were either mildly (44.8%), moderately (25.4%) or severely (6.8%) food insecure.

The study also indicated that, the households are not adequately commited to fulfill the required sanitory materials for the pospose of cleaning kitchen surfaces and utensils, to have a proper hand washing practice before having any food contact and after the use of toilets. Even they do not know how much it is serious the consecuences of storing cooked and row foods together. Thus, based on food handling, personal hygiene and household water sanitation, food safety knowledge among the study population was only satisfactory (57%), but even that was not translated into practice (38%) were unsatisfactory, although high attitude (87%) was noted.

Similarly, WASH studies, based on safe water, diarrhea prevention, safety and cleanliness of toilets and showers, garbage and waste disposal and drainage system. The househlds do not know their responsibility what they can do at the household level. Specially, keeping the cleanness of water containers, cleaning the private and communal toilets and not to dispose the solid wastes on the drainage systems are basically missed. Knowledge among the sample population was markedly low (20%), attitude and Practice among the respondents was also only satisfactory, 54% and 63%, respectively. As the ultimate goal of food security is to lead a healthy life, ensuring food and water safety is of a paramout importance. Therefore, the following recommendations are drawn from the study.

5.2. Recommendations

Based on the finding obtained from this research, the following recommendations are proposed to reduce the poor KAP of food safety, water sanitation, and environmental hygiene:

1. Provide regular awareness training to households related to how food can be contaminated during preparation and cooking, how cooked food should be handled to avoid cross contamination, proper hand washing and when to wash hands, how to collect water safely and how to disinfect unsafe water using available water treatment tablets.

2. Train households about the relation between environmental hygiene and food or waterborne diseases, how to maintain their personal and environmental hygiene through proper use of toilets, showers, and solid and liquid waste disposal, owning about water sanitation and hygiene focusing on the safety of water, the possible causes of waterborne illness, proper utilization of toilets and shower and proper waste management practices for woreda 10 households, Arada sub-city
3. Strengthen the safety net programe to reduce the number of severely and moderately food insecure households.
4. Include recommendations 1 and 2 in the training schedule of government health extension workers who make house-to house or community visits.

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ANNEXES

Annex 1.

HFIAS in the past four weeks in study households.

HFIAS	Occurrence		Frequency		
	Yes	No	Rarely	Sometimes	Often
In the past four weeks, did you worry that your household would not have enough food?	212(60.40 %)	139(39.60 %)	212(100 %)	0	0
Anxiety and uncertainty	212(60.40 %)	139(39.60 %)	212(100 %)	0	0
In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	244 (69.52 %)	107(30.48 %)	232 (95.08%)	12 (4.92%)	0
In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	254(72.36 %)	97(27.64 %)	210 (82.68%)	30(11.81%)	14(5.51%)
In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	238(67.81 %)	113(32.19 %)	230(96.64 %)	8(3.36%)	0
In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	240(68.37)	111(37.63%)	227(94.58 %)	13(5.42%)	0
In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	96(27.35 %)	255(72.65%)	89(92.71 %)	7(7.29%)	0
In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	9(2.56%)	342(97.44%)	6(66.67%)	3(33.33%)	0
In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	89(25.36 %)	262(74.64%)	85(85.51 %)	4(4.49%)	0
In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	5(1.42%)	346(98.58%)	5(100%)	0	0

* Rarely (1 or 2 times), sometimes (3 to 10 times0, Often (more than 10 times)

Annex 2a

Food Handling Knowledge in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020.

Food Handling Knowledge				
	Know	Number of correct answers		
		Three and more	Two	One
1: Reason for separation of raw and cooked foods				
				281 (80.1 %)
¨ Raw animal foods often contain germs	265(75.50%)			
¨ Other	16(4.56%)[1]			
¨ Don‘t know	70 (19.94%)			
2: Signs of thorough cooking of soups and stews for safety and readiness to be served				
				343(97.72%)
¨ They are boiling/ well cooked	343(97.72%)			
¨ Other	6 (1.71 %)[2]			
¨ Don‘t know	2 (0.57%)			
3: Kinds of perishable foods to be stored in refrigerator or in a cool place				
				343 (97.7%)
¨ Meat, offal	32 (9.12%)			
¨ Poultry	20 (5.70%)			
¨ Fish	12(3.42%)			
¨ Milk/dairy products	38 (10.83%)			
- Cooked foods	20 (5.70%)			
¨ Other	--			
..All	221(62.96%)			
¨ Don‘t know	8 (2.28%)			
4: Reasons for avoiding eating leftovers that were not kept in a cool place				
				341(97.15%)
¨ Because food is not safe anymore	293(83.48%)			
- germs multiply very quickly and can cause illness or spoilage	40 (11.40%)			
¨ Higher temperatures make germs grow faster	8 (2.28 %)			
¨ Other	4 (1.14%)[3]			
¨ Don‘t know	6 (1.71%)			
5: Washing raw fruits and vegetables before eating				
				339(96.58%)
¨ Wash them with clean water	339 (96.58%)			
¨ Other	8 (2.28%)[4]			
¨ Don‘t know	4 (1.14%)			
Total knowledge = 1631/4212=38.72%				

[1]To prevent the change of color and taste of foods
[2]By tasting and sensing the odor of cooked foods.
[3]Because it is not good to consume the leftovers.
[4]Often we cleaned fruits with dry clothes or hands only.

Annex 2b

PersonalHygiene Knowledge in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020.

PersonalHygiene Knowledge			
	Know	Number of correct answers	
		Two	One
1.Action for preventing food poisoning from germs from feces			
			343(97.72%)
¨ Wash hands (after going to the toilet and cleaning the baby‘s bottom)	198 (56.41%)		
¨ Remove feces from the home and surroundings	145 (41.31%)		
- Other	6 (1.71 %)[1]		
- No answer	2 (0.57 %)		
;Total knowledge= (343/702) × 100=48.86 %			
2. Key moments for hand washing			
¨ After going to the toilet/latrine	189 (53.85 %)		
¨ After cleaning the baby‘s bottom/ changing a baby‘s nappy	4 (1.14 %)		
¨ Before preparing/handling food	108 (30.77 %)		
¨ Before feeding a child/eating	4 (1.14 %)		
¨ After handling raw food	..		
¨ After handling garbage	26 (7.41 %)		
- Other	20 (5.70 %)[2]		
- No answer	..		

[1] Mostly we believe that food poisoning occurs only when the raw foods are consumed before cooking. So, we focus on cooking foods very well.

[2] Mainly when we woke up in the morning, after preparing foods and after conducting some activities outdoors.

Annex 2c

Water Sanitation Knowledge in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020

Water Sanitation Knowledge				
	Know	Number of correct answers		
		Three	Two	One
Treating unsafe water				
				279(79.5%)
¨ Boil it	209(59.54 %)			
¨ Add bleach/chlorine	26 (7.41 %)			
¨ Strain it through a cloth	6 (1.71 %)			
¨ Use a water filter (ceramic, sand, composite, etc.)	62 (17.66%)			
¨ Use solar disinfection	--			
¨ Let it stand and settle	4 (1.14 %)			
¨ Discard it and get water from a safe source	44(12.54%)			
- Other	--			
- Do not know	--			
;Total knowledge = (279/1053) × 100= 26.5%				

Annex 3a

Food Handling attitude in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020.

Food Handling Attitude			
	It is	It is not	Not sure
Perceived susceptibility: Likelihood of getting sick from eating contaminated food?	327(93.16%)	14 (3.99%)[1]	10(2.85 %)
Perceived severity: Seriousness of getting sick from eating contaminated food.	325 (92.6%)	4 (1.14%)[2]	22 (6.27%)
Perceived benefits: Goodness of keeping meat, poultry, fish, or cooked food in a cool place.	329 (93.7%)	6 (1.71%)[3]	16 (4.56%)
Perceived barriers; Difficulty of keeping these foods in a cool box or in the refrigerator.	48(13.68%)[4]	273(77.78%)	30 (8.55%)
Goodness of re-heating left-over before eating or serving them	337(96.01%)	10 (2.85%)[5]	4 (1.14%)
Difficulty of re-heating leftovers before eating or serving them	22 (6.27 %)[6]	297(84.62%)	32 (9.12%)
Goodness of washing fruits and vegetables with clean water	333(94.87%)	4 (1.14 %)[7]	14 (3.99 %)
Difficulty of washing fruits and vegetables with clean water	3 (1.70 %)[8]	337(96.01%)	4 (2.27 %)
Total attitude= (2558/2808) × 100= 91.09 %			

[1] We might not be sick because we are familiar with this life and can withstand the problem.

[2] It is not serious.

[3]The tastes of refrigerated foods are not good and make meat tough.

[4]Because of lack of refrigerator, we cannot keep the perishable food in a cool place. We purchase perishable foods like meat, in very small amounts for consumption within one or two days.

[5]When we reheat the foods, the taste changes and is not attractive.

[6]We cannot afford extra cost for charcoal and electric power.

[7]Brushing by hands or dry clothes is enough to clean fruits.

[8]Usually we consume fruits after removing dust from it with hand. Due to this reason we perceived it as a normal behavior.

Annex 3b

Personal Hygiene Attitude in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020.

Personal Hygiene Attitude			
	It is	It is not	Not sure
Perceived susceptibility: Likelihood of oneself or child having stomach ache or diarrhea, from not washing your hands.	317 (90.3%)	6(1.71 %)	28 (7.98 %)
Perceived severity: Seriousness of oneself or child getting diarrhea from oneself not washing one's hands.	329 (93.7%)	6 (1.71 %)	16 (4.56 %)
Perceived benefits: Goodness of washing ones hands before preparing food or before feeding a child/eating.	337(96%)	8 (2.28 %)	6 (1.71 %)
Perceived barriers: Difficulty to wash ones hands before preparing food or before feeding a child/eating	6 (1.71 %)	319 (90.9%)	26 (7.41 %)
Perceived self-efficacy: Confidence in washing ones hands properly?	319 (90.9%)	6 (1.71 %)	26 (7.41 %)
Total attitude= (1621/1755) × 100= 92.36 %			

Annex 3c

Water Sanitation Attitude in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020

Water Sanitation Attitude			
	It is	It is not	Not sure
Perceived susceptibility: Likelihood of oneself or one's child to get diarrhea from using unsafe water	317 (90.3%)	24 (6.84 %)[1]	10 (2.85 %)
Perceived severity: Seriousness of getting sick from using unsafe water	317 (90.31 %)	12 (3.42 %)[2]	22 (6.27 %)
Perceived benefits: Goodness of boiling water before drinking or using it	315 (89.7%)	10 (2.85 %)[3]	26 (7.41 %)
Perceived barriers: Difficulty of boiling water before drinking or using it	171 (49%)[4]	154(44.13%)	24 (6.88 %)
Perceived self-efficacy: Confidence in boiling water before drinking or using it	227 (65%)	44(12.61%)[5]	78 (22.35 %)
;Total attitude = (1330/1755) × 100= 75.78 %			

[1]We drink water without any treatment. So, our body is used to unsafe water.

