
**COLLEGE OF DEVELOPMENT STUDIES**
**CENTRE FOR FOOD SECURITY STUDIES**

# FOOD SECURITY STATUS AND FOOD SAFETY KNOWLEDGE, ATTITUDE AND PRACTICE OF MICRO AND SMALL ENTERPRISE FOOD HANDLERS IN SELECTED WOREDAS OF LIDETA SUB - CITY, ADDIS ABABA

**BY**

**SIMEGN BELAY ALEMU**

**ADDIS ABABA, ETHIOPIA**

**AUGUST, 2020**


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**BY**

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

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN FOOD SECURITY AND DEVELOPMENT**

**ADDIS ABABA, ETHIOPIA**

**AUGUST, 2020**

## DECLARATION AND APPROVAL

This thesis is my original work and has not been presented for MA/MSc degree in any other University and that all the sources and materials used for the thesis have been properly acknowledged.

**Declared By**: Simegn Belay

**Signature:** ----------

**Date:** **----------**

**Place**: Addis Ababa University College of Development Studies, Center for Food Security Studies

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

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| (Advisor) | Signature | Date |

**Examiners' approval**

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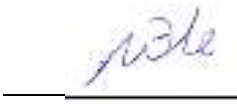
| Dr. Aweke Kebede |  | August, 2020 |
| (External Examiner) | Signature | (Date) |
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Final approval and acceptance of this thesis is contingent upon the candidate 's submission of the final copy of the thesis, incorporating all the comments by Examining Board, to the Council of Graduate Studies (CGS) through the Center Academic Committee (CAC) of the Center.

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# Operational Definition

**Food safety** is about producing, handling, storing and preparing food in a way that prevents contaminations or diseases (Ramful,2017).

**Food Security** is when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life (FAO, 2000).

**Knowledge**: Is the understanding of any given topic; intellectual ability to remember and recall food and nutrition-related terminology, specific pieces of information and facts (Macías and Glasauer, 2014). In this paper, it refers to an individual ‘s understanding of food handling, water sanitation and personal hygiene.

**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 not other alternatives (Macías and Glasauer, 2014).

**Practices**: Defined as the obvious actions of an individual that could affect his/her or others ‘nutrition, such as eating, feeding, washing hands, cooking and selecting foods (Macías and Glasauer, 2014). In this paper, it states that an individual ‘s activity of food handling, water, sanitation and personal hygiene.

**Personal hygiene**: Keeping of personal cleanliness from head to toe by food handling personnel (Wandolo,2016).

**Injera** is a traditional Ethiopian sour dough flatbread mostly made from the tef flour; and can be made from different cereals such as wheat, sorghum, and maize (Yoseph et al., 2018)

**Dabo kolo**: Small pieces of dough, fried or baked and eaten as a snack (Harry Kloman, 2010).

**Shiro wot** is a stew made from powdered chickpeas or broad bean with the addition of minced onions, garlic, ground ginger or chopped tomatoes and chili-peppers. (Wikipedia).

**Ful** is a dish of mashed seasoned fava beans and served for breakfast, with a garnish of chopped onions, chopped tomatoes and crusty bread or *injera (*Harry Kloman, 2010).
**Fir fir:** Mixing sliced *injera* into a spicy sauce (Harry Kloman, 2010)

**Misir wot:** A stew prepared from lentils; cooked in clarified butter, aromatics and seasoned with an earthy and floral spice blend, berbere (Aneesha, 2020)

**Ambasha:** A large round leavened bread, usually with a design carved in the top (Harry Kloman, 2010).

**Qeqel** or **Kikil:** Boiled meaty bones **(**Harry Kloman, 2010).

**Dulet:** This stew prepared from at least two or three meats, including liver (tripe and kidney), fried with onions, butter and spices (Harry Kloman, 2010).

**Enterprise performance** is a multi-dimensional concept which consists of integration of marketing, overall management, accounting, economics, sociology and psychology and evaluated according to the achievement of organizational goals throughout its evolution in terms of the effectiveness of its human resources, supplier performance, product and services quality customer and markets and other financial factors (Mahmudova et al., 2018)

## ACKNOWLEDGEMENTS

First and foremost, the Glory goes to the Almighty God; all things are done by him. And my greatest and heartfelt gratitude goes to my advisor Professor Mogessie Ashenafi for his intellectual inspiration, comments, invaluable help and encouragement to complete this thesis. I also appreciate him, especially for his politeness, patience and simplicity. And I would like to express my special thanks to Dr. Abebe Haile for his intellectual and valuable comments during proposal defense.

I would like to express my special thanks to Yesuf Addis for supporting and initiating to start this MSC program.

I would like to thank the Woredas MSE administration office experts/MSE supporters and also my great thanks go to my sample respondents for their willingness and patience to answer all the questions during the study.

I would like to thank all who contributed directly or indirectly to the achievement of my work. Finally, I want to express my special thanks to my families especially to my husband and my sister for their support and help for the effective accomplishment of this study.

# ABBREVIATIONS

| | |
|---|---|
| ACF | Action Contre la Faim |
| CDC | Centers for disease control and prevention |
| CSA | Central Statistics Agency |
| DHS | Demographic and Health Surveys |
| EFDRG | Ethiopian Federal Democratic Republic of Government |
| ETB | Ethiopian Birr |
| FAO | Food and Agriculture Organization |
| FDRE | Federal Democratic Republic of Ethiopia |
| FDREMTI | Federal Democratic Republic of Ethiopia Ministry of Trade and Industry |
| GCS | Geographic Coordinate System |
| HFIAS | Household Food Insecurity Access Scale |
| KAP | Knowledge, Attitude and Practice |
| LMIC | Low and Middle Income Countries |
| MSE | Micro and Small Enterprise |
| PCB | Polychlorinated Biphenyls |
| SPSS | Statistical Package for Social Science |
| SDG | Sustainable Development Goal |
| TVET | Technical and Vocational Education Training |
| UK | United Kingdom |
| UNICEF | United Nations Children's Fund |
| USA | United States of America |
| WASH | Water Sanitation and Hygiene |
| WHO | World Health Organization |

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## ABSTRACT

*Micro and small enterprises are essential for creating jobs for low income groups. Food processing and services are one of the sectors of MSE.The delivery and success of these services are inextricably tied with the quality of food processing. This in turn is reflected by the knowledge, attitude and practice the food handlers have. So, determining the level of KAP and assessing the work environment of the food handlers could contribute in improving the service delivery and quality of this sector. Thus, the over all objective of the study was to analyze the food security status and food safety KAP of MSE food handlers in five selected woredas of Lideta Sub - City, Addis Ababa. Cross-sectional survey was done among the MSE food handlers in the study area with a total sample size of, n=255 participants. Questionnaire was used to collect data and data was collected from January through march. Purposive sampling technique was used to include woredas with high number of MSE food handlers. The analysis was done using descriptive statistics and chi-square was used to determinet significance of association between variables of interest. The results show that about 22% of respondents were food secure, 45% mildly food insecure, 27% moderately food insecure and 6% severely food insecure. The total food handling knowledge, attitude and practice (KAP) of MSE food handlers were about 73%, 94% and 20%, respectively. The total personal hygiene KAP was about 23%, 97% and 29%, respectively. Water and sanitation KAP were about 31%, 96% and 35%, respectively. Most of respondents stated that there was no shower, unclean toilet, lack of hand washing facilities in the work place. Generally, the result has shown relatively higher food handling knowledge. However, poor knowledge and practice in but high positive attitude towards food safety issues. Poor hygienic practices together with poor sanitary conditions in MSE food handlers can contribute to occurrences of food borne illnesses and lack of customers which inturn leads to food insecurity. To improve food safety KAP and food security status of MSE food handlers, providing appropriate training about food safety and providing them with suitable working environment is of paramount importance.*



***Keywords**: Knowledge, Attitude, Practice, Food Safety, Food Security*

# CHAPTER 1: INTRODUCTION

## 1.1. Background

'Food Security is considered to be achieved 'when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life' (FAO, 2000). Food is anything that is edible and gives nutrients for body building, energy, growth and good health. But if it is unsafe it will contaminate and cause illness up to death. According to Tegegne et al. (2017), food safety shows the activities that avoid contamination of foods from poisonous chemicals or germs. On the other hand, food safety refers to food free from toxic chemicals or food poisoning microorganisms. Safe food is important for health, productivity, growth and poverty reduction (WHO, 2002). Food can be unsafe or contaminated due to different reasons such as poor sources of food and water, lack of preserving technology, poor hygiene of food handlers, inappropriate waste disposal, using unclean utensils and equipments, unclean handling practices, cross-contamination, putting cooked food with raw food and others. Unsafe food consumption results in food borne disease. According to Grace (2015), a foodborne disease is caused by contamination of food or drink by disease-causing germs.

Due to inappropriate food handling, about 600 million food borne illnesses and 420,000 deaths occur each year worldwide (WHO, 2015). According to Grace (2015), the majority of food borne disease in developed countries results from consuming animal-source food (livestock products and food from aquatic animals) and contaminated produce (fresh fruits and vegetables); foodborne disease is increasing in developing countries due to increased consumption of the hazardous perishable foods, more contamination of food, and lack of effective food safety systems. According to Henok et al. (2013), in Ethiopia, between 1985/86 and 1989/90, the average annual incidence of food-borne illnesses was 5.8% and average deaths related with diarrhea was 45%.

From the above it can be understood that both developed and developing countries are affected by food borne disease. Therefore, every responsible organization, food handlers in food service establishments even food handlers at home should give attention to food safety or appropriate food handling practice. Food hygiene is attained by practicing good hygiene during production, preparation, storage and services as well as sanitary washing of dishes, work surfaces, appropriate waste disposal ways and keeping an environment to avoid pests (Wandolo, 2016). Foodborne disease is avoidable by correct food handling and giving attention to good practices and hygiene (Ramful, 2017). According to WHO (2017), to minimize the burden of food borne disease, all stake holders should have awareness about unsafe food or food safety risks, its consequence and how it is prevented including teaching of customers is important.

Food is handled by micro and small enterprise (MSE) providers such as food processing and food service establishments, cafés, and small scale producers of traditional packaged food products, locally called '*Baltina* shops. The MSE has been organizing people within different developmental working sectors. These are manufacturing, construction, urban agriculture, service and trade sectors (EFDRG, 2011). From the above mentioned sectors, this study addresses the food processing and services of MSE organized under manufacturing and service sector. It focuses on food security status and food safety knowledge, attitude and practice of micro and small enterprise food handlers in selected woredas of Lideta Sub - city.

## 1.2 Statement of the problem

Country's economy is affected by food safety problems and it creates burden on consumer costs such as medical expenditures, in addition to non-attendance at work and school (Henok et al., 2013). However, developing countries do not give attention to food safety (Grace, 2015). Producing safe food is important to protect consumers from the risks of foodborne illnesses, and to increase competitiveness in both the domestic and international markets (Ramful, 2017).

Micro and small enterprises are a means of financial growth and business formation of individuals and groups. They are used to reduce poverty and to ensure food security of participating low income groups or poor people. In Ethiopia, there are several factors that affect the performance of micro and small enterprises; few among the factors that affect MSEs, are lack of skilled man power, financial problems, marketing problems, lack of financial records, and lack of work premises (Kaleleoul, 2016). Limitations related to access of business information, business premises (at reasonably price), managerial skill, appropriate technology and quality business infrastructure (FDREMTI, 1997). Frequent power interruptions, lack of access to credit, and shortage of water also affect the growth of MSEs (Solomon et al., 2016). In addition, other constraints of MSE are unsuitable working areas/places that do not consider the need of customers, the working area is not suitable for food preparation and service (environmental sanitation), and lack of common skill about food preparation and service by most of the members.

Food safety is highly related to liquid and solid waste disposal in case of sanitation. According to Mulu (2018), Most of the micro and small enterprises have no solid waste storage facilities; about 68% of the enterprises dump their waste without any treatment, which causes serious health and environmental risks but 32% of enterprises recycle, reuse, or combust the solid waste within their enterprises. Shortage of knowledge about the influence on the environment and its health effects are related to food security and food safety problems (Lin, 2009). Both in developed and developing countries, sustainable waste management is one of the most challenging issues (Halkos et al., 2016).

Studies on food safety knowledge, attitude and practice (KAP) of public food establishments, restaurants and others have shown unsatisfactory knowledge, attitude and practice (KAP) in food safety issues (Fasikaw et al., 2019; Dejene et al., 2017; Mekasha et al., 2016; Jember et al., 2019).

Though there are encouraging researches concerning food safety both in developed and developing countries like Ethiopia, there is still dearth of research in this area that targets micro and small enterprises. Thus, this still tried to contribute to repository of good research practice by filling the gap in knowledge about the food security situation and food safety knowledge, attitude and practice (KAP) of micro and small enterprise food handlers in Addis Ababa.

## 1.3. Objectives of the study

### 1.3.1 General Objective

The overall objective of this thesis was to analyze the food security status and food safety knowledge, attitude and practice of micro and small enterprise food handlers in five selected woredas of Lideta sub-city.

### 1.3.2 Specific Objective

The study will address the following specific objectives to:

- ✓ Investigate micro and small enterprise food handlers' knowledge, attitude and practice in food handling, personal hygiene, water and sanitation.
- ✓ Asses the water, sanitation and waste disposal practices of the MSE food service and processing establishments.
- ✓ Identify food security status of member of micro and small enterprise (MSE) food handlers.

## 1.4 Research questions

Based on the above specific objectives, the research attempted to answer the following questions:

1. What is the level of MSE food handlers Knowledge, Attitude and Practice about food safety?
2. What does water, sanitation, waste disposal and the surrounding environment of MSE look like?
3. Does MSE members secured their food?

## 1.5 Limitation of the study

The study was delimited only in Lideta sub city woredas 1,3,4,5 and10. This might have created bias in sample selection as there migfht be other MSE in other woredas in Adiss Ababa with different practices of food handling. In terms of data collection, the researcher admits that time and financial resources have limited the amount of data that could have been collected even from a larger sample size. In terms of scope, this study focused only on food safety KAP and not on the determination of whether the prepared food was safe or not. However, as findings suggested room for improvement in this area, the researcher recommend future researchers to explore it further.

## 1.6 Scope of the study

The study was applied on selected woredas of Lideta sub city and focused on the status of food security and food safety Knowledge, Attitude and Practice (KAP) of members organized under Micro and Small Enterprise in food service and processing.

## 1.7 Significance of the study

MSE is one of the most important strategy for low income grops creating job opportunity and asured food security. Food service enterprises organized as Micro and Small Enterprise (MSE) are meant to economically support food insecure households. As these establishments sell cooked food at relatively lower price, customers are usually members of low income groups. Thus, assessing the food safety Knowledge, Attitude and Practice (KAP) of the food handlers in MSEs help to identify problems related to safety of food arising from unhygienic preparation, storage and poor personal hygiene. This can lead to recommendations that can keep food handlers and their customers from contracting food borne diseases.

This study is important for micro and small enterprise officers/professionals of Woredas and sub- city as a clue to organize peoples in food service and food processing sectors and can minimize food safety and quality service problems by creating well trained food handlers and providing suitable working area. The recommendations of this study will support for development of policies and curriculum of TVET institutions that will give appropriate training programmes on food safety of MSE food handlers and contributed for existing knowledge in this area of study and may be used as reference material by the institutions, general readers and researchers.

## 1.8. Outline of the thesis

This thesis paper covers five chapters. Chapter one gives the background of the study, statement of the problem, objectives, research questions, significance of the study, scope and limitation of the study. The second chapter focuses on review of related literature and discusses different concepts which are important to the study. The third chapter deals with methodology; it includes the general descriptions of the study area, the data sources and acquisition techniques as well as method of data analysis. The fourth chapter presents the results, analyzes the data and discusses implications and comparisons. Finally, the fifth chapter gives concluding remarks and proposes recommendation based on the findings of the study.

# CHAPTER 2: REVIEW OF RELATED LITERATURE

## 2.1 The concept of Food Security

Food safety is one of the most important considerations for food security and it is a major component of food utilization. According to Redder (2011), food security has four dimensions/pillars: availability of sufficient food, stable financial and physical access to nutritious and safe food and water. According to FAO (2008), food availability is about supply of food and it is determined by the level of food production, stock levels and net trade; food access is focuses on incomes, expenditure, markets and prices in achieving food security objectives. Food utilization: the availability and accessibility of food are not enough for food security achievement but also people have to be assured safe and nutritious food and the food consumed has to provide sufficient energy to enable the consumer to carry out routine physical activities; utilization also covers factors such as safe drinking water and adequate sanitary facilities to avoid the spread of disease in addition awareness of food preparation and storage procedures (De Muro et al., 2010/2011). Food stability addresses the continuity of the three dimensions (availability, accessibility and utilization of food) over time; adverse climate change, political volatility, or economic factors (joblessness, increasing food prices) may have an influence on food security status (FAO ,2008).

According to Morse et al. (2018), food safety is an issue which should be given equal emphasis with food security and nutrition; achievement of effective food safety systems in low- and middle-income countries (LMICs) is intimately linked to the Sustainable Development Goals (SDGs) and must be embedded in food security, nutrition, disease prevention, water, sanitation and hygiene, economic development, and poverty reduction programs at a national and regional level. There fore, food safety KAP is integrated with food security. This is because of when MSE food handlers have appropriate KAP about food safety, they prepare safe food and will prevent disease causing contaminated food and can keep customers from food borne disease; due to this food handlers can not lose customers because of food borne disease. In addition, customers can prefer their food establishments by hearing positive information from others this can attract and increase number of customers. When number of customers increase, the income of food handlers will increase and improve the economy of enterprise as a result food handlers food security can achieved.

Food insecurity is directly related to poverty. Poverty indicates those people who cannot fulfill/afford the basic human needs like clean water, safe and nutritionally improved food, clothes and shelter. Food insecurity is associated to poverty, income and joblessness (Toit, 2011). At present, to secure food in Ethiopia is the most difficult task in the country because of high population, weather fluctuation, political instability, displacement of peoples from their home, locust attack and, at this time, the coronavirus pandemic affect the economy of the country. Because of these, the cost of food is continuously increasing

from time to time and low income people, even governmental employees, are at risk. According to Cochrane (2018), one in five Ethiopians needed food support during 2015/16 and high level of food insecurity happened due to drought and high population.