[2]Because we use municipal water for drinking, we are not exposed to this problem. We have not faced any health problems. Therefore, the problem is not serious. When we get diarrhea sometimes we can treat it easily by traditional medications like drinking alcoholic beverages, eating the mixture coffee powder and honey.

[3]The boiled water does not have good taste to drink and reduces our need to use/drink.

[4]Boiling water every time is impossible and increases the charcoal and electric costs.

[5]Because boiling changes its taste, we believe it is not important and safe for use/ drinking. So, we are not confident to do that.

Annex 4a

Food Handling Practice in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020.

Food Handling Practice		
1. Usual cleaning of kitchen surfaces and utensils after preparing dinner	No	%
¨ Scrape excess food into rubbish bin	30	8.55
¨ Wash with hot water	122	34.76
¨ Wash with detergent	193	54.99
¨ Don't know/no answer	6	1.71
2. Storing perishable fresh foods such as raw meat, poultry and seafood	No	%
¨ In the refrigerator (below 5 ℃)/cool box	241	68.66
¨ Covered (protected from insects, rodents, pests and dust)	64	18.23
¨ Separated from cooked or ready-to-eat foods	20	5.70
¨ Other	--	--
¨ Don't know	26	7.41
;Total practice =(670/2106) × 100= 31.8 %		

Annex 4b

Personal Hygiene Practice in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020.

Personal Hygiene Practice		
Step-by-step description of hand washing	Poor	Appropriate
a. Washes hands in a bowl of water (sharing with other people)	100 (28.49 %)	--
b. With someone pouring a little clean water from a jug onto one's hands – appropriate practice	--	28 (7.98 %)
c. Under running water — appropriate practice	--	79 (22.51 %)
d. Washes hands with soap or ashes— appropriate practice	--	144(41.03%)
e. Other	--	--
f. Do not know	--	--
Total practice= (251/1053) × 100= 23.83 %		

Annex 4c

Water Sanitation Practice in households in *Woreda* 10, *Arada* Sub-city, N=351, 2020

Water Sanitation Practice	
1. Main source of water for household for drinking, cooking and hand washing	
--Pipedwater	126 (35.90 %)
--Pipedintodwelling	6 (1.71 %)
--Pipedinto yard orplot	137 (39.03 %)
--Publictap/standpipe	82 (23.36 %)
--Other	--
2. Collection of water for domestic use	
Yes (item used)	351 (100.00 %)
No	--
3. Treating collection item to make it clean	
Yes (how?)	347 (98.86 %)[1]
No	--
No answer	4(1.14 %)
Use of water and soap (clean container)	--
4. Description of how water is stored	
¨ Clean container or jar	66 (18.8 %)
¨ Covered container or jar	48 (13.68 %)
¨ Clean and covered container or jar	237 (67.62 %)
¨ Don‘t know/no answer	--
5. Treatment of water to make it safe to drink	
--Yes	152 (43.3 %)
--No	199 (56.7 %)
--Don‘t know/no answer	--
6. Actions usually done to the water to make it safer to drink	
--Boil it	77 (50.66 %)
--Add bleach/chlorine	--
--Strain it through a cloth	--
--Use a water filter (ceramic, sand, composite, etc.)	39 (25.66 %)
--Let it stand and settle	36 (23.68 %)
--Don‘t know/no answer	--
7. Training and awareness creation done by health extension officers	
--Once per month	171 (48.72%)
--1-2 per month	102 (29.06%)
--More than 3 times per month	78 (22.22%)
;Total practices= (1368/2808) × 100= 48.72%	

[1] To clean pot and barrel, we use water and detergent and brushing thoroughly by olive leave. To clean jerrycan we use sand with water and detergent.

Annex 5a

Water sanitation and hygiene knowledge

KNOWLEDGE	Number (%)
Water: What is safe water?	
• No germs	193 (55%)
• No turbidity	86 (24.5%)
• Good taste	62 (17.7%)
• No smell	10 (2.9%)
Knowledge rate of water safety	***25%***
Reasons for water not to be good	
• Bad taste (chlorine)	8 (7.2%)
• Bad taste (not chlorine)	10 (9.0%)
• Turbid	93 (83.8%)
Knowledge rate of reasons for water to be unsafe	**10.5%**
Diseases: Causes of this diarrhea?	
• Water is bad	51 (14.5%)
• Dirty hands	48 (13.7%)
Knowledge rate of causes of diarrhea	***14.1%***
Ways of preventing diarrhea?	
• By drinking safe water	138 (39.3%)
• By washing hands before eating food	86 (24.5%)
• By washing hands after toilet	58(16.5%)
• By covering food / washing fruits / food hygiene	44(12.5%)
• By using latrine / safe disposal of excreta	8(2.3%)
• By protecting food from flies / other vectors	17 (4.8%)
Knowledge rate of prevention of diarrhea	**16.7%**
Can explain how to prepare ORS	42 (12%)
TOTAL KNOWLEDGE	**16.6%**

Annex 5b

Water sanitation and hygiene attitude

.ATTITUDE	Number (%)
Water • Think that water can transmit diseases	247(70.4%)
Environment (toilets) • Satisfied with the privacy of the toilet on the plot	183 (52.1%)
• Satisfied with the safety of the toilet on the plot	168 (48%)
• Latrine on the plot easy to clean?	235 (67%)
Showers • Are you happy with the shower provided on your plot?	121 (34.5%)
If not satisfied, why?	
• no water pressure	10 (4.4%)
• cabin design	94 (40.9%)
• no enough privacy	126 (54.8%)
Waste disposal There are enough communal waste collectors in the camp	78 (22.4%)
Feeling when seeing someone littering out of the containers?	
• It is normal	88 (25.1%)
• It is a bad habit	143 (40.7%)
• It will block the drainage system	14 (4%)
• There is not enough container	20 (5.7%)
• It is a lack of respect for the community	48 (13.7%)
• It is because people are ignorant	20 (5.7%)
Agree to pay for the garbage collection	251 (71.5%)
If yes, how much ETB per month? Amount in ETB_____	
Liquid waste disposal Happy with the drainage system	119 (33.7%)
If not, what is the problem?	
• Flooding during rainy season	134 (57.8%)
• Overflowing of cesspools	80 (34.5%)
• Iron protection is not good	18 (7.8%)

Annex 5c

Water sanitation and hygiene practice

PRACTICE	Number (%)
Water: Sometimes not enough water for the family	205 (58.4%)
Diarrhea: <5 children in the family with diarrhea during these last 15 days	
No one	218 (62.1%)
one child	95 (27.1%)
two children	14 (4%)
More than two children	3 (1.7%)
Action taken when someone from family has diarrhea	
buy drugs from the shop	84 (23.9%)
go to the clinic	176 (50.1%)
give ORS / use home mixture of ORS	67 (19.1%)
Traditional medicine	24 (6.8%)
Environment (toilets) observed people practicing Open Defecation	273 (77.8%)
Category of the population practicing open defection	
Adult	129 (47.3%)
Teenager	46 (16.9%)
Children	98 (35.9%)
Toilet: young children (<5) go to when they need	
on a potty	307 (87.5%)
on the floor	18 (5.1%)
in the toilet	26 (7.4%)
Dispose excreta in toilets	325 (100%)
Showers: Frequency of having a shower	
More than one per day	38 (10.8%)
Once per day	77 (21.9%)
Less than once per week	228 (65%)
Where to take showers	
Inside the home	136 (38.8%)
Inside the private showers	76 (21.7%)
Inside the toilet	139 (39.6%)
Waste disposal Frequency of taking solid waste away from the neighborhood	
Several times per week	36 (10.3%)
Less than once per week	44 (12.5%)
Once per week	8 (2.3%)
Where garbage is disposed	
In a plastic bag in the house	40 (11.4%)
in a bin inside the house	225 (64.1%)
Throw it outside house	14 (4%)
in public bins	72 (20.5%)
Where to empty plastic bag or bin found inside the house	
In front of the house	18 (6.8%)
In the communal waste collectors	165 (62.3%)
Incommunal bin in the neighborhood	82 (30.9%)

APPENDIXES

APPENDIX I

English version

Questionnaire and Interviews

Addis Ababa University College of development studies center for food security studies

The aim of this study will be to investigate the status of knowledge, attitude and practices in food safety of households in Woreda Ten of Arada sub-city, and asses' Food security status of households. The information you provide used only for academic purpose. So, please put a thick mark and short answer for the following questionnaires.

"I would like to thank you in advance for sharing your time with me!"

I. Socio-demographic data food insecure households

1. Sex: A. Male B. Female

2. Age: A. 20-30 B. 30-40 C. 40-50 D. above 51

3. Religion: A. Orthodox B. Muslim C. others

4. Marital status: A. single B. Married C. divorced

5. Occupation: A. Nongovernmental B. Private C. Daily labor

6. Educational status: A. Master B. Degree C. Diploma

D. Certificate E. not

7. Monthly income (Birr): A. 500-1000 B. 1001-1500

C. 1501- 2000 D . 2001-2500 E. above 2500

II. Household Food Insecurity Access Scale (HFIAS) Measurement Tool

NO	QUESTION	RESPONSE OPTIONS
8	In the past four weeks, did you worry that your household would not have enough food?	0 = No (skip to Q2) 1=Yes
8.1	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
9	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No (skip to Q3) 1=Yes
9.1	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the pastfour weeks) 3 = Often (more than ten times in the past fourweeks)
10	In the past four weeks, did you or any household member have to eat alimited variety of foods due to a lack of resources?	0 = No (skip to Q4) 1 = Yes
10.1	How often did this happen?	1 = Rarely (once or twice in the past fourweeks) 2 = Sometimes (three to ten times in the pastfour weeks) 3 = Often (more than ten times in the past fourweeks)
11	In the past four weeks, didyou or any household member have to eat somefoods that you really did not want to eat because of a lack of resources to obtain other types of food?	0 = No (skip to Q5) 1 = Yes
11.1	How often did this happen?	1 = Rarely (once or twice in the past fourweeks) 2 = Sometimes (three to ten times in the pastfour weeks) 3 = Often (more than ten times in the past fourweeks)
12	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	0 = No (skip to Q6) 1 = Yes
12.1	How often did this happen?	1 = Rarely (once or twice in the past fourweeks) 2 = Sometimes (three to ten times in the pastfour weeks) 3 = Often (more than ten times in the past fourweeks)
13	In the past four weeks, did you or any other household member have to eat fewermeals in a day because there was not enough food?	0 = No (skip to Q7) 1 = Yes
13.1	How often did this happen?	1 = Rarely (once or twice in the past fourweeks) 2 = Sometimes (three to ten times in the pastfour weeks)

		3 = Often (more than ten times in the past fourweeks)
14	In the past four weeks, wasthere ever no food to eat ofany kind in your householdbecause of lack ofresources to get food?	0 = No (skip to Q8) 1 = Yes
14.1	How often did this happen?	1 = Rarely (once or twice in the past fourweeks) 2 = Sometimes (three to ten times in the pastfour weeks) 3 = Often (more than ten times in the past fourweeks)
15	In the past four weeks, didyou or any household member go to sleep atnight hungry because therewas not enough food?	0 = No (skip to Q9) 1 = Yes
15.1	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)
16	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	0 = No (questionnaire is finished) 1 = Yes
16.1	How often did this happen?	1 = Rarely (once or twice in the past fourweeks) 2 = Sometimes (three to ten times in the pastfour weeks) 3 = Often (more than ten times in the past fourweeks)

Nos 14, 15, and 16 measure HHS.

ı Foodsafety

(Source: FAO Guidelines for assessing nutrition-related knowledge, attitudes and practices)

Explain to the participant:

I am going to ask you some questions about food safety. Please let me know if you need me to clarify any of my questions. Feel free to ask any question you may have.

Practices

Cleaning of dirty surfaces, plates and utensils

After you have prepared dinner, kitchen surfaces, pots, pans, plates and utensils are dirty. Can you describe how you clean themusually?

Scrape excess food into rubbishbin

Wash with hotwater

Wash withdetergent

Don't know/no answer

Storage of perishablefoods

How do you store perishable fresh foods such as raw meat, poultry and seafood?

In the refrigerator (below 5 °C)/coolbox

Covered (protected from insects, rodents, pests and dust)

Separated from cooked or ready-to-eat foods

Other

Don't know/no answer

Knowledge

Separation of raw and cookedfoods

Why should you prevent raw meat, offal, poultry and seafood from touching other foods such as those that are cooked or ready toeat?

Raw animal foods often contain germs (which may be transferred to cooked andready- to-eatfoods)

Other

Don'tknow

Cooking thoroughly

When cooking soups and stews, what sign shows that these are ready and safe to beserved?

They areboiling/well-cooked

B.Other

C. Don't know

Storage of perishable foods

Whatkindsoffoodshouldbeplacedintherefrigeratororinacoolplace,suchasaniceboxor cool box?

Perishablefoods

Meat,offal

Poultry

Fish

Foods from the sea orlake

Milk/dairyproducts

Cooked foods
Other Don't know
Storage of leftovers in a cool/cold place
Why should someone avoid eating leftovers that were not kept in a coolplace?
Because food is not safeanymore
Foods get spoiled (germs multiply very quickly and can cause illness)
Higher temperatures make germs grow faster
Other
Don't know (Any of the three first response options is correct)

Washing raw fruits and vegetables

What should you do before eating raw fruits and vegetables?
Wash them with cleanwater
Other
Don't know

Attitudes

Perceivedsusceptibility

How likely do you think you are to get sick from eating spoiled food?
Not likely
You're notsure
Likely
If Not likely: Can you tell me the reason why it is not likely?.....
Perceivedseverity
How serious do you think it is to be sick from eating spoiled food?
Not serious
You're notsure
Serious
If Not Serious: Can you tell me the reason why it is not serious?.....
How likely do you think of keeping perishable food in a cool place, for example in a cool box or in theRefrigerator?
Not good
You're notsure
Good
If Not good: Can you tell me the reasons why it is not good?.....
Perceivedbarriers
How difficult is it for you to keep these foods in a cool box or in the refrigerator?
Not difficult
So-so
Difficult
If Difficult: Can you tell me the reasons why it is difficult?.....

Perceivedbenefits

How good do you think it is to reheat leftovers before eating or serving them?
Not good
You're notsure
Good
If Not good: Can you tell me the reasons why it is not good?.....

Perceivedbarriers

How difficult is it for you to reheat leftovers before eating or serving them?
Not difficult
So-so
Difficult
If Difficult: Can you tell me the reasons why it is difficult?.....

Perceivedbenefits

How good do you think it is to wash fruits and vegetables with clean water?
Not good
You're notsure
Good
If Not good: Can you tell me the reasons why it is not good?.....

Perceivedbarriers

How difficult is it for you to wash fruits and vegetables with clean water?
Not difficult
So-so
Difficult
If Difficult:Can you tell me the reasons why it is difficult?.....

Personalhygiene

Explain to the participant:
I am going to ask you some questions about personal hygiene. Please let me know if you need me to clarify any of my questions. Feel free to ask any question you mayhave.

Practices

Method of hand washing

Could you please describe step by step how you wash yourhands?
Washes hands in a bowl of water (sharing with other people) — poorpractice
With someone pouring a little clean water from a jug onto one's hands — appropriatepractice
Under running water — appropriatepractice
Washes hands with soap orashes
Other
Don't know/noanswer

Knowledge

Prevention of food poisoning from germs fromfaeces

Food poisoning often results from contact with germs fromfaeces.

What can you do to avoid sickness from germs from human or animal faeces?
Wash hands (after going to the toilet and cleaning the baby'sbottom)
Remove faeces from the home and surroundings (use a latrine, teach small children to use a potty and put children's faeces in the latrine, and cleanup faeces from animals)
Other
Don't know

Key moments for hand washing

There are key moments when you need to wash your hands to prevent germs from reachingfood.
What are these key moments?
After going to thetoilet/latrine
After cleaning the baby's bottom/changing a baby'snappy
Before preparing/handlingfood
Before feeding achild/eating
After handling rawfood
After handlinggarbage
Other
Don'tknow

C- Attitudes

Sickness from not washing hands Perceived susceptibility

How likely do you think you are to become sick, such as having stomach ache or diarrhoea, from not washing yourhands? OR
How likely do you think it is that your child will become sick, such as having stomach ache or diarrhoea, from you not washing your hands?
Not likely
You're notsure
Likely
If Not likely: Can you tell me the reason why it is not likely?

Perceived severity

How serious do you think it is if you or your child gets sick from you not washingyour hands?
OR How serious do you think diarrhoea is for yourhealth?
OR How serious do you think is diarrhoea for a baby's health?
Not really serious
Neutral/unsure
Serious
If Not Serious: Can you tell me the reason why it is not serious?.....

Washing one's hands Perceived benefits

How good do you think it is to wash your hands before preparing food? OR How good do you think it is to wash your hands before feeding achild/eating?
Not good
You're notsure

Good
If Not good: Can you tell me the reasons why it is not good?.....

Perceived barriers

How difficult is it for you to wash your hands before preparing food? OR How difficult is it for you to wash your hands before feeding achild/eating?
Not difficult
So-so
Difficult
If Difficult: Can you tell me the reasons why it is difficult?.....

Self-confidence

How confident do you feel in washing your handsproperly?
Notconfident
Ok/so-so
Confident
If Not confident: Can you tell me the reasons why you do not feel confident?.....

Water and sanitation Explain to the participant:

I am going to ask you some questions about water and sanitation. Please let me knowif you need me to clarify any of my questions. Feel free to ask any question you may have.
Practices

Main source of water for drinking, cooking and hand washing

What is the main source of water used by your household for drinking, cooking and handwashing?
Pipedwater
Piped intodwelling
Piped into yard orplot
Publictap/standpipe
Tubewell/borehole
Dugwell
Protectedwell
Unprotected well
Water fromspring
Protectedspring
Unprotectedspring
Rainwatercollection
Tanker-truck
Cart with smalltank/drum
Surface water (river, stream, dam, lake, pond, canal, irrigationchannel)
Bottledwater
Other(specify)
Don't know

Collection of water
Do you collect water for domestic use?
Yes. Go to question26.
No. Go to question 27.
What item do you use to collect water?----------
To know if the item is clean probe: Did you treat this item in any way to makeit clean?
Yes
No
Don't know
If Yes:How?
Use of water and soap (cleancontainer)
Other
Don't know/noanswer
Storage of water
Could you describe how you storewater?
Clean container orjar
Covered container orjar
Clean and covered container orjar
Other
Don't know/noanswer
Perceivedbenefits
Howgooddoyouthinkitistokeepmeat,poultry,fish,seafoodorcookedfoodina coolplace, for example in a cool box or in therefrigerator?
Not good
You're notsure
Good
If Not good: Can you tell me the reasons why it is not good?.....
Treatment of water to make it safe to drink
Do you treat your water in any way to make it safe to drink? 1.Yes
No
Don't know/no answer
If Yes: What do you usually do to the water to make it safer todrink?.....
Boil it
Add bleach/chlorine c .Strain it through acloth
Use a water filter (ceramic, sand, composite,etc.)
Use solardisinfection
Let it stand andsettle
Other
Don't know/noanswer
Anything else? (Record all items mentioned)

Knowledge

If you know that the water you are going to use for cooking or drinking is not safe or doesnot come from a safe source, what should youdo?

Boil it

Addbleach/chlorine

Strain it through acloth

Use a water filter (ceramic, sand, composite,etc.)

Use solardisinfection

Let it stand andsettle

Discard it and get water from a safesource

Other

Don'tknow

Attitudes

Diarrhoea from using unsafe water

Perceived susceptibility

How likely do you think you are to get diarrhoea from using unsafe water? Or How likely do you think your child is to get diarrhoea from using unsafe water?

Not likely

You're notsure

Likely

If Not likely: Can you tell me the reason why it is not likely?.....

Perceived severity

How serious do you think it is to get sick from using unsafe water?

Not reallyserious

Neutral/serious

Serious

If Not serious: Can you tell me the reason why it is not serious?.....

Boiling water before drinking or using it Perceived benefits

How good do you think it is to boil water before drinking or using it?

Not good

You're notsure

Good

If Not good: Can you tell me the reasons why it is not good?.....

Perceived barriers

How difficult is it for you to boil water before drinking or using it?

Not difficult

So-so

Difficult

If Difficult: Can you tell me the reasons why it is difficult?.....

Self-confidence

How confident do you feel in boiling water before drinking or using it?

Notconfident
Ok/so-so
Confident
If Not confident: Can you tell me the reasons why you do not feel confident?.....

Knowledge, Attitude and Practices (KAP) survey questionnaire

CONSENT FORM

Greetings…. My name is _____, and I am working with ACF. ACF wants to conduct this survey and would like your active participation. We would like to ask you a few questions about water and sanitation situation in your area. You are requested to participate in this survey because we think your understandings and knowledge as a community member is very important for us. This survey will take 15-20 minutes. We assure you that information you will provide us will be kept strictly confidential and only will be used to design the WASH intervention in your area. Your participation in this survey is voluntary and you can choose not to answer any question or all of the questions if you do not feel comfortable. You can ask us to stop the survey at any time.

Would you like to participate in the survey?