Research study in Western Ethiopia showed that, 59.06% of the sampled households were food insecure and 40.94% of them were food secure; low productivity, climate related problems and inadequacy of cultivable land were the main causes of food insecurity (Seid et al., 2019). A study by Alem-meta et al. (2018) showed that, 20.9 and 79.1% of the sample households are food secure and food insecure, respectively in South Wollo Zone of Ethiopia; shortage of farmland, poverty, recurrent drought and climate change, shortage of rainfall and land degradation are determining factors for such food insecurity.

## 2.2 Knowledge, Attitude and Practice of food safety

A KAP survey is a representative study of a specific population to collect information on what is known, believed and done in relation to a particular topic (Alhaj, 2018). Food safety is causing risk to human's health and wellbeing when contaminated food is consumed (WHO 2002). According to FAO and WHO (2017), food can be contaminated by three types of hazards. These are: Physical hazards like non-edible food parts and non-food materials (bone pieces, fruit stones, etc.), Chemical hazards like residues such as pesticides, veterinary medicine, and surface disinfectants, that may occur in natural form from toxic substances like environmental or industrial contaminants (mercury, lead, polychlorinated biphenyls (PCB), dioxin, radioactive nuclides) and Biological hazards such as bacteria, parasites, viruses, rodents, insects… etc.

According to Hertzman et al. (2014) and Dejene et al. (2017), major causes of food borne diseases are food from unsafe sources, insufficient cooking, inappropriate holding temperatures, unclean equipment, and poor personal hygiene. Poor food handling practices are caused by lack of adequate food safety knowledge. So, to reduce food borne diseases, knowing and understanding food safety and appropriate practice of food handlers are important (Zemichael et al., 2014). Food handler is a person who has direct contact with food, equipment and utensils during preparation or serving food. The hands of food service employees can be a source in the transmission of food borne diseases because of poor personal hygiene or cross contamination (Mekasha et al., 2016). Unclean practices in food preparation, handling and storage creates expansion and spreading of disease causing organisms such as bacteria, viruses and other food-borne pathogens (Akabanda et al., 2017).

In the USA, 76 million cases of food borne illness, resulting in 325 000 hospitalizations and 5000 deaths, are estimated to occur each year (WHO, 2002). Globally, diarrhea is the second causing death; each year about 1.5 million, one in five under five children, die due to diarrhea and also in developing countries diarrhea is more common due to unsafe and unhygienic water and food; about 2.5 billion people have lack

of sanitation facilities, and one billion people have no access to safe drinking water (UNICEF/WHO, 2009).

In Ethiopia food borne diseases are common because of poor handling of food and unclean practices, inadequate food safety laws, weak regulatory systems, lack of resources to invest safer equipments, and lack of education for food handlers (Fasikaw et al., 2019). Food handlers play an important role in ensuring food safety throughout the chain of production, processing, storage and preparation (Dejene et al., 2017). Handling food with clean hands and using good hygienic procedures can avoid the risks from contaminated food to families, and customers (FAO and WHO, 2017). According to Wandolo (2016), water is a main source of contamination, similar to food, and causing water-related diseases like diarrhoea, typhoid, cholera and salmonellosis. In kitchens, water is used for washing food, utensils, equipment. So, avoiding contaminated water is essential to minimize food contamination. Water safety is important to consumers and food industries for drinking, preparing or cooking, food processing and it is necessary for ensuring public health (Lin et al.,2009).

Unmanaged waste is one of the most causing food contamination and food borne disease. According to Halkos et al. (2016), waste is formed by all activities and causing national and international effects of environmental pollution. To avoid or minimize this problem, sustainable waste management is required and it needs the combination of skills and knowledge. Kitchen waste includes all waste produced in the process of food preparation like ingredient waste from peelings and trimmings and liquid waste. It requires carefulness for disposal (Wandolo,2016). According to Wandolo (2016), if hygiene comes in to consideration, sanitary facilities, such as hand wash basins, rest rooms, shower and changing rooms, should be available.

Studies in Owerri, Imo State, Nigeria showed that, majority of the respondents had a good level of knowledge (81%), positive attitude (71%) and 37% of the respondents had a good level of practice about food hygiene and 32% and 46% of the respondents received training on food hygiene and environmental health worker inspection respectively (Iwu et al., 2017). According to Akabanda et al. (2017), studies in Ghana showed that, the respondents were knowledgeable about hygienic practices, cleaning and sanitation procedures and majority of the food handlers were aware of the critical role of general sanitary practices in the work place, such as hand washing (98.7%), proper cleaning of the instruments/utensils (86.4%) and detergent use 72.8%.

A study by Dejene et al. (2017) in Arba Minch Town, Ethiopia showed that, low food handling practice was observed in wearing clean gown and head cover, shorting of finger nails and medical screening. According to Tegegne et al. (2017), studies in abattoir and retail meat shops of Jigjiga Town, Ethiopia revealed that, food safety knowledge and practices were below acceptable level and about 64% of meat

handlers have good attitude. A study by Tariku et al. (2018) food handlers in Nekemte referral hospital, Wollega, Ethiopia showed that, knowledge, attitude and practice of food handlers were found to be low; in addition, there was a poor kitchen condition, lack of suitable place for food storage and poor latrine condition. According to Getachew et al. (2018), studies in Boset district of Ethiopia showed that, 56.9%, 46.1%, and 64% of the respondents did not have access to water supply, not owned latrine, and dispose waste in an unsafe way, respectively.

## 2.3 Concepts of Micro and Small Enterprise (MSE)

Micro and small enterprises are starting place of creating employment, mainly for the low income or poor people. In these business centers, more poor people are employed than those employed in large companies, without the need for high technical skills (Solomon et al., 2016). The meaning of Micro and Small Enterprises varies from country to country. Commonly used criteria for definition of MSE are number of workers, assets, size of investment and invested capital (Arega et al., 2016). According to FDREMTI (1997), Micro Enterprises are those small business enterprises with a paid-up capital of not exceeding ETB 20,000 and Small Enterprises are those business enterprises with a paid-up capital of above ETB 20,000 and not exceeding ETB 500, 000. According to EFDREG (2011), the definition of MSE is revised in to Micro (Industry and service) and Small (Industry and service) Enterprises. Micro (Industry sector) have ≤5 employees, and the total asset is ≤ETB 100,000; Micro (Service sector) have ≤5 employees, and the total asset is ≤ETB 50,000. Whereas Small (Industry sector) have 6-30 employees, and the total asset is ≤ ETB 1.5 million; Small (Service sector) have 6-30 employees, and the total asset is ≤ ETB500,000.

MSE food handlers are organized under MSE to provide food processing, service and prepare traditional packaged foods. To improve their income, they must have acceptable knowledge, attitude and practice of food safety (KAP) in order to avoid food borne disease as well as to provide quality and standard food preparation and service. This is important to compete with the surrounding similar food service establishments and be preferred by customers. So, their income will increase, and this is related to improved food security status of MSE food handlers.

Food safety knowledge, attitude and practice was studied in different food establishments of food handlers (Tariku et al., 2018; Tegegne et al., 2017; Dejene et al., 2017; Akabanda et al., 2017; Iwu et al., 2017; Mulugeta et al., 2018). In addition, food security status was studied in different house holds (Seid et al., 2019; Getachew et al., 2018; Alem-meta et al.,2018).

But there was no such kind of studies in micro and small enterprise (MSE) food handlers. So, there was a gap in the literature. Therefore, this study can be used for other researchers to begin studies concerning about food safety and food security issues in MSE food handlers and providing information for related literatures.

## 2.4 Conceptual Framework

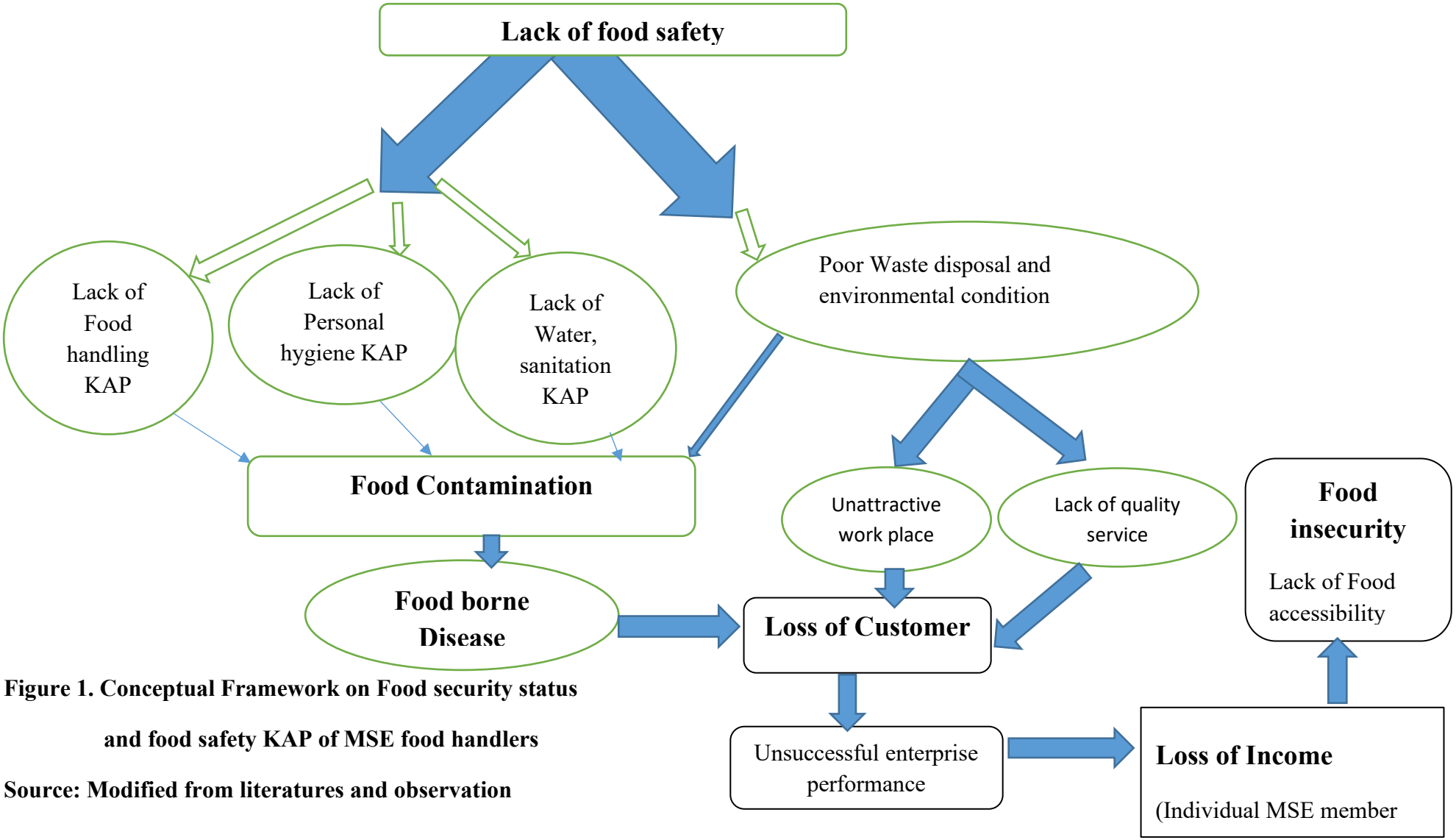


**Figure 1. Conceptual Framework on Food security status and food safety KAP of MSE food handlers**

**Source: Modified from literatures and observation**

Figure 1 shows that, lack of food safety causes food borne disease to customers. That means, if somebody consumes contaminated food from one enterprise, he/she will be affected by food borne disease and the enterprise may lose its customers. In addition, other clients may not consume/buy foods from the enterprise because of hearing negative information from others. And lack of environmental sanitation (unattractive working and serving area and lack of quality service due to lack of good facilities like hand wash basin, toilet, and comfortable seats cause customer loss. As a result, the business performance of the enterprise will not be profitable and income will be diminished. This will, finally, result in members being food insecure. And the reverse is true; when food handlers had appropriate food safety, can keep their customers from food borne disease and improve the performance of enterprise it leads to increased individuals' income. Finally, food security will be achieved.

# CHAPTER 3: METHODS AND DESCRIPTION OF THE STUDY AREA

## 3.1 Description of the Study Area

Lideta is one of the ten sub-cities of Addis Ababa located in the central part of the city and bordered by Arada sub city to the north, Kolfe keranio sub city to the west, kerkos sub city to the east and Nefas silk lafto sub city to the south (Yosef et al.,2019). The total area of the sub city is about 918 $km^2$ and It has 10 woredas (Yosef et al.,2019). According to Lideta sub city administration health office (2019), total population of this sub city is around 271,399. From these, males constitute 48% and female constitute 52%. Lideta sub city Woredas 1, 3, 4, 5 and 10 were selected for this study. These woredas are found around Lideta, Coca, Abinet and Teklehymanot district and most of these areas had poor environmental sanitation and were not safe for food processing and food service. The total population of the selected woredas were 103,365 (Lideta sub city administration health office, 2019). The total Micro and Small Enterprise food handlers in Lideta sub city were 619, made up of 149 males and 470 females; Selected woredas constitute high number of MSE food handler; members from the total population of MSE, number of food handlers in the woredas, 1, 3, 4, 5 and 10 were 101, 113, 105, 82, and 82, respectively (Lideta sub city woredas MSE Administration office, 2019).

**Lideta sub-city Geographical Map**

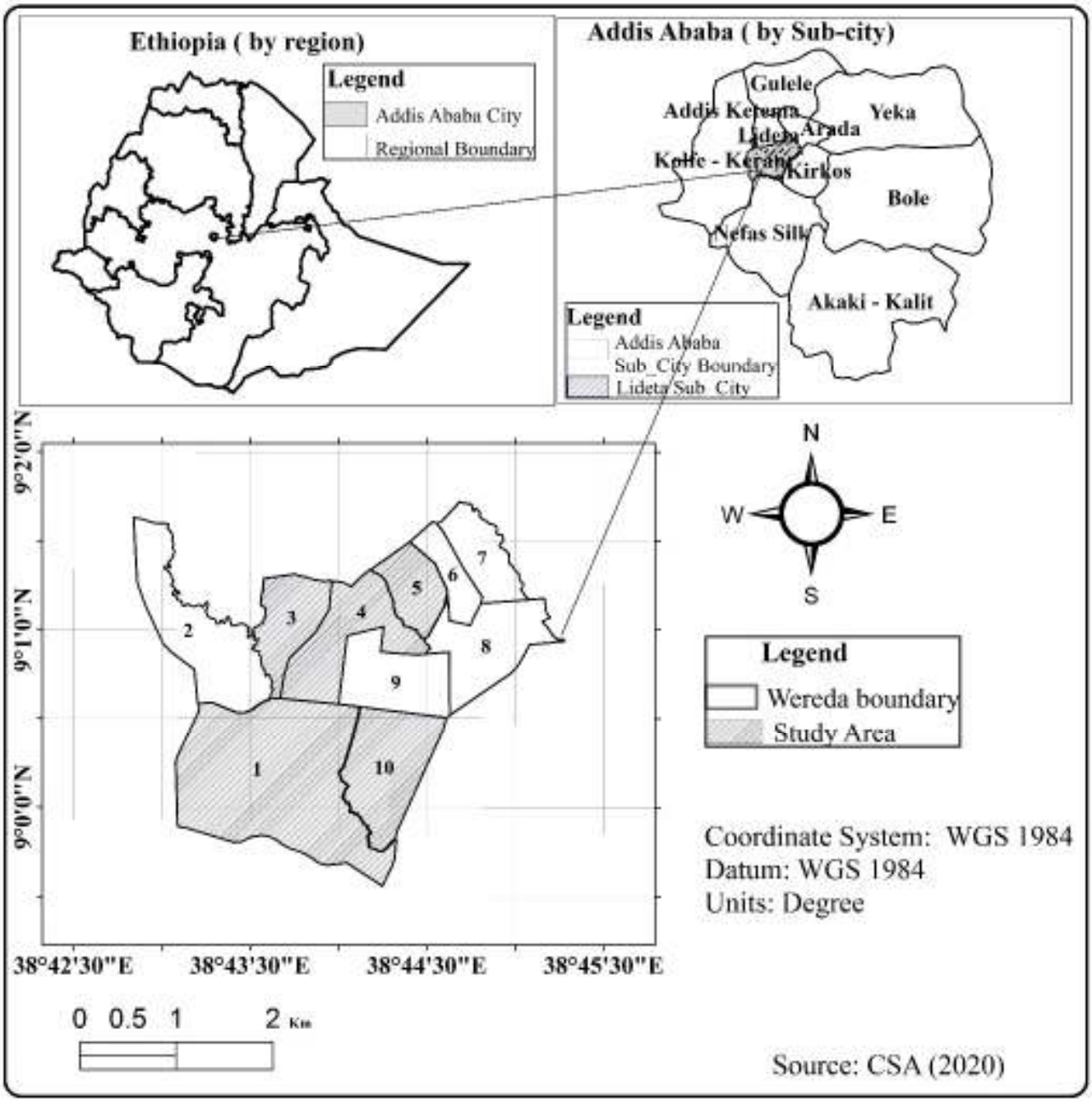


**Figure** 2. Lideta sub city map

### 3.2. Research Design

Descriptive research design was used as a guide to describe the food security status and food safety KAP (knowledge, attitude and practice) of food handlers/members organized under micro and small enterprises.

### 3.2.1 Source population

Source populations are populations who are all members of micro and small enterprise food handlers in Lideta sub city selected weredas. So, source populations (total MSE members in selected woredas were 483).

### 3.2.2 Study population

Members (individuals) of micro and small enterprise food handlers randomly selected in sample woredas (W1, W3, W4, W5 and W10) of Lideta sub city were study population. These means the total respondents who were randomly selected among source populations of the study area or studied respondents were 255.

### 3.2.3 Inclusion criteria

Main inclusion criteria were

1. Being a member of the MSE in Lideta sub-city, specifically in weredas 1,3,4, 5, and 10.
2. Consent to voluntarily participate in the study.

### 3.2.4 Exclusion criteria

Exclusion criteria include

1. Members of food handlers organized under Micro and small enterprises who are not in sampled woredas. These woredas are 2,6,7,8 and 9.
2. Involuntariness to participate in the study.

### 3.2.5 Types and Sources of Data

The study used both primary and secondary data types. The primary data was collected from the selected Micro and Small Enterprise food handlers. Secondary data was gathered from different journals and documents obtained from Lideta sub-city administration and Micro and Small Enterprise office in soft and hard copies. The data was collected directly by the researcher and woredas MSE supporters.

## 3.3. Sampling Techniques

In determining the samples for this study, puposeive random sampleing technique was used. Firstly, stratification was done among the woredas so as to include those weredas with high number of MSE in Lideta Sub-city. Therefore, the target group of this study were members of MSE organized under food preparation working in woredas 1, 3, 4, 5 and 10 of Lideta sub city. After applying proportionality ratio to the total population of MSE food handlers with members of each selected woredas, random sampling technique was applied to select the final samples for the study.

### 3.3.1 Sample Size Determinations

In Lideta sub city, there were 619 members and in sample woredas 483 members organized under MSE in food service and processing. The sample population or the number of respondents for questionnaire survey was determined with ±5% precision level and 95% confidence interval (Yamane, 1967). The total sample size was distributed to each selected woreda based on the proportion of total member of MSE in food service and processing. Random selection sampling technique was applied to pick the food service establishments in a selected woreda. The sample size is determined by using the following formula:

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

Sample size = $\frac{619}{1 + 619\ (0.05)^2} = \frac{243}{}$

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

This sample size formula is preferred to use when working with a finite population or less than 10000 populations and if the population size is known and when the original sample collected is more than 50% of the population size. The sample population or the number of respondents for questionnaire survey was, 243. In addition, allowing 5% for non-responing members (12, is this case), total sample size is 255 out of the members organized under MSE in food service and processing.

**Table 1. Sample Size**

| Woreda | Member of the Enterprise | | Total | Sample size |
|---|---|---|---|---|
| | Male | Female | | |
| 1 | 41 | 60 | 101 | 53 |
| 3 | 16 | 97 | 113 | 59 |
| 4 | 11 | 94 | 105 | 55 |
| 5 | 18 | 64 | 82 | 44 |
| 10 | 20 | 62 | 82 | 44 |
| Total | 106 | 377 | 483 | 255 |

## 3.4 Tools and Techniques of Data Collection

### 3.4.1. Questionnaire

For this study, a pre-tested structured questionnaires and observational notes were used for primary data collection. The questionnaires were designed to acquire information on status of food security, knowledge, attitude and practice of MSE food handlers. Questionnaire was translated in Amharic language for easy communication with respondents.

### 3.4.2. Data Quality Managements

Data quality was accomplished by using a pre-tested structured questionnaire. Researcher gave a one-day training to the data collectors (who were MSE supporter in the woredas). The response rate of the study participants was 100%. The collected data was checked for completeness. The correctness of data was checked every day in detail at the place of collection. The collected data was entered to SPSS version 24 software. The entries of data were thoroughly checked by researcher. The results were analyzed by using descriptive statistics frequency, cross-tabulations and chi square.

### 3.4.3 Indicators used to Quantify KAP

Percentage of Food safety Knowledge, Attitude and Practice was calculated according to (Macías and Glasauer, 2014) formula. Thus, food safety KAP calculation is as follows.

$$\text{Total knowledge} = \frac{\text{Sum of correct responses given by all respondents}}{\text{Total number of responses given by all respondents}} \times 100$$

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

$$\text{Percent of appropriate Practice} = \frac{\text{Sum of appropriate responses given by all respondents}}{\text{Total number of responses given by all respondents}} \times 100$$

## 3.5. Techniques of Data Analysis

Data was analyzed by using SPSS for windows version 24 software. The percentage and frequency of household food insecurity access scale (HFIAS) and food safety Knowledge, Attitude and Practice (KAP) of MSE food handlers was analyzed by descriptive statistics. Cross tabulation and Chi square test (at 0.05 level of significance) were used to analyze the association between multiple variables and the association between dependent and independent variables.

## 3.6. Ethical Consideration

Verbal informed consent was obtained from MSE respondents, Researcher and enumerators promised to keep confidentiality regarding respondents' details. Interview was carried out only with full consent of the person being interviewed. Each respondent was assured that the information provided by her/his would be kept confidential and used only for the purpose of this research.

# CHAPTER 4: RESULTS AND DISCUSSION

## 4.1 Description of MSEs in the study area

Respondents were grouped into micro and small-scale food processing and food serving establishments. Food processors produced *Injera,* bread, cookies, roasted bread pellets (*Dabo kolo*), spices and different processed powdered or split legumes and flours of various grains. They distributed these products to hotels, shops, cafeterias and restaurants (Lideta sub city MSE administration office, 2019).

According to open ended questions of respondents and observational notes of the researcher, food service establishments mainly cooked different dishes for at-place consumption. They prepared and sold various traditional sauces such as *shiro wot, firfir, Misir wot, Ambasha /*bread with tea, cooked vegetables, pasta, macaroni*, ful,* etc. Customers of these establishments were mostly those who came from rural areas and winning their daily bread as laborers, street vendors and employed or unemployed youth living in the neighborhood. Prices were relatively lower than those in privately owned food establishments. Combos made of legume based sauces and cooked vegetables were sold for ETB 25.00, and pasta/macaroni, for ETB 28.00. *Qeqel* and meat sauces were made available only on religious holidays and were priced at ETB 35.00. A few similar food service establishments regularly cooked meat sauces, mixed visceral organs (*dulet)* and scrambled egg. They also sold various beverages such as lager and draft beer, soft drinks and bottled water. Combos made of legume-based sauces and cooked vegetables were priced at ETB 35.00, pasta/macaroni at ETB 30.00 and *dulet* and *qeqel* at ETB 50. Customers mostly earned relatively higher income working in offices, wood, steel or auto maintenance workshops in the area.

There were very few handwashing facilities with a sink, water and soap. In some, the sink did not have water supply. In others, customers had to use water in jugs for handwashing. Some fixed a valve on Jerry-can or used metal nails to make and close a hole on it for handwashing. Some food service providers complained that they did not keep soap at handwashing facilities because customers took the soap away.

Solid waste was kept in plastic bags within the shed and were taken away by waste collectors twice a week. In some area, collectors picked solid waste daily. Since liquid waste disposal was through open ditches, or, if closed, ditches with uncovered manholes, people put various solid wastes in them. This would clog smooth flowing of liquid waste, blocking it to freely flow onto the surrounding. This served as breeding site for various insects, such as flies and mosquitoes which came into food preparation and eating areas. Overflown liquid waste also produced for odor, which made eating in the food service establishments undesirable. In some areas, the food serving environment was unclean. Houseflies and mosquitoes were observed in the eating area because cookss threw out wash water through the doors, thereby creating breeding sites for insects just in front of the sheds. In limited areas, underground passages were constructed to remove liquid wastes.

Some members of MSEs complained of certain hurdles in doing their business: shortage of raw materials (such as flour for bread making, frequent power disrruptions, disruption of water supply, weakening business, disagreement among MSE members because some members did not equally meet their responsibilities such as not cleaning toilets, not cleaning and rationally using liquid waste ditches and other similar problems.

According to Lideta sub city MSE administration office (2019), space for food processing and food service was provided by the *Kifle-Ketema* administration. In most cases two to six sheds were closely built in an area and divided among the enterprises. In some areas, food service sheds shared the area with other MSEs for wood and metal works. Food establishments monthly paid for the sheds at a rate of ETB 8.00/$m^2$. They, for example, paid ETB 960 for a 120 $m^2$ shed. Some food establishments had separate sheds in other areas. Moreover, there were a few respondents organized under MSEs but gave food service in their dwellings.

This study consisted 255 MSE respondents from these 199 members who provided food catering service and those who produced processed local foods for distribution to hotels, and various shops; they produced injerra (40), bread (10), cookies and snack pellets (3), household cooking spices and ground legumes and cereals (3).

## 4.2 Socio demographic information

There was a total of 255 respondents in this study of which about 76% were females (Table 2). About 59% of the respondents were between 31 and 50 years old and 64% were married. About 68% of the household were heads by female and 66% of the households were composed of four to nine members. Although respondents belonged to various religious denominations, about 78% were orthodox Christians. Over 98% were organized under micro and small enterprises. About 74% of respondents had primary or secondary education whereas about 9% owned a degree or a diploma. About 64% had a monthly income of ETB 2000 or less, whereas 31% had monthly income above ETB 2500.

According to UN (2017), household is defined as a group of persons who make common provision of food, shelter and other essentials for living, is a fundamental socioeconomic unit in human societies. To categorize house hold size, I started from 1 to 3 because in one family 2 or more peoples live in a house (husband, wife and at least one child), and parents (husband and wife) may be live separately in different reasons such as the difference of working or learning places, divorce, death and the like. Due to this reason the family size will be one.

To categorize age group, I started from 20. This is because of according to DHS ED data (2000), in Ethiopia the official age of entry to grade 1 is age 7. Based on this entry age end of 17 years grade 10 will

be completed; in addition, minimum 2 years required for TVET training and start/join their work at 20 years. Then for the presence of appropriate decision making and good management between members mixing high and low age group is important. Therefore, I took 10 age gaps. That is 20 to 30.

Monthly Income category: Before develping the questionnaire, the researcher has informally collected data about average monthly income. Based on this informal data beneficieries earned at least 500 birr from profit division. This cut off income was then used in the questionnaire.

**Table 2. Demographic and socio-economic data of respondents**

| **Demographic and socio-economic data of MSE in Lideta Sub - city** | | **No. of respondents** | **%** |
|---|---|---|---|
| **Sex** | female | 193 | 75.7 |
| | male | 62 | 24.3 |
| **Age Group** | 20-30 | 62 | 24.3 |
| | 31-40 | 76 | 29.8 |
| | 41-50 | 74 | 29.0 |
| | above 51 | 43 | 16.9 |
| **Is the interviewed person the head of house?** | no | 31 | 12.2 |
| | yes | 224 | 87.8 |
| **House hold size** | 1-3 | 75 | 29.4 |
| | 4-6 | 113 | 44.3 |
| | 7-9 | 55 | 21.6 |
| | 10 and above | 12 | 4.7 |
| **Religion** | Orthodox | 200 | 78.4 |
| | Muslim | 29 | 11.4 |
| | Protestant | 25 | 9.8 |
| | Others (Catholic) | 1 | 0.4 |
| **Marital status** | single | 44 | 17.3 |
| | married | 164 | 64.3 |
| | divorced | 31 | 12.2 |
| | Widowed | 16 | 6.3 |
| **Occupation** | private MSE | 4 | 1.6 |
| | association | 251 | 98.4 |
| **Educational status** | degree | 7 | 2.7 |
| | diploma | 15 | 5.9 |
| | secondary school | 70 | 27.5 |
| | primary school | 118 | 46.3 |
| | illiterate | 45 | 17.6 |
| **Monthly income (Birr)** | 500-1000 | 66 | 25.9 |
| | 1001-1500 | 45 | 17.6 |
| | 1501-2000 | 52 | 20.4 |
| | 2001-2500 | 12 | 4.7 |
| | above 2500 | 80 | 31.4 |

## 4.3 Household food security status

About 22% of respondents reported that they were food secure; Food secure households in this study were those who either did not worry at all or worried rarely (one or two times) about not having enough food in the past four weeks (Tables 3 and 4). This was lower than that (28.4%) reported from southern Ethiopia (Adimasu et al.,2019) and much higher (9.4%) reported from Boset district of Ethiopia (Getachew et al. ,2018). Most households (about 45%) were considered as mildly food insecure in that they either worried sometimes (three to ten times) or often (for more than 10 times) about not having enough food or could not eat food they preferred or rarely compromised the quality of food they ate in the past four weeks. This was much higher than that (11.5%) reported from Accra, Ghana (Tuholske ,2020) and (27.2%) reported from Boset district of Ethiopia (Getachew et al.,2018). In general, statistical tests of socio-demographic parameters showed that monthly income ($p<0.01$), family size ($p<0.01$) and educational status ($p<0.05$) were significantly associated with food security status. The result showd that Monthly income and educational status have positive relation with food security status of the respondents; This means when the above parameters increased food security also increased, where as, family size is inversely related with food security status when one increased the other decreased. As an example, most of respondents 35(43.8%) who had monthly income above 2500 were food secure and there is no severe food insecurity among this income category. But age group ($p>0.05$) was not statistically associated with food security status.

**Table 3. Household food insecurity access measurement of respondents**

| No. | HFIAS in the past four weeks | Occurrence | | Number of responses | | |
|---|---|---|---|---|---|---|
| | | No | Yes | Rarely[1] | Some - times[2] | Often[3] |
| 1 | In the past four weeks, did you worry that your household would not have enough food? | 120 | 135 | 62 | 43 | 30 |
| 2 | 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? | 70 | 185 | 86 | 64 | 35 |
| 3 | 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? | 77 | 178 | 85 | 62 | 31 |
| 4 | 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? | 212 | 43 | 25 | 12 | 6 |
| 5 | 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? | 189 | 66 | 33 | 29 | 4 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | 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? | 201 | 54 | 35 | 14 | 5 |
| 7 | 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? | 233 | 22 | 16 | 6 | 0 |
| 8 | In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food? | 236 | 19 | 14 | 5 | 0 |
| 9 | 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? | 255 | 0 | 0 | 0 | 0 |
| **Total** | | 1593 | 702 | 356 | 235 | 111 |

[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)

Over a quarter (27%) of households were moderately food insecure in that they had to compromise quality of food they ate sometimes or often or quantity of food they ate rarely or sometimes in the past four weeks. This was almost similar (28.3%) reported by Tuholske (2020) and lower than (33.8%) reported by Getachew et al. (2018). A few households (6%) were considered severely food insecure because they compromised quantity of food they ate often or experience hunger rarely or sometimes. This was much lower than (29.6%) reported by Tuholske (2020) from Ghana and Getachew et al. (2018) from Ethiopia.

Research study in Western Ethiopia showed that, more than half 59.06% of the sampled households were food insecure and 40.94% of them were food secure; the reason is low productivity, climate related problems and inadequacy of cultivable land were the causes of food insecurity (Seid et al., 2019). A study by Alem-meta et al. (2018) showed that, 20.9 and 79.1% of the sample households are food secure and food insecure, respectively in South Wollo Zone of Ethiopia; the reason of food insecurity is shortage of farmland, poverty, recurrent drought and climate change, shortage of rainfall and land degradation.

In this study respondents about 22% were food secure and 78% were food insecure. The reason of food insecurity is poor food safety KAP (knowledge, attitude and practice) of the respondents.

The HFIAS was calculated according to Coates et al. (2007) formula:

$$\frac{\text{Number of households with HFIA category}}{\text{Total number of households with a HFIA category}} \times 100$$

**Table 4. Level of household food insecurity among respondents**

| HFIA Category of Respondents | Percent (%) |
|---|---|
| Food secure | 182/822 x 100 = 22.1% |
| Mildly food insecure | 368/822 x 100 = 44.8% |
| Moderately food insecure | 222/822 x 100 = 27% |

| | |
|---|---|
| Severely food insecure | 50/822 x 100 = 6.1% |
| Total | 822/822 x 100 = 100% |

## 4.4. Food handling knowledge, attitude and practice

### 4.4.1. Food handling knowledge

Knowledge in food handling was measured with respect to separation of raw and cooked foods, signs of thorough cooking of foods for safety, identification of perishable foods to be stored in a cool place, reasons for not eating leftovers not kept in a cool place, and washing raw fruits and vegetables before eating. Over 90% of respondents have good knowledge regarding separation of cooked and raw foods and also washing raw fruits and vegetables before eating (Table 5). Total knowledge in food handling was therefore relatively higher (73%). This was much higher than that (62%) reported by Allah et al. (2017) from Egypt, (50%) reported from Brazil (Auad et al., 2019) and (44.3%) reported from Gondar, Ethiopia (Jember et al., 2019). And almost similar (71.2%) reported from North West Ethiopia (Ayehu et al.,2014).

**Table 5. Food Handling Knowledge of respondents**

| **Food Handling Knowledge** | Know |
|---|---|
| **1: Reason for Separation of raw and cooked foods** | |
| Raw animal foods often contain germs | 241 (94.5%) |
| Don't know | 14 (5.5%) |
| **2: Signs of thorough cooking of soups and stews for safety and readiness to be served** | |
| They are boiling/ well cooked | 119 (46.7%) |
| Other | 129 (51%)[1] |
| Don't know | 7 (2.7%) |
| **3: Kinds of perishable foods to be stored in refrigerator or in a cool place** | |
| Meat, offal | 30 (11.8%) |
| Poultry | 3 (1.2%) |
| Milk/dairy products | 8 (3.1%) |
| Cooked foods | 11 (4.3%) |
| All | 203(79.6%) |
| **4: Reasons for avoiding eating leftovers that were not kept in a cool place** | |
| Because food is not safe anymore | 121 (47.5%) |
| Germs multiply very quickly and can cause illness or spoilage | 57 (22.4%) |
| Higher temperatures make germs grow faster | 12 (4.7%) |
| Any of the three first response options are correct | 10 (3.9%) |
| Other | 54 (21.2%)[2] |
| Don't know | 1 (0.4%) |
| **5: Washing raw fruits and vegetables before eating** | |
| Wash them with clean water | 249 (97.6%) |
| Other | 6 (2.4%)[3] |
| Total knowledge:924/1275=72.5% | |

[1]. By tasting, smelling, looking, knowing time of cooking; [2]. The food will change its aroma or flavor; it will have poison; it will have unpleasant odor; [3]. Soak with lemon, vinegar and salt; putting separately until they are used

Although cooking stews to the point of boiling is known to eliminate disease causing or spoilage microbes in sauces (Mogessie Ashenafi, 1996; 1997). The higher knowledge in food handling among the respondents might be due to a previous short training given to MSE members by TVET institutions on food catering and cleanliness. Similarly, studies in Owerri, Imo State, Nigeria showed that, most of the respondents had a good level of knowledge (81%), positive attitude (71%) but respondents had a poor level of practice about food hygiene; the reason of having good knowledge and attitude was respondents received training on food hygiene and environmental health (Iwu et al., 2017). A study by Lee et al. (2017) showed that training in safe food handling had different degrees of impact on food safety knowledge and attitudes of food handlers. Some respondents in our study determined well-cookedness by sight, smell, odor or the time takes to cook. Fortunately, these sensory properties appear only after sauces are cooked beyond boiling for longer time. Liquid foods such as soup, gravies and sauces should be thoroughly cooked to a complete boil (NES, 2016). Cooking food requires time and temperature control for safety, and cooking to boiling eliminates disease-causing germs from the food. (Brandt, 2018).