Yes No

Date:_____

1- GENERAL INFORMATION

1. Sex of the person interviewed	
	( ) Male
	( ) Female
2. Age of the person interviewed: (no child under 15 years)	
	( ) 12-17 years
	( ) 18-40 years
	( ) 41-59 years
	( ) 60 and above
	( ) There is no answer
3. The interviewed person is the head house?	
	( ) Yes
	( ) No
4. Number of people living in the tent: …..	
5. Which religion do you believe in?	
	( ) Christians
	( ) Muslim
	( ) catholic
	( ) Protestant
	( ) Others
	( ) There is no answer

6. What is your level of education?	
	( ) Primary
	( ) Secondary
	( ) University
	( ) No education
	( ) No answer

2- WATER

7. Do you use a different source of water for drinking and washing purposes?

□ Yes □ No

If yes 8 + 9 – if no ->10

8. Why do you use different water sources for drinking and other uses?

(You can tick more than one. Please DO NOT tell the proposition)

quantity of water

quality of water

tradition

personal believe

everybody is doing it

Other: …….

No answer

9. Where do you take the water from, for cooking, washing, etc. (not for drinking)?

(You can tick more than one. Please tell the proposition)

directly from the water trucks

from the tank in front of the tent

from the communal tap-stand

from my household tap

water bottle (shop)

water bottle (distribution)

There is no answer

other ----------

10. Where do you collect drinking water from?

(You can tick more than one. Please tell the proposition)

directly from the water tank

from communal tank

from the communal tap-stand

from household tap

water bottle (shop)

water bottle (distribution)

There is no answer

Other----------

11. Is there sometimes not enough water for your family in the camp?

□ Yes □ No □ No answer

12. Do you use containers for the storage of drinking water inside the tent?

□ Yes □ No

13. If yes, which containers do you use?
(Ask to see the containers)
jerrycan total volume……
bucket total volume: …….
bowl total volume: …….
bottletotal volume: …….
other: ……total volume: …….. ----------
14. Are the container clean and covered (Observe)
All containers are clean
All containers are covered
Some containers are clean
Some containers are covered
Containers are not clean
All containers are not covered

15. Is there a tank for the plot? (Observe)
□ Yes □ No
16. If yes : Do you clean the tank ?
□ Yes □ No
17. What is safe water?
No germs
No turbidity
Good taste
No smell
Other…..
I don't know
18. How do you perceive the quality of water provided by the water network?
□ Good □ Not good □ I don't know
19. If the water is not good, what are the reasons?
Bad taste (chlorine)
Bad taste (not chlorine)
Turbid
Bad smell
Hot/Cold
open container
tank/container is dirty
piped network is not functional
borehole is not good
Other: …….
3- MORBIDITY/MORTALITY DUE TO DIARRHEAL CASES
20. During these last 15 days, how many children under 5 have diarrhea in your family?
No one
1 child
2 children

More than 2 children
There is no answer
21. What are the causes of this diarrhea?
Bad weather
Water is bad
Too much chlorine
Dirty hands
Sun / temperature
God's will
Other…….
I don't know
22. What are the ways of preventing diarrhea?
(You can tick more than one. Please DO NOT tell the proposition)
By drinking safe water
By washing hands before eating food
By washing hands after toilet
By covering food / washing fruits / food hygiene
By using latrine / safe disposal of excreta
By protecting food from flies / other vectors
other, …….……
23. Do you think water can transmit diseases?
□ Yes □ No □ I don't know
24. What do you do when someone from your family have diarrhea?
(You can tick more than one. Please DO NOT tell the proposition)
Nothing
buy drugs from the shop
go to the clinic
give ORS / use home mixture of ORS
Traditional medicine
Others: .....
25. Could you explain how to prepare ORS?
(right answer is 1L of safe water, 4 to 6 spoons of sugar, 1 spoon of salt, additionally lemon and bicarbonate) ?
Yes, interviewee knows
No, interviewee doesn't know
4- TOILETS
26. Have you observed people practicing Open Defecation ?
□ Yes □ No □ I don't know
27. If yes, which category of the population have you observed practicing open defection:
(You can tick more than one. Please tell the proposition)
□ Adult □ Teenager □ Children
28. Are you satisfied with the privacy of the toilet on your plot?
□ Yes □ No □ There is no answer
29. Are you satisfied with the safety of the toilet on your plot?
□ Yes □ No □ There is no answer

30. Is the latrine on your plot easy to clean?
□ Yes □ No □ There is no answer
31. Where do your young children (<5) go when they need to go to the toilet?
(You can tick more than one. Please tell the proposition)
on a potty (Ask to see it)
on the floor
in the toilet
Other……
There is no answer
32. If it's on a potty or on the floor, where do you put the excreta after?
(You can tick more than one. Please DO NOT tell the proposition)
Existing toilets
Existing shower
Buried into the plot
Garbage container
I throw it outside of the camp
I throw it inside of the camp
Other: ……
There is no answer
PERSONAL HYGIENE
5- HAND WASHING
33. When do you wash your hands?
(You can tick more than one. Please DO NOT tell the proposition)
after going to the toilets
before eating
after eating
before cooking
after going to the toilets, before eating&after eating
after take care of the children
before prayer
after playing
Other ….
I don't know
6-SHOWERS
34. How often do you have a shower?
More than one per day
Once per day
Less than once per week
Other
There is no answer
35. Where do you take your showers?
Inside the tent
inside the private showers
Inside the toilet
Other: …….

There is no answer
36. Are you happy with the shower provided on your plot?
□ Yes□ No
37. If not satisfy, why? :
not water pressure
cabin design
not enough privacy
Other….
There is no answer
7- WASTE MANAGEMENT
38. Where do dispose your garbage?
(You can tick more than one. Please do not tell the proposition)
In a plastic bag in the tent
in a bin inside the tent
Throw it outside tent
in public bins
Other: …….
There is no answer
39. If you use plastic bag or bin inside the tent, where do you empty them?
(You can tick more than one. Please tell the proposition)
in front of the tent
in the communal waste collectors
communal bin in the camp
other: ……..
40. Do you think there are enough communal waste collectors in the camp?
□ Yes □ No
41. Do you know how frequent solid waste is taken away from the camp?
Everyday
Several times per week
Less than once per week
Once per week
Other
I don't know
42. How do you feel when you see someone littering out of the containers?
It is normal
It is a bad habit
It will block the drainage system
There is not enough container
It is a lack of respect for the community
It is because people are ignorant
Other…
I don't know
43. Are you happy with the drainage system?
□ Yes □ No
44. If not, what is the problem?

Flooding during rainy season
Flooding during dry season
Overflowing of cesspools
Channel is deep and dangerous
Iron protection is not good
Drainage of water supply points
Drainage of grey water
Other
I don't know

45. Will you agree to pay for the garbage collection?

□ Yes □ No □ it depends □ no answer

46. If yes, how much Birr per month?

Amount in Birr:----------

Observations

47. Is their evidence of feces into the shower cabin?

□ Yes □ No □ shower is not functional

48. Is the toilet clean?

□ Yes □ No □ shower is not functional

(HP team definition of "clean toilet": no feces/dirt is observed in the cabin andsquatting pan, except stains of feces immediately around the toilet hole)

49. Hand washing facilities situation.

Washing facility more than 5m far from latrine
Availability of soap and water
Availability only of water

End of Survey

Thank you very much for your time

Note:

If the respondent did not answer to any question, please mention "No answer"for that particular question.

Key Informant Interview

Name, age, sex,

1. Are all the kitchen surfaces and utensils cleaned properly? If not, why?
2. What do you think about storing foods at the appropriate temperature? If the perishable and other food are not properly stored separately, why?
3. How do you evaluate your hand washing practices before touching food items? If you are not practicing washing hands properly, why?
4. Have do you think about your waste disposal practices? If it is not good, why?
5. What do you think about the hygienic practices of the toilet in your home? If it is not good, why?

APPNDIX II

Amaharic version

የምግብደህንነትእናየምግብዋስትናመረጃመጠይቅቅጽ፡-

አዲስአበባዩኒቨርሲቲየሀገርልማትጥናትኮሌጅየምግብዋስትናጥናትማዕከልየዚህጥናትዋናአላማበአዲስከተማክ/ከተማ፣ወረዳ2በምግብዋስትናፕሮግራምታቅፈውበልማትስራላይየተሰማሩነዋሪዎችስለምግብጤናማነትናስለምግብአያያዝያላቸውእውቀት፣አመለካከትእናአተገባበርለምግብዋስትናመረጋገጥያለውንአስተዋፆለማወቅየሚያስችልየዳሰሳጥናትመጠይቅ፡-

ስለምታደርጉትመልካምትብብርናስለምትሰጡትትክክለኛመረጃከልብአመሰግናለሁ።

I. በምግብራሳቸውንያልቻሉቤተሰቦችየማህበራዊናየግልሁኔታመረጃ፡-

1. ፆታ:-	ሀ. ወንድ	ለ.ሴት		
2. ዕድሜ፡-	ሀ. 20-30	ለ.31-40	ሐ.41-50	መ.ከ51በላይ
3.ሀይማኖት፡-	ሀ. ክርስቲያን	ለ. ሙስሊም	ሐ. ሌላ	
4. የጋብቻሁኔታ:	ሀ. ያላገባ	ለ. ያገባ	ሐ. የፈታ	
5.የስራሁኔታ፡-	ሀ.የመንግስት	ለ. የግል	ሐ. የቀንስራ	
6. የትምህርትደረጃ፡-	ሀ. ያልተማረ	ለ. መፃፍናማንበብ	ሐ. ከዲፕሎማበላይ	
7. የወርገቢ (በብር)፡-	ሀ.500-1000	ለ.1001-1500	ሐ.1501-2000	መ.2001እናበላይ

2. Household Food Insecurity Access Scale (HFIAS) Measurement Tool

የምግብዋስትናቸውንያላረጋገጡቤተሰቦችመለኪያ

ተ.ቁ	ጥያቄ	የመልስአማራጭ/	መልስ
3.1	ባለፉትአራትሳምንታትቤትውስጥበቂምግብአይኖረኝምይሆናልብለውሰግተውያውቃሉ?	0 = አልሰጋሁም 1= አዎ (ወደጥያቄ 2)	|___
3.1a	ባለፉትአራትሳምንታትውስጥሄስጋትስንትጊዜደርሶብዎታል?	1= አልፎአልፎ (አንድወይምሁለትጊዜ) 2=አንዳንድጊዜ(3-10ጊዜ) 3=ሁልጊዜ(ከ10ጊዜበላይ)	.|| _
3.2	ባለፉትአራትሳምንታትቤትውስጥበቂምግብወይምገንዘብባለመኖሩምክንያትርስዎወይምማንኛውምየቤተሰብአባልየወደዱትንምግብሳይበሉቀርተውያውቀሉ?	0 = አይደለም 1=አዎ (ወደጥያቄ 3)	.|| _
3.2a	ባለፉትአራትሳምንታትውስጥይህስንትጊዜአጋጥሞዎታል?	1, አልፎአልፎ (አንድወይምሁለትጊዜ) 2 = አንዳንድጊዜ (3-10 ጊዜ) 3= ሁልጊዜ (ከ 10 ጊዜበላይ)	.||
3.3	ባለፉትአራትሳምንታትቤትውስጥበቂምግብወይምገንዘብባለመኖሩምክንያትርስዎወይምማንኛውምየቤተሰብአባልየተወሰኑየምግብአይነቶችብቻበልታችኋል?	0 = አይደለም 1 = አዎ (ወደጥያቄ 4)	.||
3.3a	ባለፉትአራትሳምንታትውስጥይህስንትጊዜአጋጥሞዎታል?	1 አልፎአልፎ (አንድወይምሁለትጊዜ) 2=/አንዳንድጊዜ(3-10ጊዜ) 3=ሁልጊዜ(ከ10ጊዜበላይ)	.|| _
3.4	ባለፉትአራትሳምንታትቤትውስጥበቂምግብወይምገንዘብባለመኖሩምክንያትርስዎወይምማንኛውምየቤተሰብአባልመብላትየማትፈልጉትንምግብበልታችኋል?	0=አይደለም(ወደጥያቄ5) 1 = አዎ	.||
3.4a	ባለፉትአራትሳምንታትውስጥይህስንትጊዜአጋጥሞዎታል?	1, አልፎአልፎ (አንድወይምሁለትጊዜ) 2=አንዳንድጊዜ(3-10ጊዜ) 3=ሁልጊዜ(ከ10ጊዜበላይ)	.||
3.5	ባለፉትአራትሳምንታትቤትውስጥበቂምግብወይምገንዘብባለመኖሩምክንያትርስዎወይምማንኛውምየቤተሰብአባልሳትጠግቡለመነሳትተገዳችኋል?	0 = አይደለም 1 =አዎ (ወደጥያቄ 6	.||
3.5a	ባለፉትአራትሳምንታትውስጥይህስንትጊዜአጋጥሞዎታል?	1, አልፎአልፎ (አንድወይምሁለትጊዜ) 2=አንዳንድጊዜ(3-10ጊዜ) 3=ሁልጊዜ(ከ10ጊዜበላይ)	.||

3.6	ባለፉትአራትሳምንታትቤትውስጥበቂምግብወይምገንዘብ ባለመኖሩምክንያትርስዎወይምማንኛውምየቤተሰብአባል ቁርስ፤ምሳወይምራትመብላትሳትችሉቀርታችኋል?	0 = አይደለም 1 = /አዎ (ወደጥያቄ 7	⊥⊥
3.6 a	ባለፉትአራትሳምንታትውስጥይህስንትጊዜአጋጥሞዎታል?	1, አልፎአልፎ (አንድወይምሁለትጊዜ) 2=አንዳንድጊዜ(3-10ጊዜ) 3=ሁልጊዜ(ከ10ጊዜበላይ)	⊥⊥
3.7	ባለፉትአራትሳምንታትቤትውስጥበቂምግብወይምገንዘብ ባለመኖሩምክንያትበቤተሰቡውስጥየሚላስየሚቀመስ ያልነበረበትጊዜነበር?	0 =አይደለም (ወደጥያቄ 8 1 = አዎ	⊥⊥
3.7 a	ባለፉትአራትሳምንታትውስጥይህስንትጊዜአጋጥሞዎታል?	1, አልፎአልፎ (አንድወይምሁለትጊዜ) 2=አንዳንድጊዜ(3-10ጊዜ) 3=ሁልጊዜ(ከ10ጊዜበላይ)	⊥⊥
3.8	ባለፉትአራትሳምንታትቤትውስጥበቂምግብወይምገንዘብ ባለመኖሩምክንያትርስዎወይምማንኛውምየቤተሰብአባል እየራበውወደመኝታየሄደበትጊዜነበር?	0 = አይደለም (ወደጥያቄ 9 1 = አዎ	⊥⊥
3.8 a	ባለፉትአራትሳምንታትውስጥይህስንትጊዜአጋጥሞዎታል?	1, አልፎአልፎ (አንድወይምሁለትጊዜ) 2=አንዳንድጊዜ(3-10ጊዜ) 3=ሁልጊዜ(ከ10ጊዜበላይ)	⊥⊥
3.9	ባለፉትአራትሳምንታትቤትውስጥበቂምግብወይምገንዘብ ባለመኖሩምክንያትርስዎወይምማንኛውምየቤተሰብአባል ቀኑንሙሉሳይበላውሌሳይበላያደረበትጊዜአለ?	0 = የለም 1 = አዎ	⊥
3.9 a	ባለፉትአራትሳምንታትውስጥይህስንትጊዜአጋጥሞዎታል?	1, አልፎአልፎ (አንድወይምሁለትጊዜ) 2 = አንዳንድጊዜ (3-10 ጊዜ) 3= ሁልጊዜ (ከ 10 ጊዜበላይ)	⊥

3. **FOOD SAFETY (ምግብደህንነት)ስለምግብደህንነትአመለካከት/**

ተ.ቁ	ጥያቄ	የመልስአማራጭ/	መልስ
1.	ምግብካዘጋጁበኋላየማብሰያአካባቢው፣ድስቶች፣መጥበሻዎች፣ሰሃኖችእናሌሎች መገልገያዎችመጽዳትይኖርባቸዋል።አብዛኛውንጊዜእንዴትእንደሚያጸዷቸውሊነግሩኝይችላሉ?	*1= ጥራጊውንወደቆሻሻማጠራቀሚያውእ ደፈዋለሁ።* *2=በሞቀውሃአጥበዋለሁ።* *3=በሳሙና(አጃክስ)ወይምበፈሳሽሳሙና አጥበዋለሁ* *4= መልስየለም*	
2.	ቶሎሊበላሹየሚችሉምግቦችን (እንደስጋ፣ያልተሰራዶሮወይምአሳ) እስኪሰሩድረስእንዴትያቆዩዋቸዋል?	*1=ፍሪጅውስጥ* *2=አቧራወይምአይጥእንዳይደርስበትተሸ ፍኖ* *3=ለምግብነትከተዘጋጁምግቦችጋርእንዳ ይነካካተለይቶ* *4=ሌላ* *5= መልስየለም*	

FOOD SAFETY KNOWLEDGE (የምግብደህንነትእውቀት)

ተ.ቁ	ጥያቄ/	የመልስአማራጭ/	መልስ
3.	ጥሬስጋ፣የሆድእቃስጋዎች(እንደጨጓራ፣ ወተትአንጀት፣ጉበት፣ኩላሊት፣ልብአይነት) ከበሰሉወይምለምግብነትከተዘጋጁምግቦችጋርእንዳይነካኩማድረግለምንያስፈልጋል?	*1= ከእንስሳትየሚገኙያልበሰሉምግቦችብዙጊዜጀርሞችይገኙባቸዋልእነዚህጀርሞችወደበሰሉወይምለምግብነትወደተዘጋጁምግቦችሊተላለፉይችላሉ* 2=ሌላ 3=*መልስየለም*	
4.	ወጥወይምሾርባበሚሰሩበትጊዜመብሰሉን(ለምግብነትለመቅረብዝግጁመሆኑን) እናጤናማመሆኑንእንዴትያውቃሉ?	*1= ይንተከተካል / በደንብይበስላል* 2=ሌላ 3=*መልስየለም*	
5.	ፍሪጅወስጥ፣ማቀዝቀዣሳጥንውስጥወይምቀዝቀዝያለቦታመቀመጥያለባቸውምግቦችምንምንአይነቶቹናቸው?	1=*ስጋ፣የሆድእቃስጋዎች* 2=*የዶሮስጋ* 3=*አሳ* 4=*ወተት / የወተትተዋጽኦዎች* 5=*የበሰሉምግቦች* 6=ሌላ *7=ሁሉም* 8=*መልስየለም*	
6.	ተዘጋጅቶከቀረበበኋላሳይበላየተረፈምግብቀዝቃዛቦታውስጥካልቆየበስተቀርእንደገናለምግብነትመቅረብየሌለበትለም	1=*በሽታሊያስከትልስለሚችል* 2=*በምግቡውስጥጀርሞችበፍጥነትተባዝተውምግቡለበሽታስለሚያጋልጥ*	

	ንድንነው?	3=*ምቅያለመጠኑ ሙቀትጀርሞቸፈጥነውእንዲራቡስለሚረዳ* 4=*ሌላ* 5=*መልስየለም* 6=*(ከመጀመሪያዎቹሶስትአማራጮችማንኛውምትክክልነው)*	
7.	ፍራፍሬዎችንወይምጥሬአትክልቶችን(እንደጎመን፣ሰላጣ፣ቆስጣ፣ቃርያ፣ቲማቲምያሉትን)ከመመገባችሁበፊትምንማድረግአለባችሁ?	1=*በንጹህውሃማጠብ* 2= *ሌላ* 3= *መልስየለም*	

አመለካከትወይምአስተሳሰብ:*(የሚገመትተጋላጭነትናክባድነት)*

ተ.ቁ	**ጥያቄ**	**የመልስአማራጭ/**	**መልስ**
8.	የተበከለምግብመብላትለበሽታሊያጋልጥይችላልብለውያስባሉ?	1=አላስብም 2=እርግጠኛአይደለሁም 3=አዎአስባለሁ*(መልሱአላስብምከሆነ)* አላስብምያሉበትንምክንያትሊነግሩኝይችላሉ?----------	
9.	የተበከለምግብበመብላትየሚመጣበሽታምንያህልከባድነውብለውያስባሉ?	1=ከባድአይደለም 2=እርግጠኛአይደለሁም 3=ከባድነው *(መልሱከባድአይደለምከሆነ)*ከባድአይደለምያሉበትንምክንያትሊነግሩኝይችላሉ?----------	
10.	ስጋን፣የዶሮስጋን፣አሳንወይምየበሰለምግብንቀዝቃዛበታ(ማቀዝቀዣሳጥንወይምፍሪጅውስጥ) ማስቀመጥምንያህልጥሩነውብለውያስባሉ?	1=ጥሩአይደለም 2=. እርግጠኛአይደለሁም 3=ጥሩነው *(መልሱጥሩአይደለምከሆነ)* ጥሩያልሆነበትንምክንያትሊነግሩኝይችላሉ?_____	
11.	እነዚህንምግቦችማቀዝቀዣሳጥንወይምፍሪጅውስጥማስቀመጥለርስዎምንያህልከባድነው?	1. ከባድአይደለም 2. እንደነገሩ 3. ከባድነው *(መልሱከባድነውከሆነ)* ከባድየሆነበትንምክንያትሊነግሩኝይችላሉ?.....	
12.	ሳይበሉየተረፉምግቦችን(እንደወጥያሉ) ከመብላትወይምለምግብነትከማ	1=ጥሩአይደለም 2=እርግጠኛአይደለሁም 3=ጥሩነው	