### 4.4.2. Food Handling Attitude

The study considered respondents' attitude towards susceptibility to and severity of disease from contaminated food, benefits or difficulties of keeping perishable foods in cool places, reheating leftover foods before eating and thoroughly washing fruits and vegetables with clean water. Positive attitude towards appropriate food handling techniques was quite high (95-100%) among respondents. This was similar to the 92.3% food safety attitude observed in Malaysia by Liyana et al., (2018). Relatively lower positive attitude (81-86%) was noted towards benefit or difficulty of keeping perishable food in cool places mainly due to lack of refrigerators (Table 6).

**Table 6. Food Handling Attitude of respondents**

| **Food handling Attitude** | Number of responses | | |
|---|---|---|---|
| | It is | It is not | Not sure |
| **Perceived susceptibility**: Likelihood of getting sick from eating spoiled food? | 253(99.2%) | 0 | 2(0.8%) |
| **Perceived severity**: Seriousness of getting sick from eating spoiled food. | 241(94.5%) | 4(1.6%)[1] | 10(3.9%) |
| **Perceived benefits:** Goodness of keeping meat, poultry, fish, or cooked food in a cool place. | 219(85.9%) | 30(11.8%)[2] | 6(2.4%) |
| Goodness of re-heating left-overs before eating or serving them | 250(98%) | 5(2%)[3] | 0 |
| Goodness of washing fruits and vegetables with clean water | 255(100%) | 0 | 0 |
| **Perceived barriers:** Difficulty of keeping these foods in a cool box or in the refrigerator | 48(18.8%)[4] | 206(80.8%) | 1(0.4%) |

| | | | |
|---|---|---|---|
| Difficulty of re-heating leftovers before eating or serving them | 4(1.6%)[5] | 245(96.1%) | 6(2.4%) |
| Difficulty of washing fruits and vegetables with clean water | 2 (0.8%)[6] | 251(98.4%) | 2(0.8%) |
| **Total positive Attitude: 1920/2040= 94.1%** | | | |

[1]. Sickness from eating spoiled food is not serious because it is easily curable
[2]. When putting foods for a long time in cool place, nutrient content and flavor will be lost, it is not like the fresh one. In addition, frozen food is not good for health because it will be contaminated while putting it in and out from refrigerator.
[3]. Nutrient, aroma or taste of food will be lost
[4]. I cannot put these kinds of foods because I have no refrigerator
[5]. It raises electric bill; it causes loss of food nutrient
[6]. It takes longer time to wash because vegetables need thoroughly washing

### 4.4.3 Food handling practices

Food handling practices were evaluated in terms of cleaning of kitchen surfaces and utensils after preparing dinner and appropriate storing of perishable foods (Table 7). In the kitchen, cleaning is removing dirt from food preparation surfaces such as cutting boards, dishes, knives, utensils, pots and pans by washing surface with soap and warm water and rinsing with clean water (Buffer et al., 2010). Only 24% or respondents in this study washed utensils with warm water and 53% used detergents to wash kitchen utensils. Studies in Ghana showed that, the respondents were knowledgeable about hygienic practices; the reason is respondents were knowledgeable on hand washing, proper cleaning of the instruments/utensils and detergent use (Akabanda et al.,2017). About 30% of respondents stored perishable fresh foods in the refrigerator. Some respondents purchased perishable foods just enough for one-time consumption thereby avoiding the need for storage. About 13% of respondents used storing methods such as putting the utensil with sauce on the floor for cooling or cutting meat into strips for drying. Believing that flies and other insects are sources of contamination, some smoked dried lemon skin for indoor protection. In general, the respondents had low level of appropriate practice (20%). This was much lower than that (52.5%) reported by Ayehu et al. (2014) from North West Ethiopia, (49%) reported from Gondar (Jember et al.,2019) and (32.6%) reported from Southern Ethiopia (Dejene et al., 2017). Practices to protect fresh or perishable foods from various pests and to separate raw foods from cooked foods were markedly poor. It was unfortunate that the high positive attitude they exhibited was not translated into practice. Poor practices in food preparation, handling and storage creates expansion and spreading of disease causing organisms such as bacteria, viruses and other food-borne pathogens (Akabanda et al., 2017).

**Table 7. Food Handling Practice of respondents**

| Food handling Practice | Number of responses |
|---|---|
| Usual cleaning of kitchen surfaces and utensils after preparing dinner | |
| • Scrape excess food into rubbish bin | 25 (9.8%) |
| • Wash with hot water | 60 (23.5%) |
| • Wash with detergent | 135 (52.9%) |

| | |
|---|---|
| • All the above | 35(13.7%) |
| • In the refrigerator (below 5 °C)/cool box | 76 (29.8%) |
| • Separated from cooked or ready-to-eat foods | 18 (7.1%) |
| • Other | 161 (63.1%)[1] |
| **Total Food handling Practice:349/1785= 19.5%** | |

[1] Put on floor (cement); I do not put /store/ such kinds of foods for a long time, soaking with lemon, salt, vinegar and use it immediately, store for a short time by cutting into strips and drying, blanching or cooking by boiling. smoke dried lemon skin indoors to avoid flies or insects

Statistical analysis showed that socio-demographic parameters such as educational status, monthly income and age group were significantly associated with food handling knowledge and attitude ($p < 0.05$). But Food Handling Practice was significantly associated only with monthly income.

## 4.5 Personal Hygiene Knowledge, Attitude and Practice

### 4.5.1. Personal Hygiene Knowledge

Personal hygiene knowledge was assessed in terms of identifying appropriate actions to prevent fecal germs from coming into food and distinguishing key moments of handwashing (Table 8). Only between 30-40% of respondents had knowledge about washing hands after using toilet or washing baby's bottom or removing feces from home environment. Regarding knowledge about key moments for washing hands, most (30%) said before handling food. Total knowledge in personal hygiene among the respondents was only 23%. This low level of knowledge is not acceptable, particularly among respondents in this study, who had taken some basic training in catering. Perhaps, the training stressed more on food preparation. They were given only a short introduction on personal hygiene. Training to food handlers should focus on maintaining good personal hygiene to avoid kitchen contamination. Only a very small proportion of food handlers (3%) said the following about moments of handwashing

> "I wash hands before and after eating or preparing foods, before serving food, when I wake up in the morning and after putting on my clothes. Washing hands always or at any time is important."

**Table 8. Personal Hygiene Knowledge of respondents**

| **1.Action for preventing food poisoning from germs from feces** | Know |
|---|---|
| Wash hands (after going to the toilet and cleaning the baby's bottom) | 99 (38.8%) |
| Remove feces from the home and surroundings | 85 (33.3%) |
| Any of the two first response options are correct | 47 (18.4%) |
| Other | 22 (8.6%)[1] |
| No answer; don't know | 2 (0.8%) |
| **2. Key moments for hand washing** | |
| After going to the toilet/latrine | 78 (30.6%) |
| After cleaning the baby's bottom/ changing a baby's nappy | 2 (0.8%) |

| | |
|---|---|
| Before preparing/handling food | 77 (30,2%) |
| Before feeding a child/eating | 48 (18.8%) |
| After handling raw food | 4 (1.6%) |
| After handling garbage | 25 (9.8%) |
| all | 13 (5.1%) |
| Other | 8 (3.1%)[2] |
| **Total Personal Hygiene Knowledge: 478/2040=23.4%** | |

2. I wash hands before and after eating or preparing foods, before serving food, when I wake up in the morning, after putting on my clothes. Washing hands always or at any time is important.

Food handlers in food-serving establishments can spread foodborne illness in the kitchen environment through hand contact with disease causing germs from feces or objects contaminated with feces, subsequently transferring them to food (Paulson, 2000). Thus, for food handlers who serve food to clients, frequent handwashing is the single most important step to protect their clients from contracting disease-causing germs from the food they eat (Mathur, 2011).

### 4.5.2. Personal Hygiene Attitude

Attitude towards appropriate personal hygiene was assessed in terms of perception of how likely it is to get sick from not washing hands, how serious such sickness is, how good washing hands before preparing eating is, and how difficult it is to wash hands or how confident is one in washing hands. Total positive attitude among respondents in handwashing is quite high (>93%). The high level of positive attitude to personal hygiene was comparable to the 94% reported from Malaysia (Mustaff, 2017) but much higher than the 76% reported from Asosa town, Ethiopia (Mulugeta Admasu and Wogari Kelbessa, 2018). Although diarrhea or stomach ache are caused by food infection or unsafe water, some respondents thought that these symptoms had nothing to do with handwashing.

**Table 9. Personal Hygiene Attitude of respondents**

| Personal Hygiene Attitude | Number of responses | | |
|---|---|---|---|
| | It is | It is not | Not sure |
| **Perceived susceptibility:** Likelihood of oneself or child having stomach ache or diarrhea, from not washing your hands? | 243(95.3%)[1] | 5(2%)[1] | 7(2.7%) |
| **Perceived severity**: Seriousness if oneself or child gets diarrhea from oneself not washing one's hands | 244(95.7%) | 2(0.8%)[2] | 9(3.5%) |
| **Perceived benefits:** Goodness of washing one's hands before preparing food or before feeding a child/eating? | 254(99.6%) | 0 | 1(0.4%) |
| **Perceived barriers:** Difficulty to wash one's hands before preparing food or before feeding a child/eating? | 0 | 253(99.2%) | 2(0.8%) |

| | | | |
|---|---|---|---|
| **Perceived self-efficacy:** Confidence in washing one's hands properly? | 239(93.7%) | 0 | 16(6.3) |
| **Total Positive Attitude: 1233/1275=96.7%** | | | |

1. "In my opinion, diarrhea or stomach ache comes from different things like poisoning food and unsafe water but not related with washing hands.
2. Diarrhea or stomach ache is not the symptoms of hand washing

### 4.5.3. Personal Hygiene Practice

Personal hygiene practice was assessed in terms of step by step description of handwashing (Table 10). Although, as noted above, attitude towards handwashing is very high, it is, unfortunately translated into practice because only about 29% of respondents followed appropriate handwashing. A few admitted that they kept their hands clean by putting on gloves while cooking or removing garbage. Although gloves are believed to protect hands from contamination, they, themselves are prone to contamination and are important sources of cross-contamination to ready-to-eat foods. Others used soap for handwashing only when they hand had oil or fat on them. Handwashing practice among our respondents was similar to workers engaged in food preparation in the US (Green et al., 2006), but lower than the 55% reported for mothers of under five children in Debark town (Henock Dagne et al., 2018).

**Table 10. Personal Hygiene Practice of respondents**

| Practice | Poor | Appropriate |
|---|---|---|
| Step by step description of handwashing | | |
| a. Washes hands in a bowl of water (sharing with other people) — poor practice | | |
| b. With someone pouring a little clean water from a jug onto one's hands - appropriate practice | | 11 (4.3%) |
| c. Under running water — appropriate practice | | 13(5.1%) |
| d. Washes hands with soap or ashes— appropriate practice | | 195 (76.5%) |
| all except a | | 7 (2.7%) |
| other | 29(11.3%)[1] | |
| **Total Personal hygiene Practice: 226/765= 29.5%** | | |

[1] Respondents say that wash hands only with water or without soap or ashes but use soap when I touch oil or fat, use gloves when cooking and remove garbage;

## 4.6. Water and Sanitation Knowledge, Attitude and Practice

### 4.6.1. Water and Sanitation Knowledge

Water and sanitation knowledge among respondents were measured basically on how they treat unsafe water (Table 11). Water, sanitation is guaranteed by taking steps that kill disease causing microorganism found in water. Boiling or adding disinfectants in the right concentration are the methods of choice to make water safe for drinking (CDC, 2020) and this is practiced by only 32% of respondents. Short of these steps, the water must be discarded (61%). Correct water sanitation knowledge among respondents was low (31%). This was lower than that (42.2%) reported from Tigray, Ethiopia (Abera et al.,2020).

**Table 11. Water and sanitation Knowledge of respondents**

| **Treating unsafe water** | Know |
|---|---|
| If you know that the water you are going to use for cooking or drinking is not safe or does not come from a safe source, what should you do? | |
| ¨ Boil it | 69 (27.1%) |
| ¨ Add bleach/chlorine (none of) | 13 (5.1%) |
| ¨ Use a water filter (ceramic, sand, composite, etc.) | 7 (2.7%) |
| ¨ Let it stand and settle | 1 (0.4) |
| ¨ Discard it and get water from a safe source | 156 (61.2%) |
| - Other | 21 (8.2%)[1] |
| - Do not know | 1 (0.4) |
| Total **Knowledge= 238/765= 31%** | |

[1] I will drink it because it does not cause any problem; I will inform the concerned organizations or people (ministry of water or health office); inform for laboratory checking; Use for washing clothes; cooking utensils and equipment; use for watering plants, cleaning of floor and toilet

### 4.6.2. Water and Sanitation Attitude

Water, sanitation attitude was assessed in terms of likelihood to get diarrhea from drinking unsafe water, seriousness of the disease, benefit of boiling water to avoid the disease and difficulty in boiling water (Table 12). In general, total positive attitude towards making water safe for drinking is quite high among respondents (95.5%). This was much higher than that (48.5%) reported from Tigray, Ethiopia (Abera et al.,2020)**.** Nevertheless, there were respondents who believed that diarrhea came from infected food but not water and others thought that they did not like the taste of boiled water and it did not quench their thirst. For some, boiling water was time consuming and something they do not think about.

**Table 12. Water and sanitation Attitude of respondents**

| **Water and sanitation Attitude** | Number of responses | | |
|---|---|---|---|
| | It is | It is not | Not sure |
| **Perceived susceptibility** | | | |
| Likelihood of oneself or one's child to get diarrhea from using unsafe water? | 254 (99.6%) | 1 (0.4%)[1] | |
| **Perceived severity** | | | |
| Seriousness of getting sick from using unsafe water? | 253 (99.2%) | 1 (0.4%)[2] | 1 (0.4%) |
| **Perceived benefits** | | | |
| Goodness of boiling water before drinking or using it? | 247 (96.9%) | 7 (2.7%)[3] | 1 (0.4%) |
| **Perceived barriers** | | | |
| Difficulty of boiling water before drinking or using it | 33 (12.9%)[4] | 220 (86.3%) | 2 (0.8%) |
| **Total Water and sanitation Attitude: 974/1020=95.5%** | | | |

[1]. Diarrhea comes from poisoned food not from water
[2]. There is no sickness or diarrhea from water
[3]. Boiling water changes the taste of water and when I drink boiled water, I'm not satisfied
[4]. Boiling takes time; I do not not give attention to it; I do not like the taste/flavor of boiled water; I have no experience of boiling water

### 4.6.3. Water and Sanitation Practice

About 89% of respondents had water piped in their work place or yard (Table 13). All respondents collected water for domestic use. Most (62%) used either buckets, barrels or Jerry cans for collecting water. All treated collection item using either soap and water (93%) or other means.

**Table 13. Water and sanitation Practice of respondents**

| **1. Main source of water for drinking, cooking and hand washing** | Number of responses |
|---|---|
| Piped water | 25 (9.8%) |
| Piped into dwelling | 147 (57.6%) |
| Public tap/standpipe | 4 (1.6%) |
| Piped into yard or plot | 79 (31.0%) |
| 2: Collection of water for domestic use | |
| Yes | 255 (100%) |
| **2. Collection item** | |
| Bucket (ባልዲ) | 14 (5.5%) |
| Jeri can | 59 (23.1) |
| Barrel (በርሜል) | 20 (7.8%) |
| All (Bucket, Jeri can, Barrel) | 158 (62.0%) |
| Roto and Jeri can | 4 (1.6%) |
| **3. Treating collection item to make it clean** | |
| Yes | 255 (100%) |
| Use of water and soap (clean container) | 238 (93.3%) |
| Other | 17 (6.7%)[1] |
| **4. Description of how water is stored** | |
| Clean container or jar | 45 (17.6%) |
| Covered container or jar | 36 (14.1%) |
| Clean and covered container or jar | 174 (68.2%) |
| **5. Treatment of water to make it safe to drink** | |
| Yes | 169 (66.3%) |
| No | 86 (33.7%) |
| **6. Practices usually done to the water to make it safer to drink** | |
| ¨ Boil it | 36 (14.1%) |
| ¨ Add bleach/chlorine | 52 (20.4%) |
| ¨ Use a water filter (ceramic, sand, composite, etc.) | 57 (22.4%) |
| - Other | 103(40.4%)[2] |
| ¨ Don't know/no answer | 7 (2.7%) |
| **7. Training of food safety from health extension** | |
| None in this month | 224 (87.8%) |
| 1-2 times in month | 29 (11.4%) |
| Above 3 times in month | 2 (0.8%) |
| **Total Water and Sanitation Practice:529/1530=34.6%** | |

1.Wash with warm water; ajacks, ashes, girawa; brush, berekina, smoke with weyra

2. use bottled water for drinking, use lemon juice to treat water; put in refrigerator; fetch water daily or change the previous water every day

The majority (68%) stored water in cleaned and covered container or jar, 66% treated water to make it safe and only a few (35%) boiled water or added chlorine to it. About 40% of respondents kept water in the refrigerator to make it safe, while others collected water on a daily basis to keep it from going bad. However, the latter two practices do not help in making water safe because cooling does not kill germs or, if once contaminated, water remains contaminated during its keeping time. Some used bottled water for drinking, or added lemon juice to sanitize it. Total acceptable practice among respondents was 34.6%. This was lower than that (49.2%) reported from Tigray, Ethiopia (Abera et al.,2020**).** About 88% of respondents did not get any extension support from health workers in a month.

### 4.7 Hygiene and Sanitation

#### 4.7.1 Bathing practices of respondents

About 70% of respondents took bath more than once per week, and over 50% did it inside their house. Studies reported by Kulkarni et al.( 2010); 66.8% food handlers were taking bath once in two days. About 96% or respondents were not happy with the shower provided in their plot and almost all (96%) stated that there was no shower in the work place.

**Table 14. Bathing practices of respondents**

| | **Number (percent)** |
|---|---|
| **How often do you have a bath?** | |
| More than once per day | 1 (0.4%) |
| Once per day | 24 (9.4%) |
| more than once per week | 179 (70.2%) |
| once per week | 34 (13.3%) |
| less than once per week | 15 (5.9%) |
| other | 2 (0.8%)[1] |
| **Where do you take your showers?** | |
| Inside the house | 138 (54.1%) |
| inside the private showers | 91 (35.7%) |
| inside the toilet | 6 (2.4%) |
| Other | 11 (4.3%)[2] |
| Inside work place shower | 9 (3.6%) |
| **Are you happy with the shower provided on your plot?** | |
| Yes | 9 (3.6%) |
| No | 246 (96.4%) |
| No shower in work place | 246 (96.4%) |

1. I take shower at any time if there is water
2. I take shower by payment

### 4.7.2 Waste management practices of respondents

About 77% of respondents dispose their garbage in plastic bags in the house and all respondents emptied them in communal garbage collection bins, but thought that communal bin in the neighborhood were not enough (Table 15). Studies reported by Sisay et al. (2017) Of the waste bins that about 59.6% were used plastics and 38% metal. About 96% of respondents said that solid waste was taken away from the neighborhood twice a week. Almost all respondents felt bad when someone littered waste from containers and most (48%) believed such persons should be reprimanded or taken to concerned officials. Over 60% were willing to pay for garbage collectors. Studies reported from Asella town, Ethiopia (Gorfnesh et al., 2019); about 82% had inappropriate solid waste management practice and not having access to door to door solid waste collection and 69% reported from Arba Minch (Alemu,2017); Solid waste is uncollected and disposed an illegal site of the town but only 31% were collected appropriately. About 64% of respondents were not happy with drainage system in their plot. Studies reported from Nigeria (Odipe et al., 2019); 46% had access to means of adequate sewage disposal.

**Table 15. Waste management practices of respondents**

| Activities | Number (percent) |
|---|---|
| **Where do dispose your garbage?** | |
| In a plastic bag in the house | 196 (76.9%) |
| in a bin inside the house | 59 (23.1%) |
| **Where do you empty them?** | |
| in the communal waste collectors | 255 (100%) |
| **Do you think there are enough communal bin in the neighborhood?** | |
| No | 255 (100%) |
| **How frequently is solid waste taken away from the neighborhood?** | |
| Two times per week | 245 (96.1%) |
| every day | 10 (3.9%) |
| **How do you feel when you see someone littering out of the containers?** | |
| It is normal | 2 (0.8%) |
| It is a bad habit | 66 (25.9%) |
| It will block the drainage system | 2 (0.8%) |
| It is a lack of respect for the community | 15 (5.9%) |
| It is because people are ignorant | 45 (17.6%) |
| Other | 123 (48.2%)[1] |
| I don't know | 2 (0.8%) |
| **Happiness with the drainage system** | |
| No | 164 (64.3%) |
| Yes | 91(35.7%) |
| Flooding during rainy season | 36(14.1%) |
| Overflowing of cesspools | 49(19.2%) |
| Iron protection is not good | 10(3.9%) |

| | |
|---|---|
| Other | 69(27.1%)[2] |
| **Wllingness to pay for the garbage collection?** | |
| Yes | 154 (60.4%) |
| No | 17(6.7%) |
| it depends | 71(27.8%) |
| no answer | 13(5.1%) |

[1] I tell him to avoid this kind of fault, this practice causes a problem for all; inform for concerned persons/office
[2] far from work place unpleasant odor, flies and insects are around, no good hygiene, The Drainage system does not properly operate solid, waste results in overflowing.

### 4.7.3. Toilets usage among respondents

About 46% of respondents had observed people practicing open defecation and 34% believed adults usually practiced open defecation (Table 16). About 69% and 71% of respondents were satisfied with the privacy or safety of the toilet, respectively. Although above 80% of respondents reported that the latrine in their plot was easy to clean, only less than half admitted that the toilet was clean. A few (about 6%) said that there was no toilet at all or, if present, was not functional. About 51% of hand wash facilities had soap and water on them. The toilet should provide safety and privacy with lockable doors for shared or public toilets (WHO, 2018). Studies reported from Jimma Town, Ethiopia (Kumera et al., 2017) Latrine facility, solid and liquid waste disposal system, sanitary and physical condition of the kitchen and dining room were found poor. A study by Tariku et al. (2018) from Wollega, Ethiopia showed that, poor kitchen condition, lack of suitable place for food storage and poor latrine condition.

**Table 16. Toilets usage among respondents**

| **Have you observed people practicing Open Defecation?** | **Number (percent)** |
|---|---|
| Yes | 117 (45.9%) |
| No | 107 (42.0%) |
| I don't know | 31 (12.2%) |
| **Category of the population practicing open defection** | |
| Adult | 87 (34.1%) |
| Teenager | 5 (2.0%) |
| Children | 6 (2.4%) |
| both adult and teenager | 24 (9.4%) |
| **Satisfaction with the privacy of the toilet** | |
| Yes | 177 (69.4%) |
| No | 64 (25.1%) |
| toilet is not functional | 4 (1.6%) |
| No toilet | 10 (3.9%) |
| **Satisfaction with the safety of the toilet** | |
| Yes | 180 (70.6%) |
| No | 58 (22.8%) |
| There is no answer | 3 (1.2%) |

| | |
|---|---|
| toilet is not functional | 4 (1.6%) |
| No toilet | 10 (3.9%) |
| **Is the latrine on your plot easy to clean?** | |
| Yes | 217 (85.1%) |
| No | 22 (8.6%) |
| There is no answer | 2 (0.8%) |
| toilet is not functional | 4 (1.6%) |
| No toilet | 10 (3.9%) |
| **Is the toilet clean?** | |
| Yes | 124 (48.6%) |
| No | 117 (45.9%) |
| toilet is not functional | 4 (1.6%) |
| No toilet but use by payment | 10 (3.9%) |
| **Hand washing facilities situation.** | |
| Availability of soap and water | 131 (51.4%) |
| Availability only of water | 85 (33.3%) |
| None | 39 (15.3%) |

# CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Conclusions

The finding indicated that the majority of respondents **(**76%) were females and about 68% females were household heads. The majority of respondents had a monthly income of ETB 2000 or less, and most were mildly food insecure. statistical tests of socio-demographic parameters showed that monthly income ($p<0.01$), family size ($p<0.01$) and educational status ($p<0.05$) were significantly associated with food security status. Most of respondents have good knowledge regarding separation of cooked and raw foods and also washing raw fruits and vegetables before eating. Therefore, total knowledge in food handling was relatively higher (73%). But respondents had low level of appropriate food handling practice (20%). This is because of poorly used warm water and detergents to wash kitchen utensils, poor practices to protect fresh or perishable foods from various pests and to separate raw foods from cooked foods. In addition, the majority of respondents could not store perishable fresh foods in the refrigeratoras most of the participans do not own refrigerators.

Knowledge and Practice in personal hygiene and water sanitation among the respondents was poor but positive attitude in food handling, personal hygiene and water sanitation among the respondents was high (above 94%). However, this did not translate into acceptable food hygiene practices. Food safety included food handling, personal hygiene, water sanitation and environmental condition.

Educational status, monthly income and age group were significantly associated with food handling knowledge and attitude, but food handling practice was significantly associated only with monthly income.

Generally, respondents had relatively higher food handling knowledge. However, the result revealed poor knowledge and practice in but positive attitude towards food safety issues; lack of shower in the work place, poor solid waste disposal practice (solid waste was taken away from the neighborhood twice a week) among the respondents. Most work place toilets were either absent or, if present, were non-functional or lacked cleanlinees. Moreover, poor drainage system and lack of proper hand washing basin around eating places create the conditions for the occurrences of food borne illnesses and, consequently loss of customers. Reduction of income from thereof would eventually push back micro and small enterprise participants into food insecurity.

## 5.2 Recommendations

Based on the findings of this study, the following issues are recommended to improve food security and to minimize problems related to food safety among MSE food handlers.

1. Providing appropriate training based on food safety (food handling, personal hygiene water and sanitation) to food handlers is useful for improved food safety knowledge, attitude and practice.
2. Creattion of awarennes to food handlers on work place hygiene, environmental sanitation, and sanitary facilities from TVET schools or health extensions can avoid food safety problems.
3. Stake holders (Sub city and woredas MSE administrative office, woredas health extention) should give attantion about environmental conditions (drainage system, toilet, shower, hand washing basin and working and serving places) because these are critical to MSE food establishments.
4. Shed providers (Sub city MSE administrative office) should construct or build sheds after environmental impact assessment or assessment of the overall suitability of work place.
5. Infrastructures should be well organized and suitable for MSE food handlers.
6. It is also useful to create awareness for group members and communal groups on how to maintain environmental sanitations.

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# ANNEXES

## Chi-Square Tests of food security status

| Independent variable | Category | Food security status | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Food secure** | **Mildly food insecure** | **Moderately food insecure** | **Severely food insecure** | **Total** | **P** |
| Family size | 1 - 3 | 22(29.3%) | 41(54.7%) | 9(12.0%) | 3(4.0%) | 75 | *0.001 |
| | 4 - 6 | 21(18.6%) | 55(48.7%) | 30(26.5%) | 7(6.2%) | 113 | |
| | 7 - 9 | 9(16.4%) | 14(25.5%) | 26(47.3%) | 6(10.9%) | 55 | |
| | 10 and above | 4(33.3%) | 4(33.3%) | 4(33.3%) | 0 | 12 | |
| Educational status | Degree | 4(57.1%) | 2(28.6%) | 1(14.3%) | 0 | 7 | **0.012 |
| | diploma | 6(40.0%) | 7(46.7%) | 2(13.3%) | 0 | 15 | |
| | secondary school | 20(28.6%) | 33(47.1%) | 15(21.4%) | 2(2.9%) | 70 | |
| | primary school | 25(21.2%) | 50(42.4%) | 33(28.0%) | 10(8.5%) | 118 | |
| | illiterate | 1(2.2%) | 22(48.9%) | 18(40.0%) | 4(8.9%) | 45 | |
| Monthly income | 500-1000 | 5(7.6%) | 18(27.3%) | 30(45.5%) | 13(19.7%) | 66 | *0.000 |
| | 1001-1500 | 1(2.2%) | 28(62.2%) | 15(33.3%) | 1(2.2%) | 45 | |
| | 1501-2000 | 12(23.1%) | 23(44.2%) | 15(28.8%) | 2(3.8%) | 52 | |
| | 2001-2500 | 3(25.0%) | 7(58.3%) | 2(16.7%) | 0 | 12 | |
| | above 2500 | 35(43.8%) | 38(47.5%) | 7(8.8%) | 0 | 80 | |
| Age | 20-30 | 17(27.4%) | 34(54.8%) | 8(12.9%) | 3(4.8%) | 62 | 0.287 |
| | 31-40 | 18(23.7%) | 31(40.8%) | 23(30.3%) | 4(5.3%) | 76 | |
| | 41-50 | 14(18.9%) | 31(41.9%) | 23(31.1%) | 6(8.1%) | 74 | |
| | above 51 | 7(16.3%) | 18(41.9%) | 15(34.9%) | 3(7.0%) | 43 | |
| **Total (Food security status)** | | **56(22.1%)** | **114(44.8%)** | **69(27%)** | **16(6.1%)** | **255** | |

**Chi-Square Tests of food safety KAP**

| Independent variable | Category | Food Safety KAP | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Food Handling Knowledge (FHK)** | | | | | | | **Food Handling Attitude (FHA)** | | | | | | | **Food Handling Practice (FHP)** | | | | |
| | | **(Averages)** | | | | | Total | **P** | **(Averages)** | | | | | **Total** | **P** | **(Averages)** | | | **Total** | **P** |
| | | **0.2** | **0.4** | **0.6** | **0.8** | **1** | | | **0.5** | **0.63** | **0.75** | **0.88** | **1** | | | **0** | **0.5** | **1** | | |
| Educational status | degree | 0 | 0 | 2(28.6% | 1(14.3% | 4(57.1 % | 7 | *0.000 | 0 | 0 | 0 | 3(42.9 %) | 4(57.1 %) | 7 | **0.016 | 0 | 0 | 7(100 %) | 7 | 0.317 |
| | diploma | 0 | 1(6.7 % | 2(13.3% | 4(26.7%) | 8(53.3 %) | 15 | | 0 | 0 | 1(6.7 %) | 3(20 %) | 11(73.3%) | 15 | | 0 | 4(26.7 % | 11(73.3 %) | 15 | |
| | secondary school | 1(1.4% | 6(8.6 % | 14(20.0 % | 10(14.3% ) | 39(55.7 %) | 70 | | 0 | 1(1.4 % | 7(10% ) | 13(18.6 %) | 49(70.0%) | 70 | | 2(2.9%) | 18(25.7%) | 50(71.4 %) | 70 | |
| | primary school | 2(1.7%) | 22(18.6%) | 48(40.7 % | 23(19.5% ) | 23(19.5 %) | 118 | | 3(2.5 %) | 0 | 6(5.1 %) | 21(17.8 %) | 88(74.6%) | 118 | | 2(1.7%) | 19(16.1% | 97(82.2 %) | 118 | |
| | illiterate | 0 | 11(24.4%) | 21(46.7 % | 6(13.3%) | 7(15.6 %) | 45 | | 0 | 2(4.4 %) | 3(6.7 %) | 21(46.7 %) | 19(42.2%) | 45 | | 3(6.7%) | 11(24.4%) | 31(68.9 %) | 45 | |
| **Total% within Educational status** | | 3(1.2% | 40(15.7%) | 87(34.1 %) | 44(17.3% ) | 81(31.8 %) | 255 | | 3(1.2 %) | 3(1.2 %) | 17(6.7 %) | 61(23.9 %) | 171(67.1% | 255 | | 7(2.7%) | 52(20.4%) | 196(76.9%) | 255 | |
| Monthly income | 500-1000 | 2(3.0%) | 14(21.2%) | 29(43.9 %) | 12(18.2% ) | 9(13.6 %) | 66 | **0.018 | 0 | 2(3.0 %) | 10(15.2%) | 24(36.4 %) | 30(45.5%) | 66 | *0.000 | 6(9.1%) | 23(34.8%) | 37(56.1 %) | 66 | *0.000 |
| | 1001-1500 | 0 | 7(15.6 %) | 11(24.4 %) | 3(6.7%) | 24(53.3 %) | 45 | | 1(2.2 %) | 1(2.2 %) | 2(4.4 %) | 7(15.6 %) | 34(75.6%) | 45 | | 0 | 7(15.6 %) | 38(84.4 %) | 45 | |
| | 1501-2000 | 1(1.9%) | 4(7.7 %) | 19(36.5 %) | 12(23.1% ) | 16(30.8 %) | 52 | | 0 | 0 | 1(1.9 %) | 14(26.9 %) | 37(71.2%) | 52 | | 1(1.9%) | 5(9.6 %) | 46(88.5 %) | 52 | |
| | 2001-2500 | 0 | 3(25.0 %) | 3(25.0% ) | 3(25.0%) | 3(25.0 %) | 12 | | 2(16.7 %) | 0 | 1(8.3 %) | 2(16.7 %) | 7(58.3 %) | 12 | | 0 | 1(8.3 %) | 11(91.7 %) | 12 | |
| | above 2500 | 0 | 12(15.0%) | 25(31.3 %) | 14(17.5% ) | 29(36.3 %) | 80 | | 0 | 0 | 3(3.8 %) | 14(17.5 %) | 63(78.8%) | 80 | | 0 | 16(20.0%) | 64(80.0 %) | 80 | |
| **Total % within Monthly income** | | 3(1.2%) | 40(15.7%) | 87(34.1 %) | 44(17.3% ) | 81(31.8 %) | 255 | | 3(1.2 %) | 3(1.2 %) | 17(6.7 %) | 61(23.9 %) | 171(67.1%) | 255 | | 7(2.7%) | 52(20.4%) | 196(76.9%) | 255 | |
| | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 20-30 | 0 | 5(8.1 %) | 17(27.4 %) | 11(17.7% ) | 29(46.8 %) | 62 | **0.017 | 3(4.8 %) | 1(1.6 %) | 2(3.2 %) | 18(29.0 %) | 38(61. 3%) | 62 | **0.041 | 2(3. 2%) | 11(17. 7%) | 49(79.0 %) | 62 | 0.901 |
| | 31-40 | 2(2. 6%) | 12(15. 8%) | 30(39.5 %) | 9(11.8%) | 23(30.3 %) | 76 | | 0 | 0 | 5(6.6 %) | 14(18.4 %) | 57(75. 0%) | 76 | | 2(2. 6%) | 16(21. 1%) | 58(76.3 %) | 76 | |
| | 41-50 | 0 | 12(16. 2%) | 24(32.4 %) | 13(17.6% ) | 25(33.8 %) | 74 | | 0 | 0 | 7(9.5 %) | 16(21.6 %) | 51(68. 9%) | 74 | | 2(2. 7%) | 13(17. 6%) | 59(79.7 %) | 74 | |
| | above 51 | 1(2. 3%) | 11(25. 6%) | 16(37.2 %) | 11(25.6% ) | 4(9.3% ) | 43 | | 0 | 2(4.7 %) | 3(7.0 %) | 13(30.2 %) | 25(58. 1%) | 43 | | 1(2. 3%) | 12(27. 9%) | 30(69.8 %) | 43 | |
| **Total % within Age** | | 3(1. 2%) | 40(15. 7%) | 87(34.1 %) | 44(17.3% ) | 81(31.8 %) | 255 | | 3(1.2 %) | 3(1.2 %) | 17(6.7 %) | 61(23.9 %) | 171(6 7.1%) | 255 | | 7(2. 7%) | 52(20. 4%) | 196(76. 9%) | 255 | |