	ቅረብበፊትእንደገናማንተክተኩ ምንያህልጥሩነውብለውያስባሉ?	*(መልሱጥሩአይደለምከሆነ)* ጥሩያልሆነበትንምክንያትሊነግሩኝይችላሉ?_____ _____	
13.	ሳይበሉየተረፉምግቦችን (እንደወጥያሉ) ከመብላትወይምለምግብነትከማ ቅረብበፊትእንደገናማንተክተኩ ምንያህልአስቸጋሪይሆንብዎታል?	1=ከባድአይደለም 2=.እንደነገሩ 3=ከባድነው (*መልሱከባድነውከሆነ*ከባድየሆነበትንምክንያት ሊነግሩኝይችላሉ? _____	
14.	ፍራፍሬዎችንእናአትክልቶችንበን ጹህውሃማጠብምንያህልጥሩነው ብለውያስባሉ?	1=.ጥሩአይደለም 2=.እርግጠኛአይደለሁም 3=ጥሩነው*(መልሱጥሩአይደለምከሆነ)* ጥሩያልሆነበትንምክንያትሊነግሩኝይችላሉ?_____ _____	
15.	ፍራፍሬዎችንእናአትክልቶችንበን ጹህውሃማጠብምንያህልይከብድ ዎታል?	1= ከባድአይደለም 2=እንደነገሩ 3=ከባድነው *መልሱከባድነውከሆነ*ከባድየሆነበት ንምክንያትሊነግሩኝይችላሉ?_____ _____	

ክፍል 5፡PERSONAL HYGIENE (የግልሃይጅንንበተመለከተ) PERSONAL HYGIENE የግልሃይጅንንበተመለከተ) PRACTICES (ልምድ)

ተ.ቁ	ጥያቄ/	የመልስአማራጭ	መልስ
16.	እጆችዎንእንዴትእንደሚ ታጠቡበቅደምተከተልሊ ነግሩኝይችላሉ?	*1=እጆችንሰሃንውስጥባለውሃውስጥእየነከሩከሌሎችሰዎ ችጋርአብሮመታጠብ (መጥፎልምድ)* 2=*ሌላሰውትንሽንጹህውሃአያንቆረቆረመታጠብ (ትክክለኛልምድ)* 3=*ከቧንቧበሚወርድውሃመታጠብ (ትክክለኛልምድ)* 4=*እጆችንበሳሙናእናውሃመታጠብ* 5= *ሌሎች* 6=*መልስየለም*	

PERSONAL HYGIENE (የግልሃይጅንንበተመለከተ) KNOWLEDGE (እውቀት)

ተ.ቁ	ጥያቄ	የመልስአማራጭ	መልስ
17.	አብዛኛውንጊዜየምግብመ መረዝየሚፈጠረውከዓይነ ምድርከሚወጡጀርሞች ጋርንክኪበመፍጠርነው፤ከ ሰውወይምእንስሳትዓይነ ምድርበሚመጡጀርሞች ምክንያትየሚፈጠርበሽታ ንለመከላከልምንማድረግ ይችላሉ?	1=*መጸዳጃቤትከተጠቀሙወይምየህጻንታፋ (ቂጥ) ካጠቡበኋላእጅንመታጠብ* 2=*ከቤትውስጥእናከአካባቢውዓይኑ-ምድርንማስወገድ(መጸዳጃቤትንመጠቀም፣ልጆችፖፖ ውስጥእንዲጸዳዱማስተማርእናየህጻናቱንዓይኑ-ምድርመጸዳጃቤትጉድጓድውስጥመድፋት፣እንስሳትላይ ያለዓይኑ-ምድርንማጽዳት)* 3= *ሌሎች* 4=*መልስየለም*	
18.	ጀርሞችምግብውስጥእን ዳይገቡለማድረግእጅመታ ጠብየሚያስፈልግባቸው ወሳኝጊዜያትአሉ፤እነዚህወ ሳኝጊዜያትመቼመቼናቸ ው?	1=*መፀዳጃቤትከተጠቀሙበኋላ* 2=*የልጅንታፋ (ቂጥ) ካጠቡበኋላ / የልጅንየሸንትጨርቅከቀየሩበኋላ* 3=*ምግብማዘጋጀትከመጀመርበፊት* 4= *ህጻንከመመገብበፊት* 5=*ጥሬ (ያልበሰለ) ምግብከነኩበኋላ* 6= *ቆሻሻከሰበሰቡእናከጣሉበኋላ* 7= *ሌሎች* 8=*መልስየለም*	

PERSONAL HYGIENE (የግልሃይጅንንበተመለከተ)ATTITUDES (አመለካከትወይምአስተሳሰብ)

ተ.ቁ	ጥያቄ	የመልስአማራጭ	መልስ

19.	እጅዎንባለመታጠብዎየተነሳለሆድህመምወይም ለተቅማጥየመጋለጥዎአጋጣሚምንያህልነውብለ ውያስባሉ? *ወይም* እርስዎእጅዎንባለመታጠብዎምክንያትልጅዎበሆ ድህመምወይምበተቅማጥለመታመምያለውአጋ ጣሚምንያህልነውብለውያምናሉ?	1=. የሚታመምአይመስለኝም 2=. እርግጠኛአይደለሁም 3=ሊታመምይችላል።*(መልስየሚ ታመምአይመስለኝምከሆነ)* የሚታመምየማይመስልዎምክንያ ትምንእንደሆነሊነግሩኝይችላሉ?__ _____	
20.	እርስዎእጅዎንባለመታጠብዎምክንያትእርስዎወ ይምልጅዎብትታመሙምንያህልከባድየሚሆንይ መስልዎታል?*ወይም*ተቅማጥለጤንነትዎምንያህ ልከባድነውብለውያስባሉ?*ወይም*ተቅማጥለልጅዎ ጤንነትምንያህልከባድነውብለውያስባሉ?	1=. ከባድአይመስለኝም 2=. እርግጠኛአይደለሁም 3=.ከባድነው *መልሱከባድአይደለምከሆነከባድየ ማይሆንበትምክንያትምንእንደሆነ ሊነግሩኝይችላሉ?*_____ ____	
21.	ምግብማዘጋጀትከመጀመርዎበፊትእጅዎንመታ ጠብምንያህልጥሩነውብለውያስባሉ?*ወይም*ህጻን ከመመገብዎወይምራስዎከመመገብዎበፊትእጅ ዎንመታጠብምንያህልጥሩነውብለውያስባሉ?	1=ጥሩአይደለም 2=. እርግጠኛአይደለሁም 3=ጥሩነው *መልሱጥሩአይደለምከ ሆነምክንያቱንሊነግሩኝይችላሉ?* _____	
22.	ምግብማዘጋጀትከመጀመርዎበፊትእጅዎንመታ ጠብምንያህልያስቸግርዎታል?*ወይም*ልጅዎንከመ መገብዎበፊትወይምራስዎከመብላትዎበፊትእጅ ዎንመታጠብምንያህልያስቸግርዎታል?	1=. አያስቸግረኝም 2=. እንደነገሩ 3=ያስቸግረኛል *የሚያስቸግርከሆነለምንእንደሚያ ስቸግርዎትምክንያቱንሊነግሩኝይ ችላሉ?*_____	
23.	እጅዎንበአግባቡመታጠብዎምንያህልበራስዎመ ተማመንይፈጥርልዎታል?	1=. አልተማመንም 2=በመጠኑ / እንደነገሩ 3=እተማመናለሁ። *አልተማመንምካለብራስዎየማይተ ማመኑበትንምክንያቶችሊነግሩኝይ ችላሉ?*----------	

ክፍል 6፡ WATER AND SANITATION (ውሃእናሳኒቴሽን) PRACTICES (ልምድ)

ተ.ቁ	/ጥያቄ	የመልስአማራጭ	መልስ
24.	በቤትዎውስጥለመጠ ጥ፣ለማብሰያእናእጅን ለመታጠቢያየሚሆን ውሃየሚያገኙትበዋነኛ ነትከዬትነው?	1=*የቧንቧውሃ* 2=*ቤትውስጥካለየቧንቧውሃ* 3= *ግቢውስጥካለየቧንቧውሃ* 4= *ከቦኖውሃ* 5= *ከጉድጓድበቧንቧከሚወጣውሃ* 6=*ጉድጓድከሚጠለቅውሃ* 7=*ከአካባቢውቆሻሻእንዳይገባበትመከለከያካለውጉድጓድ* 8= *ከክፍትጉድጓድ* 9=*የምንጭውሃ* 10= *መከላከያካለውምንጭ* 11= *መከላከያከሌለውምንጭ* 12=*የዝናብውሃበማጠራቀም* 13=*ውሃከሚያድልየመኪናቦቴ* 14=*የውሃበርሜልካለውጋሪ* 15=*የገጸ-ምድርውሃ* *(ወንዝ፣ምንጭ፣ግድብ፣ሃይቅ፣ኩሬ፣ቦይ፣የመስኖቦይ* 16= *(የታሸገውሃ)* 17=*ሌሎች(ዘርዝር)*_____ 18=*መልስየለም*	
25.	ለቤትውስጥአገልግሎ ትውሃይቀዳሉ?	1=. መልሱአዎከሆነወደሚቀጥለውምርጫይሂዱ 2=. መልሱአልቀዳምከሆነወደጥያቄ 27 ይሂዱ	
26.	ውሃለመቅዳትምንአይ ነትመቅጃይጠቀማሉ?	---------- ---------- ----------	
27.	መቅጃውንጹህካልሆነ መቅጃውንንጹህለማድ ረግየሚጠቀሙትነገርአ ለ?	1=አዎ 2= ምንምአልጠቀምም 3= መልስየለኝም።። መልሱአዎከሆነእንዴት? ---------- 4=*መቅጃውንበሰሙናእናበውሃአጥበዋለሁ* 5=ሌላ 6= *አላውቅም/መልስየለም*	
28.	ውሃውንእንዴትእንደ ሚያጠራቅሙሊያብራ ሩልኝይችላሉ?	1=*ንጹህውሃማጠራቀሚያውስጥ* 2= *የተከደነውሃማጠራቀሚያውስጥ* 3=*ንጹህእናየተከደነውሃማጠራቀሚያውስጥ* 4=ሌላ 5= *አላውቅም/መልስየለም*	

29.	የቀዱትውሃለመጠጣት ጤናማእንዲሆንየሚያ ክሙበትመንገድአለ?	1= - አዎ 2=አይ 3= አላውቅም/መልስየለም *መልሱአዎከሆነወደ 31 ለይሂዱ*	
30.	የቀዱትውሃለመጠጥ ጤናማእንዲሆንብዙ ውነጊዜምንያደርጋሉ?	1=*ማፍላት* 2=*በረኪናመጨመር* 3=*በጨርቅማጥለል* 4=*የውሃማጣርያመጠቀም (ሴራሚክ፣አሸዋ፣ቅልቅልጠጠር)* 5= *በጸሃይ* 6=*ቆሻሻውእስኪዘቅጥማስቀመጥ* 7=*ሌላ* 8= *አላውቅም/መልስየለም*	
31.	ስለምግብደህንነትናጥ ንቃቄየጤናኤክስቴነሽ ንምክርናትምህርትሰ ጥተዎትያውቃሉ?	0= በወርውስጥየለም 1=1-2 ጊዜበወርውስጥ 2= ከ 3 ጊዜበላይበወርውስጥ	

WATER AND SANITATION (ውሃእናሳኒቴሽን) KNOWLEDGE (እውቀት)

ተ.ቁ	ጥያቄ	የመልስአማራጭ	መልስ
32.	ምግብለመስራትወይ ምለመጠጣትየሚጠቀ ሙበትውሃጤናማአለ መሆኑንወይምየተቀዳ በትቦታጤናማአለመሆ ኑንቢያውቁምንማድረ ግአለብዎት?	1=*አፈላዋለሁ* 2=*በረኪናእጨምርበታለሁ* 3=*በጨርቅአጠለዋለሁ* 4=*በውሃማጣርያ (ሴራሚክ፣አሸዋ፣የተቀላቀለጠጠር) እጠቀማለሁ* 5=*ለጸሃይበማጋለጥጀርሞችእንዲሞቱአደርጋለሁ* 6=*እስኪዘቅጥ አቆየዋለሁ* 7=*እደፋውናከጤናማቦታሌላውሃአመጣለሁ* 8=*ሌላ* 9= *መልስየለም*	

WATER AND SANITATION (ውሃእናሳኒቴሽን) ATTITUDES (አመለካከትወይምአስተሳሰብ)

ተ.ቁ	/ጥያቄ/	/የመልስአማራጭ	መልስ

33.	ጤናማያልሆነውሃመጠቀምተቅማጥሊያመጣእንደሚችልምንያህልያስባሉ? *ወይም* ጤናማያልሆነውሃበመጠጣትልጅዎበተቅማጥሊታመምእንደሚችልምንያህልያስባሉ?	1= አላስብም 2=እርግጠኛአይደለሁም 3=አሰስባለሁ።። *የማያስቡከሆኑ*ተቅማጥአያመጣምብለውየሚያስቡበትምክንያትምንእንደሆነሊነግሩኝይችላሉ?----------	
34.	ጤናማያልሆነውሃመጠጣትየሚያስከትለውበሽታምንያህልከባድነውብለውያስባሉ?	1=ከባድአይደለም 2=ቀለልያለነው 3=ከባድነው።። *ከባድካልሆነ*ከባድየማይሆንበትምክንያትምንእንደሆነሊነግሩኝይችላሉ?----------	
35.	ውሃንለመጠጥወይምለሌላስራከመዋሉበፊትማፍላቱምንያህልጥሩነውብለውያስባሉ?	1=. ጥሩአይደለም 2=. እርግጠኛአይደለሁም 3=.ጥሩነው።። *ጥሩአይደለምከተባለ*ጥሩያልሆነበትንምክንያትሊነግሩኝይችላሉ?----------	
36.	ውሃንለመጠጥነትወይምለሌላስራከመጠቀምዎበፊትማፍላቱምንያህልያስቸግርዎታል?	1=. አያስቸግረኝም 2=እንደነገሩ 3=ያስቸግራል *የሚያስቸግርከሆነ*ለምንአስቸጋሪእንደሆነምክንያቱንሊነግሩኝይችላሉ?_____	
37.	ውሀን ከመጠቀምዎ በፊት ማፍላት ምን ያህል እንዲተማመኑበት የደርገዎታል?	1=አያስተማምንም 2=እንደነገሩ 3=ያስማምናል *የማያስተማምን ከሆነ* ለምን አስቸጋሪ እንደሆነ ምክንያቱን ሊነግሩኝ ይችላሉ?_____	

የስምምነትቅፅ

ጤናይስጥልኝ።ስሜ _____ ይባላል።በአዲስአበባዩኒቨርሲቲየድኅረ-ምረቃተማሪነኝ።በውሃጤናማአያያዝእናሃይጂንጉዳይላይጥናትእያካሄድኩስለሆነየርስዎንሙሉትብብርባገኝእወዳለሁ።በአካባቢዎስላለውየውሃጤናማአያያዝእናሃይጅንጥቂትጥያቄዎችላቀርብልዎትእወዳለሁ።በዚህጥናትእንዲሳተፉየምጠይቅዎትእንደማህረሰብአባልነትዎየርስዎእውቀትእናግንዛቤበጣምጠቃሚነውብዬስለማስብነው።ከርስዎጋርየሚኖረኝቆይታከ10 እስከ 15 ደቂቃይወስዳል።የሚሰጡኝመረጃበሚስጥርየሚጠበቅእናየአካባቢችሁንየውሃጤናማአያያዝእናሃይጅንለመገምገምብቻየሚያገለግልመሆኑንአረጋግጥልዎታልሁ።

በዚህጥናትላይየሚኖርዎትተሳትፎበፈቃደኝነትላይየተመሰረተሲሆንካልፈለጉየምጠይቅዎትንጥያቄወይምሁሉንምጥያቄዎችአለመመለስይችላሉ።በማንኛውምጊዜጥያቄውንበመሀልእንዳቆምሊነግሩኝይችላሉ።

በጥናቱለመሳተፍይፈልጋሉ?

( ) አዎ፣እፈልጋለሁ ( ) አልፈልግም

ቀን _____

አጠቃላይመረጃ

1. የተጠያቂውጾታ	
	( ) ወንድ
	( ) ሴት
2. የተጠያቂውዕድሜ	
	( ) ከ12-17 ዓመት
	( ) ከ18-40 ዓመት
	( ) ከ41-59 ዓመት
	( ) 60 እናከ60 በላይ
	( ) መልስየለም
3. ተጠያቂውየቤቱሃላፊነው።	
	( ) አዎ
	( ) አይደለም
4. በቤትውስጥየሚኖሩሰዎችብዛት( )	
5. የየትኛውሃይማኖትተከታይነዎት?	

	( ) ክርስትና
	( ) እስልምና
	( ) ካቶሊክ
	( ) ፕሮቴስታንት
	( ) ሌላ
	( ) መልስየለም
6. የትምህርትደረጃዎምንድንነው?	
	( ) አንደኛደረጃ
	( ) ሁለተኛደርጃ
	( ) ዩኒቨርሲቲ
	( ) አልተማርኩም
	( ) መልስየለም

ውሃንበተመለከተ

7. ለመጠጥነትእናለማጠብየተለያዩየውሃመገኛዎችንይጠቀማሉ?

( ) አዎ ( ) አልጠቀምም

8. ለመጠጥነትእናለማጠብለምንየተለያዩየውሃመገኛዎችንይጠቀማሉ?

(***ከአንድበላይመምረጥይቻላል፤ምርጫዎቹንለተጠያቂመንገርአይገባም***)

( ) የውሃውብዛት

( ) የውሃውጥራት

( )) ልማድ

( ) የግልእምነት

( ) ሁሉምያደርጉታል

( ) ሌላ _____

( ) መልስየለም

9. ለመጠጥሳይሆንለማብሰል፣ለማጠብወዘተውሃየሚገኝውከየትነው?

(***ከአንድበላይመምረጥይቻላል፤ምርጫዎቹንለተጠያቂመንገርያስፈልጋል***)

( ) በቀጥታየውሃጋንከጫኡመኪናዎች

( ) ቤቴፊትለፊትካለውጋን

( ) ከቦኖውሃ

( ) ከቤቴቧንቧ

( ) የታሸገውሃ (ከሱቅ)

( ) መልስየለም

( ) ሌላ ----------

10. የመጠጥውሃየሚያገኙትከየትነው?

(***ከአንድበላይመምረጥይቻላል፤ምርጫዎቹንለተጠያቂመንገርያስፈልጋል)***

( ) በቀጥታከውሃጋን

( ) ከቦኖውሃ

( ) ከቤትቧንቧ

( ) የታሸገውሃ (ከሱቅ)

( ) መልስየለም

( ) ሌላ ----------

11. አንዳንድጊዜበአካባቢውለቤተሰብዎየሚበቃውሃሳይኖርቀርቶያውቃል?

( ) አዎ ( ) አያውቅም ( ) መልስየለም

12. ቤትዎውስጥውሃማጠራቀሚያይጠቀማሉ?

( ) አዎ ( ) አልጠቀምም

13. መልሱአዎከሆንየትኛውንማጠራቀሚያነውየሚጠቀሙት? (***አሳይኝብሎመጠየቅያስፈልጋል)***

( ) ጄሪካን (መያዝየሚችለውበሊትር) ……..

( ) ባልዲ (መያዝየሚችለውበሊትር) ……..

( ) ጎድጓዳሰሃን (መያዝየሚችለውበሊትር) ……..

( ) ጠርሙስ (መያዝየሚችለውበሊትር) ……..

( ) ሌላ …….. …….. (መያዝየሚችለውበሊትር) ……..

14. ማጠራቀሚየዎቹንፁህእናየተከደኑናቸው? (***ማየትያስፈልጋል***)

( ) ሁሉምማጠራቀሚያዎችንፁህናቸው

( ) ጥቂትማጠራቀሚያዎችንፁህናቸው

( ) ማጠራቀሚያዎችንፁህአይደሉም

( ) ሁሉምማጠራቀሚያዎችተከድነዋል

( ) ጥቂትማጠራቀሚያዎችተከድነዋል

( ) ሁሉምማጠራቀሚያዎችአልተከደኑም

15. በግቢውውስጥየውሃጋንአለ?

( ) አለ ( ) የለም

16. ካለ፣ጋኑንያፀዱታል?

( ) አፀዳዋለሁ ( ) አላፀዳውም

17. ጤናማውሃማለትምንድንነው?

( ) ጀርሞችየሌሉበት

( ) ያልደፈረሰ

( ) ጥሩቃናያለው

( ) ጠረንየሌለው

( ) ሌላ …….. ……

( ) አላውቅም

18. ለነዋሪውበቧንቧየሚተላለፍውሃጥራትምንያህልነውብለውያምናሉ?

( ) ጥሩነው

( ) ጥሩአይደለም

( ) አላውቅም

19.ውሃውጥሩካልሆነምክንያቶቹምንድንናቸው?

( ) መጥፎቃና (በክሎሪንምክንያት)

( ) መጥፎቃና (በክሎሪንምክንያትሳይሆን)

( ) ድፍርስ

( ) መጥፎጠረን

( ) ሙቅ/ቀዝቃዛ

( ) ያልተከደነማጠራቀሚያ

( ) ጋኑወይምማጠራቀሚያውቆሻሻነው

( ) በቧንቧማስተላለፊያውየሚሰራአይደለም

( ) የጉድጓድውሃጥሩአይደለም

( ) ሌላ …….. ……

በተቅማጥምክንያትየሚመጣህመምወይምሞት

20. ባለፉት 15 ቀናትበቤተሰቡውስጥስንትአምስትአሞትያልሞላቸውልጆችተቅማጥነበረባቸው?