: * = p < 0.01, ** =p < 0.05; *** = p < 0.1

# APPENDIX

**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 and food safety knowledge, attitude and practices of micro and small enterprise food handlers in selected Woredas (1,3,4,5 and 10 of Lideta sub-city, and asses' food security status of members. 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: 1. Male 2. Female
2. Age: 1. 20-30 2. 31-40 3. 41-50 4. above 51
3. The interviewed person is the head house? 1. Yes 2. No
4. Number of people living in the house: 1. 1 -3 2. 4-6 3. 7-9 4. 10 and above
5. Religion: 1. Orthodox 2. Muslim 3. Protestant 4. others
6. Marital status: 1. single 2. Married 3. Divorced 4. Widowed/Widower
7. Occupation: 1. Governmental 2. Nongovernmental 3. Private MSE
   4. Daily labor 5. Association
8. Educational status: 1. Master 2. Degree 3. Diploma
   4. Secondary School 4. primary School 5. Illitrate
9. Monthly income (Birr): 1. 500-1000 2. 1001-1500 3. 1501- 2000
   4. 2001-2500 5. above 2500

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

| NO | QUESTION | RESPONSE OPTIONS | CODE |
|---|---|---|---|
| 10 | In the past four weeks, did you worry that your household would not have enough food? | 0 = No (skip to Q2)<br>1=Yes | ….\|___\| |
| 10.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |
| 11 | 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)<br>1=Yes | ….\|___\| |
| 11.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |
| 12 | 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? | 0 = No (skip to Q4)<br>1 = Yes | ….\|___\| |
| 12.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |
| 13 | In the past four weeks, did you or any household member have to eat some foods that you really did | 0 = No (skip to Q5)<br>1 = Yes | ….\|___\| |

| | | | |
|---|---|---|---|
| | not want to eat because of a lack of resources to obtain other types of food? | | |
| 13.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |
| 14 | 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)<br>1 = Yes | ….\|___\| |
| 14.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |
| 15 | 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? | 0 = No (skip to Q7)<br>1 = Yes | ….\|___\| |
| 15.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |

| | | | |
|---|---|---|---|
| 16 | 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? | 0 = No (skip to Q8)<br>1 = Yes | ….\|___\| |
| 16.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |
| 17 | In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food? | 0 = No (skip to Q9)<br>1 = Yes | ….\|___\| |
| 17.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |
| 18 | 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)<br>1 = Yes | ….\|___\| |
| 18.1 | How often did this happen? | 1 = Rarely (once or twice in the past four weeks)<br>2 = Sometimes (three to ten times in the past four weeks)<br>3 = Often (more than ten times in the past four weeks) | ….\|___\| |

**III. Food safety**

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

**1.Practices**

**1.1 Cleaning of dirty surfaces, plates and utensils**

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

**1.** Scrape excess food into rubbish bin

**2.** Wash with hot water

**3.** Wash with detergent

**4.** Don't know/no answer

**1.2: Storage of perishable foods**

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

**1**.In the refrigerator (below 5 °C)/cool box

**2**. Covered (protected from insects, rodents, pests and dust)

**3**. Separated from cooked or ready-to-eat foods

**4**. Other

**5** Don't know/no answer

**2. Knowledge**

**2.1 Separation of raw and cooked foods**

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

1. Raw animal foods often contain germs (which may be transferred to cooked and ready-to-eat foods)
2. Other
3. Don't know

**2.2 Cooking thoroughly**

22. When cooking soups and stews, what sign shows that these are ready and safe to be served?

1. They are boiling/ well-cooked 2. Other 3. Don't know

**2.3 Storage of perishable foods**

23. What kinds of food should be placed in the refrigerator or in a cool place, such as an icebox or cool box? Perishable foods

1. Meat, offal
2. Poultry
3. Fish
4. Milk/dairy products

5. Cooked foods

6. Other

7. All

8. Don't know

**2.4 Storage of leftovers in a cool/cold place**

24. Why should someone avoid eating leftovers that were not kept in a cool place?

1. Because food is not safe anymore

2. Foods get spoiled (germs multiply very quickly and can cause illness)

3. Higher temperatures make germs grow faster

4. Other

6. Don't know (Any of the three first response options are correct)

**2.5 Washing raw fruits and vegetables**

25. What should you do before eating raw fruits and vegetables?

1. Wash them with clean water

2. Other

3. Don't know

**3. Attitudes**

**3.1. Perceived susceptibility**

26. How likely do you think you are to get sick from eating spoiled food?

1. Not likely

2. You're not sure

3. Likely

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

**3.2. Perceived severity**

27. How serious do you think it is to be sick from eating spoiled food?

1. Not serious

2. You're not sure

3. Serious

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

**3.3 Keeping perishable food in a cool place**, for example in a cool box or in the Refrigerator.

**3.3.1. Perceived benefits**

28. How good do you think it is to keep meat, poultry, fish, seafood or cooked food in acool place, for example in a cool box or in the refrigerator?

1. Not good

2. You’re not sure

3. Good

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

**3.3.2. Perceived barriers**

29. How difficult is it for you to keep these foods in a cool box or in the refrigerator?

1. Not difficult

2. So-so

3. Difficult

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

**3.4. Reheating leftovers before eating them**

**3.4.1. Perceived benefits**

30. How good do you think it is to reheat leftovers before eating or serving them?

1. Not good

2. You’re not sure

3. Good

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

**3.4.2. Perceived barriers**

31. How difficult is it for you to reheat leftovers before eating or serving them?

1. Not difficult

2. So-so

3. Difficult

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

**3.5. Washing fruits and vegetables with clean water**

**3.5.1. Perceived benefits**

32. How good do you think it is to wash fruits and vegetables with clean water?

1. Not good

2. You’re not sure

3. Good

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

**3.5.2. Perceived barriers**

33. How difficult is it for you to wash fruits and vegetables with clean water?

1. Not difficult

2. So-so

3. Difficult

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

### 3.6. Personal hygiene

#### 3.6.1. Practices

Method of hand washing

34. Could you please describe step by step how you wash your hands?

1. Washes hands in a bowl of water (sharing with other people) — poor practice
2. With someone pouring a little clean water from a jug onto one's hands — appropriate practice
3. Under running water — appropriate practice
4. Washes hands with soap or ashes
5. Other
6. Don't know/no answer

#### 3.6.2. Knowledge

3.6.3.1 Prevention of food poisoning from germs from faeces

35. Food poisoning often results from contact with germs from faeces. What can you do to avoid sickness from germs from human or animal faeces?

1. Wash hands (after going to the toilet and cleaning the baby's bottom)
2. 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 clean up faeces from animals)
3. Other
4. Don't know

3.6.3.2. Key moments for hand washing

36. There are key moments when you need to wash your hands to prevent germs from reaching food. What are these key moments?

a. After going to the toilet/latrine
b. After cleaning the baby's bottom/changing a baby's nappy
c. Before preparing/handling food
d. Before feeding a child/eating
e. After handling raw food
f. After handling garbage
g. Other
h. Don't know

#### 3.6.4. Attitudes

3.6.4.1. Sickness from not washing hands

Perceived susceptibility

37. How likely do you think you are to become sick, such as having stomach ache or diarrhea, from not washing your hands? OR

How likely do you think it is that your child will become sick, such as having stomach ache or diarrhea, from you not washing your hands?

1. Not likely
2. You're not sure
3. Likely

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

Perceived severity

38. How serious do you think it is if you or your child gets sick from you not washing your hands? OR How serious do you think diarrhea is for your health?

OR How serious do you think is diarrhea for a baby's health?

1. Not really serious
2. Neutral/unsure
3. Serious

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

**Washing one's hands Perceived benefits**

39. 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 a child/eating?

1. Not good
2. You're not sure
3. Good

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

Perceived barriers

40. 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 a child/eating?

1. Not difficult
2. So-so
3. Difficult

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

**Self-confidence**

41. How confident do you feel in washing your hands properly?

1. Not confident
2. Ok/so-so
3. Confident

If Not confident: Can you tell me the reasons why you do not feel confident?.....

**6-Showers**

42. How often do you take your bath?
    1. More than one per day
    2. Once per day
    3. More than once per week
    4. Other
    5. There is no answer
43. Where do you take your bath?
    1. Inside the house
    2. inside the private showers
    3. inside the toilet
    4. other: …….
    5. There is no answer
44. Are you happy with the shower provided on your plot?
    1. Yes
    2. No
    3. No shower
45. If not satisfied, why?
    1. have no water pressure
    2. cabin design
    3. not enough privacy
    4. Other….
    5. There is no answer

**Water and sanitation**

I am going to ask you some questions about water and sanitation. Please let me know if 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

46. What is the main source of water used by your household for drinking, cooking and hand washing?
    a. Piped water
    b. Piped into dwelling
    c. Piped into yard or plot
    d. Public tap/standpipe
    e. Tube well/borehole
    f. Dug well

g. Protected well
h. Unprotected well
i. Water from spring
j. Protected spring
k. Unprotected spring
l. Rainwater collection
m. Tanker-truck
n. Cart with small tank/drum
o. Surface water (river, stream, dam, lake, pond, canal, irrigation channel)
p. Bottled water
q. Other (specify) _____
r. Don't know

**Collection of water**

46.1 Do you collect water for domestic use?

1. Yes.....Go to question 2.
0. No..... Go to question 3.

46.2. What item do you use to collect water? ----------

46.3. To know if the item is clean probe: Did you treat this item in any way to make it clean?

1.Yes 2. No 3. Don't know

46.4. If Yes: How?

1. Use of water and soap (clean container)
2. Other
3. Don't know/no answer

**Storage of water**

47. Could you describe how you store water?

A. Clean container or jar
B. Covered container or jar
C. Clean and covered container or jar
D. Other
E. Don't know/no answer

**Treatment of water to make it safe to drink**

47.1. Do you treat your water in any way to make it safe to drink?

1.Yes
2.No
3.Don't know/no answer

47.2. If Yes: What do you usually do to the water to make it safer to drink?.....

1. Boil it
2. Add bleach/chlorine
3. Strain it through a cloth
1. Use a water filter (ceramic, sand, composite, etc.)
2. Use solar disinfection
3. Let it stand and settle
4. Other
5. Don't know/no answer

Anything else? (Record all items mentioned)

48. Did you get training of food safety from health extension

0. None in this month
1. 1-2 times in month
2. Above 3 times in month
3. Before 1 year and above

**Knowledge**

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

a. Boil it
b. Add bleach/chlorine
c. Strain it through a cloth
d. Use a water filter (ceramic, sand, composite, etc.)
e. Use solar disinfection
f. Let it stand and settle
g. Discard it and get water from a safe source
h. Other
i. Don't know

**Attitudes**

Diarrhea from using unsafe water Perceived susceptibility

50. How likely do you think you are to get diarrhea from using unsafe water?

Or

How likely do you think your child is to get diarrhea from using unsafe water?

1. Not likely
2. You're not sure
3. Likely

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

**Perceived severity**

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

1. Not really serious
2. Neutral/serious
3. Serious

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

**Boiling water before drinking or using it Perceived benefits**

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

1. Not good
2. You're not sure
3. Good

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

**Perceived barriers**

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

1. Not difficult
2. So-so
3. Difficult

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

**7- Waste management**

54. Where do dispose your garbage?

1. In a plastic bag in the house
2. in a bin inside the house
3. Throw it outside
4. in public bins
5. other: …….
6. There is no answer

55. If you use plastic bag or bin inside the house, where do you empty them?

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

1. in front of the house
2. in the communal waste collectors
3. communal bin in the neighborhood
4. other: …….

56. Do you think there are enough communal waste collectors in the camp?

1.Yes 2. No

57. Do you know how frequent solid waste is taken away from the camp?

1. Everyday 2. Several times per week
3. Two times per week 4. Less than once per week
5. Once per week 6. Don't know
7. I don't know

58. How do you feel when you see someone littering out of the containers?

1. It is normal
2. It is a bad habit
3. It will block the drainage system
4. There is not enough container
5. It is a lack of respect for the community
6. It is because people are ignorant
7. Other…
8. I don't know

59. Are you happy with the drainage system?

1.Yes
0. No

60. If not, what is the problem?

1. Flooding during rainy season
2. Flooding during dry season
3. Overflowing of cesspools
4. Channel is deep and dangerous
5. Iron protection is not good
6. Other
7. I don't know

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

1. Yes
2. No
3. it depends
4. no answer

62. If yes, how much ETB per month? Amount in ETB_____

**Observations**

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

1. Yes
2.No

3. Shower is not functional

4. No shower cabin

64. Is the toilet clean?

1. Yes

2. No

3. toilet is not functional

(Definition of "clean toilet": no feces/dirt is observed in the cabin and squatting pan, except stains of feces immediately around the toilet hole)

65. Hand washing facilities situation.

1. Washing facility more than 5m far from latrine

2. Availability of soap and water

3. Availability only of water

**Toilets**

66. Have you observed people practicing Open Defecation?

1. Yes

2. No

3. I don't know

67. If yes, which category of the population have you observed practicing open defection:

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

1. Adult

2. Teenager

3. Children

68. Are you satisfied with the privacy of the toilet on your plot?

1.Yes

2. No

3. There is no answer

69. Are you satisfied with the safety of the toilet on your plot?

1. Yes

2. No

3. There is no answer

70. Is the latrine on your plot easy to clean?

1. Yes

2. No

3. There is no answer

71. 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)**

1. on a potty **(Ask to see it)**
2. on the floor
3. in the toilet
4. Other……
5. There is no answer

72. If it is 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)***

1. Existing toilets
2. Existing shower
3. Buried into the plot
4. Garbage container
5. I throw it outside of the neighborhood
6. I throw it inside of the neighborhood
7. Other: ……
8. There is no answer
9. I don't know

**End of Survey**

**Thank you very much for your time**

# Amharic version

**የምግብ ደህንነት እና የምግብ ዋስትና መረጃ መጠይቅ ቅጽ፡-**

**አዲስ አበባ ዩኒቨርሲቲ የሀገር ልማት ጥናት ኮሌጅ የምግብ ዋስትና ጥናት ማዕከል**

**የዚህ ጥናት ዋና ዓላማ በልደታክ/ከተማ፣ወረዳ 1፤3፤4፤5፤እና10 በጥቃቅንና አነስተኛ ኢንተርፕራይዝ በምግብ ዝግጅትና አገልግሎት ዘርፍ ላይ የተሰማሩ አንቀሳቃሾችን ስለምግብጤናማነትና ስለምግብ አያያዝ ያላቸው እውቀት፣አመለካከት እና ትግበራ ለምግብ ዋስትና መረጋገጥ ያለውን አስተዋፆ ለማወቅ የሚያስችል የዳሰሳ ጥናት መጠይቅ፡-**

**ስለምታደርጉት መልካም ትብብርና ስለምትሰጡት እውነተኛ መረጃ ከልብ አመሰግናለሁ፡፡**

I. **በጥቃቅንና አነስተኛ ኢንተርፕራይዝ በምግብ ዝግጅትና አገልግሎት ዘርፍ ላይየተሰማሩ አንቀሳቃሾች የማህበራዊና የግል ሁኔታ መረጃ፡-**

1. ፆታ: - 1. ወንድ 0. ሴት
2. ዕድሜ፡- 1. 20-30 2. 31-40 3. 41-50 መ. ከ51በላይ
3. ተጠያቂው የቤቱ ሃላፊ ነው
   1. አዎ 0. አይደለም
4. በቤት ውስጥ የሚኖሩ ሰዎች ብዛት .....
   1. 1-3 2. 4-6 3. 7-9 4. 10 እና ከዚያ በላይ
5. ሀይማኖት፡- 1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ሌላ
6. የጋብቻሁኔታ: 1. ያላገባ 2.ያገባ 3.የፈታ 4. በህይወት የሌለ
7. የስራሁኔት ፡-1. የመንግስት 2.የግል 3.የቀን ስራ 4. የማህበር 5. መንግስታዊ ያልሆነ ድርጅት
8. የትምህርትደረጃ፡- 1. ማስተርስ 2. ዲግሪ 3. ዲፕሎማ 4. 2ኛ ደረጃ 5. 1ኛ ደረጃ 6. ያልተማረ
9. የወር ገቢ በብር፡- 1. 500-1000 2. 1001- 1500 3. 1501- 2000 4. 2001- 2500 5. ከ2500 በላይ