( ) ማንምአልነበረበትም

( ) አንድልጅ

( ) ሁለትልጆች

( ) ከሁለትልጆችበላይ

( ) መልስየለም

21. የዚህተቅማጥመነሾዎችምንድንናቸው?

( ) መጥፎየአየርጠባይ

( ) ውሃውመጥፎነው

( ) ውሃውውስጥያለበጣምብዙክሎሪን

( ) ቆሻሻእጆች

( ) ፀሀይ/መጠነሙቀት

( ) የእግዚአብሔርፍቃድ

( ) ሌላ …….. ……

( ) አላውቅም

22. ተቅማጥንየማስወገጃመንገዶችምንምንናቸው?

(ከአንድበላይመምረጥይቻላል፤አማራጮቹንለተጠያቂመንገርአይገባም)

( ) ጤናማውሃበመጠጣት

( ) ከመመገብበፊትእጅበመታጠብ

( ) ከመፀዳጃቤትሲወጡእጅበመታጠብ

( ) ምግብንበመሸፈን / ፍራፍሬዎችንበማጠብ / የምግብንጽህናንበመጠበቅ

( ) ለመፀዳዳትመፀዳጃቤትበመጠቀም / አይነ-ምድርንበአግባቡበማስወገድ

( ) ምግብንዝንቦችወይምሌሎችነፍሳትእንዳያርፉበትበማድረግ

( ) ሌላ …….. ……

23. ውሃአማካይነትተቅማጥሊተላለፍይችላልብለውያምናሉ?

( ) አዎ ( ) አላምንም ( ) ከላውቅም

24. ከቤተሰብዎመካከልአንዱተቅማጥቢኖርበትምንያደርጋሉ?

(ከአንድበላይመምረጥይቻላል፤አማራጮቹንለተጠያቂመንገርአይገባም)

( ) ምንምአላደርግም

( ) ከመድሃኒትቤትመድሃኒትእገዛልሁ

( ) ወደክሊኒክእሄዳለሁ

( ) ኦአርኤስወይምቤትውስጥየተዘጋጀኦአርኤስእሰጣለሁ

( ) የባህልመድሃኒትእጠቀማለሁ

( ) ሌሎችነገሮች …….. ……

25. ኦአርኤስ (ለምለም) እንዴትእንደሚዘጋጅሊገልጹልኝይችላሉ?

(ትክክለኛውመልስ፡ 1 ሊትርጤናማውሃ፣ከ4 እስከ 6 የሻይማንኪያስኳር፣ 1 የሻይማንኪያጨው፣በተጨማሪየሎሚጭማቂእናባይካርቦኔት)

( ) አዎ፣ተጠያቂያውቃሉ

( ) ተጠያቂአያውቁም

መፀዳጃቤት

26. ውጭየሚፀዳዱሰዎችአይተውያውቃሉ?

( ) አዎ ( ) አላየሁም ( ) አላውቅም

27. አይተውከሆነበምንእድሜክልልያሉሰዎችንነውውጭሲፀዳዱያስተዋሉት?

( ) አዋቂሰዎች

( ) ከ13 እስከ 20 ዓመትያሉወጣቶች

( ) ትንንሽልጆች

28. በግቢዎውስጥያለውመፀዳጃቤትተጠቃሚውከውጭእንዲታይአያደርግምብለውያምናሉ?

( ) አዎ ( ) አላምንም ( ) መልየለም

29. በግቢዎውስጥያለውመፀዳጃቤትለአደጋአያጋልጥምብለውያምናሉ?

( ) አዎ ( ) አላምንም ( ) መልስየለም

30. በግቢዎውስጥበቀላሉሊያፀዱትየሚችሉመፀዳጃቤትአለ?

( ) አዎ ( ) አላምንም ( ) መልስየለም

31. እድሜያቸውከ5 አመትበታችያሉልጆችዎመፀዳዳትሲያስፈልጋቸውየትነውየሚሄዱት?

(***ከአንድበላይመምረጥይቻላል፤ምርጫዎቹንለተጠያቂመንገርያስፈልጋል)***

( ) ፖፖላይ (አሳዩኝማለትያስፈልጋል)

( ) ወለሉላይ

( ) መፀዳጃቤት

( ) ሌላ …….. …

( ) መልስየለም

32. ፖፖላይወይምወለሉላይከሆነበኋላዓይነ-ምድሩንየትያደርጉታል?

(ከአንድበላይመምረጥይቻላል፤አማራጮቹንለተጠያቂመንገርአይገባም)

( ) ያለውመፀዳጃቤትውስጥይደፋል

( ) ያለውየገላመታጠቢያውስጥይደፋል

( ) ግቢውውስጥይቀበራል

( ) የቆሻሻማጠራቀሚያውውስጥይደረጋል

( ) ከሰፈርውጭእጥለዋልሁ

( ) ሰፈርውስጥእጥለዋለሁ

( ) ሌላ …….. …

( ) መልስየለም

የግልሃይጅን

የእጅእጥበት

33. እጅዎንየሚታጠቡትመቼነው?

(ከአንድበላይመምረጥይቻላል፤አማራጮቹንለተጠያቂመንገርአይገባም)

( ) መፀዳጃቤትከተጠቀሙበኋላ

( ) ከመመገብበፊት

( ) ከተመገቡበኋላ

( ) ምግብከማብሰልበፊት

( ) የሕፃናትሽንትጨርቅከቀየሩበኋላ

( ) ከፀሎት (ከሶላት) በፊት

( ) ከፀሎት (ከሶላት) በኋላ

( ) ሌላ …….. …

( ) አላውቅም

የገላእጥበት

34. ገላዎንበስንትጊዜይታጠባሉ?

( ) በቀንከአንድጊዜበላይ

( ) በቀንአንድጊዜ

( ) በሳምንትከአንድጊዜባነሰ

( ) ሌላ …….. …

( ) መልስየለም

35. ገላዎንየሚታጠቡትየትነው?

( ) ቤትውስጥ

( ) በግልገላመታጠቢያክፍልውስጥ

( ) መጸዳጃቤትውስጥ

( ) ሌላ …….. …

( ) መልስየለም

36. በግቢዎውስጥበሚገኘውገላመታጠቢያቦታደስተኛነዎት?

( ) አዎ ( ) አይደለሁም

37. ደስተኛካልሆኑመለምን?

( ) ውሃውበቂሃይልየለውም

( ) የመታጠቢያክፍሉአቀማመጥአይመችም

( ) በቂመከለያየለውም

( ) ሌላ …….. …

( ) መልስየለም

ቆሻሻአወጋገድ

38. ቆሻሻዎንየሚያስወግዱትየትነው?

( ) ቤትውስጥበሚገኝፕላስቲክመያዣ

( ) ቤትውስጥበሚገኝቆሻሻማጠራቀሚያ

( ) ወደውጭበመጣል

( ) የህዝብቆሻሻማጠራቀሚያዎችውስጥ

( ) ሌላ …….. …

( ) መልስየለም

39.
ቤትውስጥበሚገኝፕላስቲክመያዣወይምቆሻሻማጠራቀሚያየሚጠቀሙከሆነቆሻሻውንየሚጥሉትየትነው?

(***ከአንድበላይመምረጥይቻላል፤ምርጫዎቹንለተጠያቂመንገርያስፈልጋል)***

( ) ከቤቱፊትለፊት

( ) በጋራየቆሻሻመሰብሰቢያዎች

( ) በሰፈሩውስጥባለቆሻሻማጠራቀሚያ

( ) ሌላ …….. …

40. በሰፈሩውስጥበቂየጋራቆሻሻማጠራቀሚያዎችአሉብለውያስባሉ?

( ) አዎ ( ) አላስብም

41. ከሰፈርውስጥደረቅቆሻሻበየስንትቀኑእንደሚወገድያውቃሉ?

( ) በሳምንትከሁለትጊዜበላይ

( ) በሳምንትከአንድጊዜያነሰ

( ) በሳምንትአንድጊዜ

( ) አላውቅም

42. አንድሰውከማጠራቀሚያውውስጥአውጥቶቆሻሻወደውጭሲያዝረከርክቢያዩምንይሰማዎታል?

( ) የተለመደነው

( ) መጥፎልማድነው

( ) የፍሳሽመሄጃውንይደፍነዋል

( ) በቂቆሻሻመያዣየለም

( ) ለማህረሰቡክብርአለመኖሩነው

( ) አለማወቅ (ድንቁርና) ነው

( ) ሌላ …….. …

( ) አላውቅም

43. በፍሳሽመሄጃውአሰራርደስተኛነዎት?

( ) አዎ ( ) አይደለሁም

44. ደስተኛካልሆኑምክንያቱምንድንነው?

( ) በክረምቱወቅትጎርፍይበዛል

( ) በበጋውወቅትጎርፍአለ

( ) መሬትውስጥየተሰራውፍሳሽማተራቀሚያሞልቶይፍሳል

( ) የፍሳሽመሄጃውጥልቀትያለውስለሆነአደገኛነው

( ) ከብረትየተሰራመከለያውጥሩአይደለም

( ) ሌላ …….. …

( ) አላውቅም

45. ለቆሻሻሰብሳቢገንዘብለመክፈልይስማማሉ?

( ) አዎ

( ) አልስማማም

( ) እንደሁኔታው

( ) መልስየለም

46. የሚስማሙከሆንበወርስነትብር …….. …

አስተውሎት

47. በገላመታጠቢያውክፍልውስጥዓይነምድርእንደነበርየሚያረጋግጥምልክትአለ?

( ) አዎ ( ) የለም ( ) የገላመታጠቢያውአይሰራም

48. መጸዳጃቤቱንፀህነው?

( ) አዎ ( ) የለም ( ) የገላመታጠቢያውአይሰራም

(ንፁህመጸዳጃቤትማለትበክፍሉውስጥእናበመቀመጫሰሃኑላይምንምዓይነምድርወይምቆሻሻየማይታይበ ትሲሆንበዓይነምድርመሹለኪያውጫፍግንየዓይነምድርቅሪትሊኖርይችላል።)

49. የእጀእጥበትመገልገያዎችሁኔታ

( ) የእጥበትመገልገያውከመጸዳጃቤቱከአምስትሜትርበላይየራቀነው

( ) ውሃእናሳሙናይገኛል

( ) ውሃብቻየሚገኝበት

የጥያቄዎቹመጨረሻ

ጊዜዎንስለሰጡኝአመሰግናለሁ

ማስታወሻ፡ተጠያቂው ለየትኛውም ጥያቄ መልስ ካልሰጠ ለዚያ ጥያቄ "መልስ የለም" ብሎ መጥቀስ ያስፈልጋል

የመጠይቄምንጭ፡

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