**ክፍል 3. Household Food Insecurity Access Scale (HFIAS) Measurement Tool ምግብ ዋስትናቸውን ያላረጋገጡ ቤተሰብ መለኪያ**

| ተ. ቁ | ጥያቄ | የመልስማራጭ/ | መልስ |
|---|---|---|---|
| 10 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ አይኖረኝም ይሆናል ብለው ሰግተው ያውቃሉ? | 0 = አይደለም (ወደጥያቄ 2)<br>1=አዎ | I___ |
| 10.1 | ባለፉት አራት ሳምንታት ውስጥ ይሄ ስጋት ስንት ጊዜ ደርሶብዎታል? | 1= አልፎ አልፎ (አንድ ወይም ሁለት ጊዜ)<br>2 = አንዳድ ጊዜ (3-10 ጊዜ)<br>3 = ሁልጊዜ (ከ 10 ጊዜበላይ) | .I__I |
| 11 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት ርስዎ ወይም ማንኛውም የቤተሰብ አባል የወደዱትን ምግብ ሳይበሉ ቀርተው ያውቀሉ? | 0 = /አይደለም (ወደ ጥያቄ 3)<br>1=አዎ | .I__I |
| 11.1 | ባለፉት አራት ሳምንታት ውስጥ ይህ ስንት ጊዜ አጋጥሞዎታል? | 1, አልፎ አልፎ (አንድ ወይም ሁለት ጊዜ)<br>2 = አንዳንድ ጊዜ (3-10 ጊዜ)<br>3= ሁልጊዜ (ከ 10 ጊዜ በላይ) | .I__I |
| 12 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት ርስዎ ወይም ማንኛውም የቤተሰብ አባል የተወሰኑ የምግብ አይነቶች ብቻ በልታችኋል? | 0 = አይደለም (ወደ ጥያቄ 4)<br>1 = አዎ | .I___I |

| | | | |
|---|---|---|---|
| 12.1 | ባለፉት አራት ሳምንታት ውስጥ ይህ ስንት ጊዜ አጋጥሞዎታል? | 1 = /አልፎ አልፎ (አንድ ወይም ሁለት ጊዜ)<br>2 = /አንዳንድ ጊዜ (3-10 ጊዜ)<br>3 =) ሁል ጊዜ (ከ 10 ጊዜ በላይ) | .\|___\| |
| 13 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት ርስዎ ወይም ማንኛውም የቤተሰብ አባል መብላት የማትፈልጉትን ምግብ በልታችኋል? | 0 = አይደለም (ወደ ጥያቄ 5)<br>1 = አዎ | .\|__\| |
| 13.1 | ባለፉት አራት ሳምንታት ውስጥ ይህ ስንት ጊዜ አጋጥሞዎታል? | 1 = አልፎ አልፎ (አንድ ወይም ሁለት ጊዜ)<br>2 = አንዳንድ ጊዜ (3-10 ጊዜ)<br>3 = ሁልጊዜ (ከ 10 ጊዜ በላይ) | .\|___\| |
| 14 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ባለመኖሩ ምክንያት ርስዎ ወይም ማንኛውም የቤተሰብ አባል ሳትጠግቡ ለመነሳት ተገዳችኋል? | 0 = አይደለም (ወደ ጥያቄ 15)<br>1 =አዎ | .\|___\| |
| 14.1 | ባለፉት አራት ሳምንታት ውስጥ ይህ ስንት ጊዜ አጋጥሞዎታል? | 1 አልፎ አልፎ (አንድ ወይም ሁለት ጊዜ)<br>2 = /አንዳንድ ጊዜ (3-10 ጊዜ)<br>3, ሁልጊዜ (ከ 10 ጊዜ በላይ) | .\|___\| |
| 15 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ባለመኖሩ ምክንያት ርስዎ ወይም ማንኛውም የቤተሰብ አባል ቁርስ፤ ምሳ ወይም ራት መብላት ሳትችሉ ቀርታችኋል? | 0 = አይደለም (ወደ ጥያቄ 16)<br>1 = /አዎ | .\|__\| |
| 15.1 | ባለፉት አራት ሳምንታት ውስጥ ይህ ስንት ጊዜ አጋጥሞዎታል? | 1=አልፎ አልፎ (አንድ ወይም ሁለት ጊዜ)<br>2 =አንዳንድ ጊዜ (3-10 ጊዜ) | .\|__\| |

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| | | 3 =ሁልጊዜ (ከ 10 ጊዜበላይ) | |
| 16 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት በቤተሰቡ ውስጥ የሚላስ የሚቀመስ ያልነበረበት ጊዜ ነበር? | 0 =አይደለም (ወደ ጥያቄ 17)<br>1 = አዎ | .\|__\| |
| 16.1 | ባለፉት አራት ሳምንታት ውስጥ ይህ ስንት ጊዜ አጋጥሞዎታል? | 1 = አልፎ አልፎ (አንድ ወይም ሁለት ጊዜ)<br>2 = /አንዳንድ ጊዜ (3-10 ጊዜ)<br>3 = ሁሌጊዜ (ከ 10 ጊዜ በላይ) | .\|__\| |
| 17 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት እርስዎ ወይም ማንኛውም የቤተሰብ አባል እየራበው ወደ መኝታ የሄደበት ጊዜ ነበር? | 0 = አይደለም (ወደ ጥያቄ 18)<br>1 = አዎ | .\|__\| |
| 17.1 | ባለፉት አራት ሳምንታት ውስጥ ይህ ስንት ጊዜ አጋጥሞዎታል? | 1 = አልፎ አልፎ (አንድ ወይም ሁለትጊዜ)<br>2 = አንዳንድ ጊዜ (3-10 ጊዜ)<br>3 = ሁልጊዜ (ከ 10 ጊዜበላይ) | .\|__\| |
| 18 | ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት እርስዎ ወይም ማንኛውም የቤተሰብ አባል ቀኑን ሙሉ ሳይበላ ውሎ ሳይበላ ያደረበት ጊዜ አለ? | 0 = የለም<br>1 = አዎ | .\|___\| |
| 18.1 | ባለፉት አራት ሳምንታት ውስጥ ይህ ስንት ጊዜ አጋጥሞዎታል? | 1 = /አልፎ አልፎ (አንድ ወይም ሁለት ጊዜ)<br>2 = /አንዳንድጊዜ (3-10 ጊዜ)<br>3 = ሁልጊዜ (ከ 10 ጊዜበላይ) | .\|___\| |

## ክፍል 4 Food safety practice (የምግብ ደህንነት ልምድ)

| ተ. ቁ | ጥያቄ | የመልስ አማራጭ | መልስ |
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| 19 | ምግብ ካዘጋጁ በኋላ የማብሰያ አካባቢው፣ድስቶች፣መጥበሻዎች፣ሰሃኖች እና ሌሎች መገልገያዎች መጽዳት ይኖርባቸዋል።አብዛኛውን ጊዜ እንዴት እንደሚያጸዷቸው ሊነግሩኝ ይችላሉ? | 1. ጥራጊውን ወደ ቆሻሻ ማጠራቀሚያው እደፈዋለሁ።<br>2. በሞቀ ውሃ አጥበዋለሁ።<br>3. በሳሙና (አጃክስ) ወይም በፈሳሽ ሳሙና አጥበዋለሁ<br>4. መልስ የለም | |
| 20 | ቶሎ ሊበላሹ የሚችሉ ምግቦችን (እንደስጋ፣ያልተሰራ ዶሮ ወይም አሳ) እስኪሰሩ ድረስ እንዴት ያቆዩዋቸዋል? | 1. ውስጥ<br>2. አቧራ ወይም አይጥ እንዳይደርስበት ተሸፍኖ<br>3. ለምግብነት ከተዘጋጁ ምግቦች ጋር እንዳይነካካ ተለይቶ<br>4. ሌላ<br>5. መልስ የለም | |

## Food safety Knowledge (የምግብ ደህንነት እውቀት)

| ተ.ቁ | ጥያቄ/ | የመልስአማራጭ/ | መልስ |
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| 21 | ጥሬ ስጋ፣የሆድ እቃ ስጋዎች (እንደ ጨጓራ፣ወተት፤አንጀት፣ጉበት ኩላሊት፣ልብ አይነት) ከበሰሉ ወይም ለምግብነት ከተዘጋጁ ምግቦች ጋር እንዳይነካኩ ማድረግ ለምን ያስፈልጋል? | 1. ከእንስሳት የሚገኙ ያልበሰሉ ምግቦች ብዙ ጊዜ ጀርሞች ይገኙባቸዋል እነዚህ ጀርሞች ወደ በሰሉ ወይም ለምግብነት ወደ ተዘጋጁ ምግቦች ሊተላለፉ ይችላሉ<br>2. ሌላ<br>3. መልስ የለም | |

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| 22 | ወጥ ወይም ሾርባ በሚሰሩበት ጊዜ መብሰሉን (ለምግብነት ለመቅረብ ዝግጁ መሆኑን) እና ጤናማ መሆኑን እንዴት ያውቃሉ? | 1. ይንተከተካል / በደንብ ይበስላል<br>2. ሌላ<br>3. መልስ የለም | |
| 23 | ፍሪጅ ውስጥ ፣ማቀዝቀዣ ሳጥን ውስጥ ወይም ቀዝቀዝ ያለ ቦታ መቀመጥ ያለባቸው ምግቦች ምንምን አይነቶቹ ናቸው? | 1. ስጋ፣የሆድ እቃ ስጋዎች<br>2. የዶሮስጋ 3. አሳ<br>4. ወተት / የወተት ተዋጽኦዎች<br>5. የበሰሉ ምግቦች 6. ሌላ<br>7. ሁሉም 8. መልስ የለም | |
| 24 | ተዘጋጅቶ ከቀረበ በኋላ ሳይበላ የተረፈ ምግብ ቀዝቃዛ ቦታ ውስጥ ካልቆየ በስተቀር እንደገና ለምግብነት መቅረብ የሌለበት ለምንድን ነው? | 1. በሽታ ሊያስከትል ስለሚችል<br>2. በምግቡ ውስጥ ጀርሞች በፍጥነት ተባዝተው ምግቡ ለበሽታ ስለሚያጋልጥ<br>3. ሞቅ ያለ መጠነ-ሙቀት ጀርሞች ፈጥነው እንዲራቡ ስለሚረዳ<br>4. ሌላ 5. መልስ የለም<br>6. (ከመጀመሪያዎቹ ሶስት አማራጮች ማንኛውም ትክክል ነው) | |
| 25 | ፍራፍሬዎችን ወይም ጥሬ አትክልቶችን (እንደ ጎመን፣ሰላጣ፣ ቆስጣ፣ቃርያ፣ቲማቲም ያሉትን) ከመመገባችሁ በፊት ምን ማድረግ አለባችሁ? | 1. በንጹህ ውሃ ማጠብ<br>2. ሌላ<br>3. መልስ የለም | |

## አመለካከት ወይም አስተሳሰብ: (የሚገመት ተጋላጭነትና ከባድነት)

| ተ. ቁ | ጥያቄ | የመልስ አማራጭ/ | መልስ |
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| 26 | የተበከለ ምግብ መብላት ለበሽታ ሊያጋልጥ ይችላል ብለው ያስባሉ? | 1. አላስብም<br>2. እርግጠኛ አይደለሁም<br>3. አዎ አስባለሁ (መልሱ አላስብም ከሆነ) አላስብም ያሉበትን ምክንያት ሊነግሩኝ ይችላሉ; | |
| 27 | የተበከለ ምግብ በመብላት የሚመጣ በሽታ ምን ያህል ከባድ ነው ብለው ያስባሉ? | 1. ከባድ አይደለም<br>2. እርግጠኛ አይደለሁም<br>3. ከባድ ነው<br>(መልሱ ከባድ አይደለም ከሆነ) ከባድ አይደለም ያሉበትን ምክንያት ሊነግሩኝ ይችላሉ? | |
| 28 | ስጋን፣የዶሮ ስጋን፣አሳን ወይም የበሰለ ምግብን ቀዝቃዛ ቦታ (ማቀዝቀዣ ሳጥን ወይም ፍሪጅ ውስጥ) ማስቀመጥ ምን ያህል ጥሩ ነው ብለው ያስባሉ? | 1. ጥሩ አይደለም<br>2. እርግጠኛ አይደለሁም<br>3. ጥሩ ነው<br>(መልሱ ጥሩ አይደለም ከሆነ) ጥሩ ያልሆነበትን ምክንያት ሊነግሩኝ ይችላሉ?<br>_____ | |
| 29 | እነዚህን ምግቦች ማቀዝቀዣ ሳጥን ወይም ፍሪጅ ውስጥ ማስቀመጥ ለርስዎ ምን ያህል ከባድ ነው? | 1. ከባድ አይደለም<br>2. እንደነገሩ<br>3. ከባድ ነው<br>4. መልሱ ከባድ ነው ከሆነ | |

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| | | ከባድ የሆነበትን ምክንያት ሊነግሩኝ ይችላሉ?..... | |
| 30 | ሳይበሉ የተረፉ ምግቦችን (እንደ ወጥ ያሉ) ከመብላት ወይም ለምግብነት ከማቅረብ በፊት እንደገና ማንተክተኩ ምንያህል ጥሩ ነው ብለው ያስባሉ? | 1. ጥሩ አይደለም<br>2. እርግጠኛ አይደለሁም<br>3. ጥሩ ነው (መልሱ ጥሩ አይደለም ከሆነ) ጥሩ ያልሆነበትን ምክንያት ሊነግሩኝ ይችላሉ? _____ | |
| 31 | ሳይበሉ የተረፉ ምግቦችን (እንደ ወጥ ያሉ) ከመብላት ወይም ለምግብነት ከማቅረብ በፊት እንደገና ማንተክተኩ ምንያህል አስቸጋሪ ይሆንብዎታል? | 1. ከባድ አይደለም<br>2. እንደነገሩ<br>3. ከባድነው<br>(መልሱ ከባድነው ከሆነ ከባድ የሆነበትን ምክንያት ሊነግሩኝ ይችላሉ? _____ | |
| 32 | ፍራፍሬዎችን እና አትክልቶችን በንጹህ ውሃ ማጠብ ምን ያህል ጥሩ ነው ብለው ያስባሉ? | 1.ጥሩ አይደለም<br>2. እርግጠኛ አይደለሁም<br>3. ጥሩነው<br>(መልሱ ጥሩ አይደለም ከሆነ) ጥሩ ያልሆነበትን ምክንያት ሊነግሩኝ ይችላሉ? | |
| 33 | ፍራፍሬዎችን እና አትክልቶችን በንጹህ ውሃ ማጠብ ምንያህል ይከብድዎታል? | 1. ከባድ አይደለም<br>2. እንደነገሩ<br>3.ከባድ ነው መልሱ ከባድነው ከሆነ ከባድ የሆነበትን ምክንያት ሊነግሩኝ ይችላሉ? _____ | |

## ክፍል 5፡Personal hygiene Practices (የግል ሃይጅንን በተመለከተ ልምድ)

| ተ. ቁ | ጥያቄ/ | የመልስ አማራጭ | መልስ |
|---|---|---|---|
| 34 | እጆችዎን እንዴት እንደሚታጠቡ በቅደም ተከተል ሊነግሩኝ ይችላሉ? | 1. እጆችን ሰዛን ውስጥ ባለ ውሃ ውስጥ እየነከሩ ከሌሎች ሰዎች ጋር አብሮ መታጠብ (መጥፎ ልምድ)<br>2. ሌላ ሰው ትንሽ ንጹህ ውሃ አያንቆረቆረ መታጠብ (ትክክለኛ ልምድ)<br>3. ከቧንቧ በሚወርድ ውሃ መታጠብ (ትክክለኛ ልምድ)<br>4. እጆችን በሳሙና እና ውሃ መታጠብ<br>5. ሌሎች 6. መልስ የለም | |

## Personal hygiene Knowledge (የግል ሃይጅንን በተመለከተ እውቀት)

| ተ.ቁ | ጥያቄ | የመልስአማራጭ | መልስ |
|---|---|---|---|
| 35 | አብዛኛውን ጊዜ የምግብ መመረዝ የሚፈጠረው ከዓይነ ምድር ከሚወጡ ጀርሞች ጋር ንክኪ በመፍጠር ነው ፤ከሰው ወይም እንስሳት ዓይነ - ምድር በሚመጡ ጀርሞች ምክንያት የሚፈጠር በሽታን ለመከላከል ምን ማድረግ ይችላሉ? | 1. መጸዳጃ ቤት ከተጠቀሙ ወይም የህጻን ታፋ (ቂጥ) ካጠቡ በኋላ እጅን መታጠብ<br>2. ከቤት ውስጥ እና ከአካባቢው ዓይነ-ምድርን ማስወገድ (መጸዳጀጃ ቤትን መጠቀም፣ልጆች ፖፖ ውስጥ እንዲጸዳዱ ማስተማር እና የህጻናቱን ዓይነ ምድር መጸዳጃ ቤት ጉድጓድ ውስጥ መድፋት፣ እንስሳት ላይ ያለ ዓይነ-ምድርን ማጽዳት)<br>3. ሌሎች<br>4. መልስ የለም | |
| 36 | ጀርሞች ምግብ ውስጥ እንዳይገቡ ለማድረግ | 1. መፀዳጃ ቤት ከተጠቀሙ በኋላ | |

| | | | |
|---|---|---|---|
| | እጅ መታጠብ የሚያስፈልግባቸው ወሳኝ ጊዜያት አሉ። እነዚህ ወሳኝ ጊዜያት መቼ መቼ ናቸው? | 2. የልጅን ታፋ (ቂጥ) ካጠቡ በኋላ / የልጅን የሽንት ጨርቅ ከቀየሩ በኋላ 3. ምግብ ማዘጋጀት ከመጀመር በፊት<br>4. ህጻንን ከመመገብ በፊት<br>5. ጥሬ (ያልበሰለ) ምግብ ከነኩ በኋላ<br>6. ቆሻሻ ከሰበሰቡ እና ከጣሉ በኋላ<br>7. ሌሎች<br>8. መልስ የለም | |

## Personal hygiene Attitudes (የግልሃይጅንን በተመለከተ አመለካከት ወይም አስተሳሰብ)

| ተ. ቁ | ጥያቄ | የመልስአማራጭ | መልስ |
|---|---|---|---|
| 37 | እጅዎን ባለመታጠብዎ የተነሳ ለሆድ ህመም ወይም ለተቅማጥ የመጋለጥዎ አጋጣሚ ምን ያህል ነው ብለው ያስባሉ? *ወይም*<br>እርስዎ እጅዎን ባለመታጠብዎ ምክንያት ልጅዎ በሆድ ህመም ወይም በተቅማጥ ለመታመም ያለው አጋጣሚ ምንያህል ነው ብለው ያምናሉ? | 1. የሚታመም አይመስለኝም<br>2. እርግጠኛ አይደለሁም<br>3. ሊታመም ይችላል።<br>(መልሱየሚታመም አይመስለኝም ከሆነ) የሚታመም የማይመስልዎ ምክንያት ምን እንደሆነ ሊነግሩኝ ይችላሉ? _____ | |
| 38 | እርስዎ እጅዎን ባለመታጠብዎ ምክንያት እርስዎ ወይም ልጅዎ ብትታመሙ ምን ያህል ከባድ የሚሆን ይመስልዎታል? ወይም ተቅማጥ ለጤንነትዎ ምንያህል ከባድነው ብለው ያስባሉ? *ወይም* ተቅማጥ ለልጅዎ ጤንነት ምንያህል ከባድነው ብለው ያስባሉ | 1. ከባድ አይመስለኝም<br>2. እርግጠኛ አይደለሁም<br>3.ከባድነው (መልሱ ከባድ አይደለም) ከሆነ ከባድ የማይሆንበት ምክንያት ምን እንደሆነ ሊነግሩኝ ይችላሉ? _____ | |

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|---|---|---|---|
| 39 | ምግብ ማዘጋጀት ከመጀመርዎ በፊት እጅዎን መታጠብ ምንያህል ጥሩ ነው ብለው ያስባሉ? ወይም ህጻን ከመመገብዎ ወይም ራስዎ ከመመገብዎ በፊት እጅዎን መታጠብ ምንያህል ጥሩ ነው ብለው ያስባሉ? | 1. ጥሩ አይደለም<br>2. እርግጠኛ አይደለሁም<br>3. ጥሩ ነው<br>(መልሱ ጥሩ አይደለም) ከሆነ ምክንያቱን ሊነግሩኝ ይችላሉ?<br>_____ | |
| 40 | ምግብ ማዘጋጀት ከመጀመርዎ በፊት እጅዎን መታጠብ ምንያህል ያስቸግርዎታል? ወይም ልጅዎን ከመመገብዎ በፊት ወይም ራስዎ ከመብላትዎ በፊት እጅዎን መታጠብ ምንያህል ያስቸግርዎታል? | 1. አያስቸግረኝም<br>2. እንደነገሩ<br>3. ያስቸግረኛል<br>(የሚያስቸግር) ከሆነ ለምን እንደሚያስቸግርዎት ምክንያቱን ሊነግሩኝ ይችላሉ?<br>_____ | |
| 41 | እጅዎን በአግባቡ መታጠብዎ ምንያህል በራስዎ መተማመን ይፈጥርልዎታል? | 1. አልተማመንም<br>2. በመጠኑ / እንደነገሩ<br>3. እተማመናለሁ።<br>(አልተማመንም) ካሉ በራስዎ የማይተማመኑበትን ምክንያቶች ሊነግሩኝ ይችላሉ? -------- | |

## የገላ እጥበትን በተመለከተ

42. ገላዎን በስንት ጊዜ ይታጠባሉ?

1. በቀን ከአንድ ጊዜ በላይ
2. በቀን አንድ ጊዜ
3. በሳምንት ከ አንድ ጊዜ በላይ
4. ሌላ.....
5. መልስ የለም

43. ገላዎን የሚታጠቡት የት ነው?

1.ቤት ውስጥ

2. በግል ገላ መታጠቢያ ክፍል ውስጥ

3. መጸዳጃ ቤት ውስጥ

4. ሌላ.....

5. መልስ የለም

44. በግቢዎ ውስጥ በሚገኘው ገላ መታጠቢያ ቦታ ደስተኛ ነዎት?

1. አዎ

2. አይደለሁም

3. በግቢ ውስጥ ገላ መታጠቢያ የለም

45. ደስተኛ ካልሆኑ ለምን?

1. ውሃው በቂ ሃይል የለውም

2. የመታጠቢያ ክፍሉ አቀማመጥ አይመችም

3. በቂ መከለያ የለውም

4, ሌላ.....

5.መልስ የለም

## ክፍል 6፡ Water and sanitation Practices (ውሃ እና ሳኒቴሽን ልምድ)

| ተ. ቁ | /ጥያቄ | የመልስ አማራጭ | መልስ |
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| 46 | በቤትዎ ውስጥ ለመጠጥ፣ ለማብሰያ እና እጅን ለመታጠቢያ የሚሆን ውሃ የሚያገኙት በዋነኛነት ከዬትነው? | 1. የቧንቧ ውሃ 2. ቤት ውስጥ ካለ የቧንቧ ውሃ 3.ግቢ ውስጥ ካለ የቧንቧ ውሃ<br>4. ከቦኖ ውሃ<br>5. ከጉድጓድ በቧንቧ ከሚወጣ ውሃ<br>6.ጉድጓድ ከሚጠለቅ ውሃ<br>7. ከአካባቢው ቆሻሻ እንዳይገባበት መከላከያ ካለው ጉድጓድ<br>8. ከክፍት ጉድጓድ 9. የምንጭውሃ<br>10. መከላከያ ካለው ምንጭ 11. መከላከያ ከሌለው ምንጭ | |

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| | | 12. የዝናብ ውሃ በማጠራቀም 13 ውሃ ከሚያድል የመኪና ቦቴ<br>14. የውሃ በርሜል ካለውጋሪ<br>15.የገጸ-ምድር ውሃ (ወንዝ፣ምንጭ፣ ግድብ፣ሃይቅ፣ኩሬ፣ቦይ፣የመስኖቦይ<br>16. (የታሸገ ውሃ)<br>17. ሌሎች (ዘርዝር)_____<br>18. መልስ የለም | |
| 46.1 | ለቤት ውስጥ አገልግሎት ውሃ ይቀዳሉ? | 1. መልሱ አዎ ከሆነ ወደሚቀጥለው ምርጫይ ሂዱ<br>2. መልሱ አልቀዳም ከሆነ ወደ ጥያቄ 47 ይሂዱ | |
| 46.2 | ውሃ ለመቅዳት ምን አይነት መቅጃ ይጠቀማሉ? | ---------- | |
| 46.3 | መቅጃው ንጹህ ካልሆነ መቅጃውን ንጹህ ለማድረግ የሚጠቀሙት ነገር አለ? | 1. አዎ 2. ምንም አልጠቀምም<br>3. መልስ የለኝም፡፡ (መልሱ አዎ) ከሆነ እንዴት? ----------<br>1. መቅጃውንበሳሙናእናበውሃአጥበዋለሁ<br>2. ሌላ 3. አላውቅም /መልስ የለም | |
| 47 | ውሃውን እንዴት እንደሚያጠራቅሙ ሊያብራሩልኝ ይችላሉ? | 1. ንጹህ ውሃ ማጠራቀሚያ ውስጥ<br>2. የተከደነ ውሃ ማጠራቀሚያ ውስጥ<br>3.ንጹህ እና የተከደነ ውሃ ማጠራቀሚያ ውስጥ<br>4. ሌላ 5. አላውቅም/መልስ የለም | |

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| 47.1 | የቀዱት ውሃ ለመጠጣት ጤናማ እንዲሆን የሚያክሙበት መንገድ አለ? | 1. አዎ<br>2. አይ<br>3. አላውቅም/መልስ የለም<br>መልሱ (አዎ) ከሆነ ወደ 47.2 ይሂዱ | |
| 47.2 | የቀዱት ውሃ ለመጠጥ ጤናማ እንዲሆን ብዙውን ጊዜ ምን ያደርጋሉ? | 1. ማፍላት 2. በረኪና መጨመር 3. በጨርቅ ማጥለል<br>4.የውሃ ማጣርያ መጠቀም (ሴራሚክ፣ አሸዋ፣ቅልቅል ጠጠር)<br>5. በጸሃይ 6. ቆሻሻው እስኪዘቅጥ ማስቀመጥ<br>7. ሌላ<br>8. አላውቅም /መልስ የለም | |
| 48 | ስለምግብ ደህንነትና ጥንቃቄ የጤና ኤክስቴንሽን ምክርና ትምህርት ሰጥተዎት ያውቃሉ? | 1. በወር ውስጥ የለም<br>2. 1-2 ጊዜ በወር ውስጥ<br>3. ከ 3 ጊዜ በላይ በወር ውስጥ | |

## Water and sanitation Knowledge (ውሃ እና ሳኒቴሽን እውቀት)

| ተ. ቁ | ጥያቄ | የመልስ አማራጭ | መልስ |
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| 49 | ምግብ ለመስራት ወይም ለመጠጣት የሚጠቀሙበት ውሃ ጤናማ አለመሆኑን ወይም የተቀዳበት ቦታ ጤናማ አለመሆኑን ቢያውቁ ምን ማድረግ አለብዎት? | 1.አፈላዋለሁ 2. በረኪና እጨምርበታልሁ<br>3. በጨርቅ አጠለዋለሁ<br>4. በውሃ ማጣርያ (ሴራሚክ፣አሸዋ፣ የተቀላቀለ ጠጠር) እጠቀማለሁ | |

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| | | 5. ለጸሃይ በማጋለጥ ጀርሞች እንዲሞቱ አደርጋለሁ<br>6. እስኪዘቅት አቆየዋለሁ<br>7. እደፋውና ከጤናማ ቦታ ሌላ ውሃ አመጣለሁ<br>8. ሌላ 9. መልስ የለም | |

## Water and sanitation (ውሃእና ሳኒቴሽን) Attitudes (አመለካከት ወይም አስተሳሰብ)

| ተ. ቁ | /ጥያቄ/ | /የመልስአማራጭ | መልስ |
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| 50 | ጤናማ ያልሆነ ውሃ መጠቀም ተቅማጥ ሊያመጣ እንደሚችል ምንያህል ያስባሉ? ወይም<br>ጤናማ ያልሆነ ውሃ በመጠጣት ልጅዎ በተቅማጥ ሊታመም እንደሚችል ምን ያህል ያስባሉ? | 1. አላስብም<br>2. እርግጠኛ አይደለሁም<br>3. አስባለሁ።።<br>የማያስቡ ከሆነ ተቅማጥ አያመጣም ብለው የሚያስቡበት ምክንያት ምን እንደሆነ ሊነግሩኝ ይችላሉ? | |
| 51 | ጤናማ ያልሆነ ውሃ መጠጣት የሚያስከትለው በሽታ ምን ያህል ከባድነው ብለው ያስባሉ? | 1. ከባድ አይደለም<br>2. ቀለል ያለ ነው<br>3. ከባድነው።።<br>ከባድ ካልሆነ ከባድ የማይሆንበት ምክንያት ምን እንደሆነ ሊነግሩኝ ይችላሉ? | |

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| 52 | ውሃን ለመጠጥ ወይም ለሌላ ስራ ከመዋሉ በፊት ማፍላቱ ምን ያህል ጥሩ ነው ብለው ያስባሉ? | 1. ጥሩ አይደለም<br>2. እርግጠኛ አይደለሁም<br>3.ጥሩ ነው።።<br>(ጥሩ አይደለም) ከተባለ ጥሩ ያልሆነበትን ምክንያት ሊነግሩኝ ይችላሉ? | |
| 53 | ውሃን ለመጠጥነት ወይም ለሌላ ስራ ከመጠቀምዎ በፊት ማፍላቱ ምን ያህል ያስቸግርዎታል? | 1. አያስቸግረኝም<br>2. እንደነገሩ<br>3. ያስቸግራል<br>(የሚያስቸግር) ከሆነ ለምን አስቸጋሪ እንደሆነ ምክንያቱን ሊነግሩኝ ይችላሉ? | |

## ቆሻሻ አወጋገድ

| ተ. ቁ | /ጥያቄ/ | /የመልስ አማራጭ/ |
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| 54 | ቆሻሻዎን የሚያስወግዱት የት ነው? | 1. ቤት ውስጥ በሚገኝ ፕላስቲክ መያዣ<br>2. ቤት ውስጥ በሚገኝ ቆሻሻ ማጠራቀሚያ<br>3. ወደ ውጭ በመጣል<br>4. የህዝብ ቆሻሻ ማጠራቀሚያዎች ውስጥ<br>5. ሌላ.....<br>6. መልስ የለም |
| 55 | ቤት ውስጥ በሚገኝ ፕላስቲክ መያዣ ወይም ቆሻሻ ማጠራቀሚያ የሚጠቀሙ ከሆነ ቆሻሻውን የሚጥሉት የት ነው? | (ከአንድ በላይ መምረጥ ይቻላል፤ ምርጫዎቹን ለተጠያቂ መንገር ያስፈልጋል)<br>1. ከቤቱ ፊትለፊት |

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| | | 2. በጋራ የቆሻሻ መሰብሰቢያዎች<br>3.በሰፈሩ ውስጥ ባለ ቆሻሻ ማጠራቀሚያ፡፡<br>ሌላ..... |
| 56 | በሰፈሩ ውስጥ በቂ የጋራ ቆሻሻ ማጠራቀሚያዎች አሉ ብለው ያስባሉ? | 1. አዎ<br>2. አላስብም |
| 57 | ከሰፈር ውስጥ ደረቅ ቆሻሻ በየስንት ቀኑ እንደሚወገድ ያውቃሉ? | 1. በሳምንት ከሁለት ጊዜ በላይ<br>2. በሳምንት ከአንድ ጊዜ ያነሰ<br>3. በሳምንት አንድ ጊዜ<br>4. አላውቅም |
| 58 | አንድ ሰው ከማጠራቀሚያው ውስጥ አውጥቶ ቆሻሻ ወደ ውጭ ሲያዝረከርክ ቢያዩ ምን ይሰማዎታል? | 1. የተለመደ ነው<br>2. መጥፎ ልማድ ነው<br>3. የፍሳሽ መሄጃውን ይደፍነዋል<br>4. በቂ ቆሻሻ መያዣ የለም<br>5. ለማህረሰቡ ክብር አለመኖሩ ነው<br>6. አለማወቅ (ድንቁርና) ነው<br>7. ሌላ.....<br>8. አላውቅም |
| 59 | በፍሳሽ መሄጃው አሰራር ደስተኛ ነዎት? | 1. አዎ<br>2. አይደለሁም |
| 60 | ደስተኛ ካልሆኑ ምክንያቱ ምንድን ነው? | 1. በክረምቱ ወቅት ጎርፍ ይበዛል<br>2. በበጋው ወቅት ጎርፍ አለ<br>3. መሬት ውስጥ የተሰራው ፍሳሽ ማጠራቀሚያ ሞልቶ ይፈሳል |

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| | | 4. የፍሳሽ መዒጃው ጥልቀት ያለው ስለሆነ አደገኛ ነው<br>5. ከብረት የተሰራ መከለያው ጥሩ አይደለም<br>6. ሌላ.....<br>7. አላውቅም |
| 61 | ለቆሻሻ ሰብሳቢ ገንዘብ ለመክፈል ይስማማሉ? | 1. አዎ<br>2. አልስማማም<br>3. እንደ ሁኔታው<br>4. መልስ የለም |
| 62 | የሚስማሙ ከሆነ በወር ስንት ብር..... | |
| 63 | **አስተውሎት**<br>በገላ መታጠቢያው ክፍል ውስጥ ዓይነ-ምድር እንደነበር የሚያረጋግጥ ምልክት አለ? | 1. አዎ<br>2. የለም<br>3. የገላ መታጠቢያው አይሰራም<br>4.የገላ መታጠቢያ የለም |
| 64 | መጸዳጃ ቤቱ ንፁህ ነው? | 1. አዎ<br>2. አይደለም<br>3. መጸዳጃ ቤቱ አይሰራም<br>(ንፁህ መጸዳጃ ቤት ማለት በክፍሉ ውስጥ እና በመቀመጫ ሰሃኑ ላይ ምንም ዓይነ-ምድር ወይም ቆሻሻ የማይታይበት ሲሆን በዓይነ-ምድር መሸለኪያው ጫፍ ግን የዓይነ-ምድር ቅሪት ሊኖር ይችላል።) |
| 65 | የእጅ እጥበት መገልገያዎች ሁኔታ | 1. የእጥበት መገልገያው ከመጸዳጃ ቤቱ ከአምስት ሜትር በላይ የራቀ ነው<br>2. ውሃ እና ሳሙና ይገኛል<br>3. ውሃ ብቻ የሚገኝበት |

## መፀዳጃ ቤት

66. ውጭ የሚፀዳዱ ሰዎች አይተው ያውቃሉ?

1. አዎ 2. አላየሁም 3. አላውቅም

67. አይተው ከሆነ በምን እድሜ ክልል ያሉ ሰዎችን ነው ውጭ ሲፀዳዱ ያስተዋሉት?

1. አዋቂ ሰዎች
2. ከ13 እስከ 20 ዓመት ያሉ ወጣቶች
3. ትንንሽ ልጆች

68. በግቢዎ ውስጥ ያለው መፀዳጃ ቤት ተጠቃሚው ከውጭ እንዲታይ አያደርግም ብለው ያምናሉ?

1. አዎ 2. አላምንም 3. መልስ የለም

69. በግቢዎ ውስጥ ያለው መፀዳጃ ቤት ለአደጋ አያጋልጥም ብለው ያምናሉ?

1. አዎ 2. አላምንም 3. መልስ የለም

70. በግቢዎ ውስጥ በቀላሉ ሊያፀዱት የሚችሉ መፀዳጃ ቤት አለ?

1. አዎ 2. አላምንም 3. መልስየለም

71. እድሜያቸው ከ5 አመት በታች ያሉ ልጆችዎ መፀዳዳት ሲያስፈልጋቸው የትነው የሚሄዱት?

**(ከአንድ በላይ መምረጥ ይቻላል። ምርጫዎቹን ለተጠያቂው መንገር ያስፈልጋል)**

1. ፖፖ ላይ (አሳዩኝ ማለት ያስፈልጋል)
2. ወለሉ ላይ
3. መፀዳጃ ቤት
4. ሌላ.....
5. መልስ የለም

72. ፖፖ ላይ ወይም ወለሉ ላይ ከሆነ በኋላ ዓይነ-ምድሩን የት ያደርጉታል?

**(ከአንድ በላይ መምረጥ ይቻላል፤አማራጮቹን ለተጠያቂ መንገር አይገባም)**

1. ያለው መፀዳጃ ቤትውስጥ ይደፋል
2. ያለው የገላ መታጠቢያ ውስጥ ይደፋል
3. ግቢው ውስጥ ይቀበራል
4. የቆሻሻ ማጠራቀሚያው ውስጥ ይደረጋል
5. ከሰፈር ውጭ እጥለዋልሁ
6. ሰፈር ውስጥ እጥለዋለሁ
7. ሌላ.....
8. መልስ የለም